BAYLOR BRIEFS

2014

SUBSTANTIALLY INCREASING

NON-MILITARY EXPLORATION

AND/OR DEVELOPMENT OF THE

EARTH’S OCEANS

by

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EARTH’S OCEANS

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BAYLOR BRIEFS 1

CONCEPTUAL FRAMEWORK FOR ANALYSIS

Resolved: The United States federal government should substantially increase its non-military exploration and/or

development of the Earth’s oceans.

This resolution will stimulate discussion about the wisdom of the United States increasing its exploration of theoceans, development of ocean resources, protection of ocean species, and involvement in the law of the sea. The following

paragraphs are designed to provide a brief background to the key issues involved in the exploration and development ofthe oceans.

Greenpeace International provides an interesting description of the importance of the Earth’s oceans in its 2013 report,

Oceans in the Balance: The Crisis Facing Our Waters: “Every second breath we take comes from the ocean. Billions of

people rely on our oceans for their food and for employment. In return, we are plundering the oceans of fish, choking them with

pollution and altering them forever with the impacts of human-induced climate change. Once seen as boundless, the world’s

oceans are finite and the marine life they hold can indeed be exhausted. Roughly 90% of the big fish in our oceans have been fished

out, and coral reefs are fast disappearing. Soon our oceans will be unable to recover. The 3rd United Nations Global Biodiversity

Outlook in 2010 warned that unless ‘radical and creative action’ is taken quickly, our oceans will collapse” (p. 3). The White

House Council on Environmental Quality, has also emphasized the importance of the oceans: “The importance of ocean,

coastal, and Great Lakes ecosystems cannot be overstated; simply put, we need them to survive. It is clear that theseinvaluable and life-sustaining assets are vulnerable to human activities and, at the same time, human communities arerendered more vulnerable when these resources are degraded” (Final Recommendations of the Interagency Ocean Policy

Task Force, July 19, 2010, p. 10).

The oceans are also under threat from a variety of sources including pollution, overfishing, transport of invasivespecies, and acidification resulting from increasing atmospheric levels of carbon dioxide. The United Nations Division ofOcean Affairs published a 2011 report entitled, The Politics of the Oceans, describing the impact of pollution on theEarth’s oceans: “In the United States, long stretches of beaches are often closed because of medical and other waste

washing up on shore. And every time an oil tanker is involved in an accident, the world's pulse quickens a bit in fear of amajor catastrophe. In fact, every time a tanker cleans its tanks at sea, every time a factory channels toxic residues to coastal

waters or a city conveniently releases raw sewage into the sea, every time a service station changes the oil of an

automobile and pours the waste oil into the sewers, the oceans become a little more polluted. Eventually, scientists fear,

the oceans' regenerative capacity will be overwhelmed by the amount of pollution it is subjected to by man” (p. 19).

The impact of overfishing was described by Callum Roberts, professor of marine conservation at the University ofYork, in the 2010 book, Oceans: The Threats to Our Seas: “With species loss and food web collapse comes dangerous

instability. The seas are undergoing ecological meltdown. Fishing is undermining itself by purging the oceans of species

on which it depends. But its influence is far more menacing than simply the regrettable self-destruction of an industry. The

wholesale removal of marine life and obliteration of its habitats is stripping resilience from ocean ecosystems” (pp. 223224).

The impact of invasive species on the ocean environment was described by Jacquelyn Aaron, writing in Winter 2013

issue of the Loyola Maritime Law Journal: “The introduction of invasive species into foreign environments is hailed as

one of the greatest ecological threats to the world's oceans. From the invasion of the European zebra mussel in the GreatLakes, to the unwelcomed arrival of a cholera epidemic, ballast water tanks act as vectors transporting organisms acrossoceans wreaking catastrophic havoc on unique ecosystems across the globe. Invasive species cause irreparable ecological

and economic harms such as the development of harmful algal blooms, disruption of fragile food webs, and reduction ofcommercial fishery stocks. In addition, they pose a danger to human health and wellbeing” (p. 188).

Philippe Sands, professor of law at London’s University College, warns that acidification resulting from carbondioxide emissions will devastate life in the oceans: “One of the most studied phenomena related to climate change is ocean

acidification, resulting from the absorption of carbon dioxide, which changes the naturally alkaline pH of the oceans.

Greater ocean acidification with rising levels of carbon dioxide emissions is predicted to cause particular damage to coral

reefs. Recent research indicates that the cumulative impacts of these and other stresses on oceans could lead to 'the next

globally significant extinction event' in the marine environment” (Principles of International Environmental Law, 2012, p.

343).

Yet the oceans also offer a bounty of resources. Daniel Pauly, professor at the Fisheries Center at the University of

British Columbia, describes the importance of food from the oceans: “It is essential that we rebuild fish populations asquickly as possible because the consequences of an end to fish are frightful. To some Western nations, an end to fish mightsimply seem like a culinary catastrophe, but for 400 million people in developing nations, particularly in poor African and

South Asian countries, fish are the main source of animal protein. What's more, fisheries are a major source of livelihoodfor hundreds of million of people” (Oceans: Opposing Viewpoints, 2011, pp. 53-54).

Vast amounts of oil and gas resources are also available in the oceans. Michael Klare, professor of global studies atHampshire College, describes the petroleum resources in the Gulf of Mexico: “The Gulf of Mexico has become such a

powerful magnet for deep-water development because it is thoroughly served with support infrastructure and yet remainsrelatively undeveloped. Recent exploration activity suggest that it harbors large deposits of oil and natural gas in what iscalled the Lower Tertiary trend, a formation of ancient rocks buried beneath miles of water, sand, salt, and stone. Someanalysts believe the Lower Tertiary could hold as much as 15 billion barrels of oil equivalent to half of America's proven

reserves” (The Race for What’s Left: The Global Scramble for the World’s Last Resources, 2012, pp. 45-46).

Yet there is now a growing desire to exploit the petroleum resources in the Pacific, Atlantic, and Arctic Oceans. TheAmerican Petroleum Institute estimates that if the federal government would allow oil and gas development on the

Atlantic and Pacific outer continental shelf, the U.S. could “increase domestic oil production by the equivalent of 30% of

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current imports; create more than 1 million new jobs; and generate $127 billion in new government revenue by 2020”

(2013, http://www.api.org/~/media/Files/Oil-and-Natural-Gas/Exploration/Offshore/Offshore-Access-Resources.pdf). The

resources available in the Arctic Ocean might be even more significant. Ariel Cohen, a senior research fellow at the

Heritage Foundation, describes this potential: “The oil and gas resources of the Arctic are staggering. Even partial

development of these resources would add considerable capacity to the oil market, driving prices down and facilitating

U.S. and global economic growth. The U.S. Geological Survey estimates that the Arctic could hold up to 90 billion barrels

(13 percent) of the world's undiscovered oil reserves and 47.3 trillion cubic meters (30 percent) of the world's

undiscovered natural gas” (Heritage Backgrounder, June 15, 2010, p. 10).

The Earth’s oceans also offer a bounty of renewable energy resources. Ocean tides, winds, waves, and temperature

differentials all offer alternatives to the current reliance on fossil fuels for electrical energy generation. Todd Griset,

writing in the 2011 Ocean and Coastal Law Journal, described this potential: “Oil and natural gas are not the only energyresources held by our oceans; the Earth's oceans contain vast stores of energy, much of which can be harnessed to create

usable power in the form of electricity. Beyond these hydrocarbon mineral resources, the ocean offers great potential for

the extraction of renewable energy. Analyses of the renewable energy generation potential of the oceans suggestharnessable energy far in excess of global electricity demands” (p. 396).

The U.S. federal government now has a formal policy for the management of ocean resources. Shortly after takingoffice, President Barack Obama appointed an Interagency Ocean Policy Task Force and assigned it the task of

recommending a new national policy for the stewardship of the oceans, coasts and Great Lakes. The Task Force released

an interim report in September 2009 and invited public comment. Almost 5,000 comments were received from members of

Congress, commercial fishing companies, environmental groups and ordinary citizens. The final recommendations of theTask Force were issued on July 19, 2010, calling for an ecosystem-based management approach to protecting the oceans:

The time has come for a comprehensive national policy for the stewardship of the ocean, our coasts and theGreat Lakes. Today, as never before, we better comprehend the links among land, air, fresh water, ocean, ice

and human activities. Advances in science and technology provide better and timelier information to guidedecision-making. By applying the principles of ecosystem-based management (which integrates ecological,

social, economic, commerce, health and security goals, and which recognizes both that humans are key

components of ecosystems and also that healthy ecosystems are essential to human welfare) and of adaptivemanagement (which calls for routine reassessment of management actions to allow for better informed andimproved future decisions) in a coordinated and collaborative approach, the nation will more effectively address

the challenges facing the ocean, our coasts and the Great Lakes and ensure their continued health for this andfuture generations. (Interagency Ocean Policy Task Force, 2010, p. 2)

The 94-page Task Force recommendation also proposed the creation of the National Ocean Council (NOC), a group

that would include a “who’s who” of office-holders in the Executive branch of government. NOC membership would beconstructed from 11 members of the President’s Cabinet (the only exceptions being the Secretary of Education, Secretary

of the Treasury and Housing and Urban Affairs), plus numerous deputy level positions such as the administrator of the

Environmental Protection Agency, the administrator of the National Aeronautics and Space Administration, the Director ofNational Intelligence, the Chair of the Federal Energy Regulatory Commission, the Chairman of the Joint Chiefs of Staff;

the Assistants to the President for National Security, the Secretary of Commerce for Oceans and Atmosphere (NOAA

Administrator) and such other members as the President may designate. The NOC would be co-chaired by head of theCouncil on Environmental Quality and the director of the Office of Science and Technology Policy.

On April 16, 2013, the National Ocean Council released its recommendation for implementing the President’s

National Ocean Plan. The resulting document essentially made recommendations for the various changes that would needto be made in order to proceed with coastal zoning and the implementation of ecosystem-based management of the oceans.

But Congressional action is required to bring federal legislation in line with the President’s executive order. It is not yetclear that such action will be forthcoming.

President Obama’s National Ocean Policy also calls for the U.S. to join the United Nations Convention on the Law of

the Sea (UNCLOS). This document has often been called a “constitution for the oceans,” establishing a system for

balancing the desire to extract ocean resources against the need to preserve the marine ecosystem. Even though the United

States was centrally involved in the negotiations that resulted in the preparation of the UNCLOS document, the U.S.

Senate continues to refuse to join the Treaty. President Obama is not the first U.S. president to urge ratification oraccession; the last four U.S. presidents have also done so. Furthermore, UNCLOS has the support of the U.S. Chamber of

Commerce, all major oil companies, and all major environmental groups. National Geographic Explorer, Sylvia Earle,

reports that “the United States is the only major maritime power that, despite its key role in framing the Law of the Sea, is

still not officially a party to it” (The World Is Blue, 2010, p. 210). Andrew Jensen, editor of the Alaska Journal of

Commerce, points out that “the United States is a signatory to the treaty and follows most of its provisions, but has not

ratified the treaty” (The Politics of the Oceans, 2011, p. 32).

Even without U.S. ratification, UNCLOS entered into force on November 16, 1994 because the required number of

nations had ratified it. Once the Treaty entered into force, “accession” is now the technical legal term for U.S. acceptance,

rather than “ratification.” Some opponents of UNCLOS accession claim that the U.S. is now able to gain all of the

advantages of having other nations adhere to its provisions while still preserving U.S. sovereignty. But proponents ofaccession argue that joining UNCLOS would best protect U.S. sovereignty.

Another key element of the U.S. federal government’s management of ocean resources is the Magnuson-Stevens

Fishery Conservation and Management Act (FMCA) – named for its sponsors, Warren Magnuson, senator from

Washington state, and Ted Stevens, senator from Alaska. Magnuson-Stevens created eight regional fishery managementcouncils. The councils were to be comprised of citizens “knowledgeable regarding the conservation and management, or

the commercial or recreational harvest of fishery resources,” as well as the director of each state marine fisheries agency

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and the National Marine and Fisheries Service regional administrator. The FCMA also created ten “national standards”

that would govern the regulation of fisheries. The Web site of the National Oceanic and Atmospheric Administration(NOAA) describes the ten standards:

National Standard 1: Optimum Yield: Conservation and management measures shall prevent overfishing whileachieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

National Standard 2: Scientific Information: Conservation and management measures shall be based upon the bestscientific information available.

National Standard 3: Management Units: To the extent practicable, an individual stock of fish shall be managed as a

unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

National Standard 4: Allocations: Conservation and management measures shall not discriminate between residents ofdifferent states. If it becomes necessary to allocate or assign fishing privileges among various United States

fishermen, such allocation shall be (a) fair and equitable to all such fishermen; (b) reasonably calculated to

promote conservation; and (c) carried out in such manner that no particular individual, corporation or other entityacquires an excessive share of such privilege.

National Standard 5: Efficiency: Conservation and management measures shall, where practicable, consider efficiencyin the utilization of fishery resources; except that no such measure shall have economic allocation as its sole

purpose.

National Standard 6: Variations and Contingencies: Conservation and management measures shall take into accountand allow for variations among, and contingencies in, fisheries, fishery resources and catches.

National Standard 7: Costs and Benefits: Conservation and management measures shall, where practicable, minimizecosts and avoid unnecessary duplication.

National Standard 8: Communities: Conservation and management measures shall, consistent with the conservation

requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take intoaccount the importance of fishery resources to fishing communities by utilizing economic and social data thatmeet the requirement of paragraph (2) [i.e., National Standard 2], in order to (a) provide for the sustainedparticipation of such communities and (b) to the extent practicable, minimize adverse economic impacts on suchcommunities.

National Standard 9: Bycatch: Conservation and management measures shall, to the extent practicable, (a) minimize

bycatch and (b) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

National Standard 10: Safety of Life at Sea: Conservation and management measures shall, to the extent practicable,

promote the safety of human life at sea. (NOAA Fisheries, 2013)

The Magnuson-Stevens Fishery Conservation and Management Act operates on the central assumption that the bestway to protect ocean fisheries is through a “single species” approach, where measures are applied for each of the 528

protected fish species. Kirsten Selvig, writing in the Minnesota Journal of International Law Online, writes that “The

complex food webs in the open ocean means that attempts to protect single species are unlikely to be effective” (2013, p.

35). John Boehnert, author of Zoning the Oceans: The Next Big Step in Coastal Zone Management, explains whyecosystem-based management is superior to the single species model: “Ecosystem-based management (EBM) is seen as an

important approach superior to the current system of resource management focused on particular individual species,

resources, areas or activities that fail to account for how the subject of focus may affect the sustainability of species,

resources, areas or activities that are not the subject of the focus. An EBM approach is seen as integrating ecological,

social, economic and security goals in the decision-making process” (2013, p. 107).

STRATEGY IN SELECTING AN AFFIRMATIVE CASE

The best advice is to find a problem about which you care deeply. On this topic, that problem could involve saving thewhales, promoting renewable energy from the oceans, establishing U.S. resource independence from China or the MiddleEast, avoiding conflict with Russia, among others. Debaters are always more persuasive when they are advocating a

position about which they are passionate. Before making a decision about your case, however, you should answer some of

the questions in the following paragraphs.

Does your affirmative plan clearly do what the resolution says? You should be prepared to explain how your plan“substantially increases” the federal government’s exploration and/or development of the Earth’s oceans. Consult the finalsection of this Conceptual Framework for a discussion of the various terms in the resolution.

What will be the impact of your plan on U.S. power and prestige? One of the major arguments on any recent policy

debate topic concerns U.S. hegemony. “Hegemony” refers to a situation where one nation – in this case, the United States

– is able to exercise economic and military control over large portions of the globe. Preserving or extending hegemony canbe either a good or bad thing. Defenders of U.S. hegemony argue that it helps maintain world peace. MichaelMandelbaum, director of the American Foreign Policy Program at Johns Hopkins University, and New York Times

columnist, Thomas Friedman, defend this position in their 2011 book, That Used to Be Us: How America Fell Behind in

the World It Invented: “On this matter, we mince no words: A world shaped by a strong America—strong enough to

provide political, economic, and moral leadership—will never be a perfect world, but it will be a better world than anyalternative we can envision. In fact, the United States provides to the world many of the services that governments furnishto the societies they govern. With a weakened America, one that has failed to rise to the challenges it confronts and has

therefore become less wealthy and less confident, the world will likely enjoy less governance, which will make it moredisorderly and less prosperous. In that case, everyone, not just Americans, will suffer” (p. 351). They add that, “in thisunstable world, the United States stands out as both a beacon and a supplier of stability. Americans sometimesunderestimate the importance, and the value, of American power for other countries.”

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Opponents of U.S. hegemony believe that it results in unending wars, such as the one still going on Afghanistan. Thereal purpose of the U.S. promotion of globalization, according to this view, is to preserve and advance the power of largecorporations. The project to promote globalization is often called the “neoliberal model” or the “Washington Consensus.”

Michael Parenti, a Yale Ph.D., is a long-time critic of the U.S. project to promote free trade. In his 2011 book, The Face ofImperialism, he says the neoliberal model creates an epidemic of poverty around the world: “There is a ‘mystery’ we must

explain. How is it that as trans-national corporate investments and trade with poor countries—and international aid and

loans to these same countries—have all increased dramatically over the past half century, so has world poverty? Thenumber of people living in poverty is growing at a faster rate than the world's population. In other words, poverty is

spreading among the many even as wealth accumulates among the few. As the global empire grows stronger, the world's

working populations grow larger but poorer” (p. 49). Dr. Parenti believes that the effort to expand the free trade model iscorporate robbery: “By displacing people from their lands and robbing them of their self-sufficiency, corporations create

labor markets overcrowded with desperate populations forced into shanty towns to toil for poverty wages (when they can

get work), often in violation of the country's own minimum wage laws. In various Third World countries, workers are paidpennies per hour by corporate giants such as Nike, Disney, Walmart, and J.C. Penney” (p. 54).

Will your affirmative case have short-term advantages? Many negative disadvantages will focus on political

perception or the deficit impact of increased spending. These disadvantage impacts are short-term, happening almostimmediately after the adoption of the plan. To counter such short-term disadvantages, there must be some immediate

benefits of the plan.

How would the adoption of your plan affect the public perception or political capital of President Obama? Would

adopting the plan increase or decrease the political capital at the President’s disposal? Would it increase or decrease the

President’s chances for passage of key pieces of legislation now before Congress? The “politics” disadvantage is an

argument commonly used in policy debate. Some negative teams will argue that an increase in President Obama’s political

capital is bad because it will give him the Congressional votes necessary to pass some undesirable legislation (perhaps atax increase on wealthy Americans that will devastate the U.S. economy). Other negative teams will argue that a decreasein President Obama’s political capital is bad because it will cost him the Congressional votes necessary to pass somedesirable legislation. The politics disadvantage offered in the 2014 Baylor Briefs suggests that passage of new oceanspolicy will result in a harmful outcome in the midterm elections scheduled for November 2014.

THE U.S. FEDERAL GOVERNMENT SHOULD SUBSTANTIALLY INCREASE ITS NON-MILITARY

EXPLORATION AND/OR DEVELOPMENT OF THE EARTH’S OCEANS: WHAT DOES IT MEAN?

This year's resolution contains several terms that are susceptible to various interpretations. There are, therefore, many

opportunities for topicality debates with this resolution. The most important phrase in this resolution is “development.”

Negative teams will often argue that the term “development” means to make greater use of ocean resources. According toWords and Phrases, “development relates to the management of a resource to make it available for use” (2007, p. 416).

Another definition in Words & Phrases indicates that “development” is always a subset of “use:” “A development will

always be a use, but a use may not always be a development” (Words & Phrases, 2007, p. 419). Several dictionarydefinitions indicate that “development” means to increase economic activity in a specified region – in this case, meaning

the oceans. The Longman Dictionary of Contemporary English defines “development” as “economic activity: the process

of increasing business, trade and industrial activity” (2005, p. 428). The Chambers Dictionary indicates that “to develop”

means “to exploit the natural resources of a region” (2006, p. 410). Affirmative teams proposing to save the whales (orother ocean creatures) will defend the topicality of their plans by offering a definition of “development” as used in the

context of “sustainable development.” Consider, for example, the discussion of “sustainable development” in the 2003

report of the Pew Oceans Commission: “The essence of sustainable development is using our planet’s resources as if we

plan to stay. In the long term, economic sustainability depends on ecological sustainability. We must reassess and, where

necessary, change our actions to take out no more living things than the system can reliably replace and put in no morecontaminants than the system can safely absorb. We must protect what should not be destroyed, and repair as much of the

damage as we can” (2003, p. 10)

The verb in the resolutional sentence is “increase” – the affirmative plan must propose to substantially increase the

government’s exploration and/or development of the oceans. A common definition of “increase” is “to become or makesomething larger or greater” (Cambridge Dictionary of American English, 2008, p. 441). Using such a definition, somenegative teams will argue that topical cases must propose to increase the use of ocean resources (such as drilling for oil,

mining the seabed, or promoting offshore aquaculture farming). But other definitions of “increase” call attention toimprovements in quality. The Oxford Desk Dictionary and Thesaurus defines “increase” as to “advance in quality” (2007,

p. 415). One of the affirmative cases in this volume proposes to increase the areas in the oceans to be set aside as marine

protected areas. The topicality of this case could be established if the affirmative team wins the argument that preserving

the nurseries of the oceans will improve the quality of fisheries management.

Another important limiting term in the resolution is the little pronoun, “its” – the affirmative plan must propose an

increase in the U.S. federal government’s own exploration and/or development. This allows the negative team to argue thatit is not enough for the federal government to allow more private industry development of the ocean’s resources.

There is copious evidence in the Baylor Briefs to support numerous interpretations of topicality, both on the

affirmative and negative sides. As you can see, words are almost always subject to conflicting definitions. Both affirmative

and negative debaters must, therefore, prepare themselves well with dictionary and contextual definitions to defend theirinterpretations of what the resolution means.

Good luck!!

AFFIRMATIVE CASES BAYLOR BRIEFS 5

LAW OF THE SEA: A CALL FOR U.S. ACCESSION!

The thesis of this case is that U.S. accession to the United Nations Convention on the Law of the Sea (UNCLOS) offers

many advantages including the sustainable development of ocean resources, the prevention of international conflict, and thepreservation of the ocean environment. UNCLOS has been referred to as the “constitution for the oceans.” Despite supportfor ratification or accession from past four presidents of the United States, all branches of the U.S. military, the U.S. Chamber

of Commerce, and all major environmental groups, the U.S. Senate continues to refuse accession.

Plan: The United States federal government will accede to the United Nations Convention on the Law of the Sea in order to

substantially increase U.S. development of the Earth’s oceans.

OBSERVATION:

I. THE UNITED STATES SENATE HAS REFUSED TO RATIFY THE UN CONVENTION ON THE LAW OF THE SEA

(UNCLOS).

Leon Panetta, (Former U.S. Secretary of Defense), THE LAW OF THE SEA CONVENTION, Senate Hearing, June

28, 2012, 19.

The Law of the Sea Convention is the bedrock legal instrument underpinning public order across the maritimedomain. We are the only permanent member of the U.N. Security Council that is not a party to it. This puts us at a

distinct disadvantage when it comes to disputes over maritime rights and responsibilities with the 162 parties to the

Convention, several of which are rising powers.

Yann-Huei Song, (Research Fellow, Center for Asia-Pacific Area Studies, Taipei), JOURNAL OF MARITIME

LAW & COMMERCE, Oct. 2012, 452.

Historically, although the LOS Convention is widely regarded as favorable to the United States, it has never

been ratified in the U.S. Senate. The United States is increasingly isolated in standing outside the convention. In the

eighteen years since the Convention entered into force, more than 160 nations have acceded to it. Non-ratification

has persisted despite strong support from the Clinton, Bush, and Obama presidencies, and backing from a diverse

coalition of domestic interests, including national security, industrial, and environmental groups. As one

commentator noted: "[n]o other treaty can boast that it is supported by both the American Petroleum Institute and

the World Wildlife Fund."

ADVANTAGES:

I. ACCESSION TO THE LAW OF THE SEA WILL BEST PROTECT U.S. NATIONAL SECURITY.

A. MASSIVE FEDERAL GOVERNMENT DEBT THREATENS U.S. NATIONAL SECURITY.

Glen Hubbard, (Dean, Business School, Columbia U.), NEW YORK TIMES, Aug. 12, 2013, A17.

Two years ago, Adm. Mike Mullen, at the time the chairman of the Joint Chiefs of Staff, said that debt was the

''single biggest threat to our national security'' — not some rogue nation, or terrorist group, but debt. What makes the

threat of exploding debt especially dangerous is that it's not like a faucet that can be easily turned down.

Gerald Seib, (Staff), WALL STREET JOURNAL, Feb. 2, 2010. Retrieved Apr. 16, 2014 from

http://online.wsj.com/news/articles/SB10001424052748703422904575039173633482894.

The U.S. government this year will borrow one of every three dollars it spends, with many of those funds

coming from foreign countries. That weakens America's standing and its freedom to act; strengthens China andother world powers including cash-rich oil producers; puts long-term defense spending at risk; undermines thepower of the American system as a model for developing countries; and reduces the aura of power that has been a

great intangible asset for presidents for more than a century. "We've reached a point now where there's an intimatelink between our solvency and our national security," says Richard Haass, president of the Council on Foreign

Relations and a senior national-security adviser in both the first and second Bush presidencies. "What's so

discouraging is that our domestic politics don't seem to be up to the challenge. And the whole world is watching."

B. DEVELOPMENT OF OCEAN RESOURCES HAS THE POTENTIAL TO DRAMATICALLY REDUCE THE SIZE

OF THE U.S. BUDGET DEFICIT.

1. Massive resources are available through the development of the oceans.

Mead Treadwell, (Chair, U.S. Arctic Research Commission), CHANGES IN THE ARCTIC ENVIRONMENTAND THE LAW OF THE SEA. 2010, 5.

Given the importance of the Arctic to the world, and the importance of these Arctic Ocean assets to ourcountry, why in the world has the United States not ratified the Law of the Sea treaty? We stand to gain so much

— as James Kraska, here, has told us — clear definitions of rights of passage. We stand to gain — as Maggie

Hayes has told us at the Commission — acreage in extended continental shelf greater than the size of two

Californias. We stand to gain a trillion dollars worth of natural resources.

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Ariel Cohen, (Sr. Research Fellow, Heritage Foundation), HERITAGE BACKGROUNDER NO. 2421, June 15,

2010, 10.

The oil and gas resources of the Arctic are staggering. Even partial development of these resources wouldadd considerable capacity to the oil market, driving prices down and facilitating U.S. and global economicgrowth. The U.S. Geological Survey estimates that the Arctic could hold up to 90 billion barrels (13 percent) ofthe world's undiscovered oil reserves and 47.3 trillion cubic meters (30 percent) of the world's undiscovered

natural gas.

Michael Klare, (Prof., Global Studies, Hampshire College), THE RACE FOR WHAT’S LEFT: THE GLOBAL

SCRAMBLE FOR THE WORLD’S LAST RESOURCES, 2012, 6.

Until recently very little was known about the region's hydrocarbon potential, but a few years ago the U.S.

Geological Survey undertook a systematic assessment of oil and gas reserves in the land and sea areas north ofthe Arctic Circle. The results, published in July 2008, were nothing short of astonishing: this region, which

occupies a mere 6 percent of the earth's surface, was said to account for 22 percent of the "undiscovered,

technically recoverable [oil and gas] resources in the world." This includes 13 percent of the world's

undiscovered oil reserves and 30 percent of its undiscovered natural gas — together, the equivalent of 412 billion

barrels of oil, or 56 times the current rate of U.S. annual petroleum consumption.

2. The federal government would receive trillions of dollars in royalty payments.

Adam Wilmoth, (Staff), THE OKLAHOMAN, Mar. 11, 2012, 1C.

At Friday's closing price of $107 a barrel, the United States is paying more than $230 billion a year to OPECand other countries outside of North America. Crude oil represents about two-thirds of the country's trade deficit.

"If that money were spent here, it would go to people in Ohio who are building pipelines and to vehicle

manufacturers for pickups to go to the well sites throughout the country and to American workers instead of

making some Arab sheik rich," Continental Resources' Hamm said. Domestic production also would lead totrillions of dollars in royalty payments to the federal government and to individual landowners.

C. ACCESSION TO THE LAW OF THE SEA WILL PROMOTE THE DEVELOPMENT OF OCEAN RESOURCES.

1. Energy companies will not proceed in the absence of legal certainty about ownership of resources.

Quirin Schiermeier, (Editor, Nature), GLOBAL CLIMATE CHANGE, 2013, 168.

UNCLOS allows countries to claim exclusive jurisdiction over the portions of their continental shelves thatextend beyond the 200-nautical-mile exclusive economic zones prescribed by the treaty. In the United States'

case, this means that the country would gain special rights over an extra 350,000 square miles of ocean — an

area roughly half the size of the entire Louisiana Purchase. Because the country is not a party to UNCLOS,

however, its claims to the extended continental shelf in the Beaufort and Chukchi seas (and elsewhere) cannot be

recognized by other states, and the lack of a clear legal title has discouraged private firms from exploring for oiland gas or mining the deep seabed.

Marvin Odum, (Pres., Shell Oil Co.), THE LAW OF THE SEA CONVENTION, Senate Hearing, June 28, 2012,

260-261.

Legal certainty, as would be facilitated under the Convention, is essential. Companies make multibilliondollar investment decisions based in part on confidence that the investment will not be undermined by legalchallenge. Considering that substantial investments will be required for safe and responsible exploration anddevelopment on the Extended Continental Shelf in the Arctic, we do not envision pursuing activities in theseareas unless the claims of Arctic nations, including the United States, have been approved by the ContinentalShelf Commission. Until this legal risk and uncertainty is minimized, the oil and gas resources of the ExtendedContinental Shelf in the Arctic may be considered to be stranded.

R. Bruce Josten, (Executive Vice President, U.S. Chamber of Commerce), THE LAW OF THE SEA

CONVENTION: US ACCESSION AND GLOBALIZATION, 2012, 74.

In lieu of ascension to the LOS Convention, American business is unable to obtain international recognitionof exclusive rights to mine sites that it has claimed under US law. Without being party to the Convention,

American business interests will lack the confidence that codification of law and boundaries would give them tosearch and mine for manganese nodules, which would yield commercially viable metals: manganese, iron,

nickel, cooper and cobalt.

Thomas Donohue, (CEO, U.S. Chamber of Commerce), THE LAW OF THE SEA CONVENTION, Senate

Hearing, June 28, 2012, 268.

Under the Convention, parties can secure international recognition of the limits of their Continental Shelvesby demonstrating to a body of scientific experts, the Continental Shelf Commission, that its seabed meets certain

geological criteria. Over 40 nations — including every other Arctic nation — are already taking actions to staketheir claims before this Commission. As a non-party, the U.S. is not able to stake our own claims, nor have anexpert sit on the Commission and participate in discussions affecting its interests.

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2. Ratification of the UN Convention on the Law of the Sea will provide necessary legal certainty.

John Negroponte, (Former U.S. Deputy Secretary of State), THE LAW OF THE SEA CONVENTION, SenateHearing, June 28, 2012, 179.

Similarly, our energy companies are less likely to invest the billions of dollars necessary to exploit oil and

gas reserves in the Arctic and elsewhere because of the legal uncertainty surrounding the outer limit of theUnited States Continental Shelf. The only way to give the companies the clear, internationally recognized titlethat they need before investing this type of money is to join the treaty and work through its Continental Shelf

process.

R. Bruce Josten, (Executive Vice President, U.S. Chamber of Commerce), THE LAW OF THE SEA

CONVENTION: US ACCESSION AND GLOBALIZATION, 2012, 72.

Internationally recognized rights of exclusive access and transfer of title to recovered resources and to lay

and maintain cables in the Exclusive Economic Zones (EEZ) of other states are essential before such investments

can be considered. The LOS Convention recognizes and protects these rights.

II. ACCESSION TO THE LAW OF THE SEA WILL REDUCE THE RISK OF CONFLICT BY STRENGTHENING

INTERNATIONAL LAW.

A. IN THE ABSENCE OF THE LAW OF THE SEA, THE U.S. MUST RELY ON CUSTOMARY INTERNATIONAL

LAW.

Hillary Clinton, (Former U.S. Secretary of State), THE LAW OF THE SEA CONVENTION, Senate Hearing, June

28, 2012, 14.

As a nonparty to the Convention, the United States must rely on customary international law as a legal basis for

invoking and enforcing these norms. But it is risky to assume that customary law will preserve these norms forever.

There are increasing pressures from some coastal States to augment their control over the activities of other nations'

vessels off their coasts in a manner that would alter the balance of interests struck in the Convention.

John Kerry, (U.S. Senator, Mass. & Now, U.S. Secretary of State), THE LAW OF THE SEA CONVENTION,

Senate Hearing, June 28, 2012, 10.

U.S. Armed Forces rely on the navigational rights and freedoms reflected in the Convention for worldwide

access to get to combat areas, sustain our forces during conflict, and return home safely, all without permission fromother countries. Now as a nonparty to the Convention, we have to rely on what is called customary international law

as a legal basis for invoking and enforcing these norms. But in no other situation in which our security interests are

so much at stake do we consider customary international law good enough to protect rights that are vital to the

operation of the United States military. So far, we have been fortunate. But our navigational rights and our ability tochallenge other countries' behavior should stand on the firmest and most persuasive legal footing available,

including in critical areas such as the South China Sea.

B. CUSTOMARY INTERNATIONAL LAW PROVIDES AN UNSTABLE FOUNDATION FOR AVOIDING

CONFLICTS OVER OCEAN RESOURCES.

John Bellinger, (Former Legal Adviser, U.S. Deputy Secretary of State), THE LAW OF THE SEA CONVENTION,

Senate Hearing, June 28, 2012, 186.

Reliance on customary international law to protect U.S. interests is insufficient for many reasons: First,

asserting customary international law does not give the United States important rights that are available only to

parties to the Convention. For example, the U.S. may not take our permanent seat on the Council of the International

Seabed Authority, or have a U.S. national elected to the Continental Shelf Commission, unless we are party to the

Convention. These bodies are currently making important decisions that affect our interests without our

participation. For example, the Continental Shelf Commission is reviewing the claims of Russia and other Arctic

coastal states to their Continental Shelves in the Arctic, and we have no say in its decisions. Similarly, the Councilof the ISA is adopting rules relating to deep seabed mining without U.S. input. And the U.S. may not sponsor U.S.

companies, such as Lockheed, to engage in mining on the deep seabed.

Martin Dempsey, (U.S. General & Chair, U.S. Joint Chiefs of Staff), THE LAW OF THE SEA CONVENTION,

Senate Hearing, June 28, 2012, 23.

We currently rely on customary international law and physical presence to secure global freedom of access. But

there is risk in this approach. Tradition is a shaky basis upon which to rest our national security and the protection of

our forces. Customs can be disputed, and they can change. Joining the Convention would provide legal certainty toour navigational freedoms and legitimacy to our maritime operations that customary law simply cannot. It would

affirm critical navigational freedoms and reinforce the sovereign immunity of our warships as they conduct theseoperations. These include the right of transit through international straits, the right to exercise high seas freedoms inforeign Exclusive Economic Zones, and the right of innocent passage through foreign territorial seas. TheConvention would also provide a stronger legal basis for some important activities such as stopping and boardingstateless vessels — ships often used by pirates, traffickers, and terrorists.

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C. ACCESSION TO THE LAW OF THE SEA WILL REDUCE THE RISK OF INTERNATIONAL CONFLICT.

Nanette DeRenzi, (Rear Admiral, U.S. Navy), THE LAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 95.

The only thing about UNCLOS that could hurt our national interests is remaining a non-party. Joining the Law

of the Sea Convention will lock in the rights and freedoms necessary for our Navy's success. Becoming a party willreassert, quite frankly, our rightful place as the leader in maritime law and ensure that we have a say in how that law

involves. Participating in the Convention will provide clearly defined mechanisms for peacefully confronting

excessive maritime claims. Affirming our commitment to international law will facilitate the partnerships that are so

very critical to our current operations and acceding to the Convention will provide our men and women in uniformat sea the most solid legal footing possible as they execute their missions around the globe.

Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEA CONVENTION, Senate Hearing, June 28,

2012, 25-26.

Well, look, first and foremost, there is no question that we have the strongest navy in the world. But if we aregoing to engage in gunboat diplomacy everywhere we go in order to assert our rights, then the end result of that isgoing to be conflict, and it could very well jeopardize our national security if we resort to that as our primary means

of asserting our rights, you know, sending the destroyers in, sending the carriers in, in order to do that. The betterapproach is to have those carriers, have those destroyers, make very clear the power we have. But then sit down and

engage these other countries in a rules-based format that allows us to make the kinds of arguments that we have tomake when we engage with 160 other nations as to navigational rights. I mean, that is the way we do it. We are

strong because we play by the rules, not because we go against those rules.

III. ACCESSION TO THE LAW OF THE SEA WILL BEST PROTECT THE OCEAN ENVIRONMENT.

A. POLLUTION THREATENS THE VIABILITY OF THE OCEANS.

Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting), THE ATLAS OF COASTS & OCEANS:

ECOSYSTEMS, THREATENED RESOURCES, MARINE CONSERVATION, 2011, 15.

The great world ocean, which is at the heart of the global hydrological cycle, is under stress from human

activities on land and at sea. Expanding human populations and the growth of cities along coastlines has contributed

to a rising tide of pollution in nearly all of the world's seas. Coastal urban areas dump increasing loads of untreatedor partially treated industrial and municipal wastes into the sea. In fact, waters around many coastal cities haveturned into virtual cesspools, so thick with pollution that virtually no marine life can survive. At sea, ships discharge

oily ballast waters and other wastes directly into the water.

B. THE UN CONVENTION ON THE LAW OF THE SEA BEST ADDRESSES OCEAN POLLUTION.

R. Bruce Josten, (Executive Vice President, U.S. Chamber of Commerce), THE LAW OF THE SEA

CONVENTION: US ACCESSION AND GLOBALIZATION, 2012, 74.

The Convention can be a tool to make our competitors abide by the strict environmental regulations we follow

in the United States and give us the leverage to push other countries, from the smallest developing states to China

and Russia, to protect the seas from pollution.

Philippe Sands, (Prof., Law, University College, London), PRINCIPLES OF INTERNATIONAL

ENVIRONMENTAL LAW, 2012, 352.

The contribution of UNCLOS to the progressive development of international environmental law at the generallevel cannot be overstated. The freedom of states to pollute the marine environment is no longer unconstrained and

the obligation to develop specific rules to give effect to the general obligations of UNCLOS is reinforced. Bybringing together elements which had previously been scattered among different agreements, these general

provisions of UNCLOS establish a framework for the further development of rules on substantive matters at the

global and regional levels.

Robert Papp, (Commandant, U.S. Coast Guard), THE LAW OF THE SEA CONVENTION, Senate Hearing, June

28, 2012, 105.

The Convention also provides a framework for the United States, as a coastal state, to address marine pollution

from foreign sources at the international level. The Convention's environmental provisions support the CoastGuard's strategic goal and statutory mission to enforce existing U.S. environmental laws relating to the oceans. Even

spills far offshore can have devastating impacts to the economic wellbeing of Americans whose livelihoods dependon the oceans.

Nong Hong, (Visiting Fellow, Center of Oceans Law and Policy, U. Virginia), UNCLOS AND OCEAN DISPUTE

SETTLEMENT: LAW AND POLITICS IN THE SOUTH CHINA SEA, 2012, 90.

UNCLOS set out a regime for environmental protection and preservation that applies throughout the marine

environment and covers all sources of pollution. Part XII consists of articles dealing with general provisions, globaland regional cooperation, technical assistance, monitoring and environmental assessment, international rules, and

national legislation to prevent, reduce, and control pollution of the marine environment from various sources, and

enforcement of those provisions (including safeguards). The range of environmental issues covered in UNCLOS led

Charney to proclaim, “the Convention probably contains the most comprehensive and progressive internationalenvironmental law of any modern international agreement.”

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GLOBAL WARMING: RENEWABLE ENERGY FROM THE OCEANS

The thesis of this case is that global warming threatens both the oceans and human civilization and that the United States

can significantly contribute to preventing global warming. There is a scientific consensus that the present global warming hasbeen caused by an increase in “greenhouse gases,” especially carbon dioxide, in the atmosphere. Carbon dioxide emissions

into the atmosphere come mainly from the burning of fossil fuels which are a byproduct of industrialization and economicgrowth. The world’s nations have held several international convocations which have concluded that reducing carbon dioxideemissions is the way to decrease global warming. It is essential that the United States be part of any solution to globalwarming. Continued U.S. reliance on coal-fired power plants to generate electricity is responsible for much of the U.S. shareof carbon dioxide emissions. Though onshore wind energy and solar power are beginning to make a contribution, the shiftaway from coal-fired power plants could be accelerated by utilizing the energy potential available in the oceans.

Plan: The United States federal government will institute a system of tax credits and concessional leasing for firmsinstalling renewable energy projects on environmentally-approved sections of the ocean in the U.S. exclusive economic zone(EEZ).

I. GLOBAL WARMING THREATENS THE OCEANS.

A. GLOBAL WARMING IS SIGNIFICANT AND INCREASING.

Callum Roberts, (Prof., Marine Conservation, U. of York), THE OCEAN OF LIFE: THE FATE OF MAN AND

THE SEA, 2012, 64.

The main source of carbon dioxide is the burning of fossil fuel, while methane comes from livestock (cows and

other ruminants fart endlessly), landfills, and rice paddies. It is also a by-product of warming, as trapped methane is

released by melting tundra near the poles. Just as Arrhenius predicted, temperatures have risen as we have burnedmore fossil fuels. Averaged across the globe, they have increased by 1.3°F since preindustrial times. What is

alarming is that the rate of rise has now reached 0.4°F per decade. We are on a slippery slope.

Suzanne Bonamici, (U.S. Representative, Orgeon), POLICY RELEVANT CLIMATE ISSUES IN CONTEXT,

House Hearing, Apr. 25, 2013, 11.

The reality of climate change is increasingly impossible to deny. Over the past 25 years, numerous scientists

from the United States and around the world have appeared before Congress to testify about climate change.

Countless peer-reviewed studies have shown that climate change is real and that humans are a significant

contributing factor. Now we must shift the debate to planning and discuss what actions we should take to mitigate

the environmental, economic, and health effects that will inevitably hit our communities.

Al Pope, (Staff), YUKON NEWS, May 11, 2012, 9.

In the meantime, the climate crisis has passed from a dire prediction to a present-day reality. Arctic and

Antarctic ice shelves are disappearing at an alarming rate. If this trend is not reversed, sea levels could rise by sevenmetres, flooding almost every coastal city in the world. Warming ocean temperatures are degrading coral reefs,

probably the most biodiverse habitat on the planet. Rising sea levels are destroying shoreline habitat.

CHARLESTON GAZETTE, Aug. 18, 2012, 4A.

Meanwhile, the Earth Surface Temperature Project at the University of California, Berkeley — previouslycritical of warming claims — reversed itself dramatically, saying new research fingers human activity as the culprit

in rising temperatures. Physicist Richard Muller, the project's chief, wrote a New York Times commentary that

began: "Call me a converted skeptic." He said Earth's land temperature has risen 1.5 degrees Fahrenheit in the past

half-century, and his group's research links this rise firmly to carbon dioxide from fuel-burning. "It appears likelythat essentially all of this increase results from the human emission of greenhouse gases," he wrote. His claims were

outlined in five scientific papers posted online at BerkeleyEarth.org. Ironically, his project's work previously wasfunded by the conservative Koch brothers, who often bankroll research that questions global warming.

B. GLOBAL WARMING DESTROYS CORAL REEFS

Kirstin Dow, (Prof., Geology, U. of South Carolina), THE ATLAS OF CLIMATE CHANGE: MAPPING THE

WORLD'S GREATEST CHALLENGE, 2011, 28.

Ocean temperatures, from the surface down to a depth of 700 meters, increased 0.1°C between 1961 and 2003.

Temperature is fundamental to the basic life processes of organisms. It can influence metabolic rates and population

growth of individual species and have broad repercussions on entire ecosystems. Coral reefs are particularlysensitive to temperature increases. Episodes of higher temperatures increase the frequency of coral bleaching and

mortality.

Vikram Janardhan, (CEO, Insera Energy, LLC), ENERGY EXPLAINED, Vol. 1, 2011, 122.

Coral reefs are already dying at an alarming rate. According to the UN, around 30 percent of the world's coral is

already gone and a whopping 60 percent is expected to die just in the next 20 years. The culprit? Rising seatemperatures, which have a negative impact on the algae that corals rely on for nutrients. No algae, no coral.

C. GLOBAL WARMING CAUSES SPECIES EXTINCTION.

Peter Ward, (Prof., Biology, U. Washington), THE FLOODED EARTH: OUR FUTURE IN A WORLD WITHOUT

ICE CAPS, 2010, 52-53.

If it were only a coincidence that high carbon dioxide levels accompanied the mass extinctions and high sea

levels of the past, then we might be okay despite the impending spike of CO2 to 1,000 ppm. If, however, as I argued

in Under a Green Sky, high carbon dioxide produces global warming that can occur so fast that it kills off entire

species, then we will soon witness a mass extinction.

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Mark Hertsgaard, (Journalist), HOT: LIVING THROUGH THE NEXT FIFTY YEARS ON EARTH, 2011, 61.

The living dead is the term scientists have coined for the existing specimens of coral and other species that seembound to go extinct, such as polar bears. In 2007, the Arctic experienced a record amount of summer ice melt. "Atthis rate, the Arctic Ocean could be nearly ice-free at the end of summer 2012, much faster than previouspredictions," NASA scientist Jay Zwally told the Associated Press. That scenario bodes ill for polar bears, who needice to hunt; the U.S. Geological Survey has estimated that two-thirds of the world's polar bears will be gone by

2050.

D. GLOBAL WARMING CAUSES DISASTROUS RISE OF SEA LEVELS.

Callum Roberts, (Prof., Marine Conservation, U. of York), THE OCEAN OF LIFE: THE FATE OF MAN AND

THE SEA, 2012, 93.

New research from the ice caps of Greenland and Antarctica suggest that we are close to, and perhaps past, a

tipping point for the rapid melt of land-based ice, which will become the major source of sea-level rise in future. If

the Greenland ice sheets were to thaw in their entirety, they would add twenty feet to the height of global seas andtrigger mass human exodus from low-lying coasts and cities. The thaw of the West Antarctic Ice Sheet would add

another ten feet. A twenty-foot rise would wipe out most of Florida from just north of Miami. It would obliterate the

Mississippi delta and drown a third of New York City. It would flood much of London and Hamburg and turn Lagosinto a lagoon and Bangladesh into a swamp.

Rob Young, (Dir., Program for the Study of Developed Shorelines, Western Carolina U.), OCEANS: OPPOSING

VIEWPOINTS, 2011, 24-25.

The ramifications of a major sea level rise are massive. Agriculture will be disrupted, water supplies will besalinized, storms and flood waters will reach ever further inland, and millions of environmental refugees will becreate — 15 million people live at or below three feet elevation in Bangladesh, for example. Governments,

especially those in the developing world, will be disrupted, creating political instability.

Callum Roberts, (Prof., Marine Conservation, U. of York), THE OCEAN OF LIFE: THE FATE OF MAN AND

THE SEA, 2012, 95.

According to recent estimates, even the more modest sea-level rise predicted by the IPCC, a rise of up to

twenty-four inches by 2100, could displace hundreds of millions of people and inundate four hundred thousandsquare miles of the world's agricultural land and coastal cities. Ten percent of the world population lives near coasts

on land less than thirty-three feet above the present sea level. Eleven of the world's sixteen megacities, each home to

more than fifteen million people, are built on coasts or estuaries: Tokyo, Guangzhou, Shanghai, Mumbai, New

York, Manila, Jakarta, Los Angeles, Karachi, Osaka, and Kolkata.

E. GLOBAL WARMING INCREASES THE SEVERITY OF NATURAL DISASTERS, INCLUDING TYPHOONS

AND HURRICANES.

Mark Hertsgaard, (Journalist), HOT: LIVING THROUGH THE NEXT FIFTY YEARS ON EARTH, 2011, 53.

Major disasters have already been trending upward for nearly two decades, according to data collected by theMunich Reinsurance Company, one of the world's leading reinsurance companies. (Reinsurance companies insureretail insurance companies; they were the first part of the business community to sound the alarm on climate change,

in the mid-1990s.) John Holmes, the UN's coordinator of emergency disaster relief, reported that fourteen of the

fifteen major relief operations that his team mounted in 2007 were in response to floods, storms, and other climate-

related events.

Brian Fagan, (Prof., Anthropology, U. California, Santa Barbara), THE ATTACKING OCEAN: THE PAST,

PRESENT, AND FUTURE OF RISING SEA LEVELS, 2013, 230.

With more severe storms and extreme weather events projected for the future, even a few centimeters make aprofound difference between the once-a-decade flood and a hundred-year storm surge. Of course, flood levels will

reach different levels in individual locations and on diverse timelines. For example, the US Gulf Coast experiencesmore major storms and accompanying storm surges than other portions of the North American shoreline.

II. UNITED STATES POLICY FAILS TO UTILIZE THE POTENTIAL OF OFFSHORE RENEWABLE ENERGY.

A. FEDERAL LEASING POLICIES CURRENTLY DISCOURAGE OFFSHORE RENEWABLE ENERGY.

Thomas Jensen, (Washington, D.C. Attorney), PUBLIC LAND & RESOURCES LAW REVIEW, 2013, 140.

DOI [Department of the Interior] has opted to collect fees and royalties based in part on the competitive prices

of other grid supplies, which reflects fairness in one sense. But royalty payments and fees are unquestionably animpediment to development of the new industry, which could help the nation greatly trim its greenhouse gas

emissions and reduce the risks of climate change. Fairness has a different aspect seen from this different,

intergenerational perspective. The degree of impediment will vary with the price of competitive energy options

onshore, and other factors affecting project finances, but fees and royalties inherently make ocean wind moreexpensive, less competitive, and less attractive to investors. Whatever theoretical importance ocean wind royalty

collections may have as a federal fiscal prerogative, their actual function today is to frustrate a top policy objective

of the same sovereign.

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B. CONFUSING REGULATORY REQUIREMENTS DISCOURAGE OFFSHORE RENEWABLE ENERGY.

Todd Griset, (Attorney, Preti Flaherty Energy and Telecommunication Group), OCEAN AND COASTAL LAW

JOURNAL, 2011, 433.

As noted above, a host of other federal agencies retain authority to regulate various aspects of renewable ocean

energy projects. The nation's regulatory program for ocean energy projects thus lacks a single "one-stop shop"

approach for project licensure, site leasing, and other required permitting. Project developers must not only obtainpermits from a variety of federal and state entities, but moreover face uncertainty as to which permits may berequired. The net impact of this regulatory patchwork is to place a chilling effect on the comprehensive developmentof the nation's renewable ocean energy resources.

Todd Griset, (Attorney, Preti Flaherty Energy and Telecommunication Group), OCEAN AND COASTAL LAW

JOURNAL, 2011, 414-415.

To further complicate permitting procedures for renewable ocean energy projects, other federal agencies retain

some regulatory authority that may affect developers of such projects in certain circumstances. These entitiesinclude the Environmental Protection Agency, Fish and Wildlife Service, National Park Service, NOAA's NationalMarine Fisheries Service, Federal Aviation Administration, Department of Defense, and United States Coast Guard.

For example, the Marine Mammal Protection Act of 1972 gives the Fish and Wildlife Service and National MarineFisheries Service authority to prohibit the taking of marine mammals in United States waters, or by United States

citizens on the high seas. Similarly, the Magnuson-Stevens Fishery Conservation and Management Act requires

federal agencies to engage in consultation with the National Marine Fisheries Service before undertaking any federal

actions (such as issuing a license or lease) that may adversely effect essential fish habitat. While such agencies may

not play a major role in project licensure, developers must ascertain which permits must be obtained for their givenproject location and technology. Federal regulation of renewable ocean energy projects thus involves a complicated

array of agencies and regulatory programs, increasing developers' regulatory risks and costs, and placing a chillingeffect on the comprehensive development of the nation's renewable ocean energy resources.

III. OFFSHORE RENEWABLE ENERGY DEVELOPMENT BEST MITIGATES CLIMATE CHANGE.

A. CURRENT U.S. RELIANCE ON COAL-FIRED POWER PLANTS FOR ELECTRICAL ENERGY GENERATION

CONTRIBUTES SIGNIFICANTLY TO CLIMATE CHANGE.

Mark Clayton, (Staff), CHRISTIAN SCIENCE MONITOR, Sept. 20, 2013. Retrieved Apr. 16, 2014 from Nexis.

Power plants today are the largest concentrated source of emissions in the United States, together accounting formore than one-third of all domestic greenhouse gas emissions. The typical coal-fired power plant emits around 3.5million tons of CO2 to the atmosphere annually, with the US fleet venting about 2.3 billion tons of heat-trappingcarbon dioxide gas into the atmosphere each year.

USA TODAY, June 28, 2013, 10A.

But the time for delicately dancing around the subject of coal's contribution to climate change is over. The

highly polluting fuel is the low hanging fruit in any plan to combat climate change. It produces about twice as much

carbon dioxide per unit of energy as natural gas (and massively more than nuclear, wind and solar).

Al Pope, (Staff), YUKON NEWS, May 11, 2012, 9.

But it is in the area of greenhouse gas emissions that coal shows its darkest side. By far the world's worst

emitter of CO2, coal is impossible to burn cleanly. Even with the use of scrubbers, coal still comes out dirtier than

any other fuel, and talk of carbon storage is still just talk; nobody has yet proven that it can work.

B. OFFSHORE RENEWABLE ENERGY GENERATION CAN REPLACE THE CURRENT RELIANCE ON COALFIRED

POWER PLANTS.

1. Offshore renewable energy has the potential to replace traditional power plant electrical generation.

Thomas Jensen, (Washington, D.C. Attorney), PUBLIC LAND & RESOURCES LAW REVIEW, 2013, 98.

The ocean wind resource in United States marine waters is estimated to be as large as 4,223 gigawatts("GW"), with as many as 1,372 terawatt hours of electricity available off the East Coast alone. The low estimateof the resource is roughly four times the generating capacity of the current United States electric grid.

Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting), THE ATLAS OF COASTS & OCEANS:

ECOSYSTEMS, THREATENED RESOURCES, MARINE CONSERVATION, 2011, 60.

The world's oceans are vast and so is their potential to generate power from tides, waves, and temperature

gradients. According to the European Energy Association the global potential of energy from the oceans isaround 100,000 TWh (terawatt hours) per year; dwarfing total world electricity consumption, which in 2009stood at about 16,000 TWh a year.

Matt MacDonald, (Consultant, International Energy Agency), OFFSHORE RENEWABLE ENERGY:

ACCELERATING THE DEPLOYMENT OF OFFSHORE WIND, TIDAL, AND WAVE TECHNOLOGIES,

2012, 123.

The world's marine areas represent a potentially huge, and currently largely unexploited, resource for

renewable energy generation to service the world's increasing need for a source of clean reliable power.

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2. Offshore wind energy development has greater potential than onshore projects.

Callum Roberts, (Prof., Marine Conservation, U. of York), THE OCEAN OF LIFE: THE FATE OF MAN ANDTHE SEA, 2012, 274.

Hydropower and wind have long provided us with energy, but there are severe constraints to their expansion

on land. Most major rivers have been dammed, at least in the developed world, and new megadam projects arehighly controversial because of the harm they cause to people and the environment. Wind farms are sproutingaround us but are often bitterly opposed by those who feel they disfigure the landscape. The restless sea, outthere and once offshore not in anyone's back yard, offers a less obtrusive world of opportunity. Because the sea is

pretty much flat and covers 71 percent of the planet, nearly 90 percent of the world's wind energy is offshore.

3. Pursuit of ocean renewable energy can slow climate change.

Thomas Jensen, (Washington, D.C. Attorney), PUBLIC LAND & RESOURCES LAW REVIEW, 2013, 98.

Ocean wind is a green energy asset owned by the American people. It is an energy source for the country

that will be available forever. It can be found in undeveloped areas near almost all coastal urban centers. It is of a

potential scale that dwarfs most other alternatives, and is big enough to shrink the United States' carbon footprint

toward fitting even the most constrictive greenhouse gas policy.

Subramaniam Neelamani, (Coastal Management Program, Kuwait Institute for Scientific Research), ON A

SUSTAINABLE FUTURE OF EARTH’S NATURAL RESOURCES, 2013, 307-308.

Reducing the impact of climate change on various issues like sea level rise, ozone depletion, more frequent

hurricanes, ocean acidification, severe rainfall and droughts etc., has become a daunting task of all the countries

all over the World. It is possible, only if the greenhouse gas emission is reduced significantly. Hence it isurgently needed to move towards green power from natural renewable resources like solar, wind, ocean etc.

Ocean is one of the pollution free and inexhaustible sources of energy. The R&D is in progress around the World

for the development of technically feasible and economically viable methods to convert the various sources of

ocean energy into usable form of energies.

Sylvia Earle, (National Geographic Explorer in Residence), THE WORLD IS BLUE: HOW OUR FATE AND

OCEANS ARE ONE, 2010, 180.

Robert Socolow, a professor of engineering, and Stephen Pacala, an ecology professor, both from Princeton

University, say, "Humanity can solve the carbon and climate problem in the first half of this century simply byscaling up what we already know how to do." To meet the goal of maintaining something close to present levelsof atmospheric carbon as populations and industry grow requires reducing carbon emissions by one billion tonsby 2055.

4. Federal subsidies will speed the development of ocean renewable energy projects.

Thomas Jensen, (Washington, D.C. Attorney), PUBLIC LAND & RESOURCES LAW REVIEW, 2013, 101.

European countries have installed more than 1,662 offshore wind turbines in marine areas. Japan is planningto build the world's largest offshore wind farm with 143 turbines. China has announced plans to have 5 millionkilowatts of offshore wind capacity by 2015. Those countries have relied heavily on financial subsidy programsto encourage ocean wind, and some, particularly those in heavily populated northern Europe, have far lessonshore territory for wind projects than the United States, making offshore development more immediately

attractive as a development option.

Thomas Jensen, (Washington, D.C. Attorney), PUBLIC LAND & RESOURCES LAW REVIEW, 2013, 104.

The United States marine waters are by far the nation's largest area of public lands. An area fifteen timeslarger than all the national forests, and seventeen times bigger than Texas, United States marine waters and

submerged lands can be seen as this century's great wide open frontier — particularly with respect to therenewable energy potential. In many ways, United States policymakers stand today where earlier generations of

leaders stood when deciding what our country would do with the land beyond the Alleghenies, with the OhioCountry, Louisiana Purchase, Oregon Territory, California, the Southwest, Alaska, and the Pacific territories.

One way or another, the lands had come under the flag of the United States. They had resources in demand here

and around the world. American citizens and others were willing to take great risks to go to those places and

develop those resources.

5. Ocean renewable energy development will not harm the ocean environment.

Thomas Jensen, (Washington, D.C. Attorney), PUBLIC LAND & RESOURCES LAW REVIEW, 2013, 137.

Ocean wind energy projects are "development" in undeveloped areas, but it is likely that some

characteristics of wind projects will have positive direct consequences for marine ecosystems, such as providing

cover for juvenile fish or structure for growth of beneficial marine plants.

Callum Roberts, (Prof., Marine Conservation, U. of York), THE OCEAN OF LIFE: THE FATE OF MAN ANDTHE SEA, 2012, 275.

Plans are forging ahead for wind farms in U.S. waters with the first likely to be a 130-turbine farm inNantucket Sound. As in many countries, the U.S. path to offshore windpower has not been without controversy.

Critics contend that wind farms are bad for wildlife, such as birds that fly into the turbines. However, the

evidence from Holland, where offshore wind farms have been in use since 2006, points the other way. Turbinefootings created new habitat for creatures like mussels, anemones, and hydroids, and shelter for schools of fish.

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EXPLORATION: TO BOLDLY GO WHERE FEW HAVE GONE BEFORE

The thesis of this case is that an increased commitment to basic ocean science is a prerequisite for finding solutions to

almost all problems facing the oceans. A better understanding of the role of the oceans in moderating global warming isnecessary to guide climate change policy as well as to address the harms of ocean acidification. Fisheries management ishampered at present because of an inadequate commitment to the understanding of whole ocean ecosystems. Propermaintenance of ocean sensing devices is essential to protect coastal regions from the devastation of tsunamis. A key reason

for the current inattention to ocean science is the fact that the U.S. federal government currently has no agency dedicated to

the task of ocean exploration. The creation and proper funding of the Ocean Science and Exploration Agency (OSEA) wouldcorrect the current inattention to basic ocean science.

Plan: The United States federal government will create within the U.S. Commerce Department the Ocean Science and

Exploration Agency (OSEA) with a directive to implement the ocean exploration priorities as outlined by the OceanExploration Forum; funding for the OSEA will be guaranteed at a minimum annual level of $250 million – a ten-foldincrease from current levels.

I. THE UNITED STATES FEDERAL GOVERNMENT’S COMMITMENT TO OCEAN EXPLORATION IS WOEFULLY

INADEQUATE.

A. THE OCEANS ARE VITAL TO SUSTAINING ALL LIFE ON EARTH.

White House Council on Environmental Quality, FINAL RECOMMENDATIONS OF THE INTERAGENCY

OCEAN POLICY TASK FORCE, July 19, 2010, 10.

The ocean shapes and sustains all life on Earth. We are dependent on the ocean for the air we breathe, the food

we eat, and the water we drink. Though we may not think about it, processes on land and in the water, including

biological processes, are intricately linked so that changes in one can have profound effects on the other. The oceanis both the beginning and the end of the Earth's water cycle. Water that evaporates from the surface of the ocean

becomes rain that falls on our fields and fills our aquifers. Much of this precipitation eventually finds rivers which

flow back to the sea, starting the cycle once more. Half of the oxygen we breathe comes from microscopic plantsliving in the ocean. Coastal barrier islands, coral reefs, mangroves, and wetlands serve as buffers between coastalcommunities and damaging floods and storms. Coastal wetlands are a nursery for many recreational and commercialfish species, provide essential habitat for many migratory birds and mammals, and serve as a natural filter helping to

keep our waters clean. Ocean and coastal ecosystems absorb and detoxify many pollutants, recycle nutrients, andhelp control pests and pathogens. Marine ecosystems house biological diversity exceeding that found in the world'srain forests.

Manuel Barange, (Scientist, Plymouth Marine Laboratory), MARINE ECOSYSTEMS AND GLOBAL CHANGE,

2010, 2.

The ocean is one of the major components of the earth system, providing 99% of the available living space on

the planet. Water is essential to our existence, having secured life from the time of the primeval soup. It has beenestimated that 80% of all life on earth depends on healthy oceans and coasts and more than a third of the world's

population lives in coastal areas and small islands, even though they amount to less than 4% of the earth's land.

Carl-Christian Schmidt, (Head of the Fisheries Policy Division, Organization for Economic Development and

Cooperation), THE OCEAN AS A GLOBAL SYSTEM, 2013, 126.

The oceans provide far-ranging eco-system services; and this capacity is recognized in United Nations "WorldOceans Day". One of these services is that of the "lungs" of the climate system. Oceans produce oxygen, enabling

humans and other mammals to breathe, and "digest" CO2. They are a major thermal factor regulating temperature

and rainfall. They influence the weather and therefore have an impact on agricultural activities, with implications for

food security and bio-diversity. These services are crucial to human survival.

Richard Oppenlander, (Environmentalist), COMFORTABLY UNAWARE: WHAT WE CHOOSE TO EAT IS

KILLING US, 2012, 47.

Our oceans are highly complex and dynamic systems, all interconnected to each other and vital to all living

things on earth. The core of these vital systems and environmental mechanisms is living marine biodiversity itself.

B. THE U.S. FEDERAL GOVERNMENT ASSIGNS A LOW PRIORITY TO STUDYING THE OCEANS.

David Helvarg, (Dir., Blue Frontier), LOS ANGELES TIMES, Apr. 1, 2014, A11.

Our investment in ocean exploration, monitoring and law enforcement efforts is at a 20-year low in the United

States and not much better elsewhere. Our chances of quickly finding the missing Malaysian flight would have been

improved if we had invested more money and effort on our planet's last great commons, with observational tools

such as in-situ labs and wired benthic observatories, remote and autonomous underwater vehicles and gliders,

forward-looking infrared cameras and multi-beam shipboard, airborne (and space-deployed) scanning systems, and

other smart but woefully underfunded sea technologies. The fact remains that while hundreds of people have goneinto space, only three humans have ventured to the lowest point on our planet seven miles down in the MarianaTrench, and the latest of these — filmmaker explorer engineer James Cameron — had to self-fund his 2012 mission.

Meanwhile, when it comes to exploring the cosmos, NASA — even in its diminished state — outspends NOAA'socean exploration program roughly 1,000 to 1.

AFFIRMATIVE CASES BAYLOR BRIEFS 14

Michael Conathan, (Dir., Ocean Policy, Center for American Progress), SPACE EXPLORATION DOLLARS

DWARF OCEAN SPENDING, June 18, 2013. Retrieved Apr. 2, 2014 from http://www.americanprogress.org/

issues/green/news/2013/06/18/66956/rockets-top-submarines-space-exploration-dollars-dwarf-ocean-spending/.

In fiscal year 2013 NASA’s annual exploration budget was roughly $3.8 billion. That same year, total fundingfor everything NOAA does — fishery management, weather and climate forecasting, ocean research and

management, among many other programs — was about $5 billion, and NOAA’s Office of Exploration and

Research received just $23.7 million. Something is wrong with this picture.

II. INATTENTION TO BASIC SCIENCE UNDERMINES ALMOST EVERY ASPECT OF U.S. OCEAN POLICY.

A. INATTENTION TO BASIC OCEAN SCIENCE UNDERMINES A PROPER RESPONSE TO CLIMATE CHANGE.

1. Climate change threatens the future of life on Earth.

James Lovelock, (Prof., Chemistry, Oxford U.), THE VANISHING FACE OF GAIA: A FINAL WARNING,

2010, 6.

I am not a willing Cassandra and in the past have been publicly skeptical about doom stories, but this timewe do have to take seriously the possibility that global heating may all but eliminate people from the Earth.

James Lovelock, (Prof., Chemistry, Oxford U.), THE VANISHING FACE OF GAIA: A FINAL WARNING,

2010, 33.

We have enjoyed twelve thousand years of climate peace since the last shift from the glacial age to aninterglacial one. Before long, we may face planetwide devastation worse even than unrestricted nuclear warbetween superpowers. The climate war could kill nearly all of us and leave the few survivors living a Stone Age

existence.

Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE EDGE: HOW TO PREVENT

ENVIRONMENTAL AND ECONOMIC COLLAPSE, 2011, 55.

We know from studying earlier civilizations that declined and collapsed that shrinking harvests often were

responsible. For the Sumerians, it was rising salt concentrations in the soil that lowered wheat and barley yieldsand eventually brought down this remarkable early civilization. For us, it is rising carbon dioxide concentrationsin the atmosphere that are raising the global temperature, which ultimately could shrink grain harvests and bring

down our global civilization.

2. The oceans may play a vital role in moderating climate change.

David Blockstein, (Sr. Scientist, National Council for Science and the Environment), CLIMATE SOLUTIONS

CONSENSUS, 2010, 78.

A higher level of carbon dioxide in the atmosphere above the ocean means more carbon dioxide enters theocean. The ocean currently absorbs an average of about 1 metric ton of carbon dioxide produced by each person

every year. As a point of comparison, in the United States the average per capita production of carbon dioxide is20 metric tons per year. As Jean-Pierre Gattuso reports, "It is estimated that the surface waters of the oceans have

taken up over 500 thousand million metric ton of carbon dioxide (500 Gt CO2), about half of all that generated

by human activities since 1800."

3. At present, we understand too little about the interactions between the oceans and climate change.

National Science and Technology Council, SCIENCE FOR AN OCEAN NATION: UPDATE OF THE OCEANRESEARCH PRIORITIES PLAN, 2013, 41.

Ocean circulation dynamics cause uneven and relatively unknown geographical variation, with sea level

rising and falling at different locations. In addition to the obvious threat from episodic events (e.g., storm surges,

coastal flooding), low-lying coastal regions are particularly impacted by gradual sea-level rise. A more completeunderstanding of how changing sea level impacts coastal communities and ecosystems is needed at regional,

state, and local levels. The importance of this understanding is increasing as the already large fraction of theworld’s population living in coastal regions continues to grow. Given the particular vulnerability of coastal

residents of developing countries, climate-change-induced sea-level rise is an issue with enormous potential forhuman impact and thus has implications for both humanitarian and national security concerns.

B. INATTENTION TO BASIC OCEAN SCIENCE UNDERMINES FISHERIES REGULATION.

1. Overfishing is a major problem.

Sylvia Earle, (National Geographic Explorer in Residence), OCEANS: THE THREATS TO OUR SEAS, 2010,

13.

Ironically, since the 1950s, new technologies and growing industrial demands for marine life, oil, gas, andminerals have caused unprecedented "plundering" that more than matches human impacts on the land. Hundredsof millions of tons of ocean wildlife have been extracted from the sea, including 90 percent of most large fishand many small species as well.

AFFIRMATIVE CASES BAYLOR BRIEFS 15

Callum Roberts, (Prof., Marine Conservation, U. of York), THE OCEAN OF LIFE: THE FATE OF MAN ANDTHE SEA, 2012, 57.

The fishing industry has been dependent on a constant input of new capital. Whenever fish began to run out,

fishers moved on or switched to other species. Over time fisheries have eaten up their capital stocks rather thanlived within the limits of annual production. But fisheries are now failing because, like in a Ponzi scheme, they

are running out of new capital. We now hunt fish to the farthest limits of the oceans, and to depths whereproductivity slows to a trickle. There is nowhere else to go and few species worth eating remain untouched by

fishing.

2. Fisheries management is plagued by the present inattention to accurate stock assessments.

Jason Link, (Fisheries Biologist, National Marine Fisheries Service), ECOSYSTEM-BASED FISHERIES

MANAGEMENT: CONFRONTING TRADEOFFS, 2010, 88.

Hilborn and Mangel note the difficulties in estimating the abundance of LMR [living marine resources] inthe ocean, likening it to sampling small mammals in a field or forest from a helicopter by towing a butterfly net.

The point here is that our surveying, sampling, and monitoring efforts are foundational in being able to assess the

status of LMR, yet they have some inherent uncertainties. Entire tomes have been dedicated to that topic and I

won't repeat the details here. Suffice it to say that at the most basic level, we need a decent set of fisheries-

independent and fisheries-dependent sampling in order to do either classical SS [single-species] fisheries

management or EBFM. The call for enhanced global ocean observing systems should be one that is fully

supported and engaged in by the fisheries community.

National Science and Technology Council, SCIENCE FOR AN OCEAN NATION: UPDATE OF THE OCEANRESEARCH PRIORITIES PLAN, 2013, 18.

The National Ocean Policy identifies ecosystem-based management (EBM) as crucial to stewardship of theNation’s ocean, coastal, coastal watershed, and Great Lakes resources. Compared to conventional resourcemanagement, EBM takes a more comprehensive, holistic approach. The key to success of an EBM approach isaccurate assessment of the current condition of natural and cultural resources over various spatial and temporalscales, in the context of changing stresses. This ability and knowledge will provide the foundation for

understanding the complex relationships between humans and living and non-living resources.

3. Increased exploration will play a vital role in saving ocean fisheries.

National Science and Technology Council, SCIENCE FOR AN OCEAN NATION: UPDATE OF THE OCEANRESEARCH PRIORITIES PLAN, 2013, 20.

Developing and implementing these tools and capabilities in a systematic, proactive manner will not onlyimprove the protection of resources, but may be more cost-effective compared to reactive and curative responsesafter disturbances or losses have already occurred. For example, consider the tremendous expense and economicdislocation associated with rebuilding depleted fish populations. Improved assessments will not only increase our

capability to proactively reduce these costs, but also increase understanding of and our ability to minimize thesecondary effects of harvesting, such as fisheries-induced changes to genetic diversity and population structure,

loss of biodiversity, and bycatch of non-target species.

C. INATTENTION TO BASIC OCEAN SCIENCE UNDERMINES A PROPER RESPONSE TO TSUNAMIS.

1. Tsunamis are responsible for killing thousands of people.

Margaret Munro, (Staff, PostMedia News), EDMONTON JOURNAL, Mar. 11, 2012, B2.

More than 16,000 people in Japan died in the aftermath of the magnitude 9 earthquake, most of them from

the tsunami that rolled ashore, sweeping away cars, trucks and boats. Waves surged into homes and reduced

communities to rubble.

2. Tsunamis represent a significant threat to the United States

THE NEW ZEALAND HERALD, Oct. 4, 2010. Retrieved Apr. 16, 2014 from Nexis.

A detection system that was expanded after the Indian Ocean tsunami that killed 230,000 people has

experienced significant outages and can no longer be relied on, a new report finds. The system, known as Dart,

or Deep-ocean Assessment and Reporting of Tsunamis, was expanded from six deep-ocean buoy stations to 39 inthe months after the huge 2004 earthquake off Indonesia that spawned killer waves which reached as far as theeast coast of Africa. Though there are Dart buoys in the Atlantic and the Caribbean, most of them are located

around the Pacific Ocean's "Ring of Fire" to give advance warning to Washington, Oregon, California and

Alaska, where a tsunami landfall is thought more likely.

Margaret Munro, (Staff, PostMedia News), EDMONTON JOURNAL, Mar. 11, 2012, B2.

Scientists say the strain is building again beneath the sea floor as enormous tectonic plates push against each

other about 100 kilometres offshore. A monster earthquake rivalling the one that devastated Japan last March isall but a certainly on North America's Pacific coast, they warn. No one can say when it will occur, but when itdoes a huge and powerful wall of water could hit the outer coast within 30 to 45 minutes.

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3. The Obama administration is cutting funding for Deep-ocean Assessment and Reporting of Tsunamis (DART).

Paul Rogers, (Staff), CONTRA COSTA TIMES, Feb. 27, 2012. Retrieved Apr. 16, 2014 from Nexis.

Less than a year after surging waves from a Japanese earthquake battered the California coast, causing $58

million in damage and wrecking the Santa Cruz and Crescent City harbors, the Obama administration is movingto reduce funding for the nation's tsunami warning and preparedness programs. The White House's proposed2013 budget would cut $4.6 million from NOAA, the National Oceanic and Atmospheric Administration, fortsunami programs that were expanded after the 2004 Indian Ocean tsunami that killed at least 230,000 people.

Among the proposed cuts: a reduction of $1 million for America's network of 39 high-tech buoys in the Pacific

and Atlantic oceans. The buoys confirm if tsunamis are heading toward the U.S. and provide crucial details such

as the height of the waves and when they'll hit land. Some of the nation's top tsunami scientists say the proposedcuts are too risky. "Given how little money it is and the concerns about human life, this is a poor place to cut,"

said John Orcutt, a professor of geophysics at the Scripps Institution of Oceanography in La Jolla.

Paul Rogers, (Staff), CONTRA COSTA TIMES, Feb. 27, 2012. Retrieved Apr. 16, 2014 from Nexis.

"This is like a homeowner trying to economize by disconnecting the smoke detector," said Jeff Ruch,

president of Public Employees for Environmental Responsibility, a nonprofit group that has raised the issue. The

buoy program, created in 1996, is of particular note. Congress expanded it from six buoys to 39 after the 2004Indian Ocean tsunami. The buoys, which cost about $400,000 each, are tethered to the ocean floor. Theymeasure water pressure changes and seafloor movement, and send instant details about tsunamis to satellites. Thedata is used by NOAA's tsunami warning centers in Honolulu and Alaska to fine-tune tsunami alerts. On March11, after the magnitude 9.0 earthquake off Japan, the buoys helped provide precise predictions — to the

centimeter — of the size of the waves, along with direction and arrival time on the West Coast. Because of the

data, areas were evacuated, including the Santa Cruz waterfront. Today, however, 10 of the 39 buoys are

inoperable, and that number could climb if $1 million is cut from the $11 million annual budget to operate thebuoy system.

4. Proper maintenance of the DART system is vital.

Donna Leinwand, (Staff), USA TODAY, Mar. 1, 2010, 7A.

Three hours after an earthquake struck Chile, a sensor on the ocean floor 205 miles from the epicenter

registered the first inkling that a tsunami was traveling across the Pacific toward Hawaii. As data poured into the

Pacific Warning Center of the National Oceanic and Atmospheric Administration (NOAA), scientists calculatedhow far the tsunami would travel and how powerful it would be when it arrived at the world's coastlines,

ultimately issuing a warning for Hawaii and an advisory for the U.S. West Coast. Hawaii's emergency officialssounded the islands' sirens, rousing the coastal residents and giving them at least 10 hours to evacuate before the

most destructive waves would wash ashore.

David Pugh, (Founding Chair, Global Sea Level Commission), TROUBLED WATERS: OCEAN SCIENCE

AND GOVERNANCE, 2010, 212-213.

Warning systems must be based on good science. Although for imminent events, exact forecasts are not asessential as is the timely delivery of the warnings, there are perils in making too many imprecise flood warnings.

Not to issue a warning of a disaster would be a serious error. However, too many false warnings lead to publiccomplacency, and may lead to future warnings being ignored, with equally serious consequences. The issuing

authorities need the best possible forecasts to avoid this confusion.

III. THE CREATION OF A PROPERLY-FUNDED SINGLE AGENCY TO COORDINATE OCEAN EXPLORATION

WILL CORRECT THE CURRENT INATTENTION TO BASIC OCEAN SCIENCE.

Kim Martini, (Prof., Oceanography, U. Alaska at Fairbanks), DEEP SEA NEWS, Oct. 16, 2012. Retrieved Apr. 2,

2014 from http://deepseanews.com/2012/10/we-need-an-ocean-nasa-now-pt-3/.

We are at a time for renewed commitment to ocean exploration and science. As stated by the Joint Ocean

Commission, “Ocean programs continue to be chronically underfunded, highlighting the need for a dedicated oceaninvestment fund.” Captain Don Walsh, one of three men to visit the deepest part of the ocean, recently stated it best:

“What we need is an Ocean NASA.”

Kim Martini, (Prof., Oceanography, U. Alaska at Fairbanks), DEEP SEA NEWS, Oct. 16, 2012. Retrieved Apr. 2,

2014 from http://deepseanews.com/2012/10/we-need-an-ocean-nasa-now-pt-3/.

There is much to be gained from creating NASA-style Ocean Science and Exploration Agency (OSEA). Every

dollar we commit to science returns $2.21 in goods and services. Meeting the scientific, technological, logistical,

and administrative demands of scientific exploration creates jobs and requires substantial personnel beyond just

scientists and engineers. The materials purchased for this cause support even further employment. As with NASA,

meeting these scientific and engineering challenges will disseminate ideas, knowledge, applications, and technologyto rest of society. This knowledge gained from basic research will form the backbone for applied research and

economic gain later. And much like NASA has, OSEA will inspire the next generation of scientist and engineers,

instilling in the young a renewed appreciation for the oceans of which we are all stewards: our oceans. It will

provide a positive focus for society in a time where hope is often lacking and faith in science is low. OSEA will bethe positive message that renews interest in our oceans and their conservation.

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RARE EARTH ELEMENTS: BREAKING THE CHINESE MONOPOLY

The thesis of this case is that the United States federal government must develop an alternative to the current reliance onChina for the supply of rare earth minerals. Essential U.S. industries are highly dependent on access to a ready supply of rareearth minerals. U.S. national security also depends on access to rare earth elements because of their role in the production ofkey weapons systems. The problem is that China currently holds a monopoly on the production of rare earth elements and hassignaled its intention to restrict or even completely cut off the supply of these essential materials. The ocean seabed contains

a ready supply of rare earth elements, but U.S. access to this supply will become available only with accession to the UN

Convention on the Law of the Sea (UNCLOS).

Plan: The United States federal government will accede to the United Nations Convention on the Law of the Sea in order to

substantially increase U.S. exploration and/or development of the Earth’s oceans. The U.S. federal government will

sponsor U.S. companies willing to mine rare earth minerals from the seabed, as required by the International Seabed

Authority (ISA).

OBSERVATION:

I. ACCESS TO RARE EARTH ELEMENTS IS ESSENTIAL TO U.S. NATIONAL SECURITY.

A. VITAL ELEMENTS OF U.S. INDUSTRIAL PRODUCTION ARE DEPENDENT ON RARE EARTH ELEMENTS.

Doc Hastings, (U.S. Representative, Washington), U.S. OFFICIAL NEWS, Sept. 20, 2013. Retrieved Apr. 4, 2014

from Nexis.

Not a day goes by when Americans don't use a product that is made from critical minerals. In fact, life as we

know it in the 21st century would not be possible without minerals. There would be no computers, no blackberries

or iPhones. There would be no MRI, CAT scan or X-ray machines. There would be no wind turbines or solar panels.

The list is exhaustive of the things that depend on critical minerals that make modern life possible. Rare earthelements, a special subset of strategic and critical minerals, are core components for these products of the 21stcentury. Yet despite the tremendous need for rare earth elements, the United States has allowed itself to becomealmost entirely dependent on China and other foreign nations for these resources.

Andrew Eichner, (J.D., U. Texas School of Law), UNIVERSITY OF ILLINOIS JOURNAL OF LAW,

TECHNOLOGY & POLICY, Fall 2012, 262.

Rare earths are used in an extraordinary number of everyday gadgets, but of particular interest to this Article is

their utility in certain green technologies. As an example, the elements are particularly important in the functioning

of wind energy technologies — specifically, the magnetic properties of the rare earth element neodymium are

critical for ensuring that wind turbines run at peak efficiency. Rare earths are also important in the development and

distribution of hybrid and electric vehicles, energy-saving appliances, and solar technologies.

National Center for Policy Analysis, INDIA ENERGY NEWS, Oct. 25, 2011. Retrieved Apr. 4, 2014 from Nexis.

"Our current energy policy, encouraging and in some cases mandating the use of 'green' energy technologieslike wind turbines and solar panels, is exacerbating our dependence on China for Rare Earths and reducing ourforeign policy leverage," said H. Sterling Burnett, Senior Fellow with the National Center for Policy Analysis. "It's

also resulting in a loss of jobs overseas. Whether through increased domestic production, substitution or reduced

demand, the U.S. must decrease our dependence on China for rare earths and other critical metals".

William Broad, (Staff), NEW YORK TIMES, Nov. 9, 2010, D3.

The elements known as rare earths number 17 in all and range from cerium and dysprosium to thulium and

yttrium. Their unique properties have resulted in their growing use in many technologies of modern life.

Applications include magnets, lasers, fiber optics, computer disk drives, fluorescent lamps, rechargeable batteries,

catalytic converters, computer memory chips, X-ray tubes, high-temperature superconductors and the liquid-crystal

displays of televisions and computer monitors. The United States Geological Survey calls the rare elements

''essential for hundreds of applications'' and likely candidates in the near future for an ''expanding array'' of high-tech

products. Supply shortages that go on for a long time, the agency warns in a fact sheet, ''would force significant

changes in many technological aspects of American society.'' Secretary of State Hillary Rodham Clinton recentlycalled China's export embargo a ''wake-up call'' for the world to find new resources.

B. PRODUCTS VITAL TO U.S. NATIONAL DEFENSE ARE DEPENDENT ON RARE EARTH ELEMENTS.

Alesandro Bruno, (Staff, InvestorIntel), SUSTAINABLE ACCESS TO RARE EARTHS IS CRITICAL TO

NATIONAL SECURITY, Apr. 11, 2013. Retrieved Apr. 4, 2014 from http://investorintel.com/rare-earth-intel/tms2013/#

sthash.02Atnmtm.dpuf.

From the defense technology standpoint alone, rare earths have been essential to the advancement of aerospacetechnology. Rare earths are used in stealth radar evading technology, in targeting mechanisms for missiles andtemperature resistant magnets and materials used in jet engines and aerofoil components in manned aircraft and

increasingly in unmanned drone aircraft, which are playing an ever more important role in special operations.

Missiles use samarium-cobalt (Sm-Co) magnets as do the ion plasma propulsion engines of future spacecraft. This is

hardly science fiction and deep space exploration needs rare earth magnets, which are used in ion engines.

AFFIRMATIVE CASES BAYLOR BRIEFS 18

Catherine Ngai, (Staff, Medill News Service), REPLACING OIL ADDICTION WITH METALS DEPENDENCE,

Oct. 1, 2010. Retrieved Apr. 5, 2014 from http://news.nationalgeographic.com/news/2010/10/101001-energy-rareearth-

metals/.

But there’s an important backstory: national defense. Besides green energy, rare-earth minerals are essential increating weapons. “Smart bombs” that use neodymium-iron-boron magnets to control the direction when droppedfrom an aircraft, lasers that employ neodymium, yttrium-aluminum-garnet used to determine the range of enemy

targets at distances over 22 miles, and neodymium-iron-boron permanent magnets used for sound systemcomponents used in psychological warfare are among the many, according to a 2004 USGS paper.

CONTENTIONS:

I. THE CHINESE MONOPOLY ON THE SUPPLY OF RARE EARTH ELEMENTS JEOPARDIZES U.S. NATIONAL

SECURITY.

A. CHINA CURRENTLY HAS A VIRTUAL MONOPOLY ON THE SUPPLY OF RARE EARTH ELEMENTS.

FINANCIAL TIMES, Oct. 11, 2010, 8.

Neodymium. Yttrium. Dysprosium. You can be forgiven for not knowing the names of these rare earth metals.

They were little known until a recent price surge brought them to wider attention. But the 17 so-called rare earths,

not produced much outside China, are used to produce myriad modern goods from hybrid cars to mobile phones,

wind turbines and smart bombs. That gives China a potential stranglehold on supply, a position it is understandablyhappy to exploit. Other countries should not let it.

Jay Timmons, (CEO, National Association of Manufacturers), THE LAW OF THE SEA CONVENTION, Senate

Hearing, June 28, 2012, 278.

Our Nation's ability to access rare earth minerals may be the most pressing economic security issue we face.

Today, a single country — China — holds a virtual monopoly on the mining and production of rare earth elements.

China produces more than 90 percent of the world's supply and also consumes roughly 60 percent of that supply.

Brazil, India, Malaysia, and Canada are the other sources of the remaining paltry supply of rare earths. China

recently imposed significant export restrictions on its rare earth production. In 2010, it announced it would cut

exports of rare earth minerals by 40 percent by 2012.

Leslie Hook, (Staff), FINANCIAL TIMES, Dec. 30, 2011, 12.

China produces almost all of the world's rare earths — 17 elements crucial for everything from wind turbines to

fluorescent lighting to iPhones and military radar systems — and Beijing's control over these elements has been

cited as a security concern for countries such as Japan and the US, which rely on imports from China.

B. CHINA HAS DEMONSTRATED ITS WILLINGNESS TO CUT OFF THE SUPPLY OF RARE EARTH

ELEMENTS.

Miami Herald, (Editorial), DAILY CAMERA, Dec. 30, 2010. Retrieved Apr. 4, 2014 from Nexis.

There is some urgency because this year China began to limit its rare earth exports. Now that it has cornered the

world market, it also has slapped higher export tariffs on some minerals while reducing taxes for its domestic rareearth users. One result of this is that more clean-energy technology companies are moving operations to China tosave costs. For example, rare earths are used to make most wind turbines — and China recently cornered the global

market on that industry.

Gal Luft, (Dir., Institute for the Analysis of Global Security), WASHINGTON TIMES, Oct. 21, 2010, 4.

The rationale behind Beijing's decision to cut exports: China produces 97 percent of the world's rare earths, and

its fast economic growth requires that more of its metals production remain at home for domestic use. But last

month's unofficial embargo on shipment of rare-earth elements to Japan in response to the detention of a Chinesefishing-boat captain whose boat collided with a Japanese patrol boat shows that for China, rare-earth metals are notonly iPod ingredients but also tools of economic warfare. As Chinese leader Deng Xiaoping noted in 1992: "TheMiddle East has oil, China has rare earths."

Sebastian Anthony, (Staff, ExtremeTech.com), RARE EARTH CRISIS: INNOVATE OR BE CRUSHED BY

CHINA, Dec. 30, 2011. Retrieved Apr. 5, 2014 from http://www.extremetech.com/extreme/111029-rare-earthcrisis-

innovate-or-be-crushed-by-china/2.

The doomsday event that everyone is praying will never come to pass, but which every Western nation is

currently planning for, is the eventual cut-off of Chinese rare earth exports. Last year, 97% of the world’s rare earthmetals were produced in China — but over the last few years, the Chinese government has been shutting down

mines, ostensibly to save what resources it has, and also reducing the amount of rare earth that can be exported.

II. U.S. FAILURE TO RATIFY THE UN CONVENTION ON THE LAW OF THE SEA PREVENTS U.S. PRODUCTION

OF RARE EARTH ELEMENTS.

A. THE SEABED CONTAINS AN ABUNDANCE OF RARE EARTH ELEMENTS.

Anthony Rowley, (Staff), BUSINESS TIMES SINGAPORE, July 5, 2011. Retrieved Apr. 4, 2014 from Nexis.

Around 1,000 times more rare earth elements than the world's land reserves lie in deep-sea mud in the central

and southeastern Pacific Ocean, a Japanese research team reported on Sunday in the online edition of British science

magazine Nature Geoscience, Kyodo news agency said yesterday.

AFFIRMATIVE CASES BAYLOR BRIEFS 19

NEW ZEALAND HERALD, May 17, 2013. Retrieved Apr. 4, 2014 from Nexis.

"Heavy" rare earths, like dysprosium, used in magnets and a vital component in hybrid cars such as Toyota"sPrius, are less concentrated and worth more. Kato reported that some deep-sea deposits had twice the levels of

dysprosium as found in China’s clay mines.

B. U.S. FIRMS ARE UNWILLING TO PROCEED WITH THE MINING OF THE SEABED ABSENT THE

RATIFICATION OF THE UN CONVENTION ON THE LAW OF THE SEA.

Gary Simms, (Sr. Project Manager, Lockheed Martin Corp.), THE LAW OF THE SEA CONVENTION, Senate

Hearing, June 28, 2012, 232.

Based on Lockheed Martin's analysis, the poly-metallic nodules on the deep seabed floor are composed of

manganese, nickel, copper, cobalt, and other minerals, to include rare earth elements. The increased value of themineral resources in our claim sites, the improvements in technologies for accessing them, and the need to develop

new sources of such minerals — for rare earth metals in particular — have now produced a favorable business

environment in which to exploit these claims. However, the multi-billion dollar investments needed to establish an

ocean-based resource development business must be predicated upon clear legal rights established and protected

under the treaty-based framework of the LOS Convention, including the International Seabed Authority (ISA).

Thomas Donohue, (CEO, U.S. Chamber of Commerce), THE LAW OF THE SEA CONVENTION, Senate Hearing,

June 28, 2012, 264.

A wide range of domestic industries, including aerospace, defense, and consumer electronics, need the treaty toenable access to new sources of mineral resources, including rare earth minerals, as the Senator indicated, which lie

in massive deposits on or beneath the deep seabed floor. Companies need the legal certainty and the stabilityprovided by the treaty in order to minimize the investment risks and cost to developing these resources in the U.S.

Extended Continental Shelf and the area beyond that, the deep seabed. That is why the treaty's approval is soimportant to sustaining and creating American jobs and protecting American interests close to our mainland.

III. U.S. RATIFICATION OF THE LAW OF THE SEA WILL BEST PRESERVE U.S. NATIONAL SECURITY.

A. ONLY BY RATIFYING THE UN CONVENTION ON THE LAW OF THE SEA, CAN THE U.S. FEDERAL

GOVERNMENT SPONSOR COMPANIES TO MINE RARE EARTH MINERALS FROM THE SEABED.

Thomas Donohue, (CEO, U.S. Chamber of Commerce), THE LAW OF THE SEA CONVENTION, Senate Hearing,

June 28, 2012, 268.

Mining, like oil and natural gas, represents a field where the U.S. will damage its own interests and those of

U.S. industry by remaining outside the Law of the Sea Convention. Only by joining the Convention will the U.S.

secure its rights to vast mineral deposits on the U.S. ECS, and perhaps even more important, be able to sponsorcompanies to mine the deep seabed in the area beyond any national jurisdiction. Beneath the oceans are troves of

valuable metals and rare earth elements richer than any found on land, including deposits of manganese, nickel,

cobalt, copper, lead and other metals commonly used in modern manufacturing.

Jay Timmons, (CEO, National Association of Manufacturers), THE LAW OF THE SEA CONVENTION, Senate

Hearing, June 28, 2012, 278.

Until a decade ago, the United States was 100 percent self-reliant for rare earth production, with domesticcompanies producing enough to supply U.S. manufacturers. Over time, however, U.S. production was halted as it

became economically and environmentally cost prohibitive. Companies in various countries — including the United

States — are looking at reopening closed mines and developing new deposits, but these efforts could take a number

of years to fully come on line. The deep seabed offers a new opportunity for the United States to gain steady access

to these vital rare earth minerals. Polymetallic nodules are located on the deep ocean floor. These nodules typically

contain manganese, nickel, copper, cobalt and rare earth minerals. However, U.S. companies cannot actively pursueclaims in the areas where these nodules are dense unless the United States ratifies the Law of the Sea Treaty.

Jay Timmons, (CEO, National Association of Manufacturers), THE LAW OF THE SEA CONVENTION, Senate

Hearing, June 28, 2012, 278.

Deep seabed mining is an emerging global industry and, indeed, a key ingredient to economic growth and

competitiveness. We have companies in the United States with the means to explore and develop the resources and

minerals on and in the seabeds of international waters, but they will only do so if there is a structure that contains

internationally recognized agreements in place. This treaty will institute that legal framework upon which companies

— and countries — can rely.

B. U.S. MINING OF THE SEABED WILL BREAK THE CHINESE STRANGLEHOLD ON RARE EARTH

ELEMENTS.

NIKKEI WEEKLY, July 11, 2011. Retrieved Apr. 4, 2014 from Nexis.

China currently accounts for more than 90% of global rare-earth production. Development of the underwater

deposits could help diversify procurement sources and contribute to supply stability.

AFFIRMATIVE CASES BAYLOR BRIEFS 20

SEAPORT DEVELOPMENT: THE RAMP ACT

The thesis of this case is that the U.S. federal government should be held responsible for the performance of itsConstitutionally-assigned duty to maintain the nation’s harbors. The federal government has levied a tax, the Harbor

Maintenance Tax, with the proceeds going into the Harbor Maintenance Trust Fund (HMTF). The HMTF was created for thepurpose of conducting dredging operations to maintain the Congressionally-assigned depth of each of the nation’s harbors.

Yet remarkably, the federal government has allowed U.S. harbors to become dangerously too narrow and shallow despite the

ready availability of funds in the Trust Fund. In recent years, the President and Congress have authorized spending only halfof available funds while the nation’s harbors struggle to receive incoming cargo. The Realize America's Maritime PromiseAct (RAMP) Act would require that all of the HMTF be spent for its intended purpose.

Plan: The United States federal government will adopt the Realize America's Maritime Promise Act (RAMP) Act, requiringthe total budget resources for expenditures from the Harbor Maintenance Trust Fund for harbor maintenance programs toequal the level of receipts plus interest credited to such Fund for that fiscal year.

OBSERVATION:

I. THE U.S. FEDERAL GOVERNMENT HAS A RESPONSIBILITY FOR THE PROPER MAINTENANCE OF

SEAPORTS.

A. THE CONSTITUTION RESERVES TO THE FEDERAL GOVERNMENT THE RIGHT TO IMPOSE TAXES ON

SHIPPING AT U.S. SEAPORTS.

Christopher Cook, (J.D. Candidate), FORDHAM URBAN LAW JOURNAL, Oct. 2011, 1533.

The Tonnage Clause of the Constitution provides that "no State shall, without the consent of Congress, lay any

Duty of Tonnage." It is intended to safeguard the Constitution's general prohibition against states laying duties on

imports or exports by preventing states from imposing duties on the ships transporting goods in commerce.

Kurt Nagle, (CEO, American Association of Port Authorities), LEGISLATIVE HEARING ON H.R. 104, THE

REALIZE AMERICA'S MARITIME PROMISE (RAMP) ACT, House Hearing, July 8, 2011, 23.

Since our founding fathers drafted the Constitution back in 1787 establishing the United States government, ourlegislative branch has been charged with the task of regulating commerce. It was important to those drafting theConstitution to create a system where trade and commerce could move freely between states and beyond ournational borders and to defend the United States against invasion. Therefore, certain powers were granted toCongress in Article I, Section 8 of the U.S. Constitution including "the regulation of commerce with foreign nations

and among the several states..." and "to establish Post Offices and Post Roads." Maintaining our national

infrastructure that supports foreign and interstate commerce is not only a federal responsibility but is strongly in the

national interest as established by our forefathers. In fact, improving waterways and coastal ports for navigation and

national security is the most federal of infrastructure responsibilities, dating to the early missions assigned the

Continental Army by then General George Washington.

B. THE HARBOR MAINTENANCE TRUST FUND IS COLLECTED SPECIFICALLY FOR THE PURPOSE OF

MAINTAINING THE DEPTH OF HARBOR CHANNELS.

Jeff Gabriel, (Staff, National Marine Manufacturers Assoc.), MAKING WAVES, Apr. 10, 2013. Retrieved Apr. 16,

2014 from http://www.nmma.org/assets/cabinets/Cabinet462/Dredging%20Needs%20at%20Critical%20Stage.pdf.

In 1986, the Harbor Maintenance Tax (HMT) was enacted to fund U.S. Army Corps of Engineers’ (the Corps)

activities related to the routine operation and maintenance (O&M) of harbors, namely the dredging of harbor

channels to their authorized depths and widths. This tax is assessed on the value of imported and domestic cargohandled at ports at the current rate of 0.125% ($1.25 per $1,000 in cargo value), which in recent years has raisedover $1 billion annually. U.S. waterborne exporters no longer pay the tax because a 1998 U.S. Supreme Court ruling

found it unconstitutional. Importers generate about 95% of the tax revenue. The tax revenues are deposited into the

Harbor Maintenance Trust Fund (HMTF) from which Congress annually appropriates funds for harbor maintenance.

CONTENTIONS:

I. FAILURE TO MAINTAIN U.S. OCEAN HARBORS IS SIGNIFICANTLY HARMFUL.

A. PROPER MAINTENANCE OF SEAPORTS IS VITALLY IMPORTANT TO THE U.S. ECONOMY.

Kurt Nagle, (CEO, American Association of Port Authorities), LEGISLATIVE HEARING ON H.R. 104, THE

REALIZE AMERICA'S MARITIME PROMISE (RAMP) ACT, House Hearing, July 8, 2011, 22.

Seaports serve as a critical gateway to domestic and international trade, connecting large and small U.S.

businesses to the global marketplace. Handling two billion tons of domestic, import and export cargo annually,

seaports are a critical component of our nation's transportation infrastructure system.

Nathan Hurst, (Staff), CQ WEEKLY, June 16, 2012. Retrieved Apr. 16, 2014 from http://public.cq.com/docs/

weeklyreport/weeklyreport-000004107500.html.

The stakes are enormous for an economy increasingly dependent on international trade. “Today, internationaltrade accounts for more than a quarter of America’s gross domestic product,” Jerry Bridges, executive director of theVirginia Port Authority and chairman of the American Association of Port Authorities board, testified at a House

Transportation and Infrastructure subcommittee hearing last year. “America’s seaports support the employment of

13.3 million U.S. workers, and seaport-related jobs account for $649 billion in annual personal income. For every $1billion in exports shipped through seaports, 15,000 U.S. jobs are created.”

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Bob Gibbs, (Chair, U.S. House Committee on Transportation and Infrastructure), LEGISLATIVE HEARING ON

H.R. 104, THE REALIZE AMERICA'S MARITIME PROMISE (RAMP) ACT, House Hearing, July 8, 2011, 1.

Ninety-five percent of the Nation's imports and exports go through the Nation's ports. Our integrated system of

highways, railroads, airways, and waterways has efficiently moved freight in this Nation. But as we enter a new eraof increased trade, our navigation systems have to keep pace. If not, this will ultimately lead to further delays in

getting the Nation's economy back on its feet.

B. PROPER MAINTENANCE OF SEAPORTS IS ESSENTIAL TO PREVENT POLLUTION OF HARBORS.

James K. Lyons, (Dir., Alabama State Port Authority), THE HARBOR MAINTENANCE TRUST FUND AND

THE NEED TO INVEST IN THE NATION’S PORTS, Senate Hearing, Jan. 31, 2013. Retrieved Apr. 16, 2014

from http://www.epw.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing\_ID=6ee9cb8c-ee2fdfef-

8a23-9ed8b4d25710.

As U.S. seaports shallow-up due to inadequate dredging funding, global shippers are forced to lighter vessels

entering U.S. seaports; thereby, generating additional handling costs associated with the practice, and increasing the

likelihood of ship groundings, which leave waterways exposed to higher spillage and pollution risks. Between 2006and 2011, the Mobile Ship Channel operated with only half of the channel’s authorized width in much of our 30

mile long channel. During this period, limitations in the channel resulted in vessel traffic restrictions and numerousgroundings.

Harbor Maintenance Trust Fund Fairness Coalition, REALIZE AMERICA’S MARITIME PROMISE, Apr. 15,

2014. Retrieved Apr. 21, 2014 from http://www.ramphmtf.org/.

Due to inadequate appropriations from the HMTF, navigation channels are getting narrower and shallower due

to sediment accumulation. The U.S. Army Corps of Engineers recently reported that almost 30 percent of

commercial vessel calls at U.S. ports are constrained due to inadequate channel depths. This means vessels laden

with American-made goods cannot carry all they are capable of holding because they cannot get through channels

that are not being adequately maintained, nor can ships with imports for the U.S. market enter many ports fullyladen due to the same concerns. This drives up the cost of our nation's exports and imports and increases the risk ofvessel grounding and associated oil spills.

C. ABANDONING HARBOR DREDGING IS NOT AN OPTION.

James K. Lyons, (Dir., Alabama State Port Authority), THE HARBOR MAINTENANCE TRUST FUND AND

THE NEED TO INVEST IN THE NATION’S PORTS, Senate Hearing, Jan. 31, 2013. Retrieved Apr. 16, 2014

from http://www.epw.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing\_ID=6ee9cb8c-ee2fdfef-

8a23-9ed8b4d25710.

Most U.S. seaports are not naturally deep harbors, and many are located on river systems where upstreamrunoff sediments move downstream and settle on harbor bottoms. The Port of Mobile is among the 90 percent of the

nation's top 50 ports engaged in foreign waterborne commerce that require regular maintenance dredging. In total,

these ports move nearly 93 percent of all U.S. waterborne commerce by weight annually. Because river sedimentcan accumulate at a rate of several feet per year, dredging is absolutely necessary to prevent channel siltation that

can render a harbor non-navigable in less than a year. The authorized depths and widths of America’s federalnavigation channels are available less than 35% of the time.

II. THE U.S. FEDERAL GOVERNMENT CURRENTLY FAILS IN ITS RESPONSIBILITY TO MAINTAIN OCEAN

HARBORS.

A. THE FEDERAL GOVERNMENT REFUSES TO USE THE HARBOR MAINTENANCE TAX FOR ITS ASSIGNED

PURPOSE.

Michael Dehart, (J.D. Candidate),TULANE MARITIME LAW JOURNAL, Winter 2013, 205.

After a flurry of challenges in the early part of the twenty-first century, the constitutionality of the HMT now

appears to be a settled issue. However, in recent years the HMT [Harbor Maintenance Tax] has come under firebecause of the significant surplus that has accumulated in the HMTF. Simply put, funds collected from a tax createdto fund dredging projects at U.S. ports are not being used to fund dredging projects at U.S. ports. The current surplus

in the HMTF is in excess of $ 8 billion. Unsurprisingly, Congress's inaction to appropriate the HMT funds has led toconsiderable consternation among the commercial interests subject to the tax.

Barry Holiday, (Chair, Harbor Maintenance Trust Fund Fairness Coalition), LEGISLATIVE HEARING ON H.R.

104, THE REALIZE AMERICA'S MARITIME PROMISE (RAMP) ACT, House Hearing, July 8, 2011, 8.

Operation and maintenance dredging is funded by a dedicated tax and is deposited into the Harbor Maintenance

Trust Fund (HMTF). The tax raises $1.3 billion to $1.6 billion per year, and the trust fund currently has a surplus of

$5.7 billion. Congress created this dedicated funding for the purpose of dredging, but the U.S. Army Corps ofEngineers has access to only about half of the incoming revenue each year, and this funding has been tied up in

earmarks. In FY 2010, the HMTF collected more than $1.3 billion with interest, while only $793 million was

transferred to the Corps for actual harbor maintenance. The dredging of our important waterways and ports has been

deferred and delayed for too long.

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Michael Charles, (Sr. Manager, American Society of Civil Engineers), LEGISLATIVE HEARING ON H.R. 104,

THE REALIZE AMERICA'S MARITIME PROMISE (RAMP) ACT, House Hearing, July 8, 2011, 19-20.

The [administration's] proposed reduction in funding for maintenance of deep-draft navigation is particularly

perplexing since the Harbor Maintenance Trust Fund (HMTF), which is intended to fund 100 percent of themaintenance dredging requirements of coastal and Great Lakes ports, will have an estimated balance of more than$6.1 billion at the beginning of fiscal year 2012. The budget request does not propose drawing down the balance to

address unmet dredging needs, and, in fact, proposes to use less than one-half the estimated receipts for fiscal year

2012 for maintenance dredging.

B. U.S. OCEAN HARBORS ARE OPERATING AT ONLY ONE-THIRD OF THEIR CAPACITY.

Kurt Nagle, (President, American Association of Port Authorities), SEAPORTS DELIVER PROSPERITY, Apr. 12,

2013. Retrieved Apr. 16, 2014 from www.aapa-ports.org/files/Tax Reform — Ways %26 Means 12APR2013.pdf.

Even the top 59 busiest ports on average only have their channel dimensions available 35 percent of the time.

Eight of the top 10 U.S. ports presently have depth or width restrictions resulting in safety risks of groundings andcargo spills and economic risks of light-loading ships which increase transportation costs, impacting the

competitiveness of U.S. exports in the global marketplace and the cost of imported goods to U.S. consumers and

manufacturers.

C. U.S. HARBORS ARE ILL-PREPARED TO MANAGE THE LARGER SHIPS COMING THROUGH THE

EXPANDED PANAMA CANAL.

Ricardo Martinelli, (President, Panama), US OFFICIAL NEWS, Nov. 21, 2013. Retrieved Apr. 8, 2014 from Nexis.

It is imperative and necessary that the ports on the East Coast of the United States increase the dredging

capability of their ports and go to at least 50 feet depth in order to take advantage of the new sizes of ships — the

post-Panamax ships that will be able to transit the Panama Canal with the expansion. For that purpose, it's necessaryfor the East Coast ports in the United States to increase their depth to 50 feet. This will bring a number of benefits

not only for Panama and for the world economy, but also for the enormous amount of jobs and other opportunitiesthat will be created in an enormous number of ports in the United States.

III. THE RAMP ACT WILL BEST PROVIDE FOR THE PROPER MAINTENANCE OF U.S. SEAPORTS.

A. THE RAMP ACT WILL EFFECTIVELY DOUBLE FEDERAL SPENDING FOR HARBOR MAINTENANCE.

DREDGING NEWS ONLINE, Apr. 4, 2012. Retrieved Apr. 16, 2014 from http://www.sandandgravel.com/news/

article.asp?v1=15809.

"The RAMP Act is a simple bill," said Politico.com. "It ensures the Harbor Maintenance Trust Fund spends as

much on port improvements as it takes in through the Harbor Maintenance Tax — an ad valorem fee of US$1.25 oneach US$1,000 worth of cargo that brings in about US$1.4 billion annually." Kurt Nagle, CEO of the American

Association of Port Authorities, has estimated the country’s dredging needs at US$1.3-1.6 billion each year — but

annual expenditures have averaged less than US$800 million the past five years. Only a handful of US ports have

done the needed dredging in anticipation of a new class of ships that will soon wind their way through the Central

American corridor.

Charles Boustany, Jr., (U.S. Representative, Louisiana), LEGISLATIVE HEARING ON H.R. 104, THE REALIZE

AMERICA'S MARITIME PROMISE (RAMP) ACT, House Hearing, July 8, 2011, 36.

Responsible for moving more than 99 percent of the country's overseas cargo, U.S. ports and waterways handle

more than 2.5 billion tons of domestic and international trade annually, and the volume is projected to double withinthe next 15 years, especially after the expansion of the Panama Canal. In 2007, there were 13.3 million port-related

jobs, 9 percent of all the jobs in the United States, accounting for $649 billion in personal income. A $1 billion

increase in exports creates an estimated 15,000 new jobs. And that is just what this bill is intended to do: strengthenour infrastructure, create jobs, double our exports, as the President wants to do, and stimulate our economy.

B. THE U.S. ARMY CORPS OF ENGINEERS IS FULLY CAPABLE OF PROPERLY MAINTAINING U.S. PORTS IF

GIVEN THE FUNDING OF THE RAMP ACT.

Michael Dehart, (J.D. Candidate),TULANE MARITIME LAW JOURNAL, Winter 2013, 207-208.

Finally, Representative Boustany concluded his testimony by remarking on the potential for full use of the

HMTF as authorized by the RAMP Act. Representative Boustany harkened back to a conversation with Major

General George Strock of the United States Army Corps of Engineers (Corps) in which General Strock assured tohim "that the Corps could dredge all federally maintained ports and waterways to the authorized depth and width

should they get full allocation of the Harbor Maintenance Trust Fund that is collected annually, just as Congress

intended when this harbor maintenance tax was created." Through the required funding mechanism of the RAMPAct, the full allocation needed by the Corps would be provided every year. In his closing statement, RepresentativeBoustany spoke briefly about the overarching purpose of the RAMP Act, which he described as a quest to"strengthen our infrastructure, create jobs, double our exports ... and stimulate our economy."

AFFIRMATIVE CASES

BAYLOR BRIEFS 23

CORAL REEFS: BIOROCK TO THE RESCUE

The thesis of this case is that the U.S. federal government should fund a program of coral reef restoration. Coral reefs in

U.S. ocean waters are currently being destroyed. While coral reefs occupy only a tiny fraction of U.S. ocean waters, they are

responsible for a major share of fisheries production and ocean biodiversity. Unfortunately, evidence indicates that coral reefs

do not recover by themselves. Instead, restoration programs are necessary. Fortunately, studies have shown that biorock

restoration systems can increase coral reef survival, even in polluted sections of the oceans. The federal government shouldsupplement current protection and preservation efforts with an active system of restoration.

Plan:

The United States federal government will create program within the National Oceanic and Atmospheric

Administration of coral reef restoration in the U.S. exclusive economic zone (EEZ), using the materials and expertise of

the Biorock, Inc. system of restoration. The funding level will be established at $300 million funded from royalties paid tothe federal government from existing offshore oil and gas leasing.

I. THE CURRENT RATE OF DECLINE IN CORAL REEFS THREATENS ALL LIFE IN THE OCEANS.

A. CORAL REEFS ARE DYING.

Natalie Harrison, (Editor), UNIVERSITY OF MIAMI LAW REVIEW, Fall 2013, 190.

Over the last decade, scientists have sounded the alarm that coral reefs are in trouble. By one estimate, certain

reefs in the Caribbean Sea have degraded nearly eighty percent from an ecologically pristine state.

Peter Kareiva, (Chief Scientist, Nature Conservancy), CONSERVATION SCIENCE: BALANCING THE NEEDS

OF PEOPLE AND NATURE, 2011, 230.

Coral reefs constitute an ecosystem that scientists have identified as critically endangered. Predictions about the

demise of coral reefs vary, but estimates suggest that 20% of the world's coral reefs have already been lost, 24% areunder imminent threat of collapse, and another 26% are in danger of irreparable damage.

Tom Bawden, (Staff), THE INDEPENDENT, Sept. 24, 2013, 12.

The rapid decline of the world's coral reefs appears to be accelerating, threatening to destroy huge swathes of

marine life unless dramatic action is swiftly taken, a leading ocean scientist has warned. About half of the world's

coral reefs have already been destroyed over the past 30 years, as climate change warms the sea and rising carbon

emissions make it more acidic. But the trend now looks to be accelerating, said Professor Ove Hoegh-Guldberg, thescientist in charge of the ocean chapter of the forthcoming report by the Intergovernmental Panel on Climate Change(IPCC). "Our oceans are in an unprecedented state of decline due to pollution, over-fishing and climate change. The

state of the reefs is very poor and it is continuing to deteriorate," said Professor Hoegh-Guldberg, of the University

of Queensland. "This is an eco-system that has been around for tens of millions of years and we are wiping it outwithin a hundred. It's quite incredible," he added.

B. THE DEATH OF CORAL REEFS UNDERMINES ALL LIFE IN THE OCEANS.

Peter Kareiva, (Chief Scientist, Nature Conservancy), CONSERVATION SCIENCE: BALANCING THE NEEDS

OF PEOPLE AND NATURE, 2011, 230.

Coral reefs are often referred to as the crown jewels of the ocean. Despite covering less than 0.1 % of the

Earth's surface, they support 1 to 9 million species (estimates of the total number of species on Earth range from 3 to30 million). Reefs are also popular with tourists, and they support fish that are major sources of protein and incomefor numerous coastal communities.

Elise Pautler, (J.D., Stetson U. College of Law), STETSON LAW REVIEW, Fall 2013, 151.

Coral reefs, often called "the rainforests of the sea," are incredibly biodiverse ecosystems that supportecological health and provide essential ecosystem services to humans. Despite coral reefs' value and importance,

they are rapidly dwindling and disappearing due to numerous environmental pressures, most of which originate inhuman activity.

David de Rothschild, (Staff, National Geographic), PLASTIKI: ACROSS THE PACIFIC ON PLASTIC: AN

ADVENTURE TO SAVE OUR OCEANS, 2011, 194.

Coral reefs are the rain forests of the ocean, and like the rain forests, we're mowing them down. Coral reefs

cover just 1 percent of the earth's surface, but acre for acre they support a richer variety of life — more than 4,000

fish species — than any other marine environment. Around the globe they offer sanctuary and breeding ground for

marine life, a buffer for shorelines against ocean waves, and sustenance for millions of people. They're also under

tremendous assault.

C. CORAL REEFS PROVIDE VITAL ECOSYSTEM SERVICES.

Richard Feeley, (Oceanographer, Pacific Marine Environmental Laboratory, NOAA), POISONING AND

ACIDIFICATION OF THE EARTH'S OCEANS, 2010, 5.

Healthy coral reefs are the foundation of many viable fisheries, as well as the source of jobs and businessesrelated to tourism and recreation. In the Florida Keys, coral reefs attract more than $1.2 billion in tourism annually.

In Hawaii, reef-related tourism and fishing generate $360 million per year, and their overall worth has beenestimated at close to $10 billion. In addition, coral reefs provide vital protection to coastal areas that are vulnerable

to storm surges and tsunamis.

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II. THE CURRENT APPROACH TO SAVING THE CORAL REEFS IS DOOMED TO FAILURE.

A. THE CURRENT APPROACH PRIORITIZES CONSERVATION OVER RESTORATION.

Thomas Goreau, (Global Coral Reef Alliance, Cambridge Mass.), INNOVATIVE METHODS OF MARINE

ECOSYSTEM RESTORATION, 2013, 5-6.

The widely touted claims that these ecosystems are "resilient" and "will bounce back all by themselves," thanks

to the sagacity of their managers, is in fact almost never observed in practice because most MPAs are intrinsically

incapable of reversing the root causes of the major threats that are laying waste our habitats. Every coral reef MPA

is full of dead or dying corals that no local management can prevent. But so strong is the lobby of governments,

funding agencies, and big international nongovernmental organizations (BINGOS) for MPAs that their failurecannot be admitted.

B. FEDERAL PROGRAMS DESIGNED TO PROTECT CORAL REEFS HAVE A RECORD OF FAILURE.

Elise Pautler, (J.D., Stetson U. College of Law), STETSON LAW REVIEW, Fall 2013, 165.

Despite good intentions, the creation of a plethora of regulatory programs, and great advances in the approachto coral reef protection, the symptoms of coral reef degradation continue. Most notably, poor coastal water qualitystill negatively impacts corals, even though laws that regulate water pollution exist. The proof is in the currentquality of the marine environment and state of the reefs. But these continuing threats to corals are only symptoms ofa problem with the current coral reef protection provisions.

C. THE U.S. GOVERNMENT NEGLECTS THE FUNDING OF ARTIFICIAL RESTORATION OF CORAL REEFS.

Thomas Goreau, (Global Coral Reef Alliance, Cambridge Mass.), INNOVATIVE METHODS OF MARINE

ECOSYSTEM RESTORATION, 2013, 280.

Unfortunately, at present, there is no serious funding from any government, international agency, or big

international NGO (BINGO) for serious habitat restoration. The overwhelming paradigm is marine-protected areas(MPAs), excluding fishermen from designated regions, with the claim that coral reef and fisheries will bounce back

in a "resilient" way all by themselves. Yet, MPAs are full of dead and dying coral being killed by global warming

that no MPA can possibly protect them from. And if there is no habitat for fish populations, the fisheries will not

recover no matter how many fishermen and their families starve. Without restoration of degraded habitats, fisheries

cannot possibly recover.

III. ARTIFICIAL RESTORATION WILL RESTORE THE VIABILITY OF CORAL REEFS.

A. BIOROCK RESTORATION PROMOTES DRAMATIC RECOVERY OF CORAL REEFS.

Neviaty Zamani (Prof., Bogor Agricultural U., Indonesia), INNOVATIVE METHODS OF MARINE

ECOSYSTEM RESTORATION, 2013, 82.

Hard coral typically grow 2-6 times faster on Biorock structures than on controls (depending on species and

conditions), show dense branching, have 16-50 times higher survival rates after severe high temperature stress, andshow rates of new coral recruitment hundreds to thousands of times higher per unit area per unit time than recordedin the literature.

Lalu Bakti, (Prof., Mataram U., Indonesia), INNOVATIVE METHODS OF MARINE ECOSYSTEM

RESTORATION, 2013, 62.

Hard corals are not the only ones to grow on Biorock structures, but tunicates, bivalves, sponges, and soft corals

also develop faster than average. On a Biorock structure, their survival and resistance rate is 20 to 50 times higher

than in natural environment following severe high-temperature bleaching events.

B. ABUNDANT OCEAN LIFE RETURNS ONCE CORAL REEFS ARE RESTORED.

Thomas Goreau, (Global Coral Reef Alliance, Cambridge Mass.), INNOVATIVE METHODS OF MARINE

ECOSYSTEM RESTORATION, 2013, 280.

Biorock reefs show dramatic increases in fish populations that are immediately apparent to any observer. The

data in Jompa et al., Chapter 5 and Arifin et al., Chapter 6 are the first data on this increase. Astonishingly, Biorockmethods are capable of producing much greater fisheries stocks and production than even the richest natural reefs,

and doing so in areas that are completely barren. As Biorock can be built in any size or shape, it is possible toproduce many layers of habitat at one place. A natural reef usually has one layer of holes, and the populations offishes, shellfish, lobsters, crabs, octopus, etc. are limited by the number of shelter holes of the right size and shape

that they can find and defend. With Biorock, there is no limit to the number of layers and holes and shapes that canbe produced. Every species has a different preference, so we get very different results with different shapes. We arelearning what different species prefer when they show us what they want by moving in at high density. We haveunintentionally produced extraordinary densities of spiny lobsters by accidentally building structures in the shapes

that they prefer.

Jamaludin Jompa, (Prof., Hasamuddin U., Indonesia), INNOVATIVE METHODS OF MARINE ECOSYSTEM

RESTORATION, 2013, 55.

Fish populations were 6.25 times denser, 1.84 times more diverse, and 15.75 times more evenly distributed by

species on Biorock structures than on surrounding natural reef areas. The control area had 3.6 times greater

dominance of the most abundant species than the Biorock reef.

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AQUACULTURE: PROPER REGULATION SAVES THE OCEANS

The thesis of this case is that the U.S. federal government must create a system of properly regulated aquaculturedevelopment rather than to continue to so heavily rely on imported aquaculture products. Aquaculture, when improperlyconducted can cause pollution and threaten ocean fisheries. Yet the U.S. is currently engaged in the highly irresponsiblepractice of importing most of its seafood from environmentally destructive aquaculture operations in developing countries.

The U.S. has a moral responsibility to stop exporting its pollution problems. The appropriate response to the current U.S.

reliance on environmentally-destructive aquaculture imports is the creation of a properly-regulated domestic aquaculture

industry. Fortunately, such a system is available through the passage of the National Sustainable Offshore Aquaculture Act as

proposed by U.S. Representative from California, Lois Capps. Her proposal has the endorsement of the Ocean Conservancy.

Plan: (1) The United States federal government will adopt the National Sustainable Offshore Aquaculture Act, directing the

Secretary of Commerce to establish an Office of Sustainable Offshore Aquaculture in the National Marine Fisheries

Service at National Oceanic and Atmospheric Administration (NOAA) headquarters and at satellite offices in each of

NOAA's regional fisheries offices. The Office of Sustainable Offshore Aquaculture will become the sole regulatoryagency for the permitting and supervision of offshore aquaculture operations.

OBSERVATION:

I. AQUACULTURE DEVELOPMENT IS IMPROPERLY REGULATED IN THE PRESENT SYSTEM.

A. NO FEDERAL AGENCY HAS CLEAR REGULATORY AUTHORITY OVER AQUACULTURE.

Kristen Johns, (J.D.), SOUTHERN CALIFORNIA LAW REVIEW, Mar. 2013, 690.

As interest in offshore aquaculture grows, the developmental and technological barriers that were once major

impediments to the industry will disappear. Now, the most significant obstacle is the lack of any clear and

comprehensive regulatory framework to guide the industry's development.

Harold Upton, (Analyst in Natural Resources Policy, Congressional Research Service), OPEN OCEAN

AQUACULTURE, Aug. 9, 2010, 2.

Development of commercial aquaculture facilities in federal waters is hampered by an unclear regulatoryprocess in the EEZ and technical uncertainties related to working in offshore areas. Regulatory uncertainty has beenidentified by the Administration as the major barrier to developing offshore aquaculture in the United States.

Uncertainty is one of the main barriers to commercial investment in many new industries.

Garret Wheeler, (J.D. Golden Gate U. College of Law), GOLDEN GATE UNIVERSITY ENVIRONMENTAL

LAW JOURNAL, Spr. 2013, 303.

The regulatory framework currently associated with aquaculture production in the United States is a confusingpatchwork of statutory and agency overlaps.

B. THE ABSENCE OF CLEAR REGULATORY AUTHORITY ALLOWS HARMFUL AQUACULTURE PRACTICES.

George Leonard, (Staff, Ocean Conservancy), A PRECAUTIONARY APPROACH TO U.S. OPEN-OCEAN

AQUACULTURE, Jan. 27, 2010. Retrieved Apr. 16, 2014 from www.oceanconservancy.org.

In the absence of federal legislation, regional expansion of the industry is quietly proceeding. In September

2009, the Secretary of Commerce allowed the legally-dubious “Aquaculture Fishery Management Plan” to go into

effect in the Gulf of Mexico, paving the way for industry expansion in those important waters.

George Leonard, (Staff, Ocean Conservancy), A PRECAUTIONARY APPROACH TO U.S. OPEN-OCEAN

AQUACULTURE, Jan. 27, 2010. Retrieved Apr. 16, 2014 from www.oceanconservancy.org.

Now is the time for strong leadership from members of Congress on the future of open-ocean aquaculture

in the United States. If Congress fails to act, a piecemeal, poorly-regulated industry is likely to develop with

potentially severe environmental consequences. But with bold action, Congress can ensure an overarching

national vision for environmentally responsible ocean fish farming and develop the legislative framework

necessary to ensure strong protection of U.S. waters. Doing anything less is a gamble with our oceans that we

simply should not take.

ADVANTAGES:

I. U.S. DEVELOPMENT OF SUSTAINABLE AQUACULTURE BEST PROTECTS THE OCEAN ENVIRONMENT.

A. RELIANCE ON UNREGULATED AQUACULTURE IMPORTS UNDERMINES THE OCEAN ENVIRONMENT.

1. Most U.S. seafood is imported, coming mostly from aquaculture operations in other nations.

Ian Bricknell, (Prof., Aquaculture Research Institute), JOURNAL OF FISHERIES & LIVESTOCK

PRODUCTION, 2013, 1.

The USA consumes around $19 billion worth of seafood a year, 95% of it is imported and of that $18 billion

54% is aquacultured. The reason for this is clear, many of the wild stocks of fish, invertebrates and marine algae areover exploited and near collapse to fulfill consumer demand and aquaculture has stepped in to fill the gaps.

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2. Importing such a large portion of our seafood involves a moral hazard; we are effectively shifting environmental

damage to regions less able to properly regulate aquaculture.

Elisabeth Rosenthal, (Staff), NEW YORK TIMES, may 2, 2011, A6.

Environmentalists argue that intensive and unregulated tilapia farming is damaging ecosystems in poorcountries with practices generally prohibited in the United States — like breeding huge numbers of fish in cagesin natural lakes, where fish waste pollutes the water. ''We wouldn't allow tilapia to be farmed in the United States

the way they are farmed here, so why are we willing to eat them?'' said Dr. Jeffrey McCrary, an American fishbiologist who works in Nicaragua. ''We are exporting the environmental damage caused by our appetites.''

Saidul Islam, (Prof., Sociology, U. Singapore), CONFRONTING THE BLUE REVOLUTION: INDUSTRIALAQUACULTURE AND SUSTAINABILITY, 2014, 10.

Must food security for affluent consumers in the global North be founded on social and ecological

devastation in the global South? Industrial aquaculture is a prime candidate for further exploration of thesequestions for several compelling reasons. First, its products are among the major high-value transnational agrifood

commodities. Over the past three decades, industrial aquaculture has become a major global industry,

regarded as the pinnacle of the Blue Revolution’s achievement. Commercial shrimp dominates the industrial

aquaculture of the global South, with total annual production worth more than $14 billon at the farm gate.

Second, the tropical coastal zones of countries such as China, Bangladesh, Thailand, Indonesia, Malaysia, and

Vietnam dominate the production and export of commercial shrimp to the United States, Europe, Canada, Japan,

and other wealthy areas. For many developing countries, therefore, industrial aquaculture has become a major

source of foreign exchange and has integrated often previously marginal coastal communities into high-valuecommodity networks. Third, industrial aquaculture has been the subject of heated debate and close scrutiny,

targeted by environmental groups that claim it has negative environmental and social effects on ocean ecologies

and local communities that far outweigh the benefits.

Saidul Islam, (Prof., Sociology, U. Singapore), CONFRONTING THE BLUE REVOLUTION: INDUSTRIALAQUACULTURE AND SUSTAINABILITY, 2014, 11.

Although coastal zones in tropical regions are important hubs for industrial aquaculture, particularlycommercial shrimp, the people living there are mainly poor and heavily dependent on natural resources. Sincethe early 1990s, numerous researchers and local and international NGOs have voiced serious concerns regardinglocal-level environmental and social disruptions caused by industrial aquaculture, including displacement,

environmental hazards, conflict over access to natural resources, and violation of human rights. Despite majorefforts to resolve these issues, however, the debate surrounding the sustainability of industrial aquaculture

remains largely unsettled and the industry is still growing quite rapidly. A report by the UK-based Environmental

Justice Foundation in partnership with the US organization WildAid, suggests that shrimp farming has beenaccompanied by intimidation, aggression, and threats against those who oppose its expansion.

B. PROPERLY REGULATED DOMESTIC AQUACULTURE WILL BEST PRESERVE THE OCEAN

ENVIRONMENT.

1. Aquaculture operations can be sustainably developed when properly regulated.

George Leonard, (Staff, Ocean Conservancy), A PRECAUTIONARY APPROACH TO U.S. OPEN-OCEANAQUACULTURE, Jan. 27, 2010. Retrieved Apr. 16, 2014 from www.oceanconservancy.org.

Recently, Congresswoman Lois Capps (D-CA) introduced environmentally-protective legislation to

create a comprehensive federal permitting and regulatory system for offshore aquaculture, accompanied by

an ecologically-based research program. H.R. 4363, the National Sustainable Offshore Aquaculture Act of

2009, introduced on December 16, 2009, establishes a system to help ensure that any open-ocean

aquaculture in the U.S. avoids the adverse impacts on marine ecosystems, human health, and coastal

communities that have accompanied the industry’s development elsewhere.

2. The National Sustainable Offshore Aquaculture Act properly balances the need for seafood with the need to

protect the environment.

Tim McHugh, (Staff, Ocean Conservancy), BUSINESS WIRE, Dec. 17, 2009. Retrieved Apr. 16, 2014 fromhttp://www.businesswire.com/news/home/20091217006367/en/Ocean-Conservancy-National-SustainableOffshore-

Aquaculture-Act#.U1V8k8decec.

“It’s time to set a standard for open-ocean aquaculture, and the National Sustainable Offshore Aquaculture

Act is an important step. The legislation offers a science-based precautionary approach including overarchingenvironmental, socioeconomic, and liability standards,” explained George Leonard, Ocean Conservancy’saquaculture program director. “We need a strong national framework for marine aquaculture before expansionoccurs in our federal ocean waters, and Congresswoman Capps is to be commended for showing leadership onthis important national issue.”

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3. The U.S. has a moral obligation to manage the environmental impacts of its own seafood consumption.

Suzi Dominy, (Staff, AquaFeeds.com), OCEAN STEWARDS APPLAUD NEW DRAFT LEGISLATION FORSUSTAINABLE OFFSHORE AQUACULTURE, Jan. 5, 2010. Retrieved Apr. 16, 2014 from

http://www.aquafeed.com/read-article.php?id=3084.

"It is a moral imperative for the United States to take the lead on sustainable aquaculture development," saysNeil Anthony Sims, President of the Ocean Stewards Institute, the Kailua-Kona, Hawaii — based organization

dedicated to promoting responsible open ocean mariculture. "This legislation [referring to the NationalSustainable Offshore Aquaculture Act] provides opportunity for U.S. companies to produce sustainable and

abundant seafood, using U.S. environmental standards and food safety standards. Seafood grown in U.S.

offshore waters will be a model for the world to follow."

Kristen Johns, (J.D.), SOUTHERN CALIFORNIA LAW REVIEW, Mar. 2013, 721.

The United States' attitude toward developing its offshore aquaculture industry must soon mirror its taste forseafood. The average American eats about sixteen pounds of seafood each year — the third-highest per-capitaconsumption rate in the world — yet the nation still imports over 91 percent of its seafood products from other

countries. About half of these products come from foreign aquaculture operations. In order to meet its own

demand as well as become an important player in global seafood production, clearly the United States needs tostep up its domestic aquaculture industry.

II. SUSTAINABLE DEVELOPMENT OF AQUACULTURE BEST PREVENTS OVERFISHING.

A. CURRENT U.S. DEMAND FOR SEAFOOD CAUSES OVERFISHING.

Kristen Johns, (J.D.), SOUTHERN CALIFORNIA LAW REVIEW, Mar. 2013, 682.

Fish might be considered "brain food," but there is nothing smart about the way the United States currentlymanages its seafood production. Although the U.S. government has long promoted the health benefits of productsfrom the sea — even urging Americans to double their seafood intake — it has fallen far behind in developing adomestic source for this seafood. Currently, the United States relies on an almost primitive method for domesticseafood production: taking animals found naturally in the wild. However, this approach is no longer sustainable:

most federally managed capture fisheries are either stable or declining, with forty-eight currently overfished, and

forty subject to overfishing in 2010.

B. THE NATIONAL SUSTAINABLE OFFSHORE AQUACULTURE ACT BEST PROMOTES THE DEVELOPMENT

OF SUSTAINABLE AQUACULTURE.

Suzi Dominy, (Staff, AquaFeeds.com), OCEAN STEWARDS APPLAUD NEW DRAFT LEGISLATION FOR

SUSTAINABLE OFFSHORE AQUACULTURE, Jan. 5, 2010. Retrieved Apr. 16, 2014 from

http://www.aquafeed.com/read-article.php?id=3084.

The Ocean Stewards Institute applauded the introduction of H.R. 4363, the National Sustainable OffshoreAquaculture Act of 2009, as an important first step towards establishing an overarching regulatory framework forresponsible, sustainable and environmentally conscious open ocean mariculture. Rep. Lois Capps drafted thelandmark legislation with extensive input from both environmental and aquaculture interests. For the first time, this

bill seeks a balanced approach to the environmental and economic aspects of developing a domestic offshore

aquaculture industry.

Rosamond Naylor, (Dir., Program on Food Security and the Environment, Stanford University), TIMES

COLONIST, Feb. 21, 2010. Retrieved Apr. 16, 2014 from Nexis.

In December, California Rep. Lois Capps introduced the National Sustainable Offshore Aquaculture Act, a bill

that addresses the potential threats of poorly regulated fish farming in U.S. ocean waters. Her bill shares many of thefeatures of a California state law, the Sustainable Oceans Act, which was signed by Gov. Arnold Schwarzenegger in2006. That legislation regulates fish farming in state waters, which extend three miles off the California coast. At

present, all aquaculture operations in California and the U.S. are located just a few miles offshore. If the U.S.

follows California's lead, we might be able to reward innovation and responsibility in aquaculture and at the sametime prevent the kind of boom-and-bust development that happened in Chile.

C. SUSTAINABLE DEVELOPMENT OF AQUACULTURE REMOVES THE PRESSURE FOR OVERFISHING.

Eriberto Lozada, (Masters Thesis, Nicholas School of Environment, Duke U.), LEARNING HOW TO FARM FISH:

DEVELOPING SUSTAINABLE AQUACULTURE IN NORTH CAROLINA, May 2012, 7.

With declines in capture fisheries, aquaculture can have a crucial role in making future seafood production

sustainable. Capture fisheries are depleting the stock of wild fish: 28% of stocks are either overexploited, depleted,

or recovering from depletion; another 52% of stocks are categorized as fully-exploited.

Antonia Sohns, (Project Fellow, Worldwatch Institute), STATE OF THE WORLD 2013: IS SUSTAINABILITY

STILL POSSIBLE?, 2013, 71.

Sustainable aquaculture holistically farms marine life. In the 1980s, John Ryther of the Woods Hole

Oceanographic Institute developed an oyster farming approach that raised oysters in the sewage water generated by50,000 people. The oysters fed on algae that grew in the nutrient-rich environment. To manage the waste producedby the oysters, Ryther introduced polychaete worms that would feed and then be harvested and sold as fish bait.

Thus, properly managed aquaculture can decrease pressure on wild fisheries and supply commercial species for the

world's market.

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OVERFISHING: ECOSYSTEM MANAGEMENT ENSURES A FUTURE FOR FISHERIES

The thesis of this case is that fisheries throughout the United States are seriously overfished. The capacity of fishing

vessels exceeds by far the number of fish which can be sustainably harvested. When we catch more fish than can be

replenished, the population of fish in the fishery declines. This is exactly what has happened in most fisheries in the United

States. Several overfished species face the threat of extinction. A solution to overfishing is available by banning especially

destructive fishing practices and the expansion of Marine Protected Areas (MPAs).

Plan: (1) The United States federal government will expand networks of Marine Protected Areas under the supervision of the

U.S. Department of Interior to include a minimum of 10% of ocean waters in the federal EEZ, (2) The Department of

Interior will ban all commercial fishing in Marine Protected Areas and establish guidelines and enforce regulations on therecreational use of Marine Protected Areas. (3) The practice of bottom trawling will be banned in U.S. ocean fisheries.

I. OVERFISHING IS A SERIOUS PROBLEM.

A. OVERFISHING IS EXTENSIVE IN AMERICA’S FISHERIES.

Simonetta Freschetti, (Prof., Marine Biology, U. of Salento, Italy), MARINE PROTECTED AREAS, 2011, 15.

Overfishing nearly extirpated the larger fish fauna of coastal ecosystems, ranging from sharks and rays onCaribbean reefs to cod in coastal Maine. Declines in top predators may cascade down food webs, and the

implications of these cascading processes on system functioning and resilience can be dramatic, for instance

changing a fish-dominated ocean to one dominated by jellyfish.

David Biello, (Associate Editor, Scientific American), THE POLITICS OF THE OCEANS, 2011, 149.

In 1994, seafood may have peaked. According to an analysis of 64 large marine ecosystems, which provide 83percent of the world's seafood catch, global fishing yields have declined by 10.6 million metric tons since that year.

And if that trend is not reversed, total collapse of all world fisheries should hit around 2048. "Unless we

fundamentally change the way we manage all the oceans species together, as working ecosystems, then this centuryis the last century of wild seafood," notes marine biologist Stephen Palumbi of Stanford University.

Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting), THE ATLAS OF COASTS & OCEANS:

ECOSYSTEMS, THREATENED RESOURCES, MARINE CONSERVATION, 2011, 50.

The prognosis for the health of the oceans and the vast fisheries they sustain is not good. In recent years onefishery after another has either collapsed commercially, or is being fished at its maximum yield. The state of wild

ocean fisheries is so imperiled that if current overfishing continues, all the species we like to eat, and many more,

will probably be gone by the middle of the century. The majestic blue fin tuna is already nearing the point at which

it will be considered commercially extinct in the Mediterranean, and stocks are heading that way in the NorthAtlantic and elsewhere.

B. OVERFISHING CAUSES THE COLLAPSE OF FISHERIES.

Daniel Pauly, (Prof., Fisheries Center, U. of British Columbia), OCEANS: OPPOSING VIEWPOINTS, 2011, 52.

Instead of restricting its catches so that fish can reproduce and maintain their populations, the industry has

simply fished until a stock is depleted and then moved on to new or deeper waters, and to smaller and stranger fish.

And, just as a Ponzi scheme will collapse once the pool of potential investors has been drained, so too will the

fishing industry collapse as the oceans are drained of life.

Richard Oppenlander, (Environmentalist), COMFORTABLY UNAWARE: WHAT WE CHOOSE TO EAT IS

KILLING US, 2012, 48-49.

What happens, essentially, is that fishing vessels clear a seamount area of as much fish as possible, and once

devastated and depleted, fishermen simply move on to the next seamount to start the process all over again. Manyknown seamounts are already overexploited to the point where extinction may well soon follow or recovery may

take centuries.

C. UNREGULATED USE OF BOTTOM-TRAWLING DESTROYS WHOLE OCEAN ECOSYSTEMS.

Peter Sale, (Prof., Marine Ecology, United Nations University), OUR DYING PLANET: AN ECOLOGIST’S

VIEW OF THE CRISIS WE FACE, 2011, 45-46.

Some kinds of fishing also have profound effects on habitat. Again, bottom trawling is a particularly egregious

example. If you think about it, trawling involves dragging a rather heavy net and a couple of heavy barn doorsacross the substratum in an attempt to catch those organisms that swim about just above it. To be effective, the trawlmust hug the bottom so that fish can't escape underneath. As a consequence, trawling has substantial effects on the

structure of the substratum, particularly when that structure is relatively delicate, made up of various sponges,

bryozoans, oyster reefs, algae, and corals. Trawling rips these up while generally leveling any topography of theocean floor. This is a little like clear cutting a forest but using a bulldozer to do the clearing.

Richard Oppenlander, (Environmentalist), COMFORTABLY UNAWARE: WHAT WE CHOOSE TO EAT IS

KILLING US, 2012, 48.

It is estimated that trawling alone is more damaging to seabed areas than all other fishing gear combined and isdestroying deep-sea communities that will take decades and centuries to recover — if at all. These species andecosystems are particularly at risk with additional stress, such as climate change and pollution.

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Richard Oppenlander, (Environmentalist), COMFORTABLY UNAWARE: WHAT WE CHOOSE TO EAT IS

KILLING US, 2012, 48.

With traditional fishing grounds now depleted, the fishing industry is targeting newer stocks, with more

sophisticated locating equipment, farther offshore, including around and on seamounts. Large industrial vessels and

fleets operate for weeks and months, targeting deep-water species on continental slopes and seamounts. Over 95

percent of the damage — and possible irreversible change — to seamount ecosystems is caused by unregulated and

unreported bottom-fishing, with extremely destructive gear such as trawls, dredges, and traps.

D. EXCESSIVE BYCATCH DEPLETES OCEAN FISHERIES.

Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting), THE ATLAS OF COASTS & OCEANS:

ECOSYSTEMS, THREATENED RESOURCES, MARINE CONSERVATION, 2011, 15.

The world's fishing fleets discard at least 20 million metric tons of fish and shellfish every year as by-catch

from their operations. Most of the waste is due to trawlers which harvest enormous quantities of marine life in their

relentless search for squid, shrimp or bottom dwelling fish (such as halibut, sole, and flounder). This loss of

potential protein (and income) amounts to nearly one-quarter of the world's annual take from the seas. Losses from

discards in the Bering Sea and Gulf of Alaska alone have been estimated at around $250 million a year.

Peter Kareiva, (Chief Scientist, Nature Conservancy), CONSERVATION SCIENCE: BALANCING THE NEEDS

OF PEOPLE AND NATURE, 2011, 373-374.

Each year, millions of tonnes of fish, sea turtles, seabirds, and marine mammals are inadvertently entangled or

otherwise captured by commercial fishing operations. These captures are called bycatch, or incidental take, and are a

significant conservation issue. Even if quickly released, the discarded individuals often perish, which makes bycatch

a potentially significant source of mortality. Many of the animals that are caught and discarded are juvenile fish that

might have eventually grown to commercially valuable sizes or become prey for commercially valuable fish species.

Thus, bycatch may reduce future commercial harvests.

II. PRESENT POLICIES ARE INCAPABLE OF PROTECTING AMERICAN FISHERIES.

A. PRESENT FISHERIES REGULATION IS BASED ON A SINGLE-SPECIES APPROACH.

Jason Link, (Fisheries Biologist, National Marine Fisheries Service), ECOSYSTEM-BASED FISHERIES

MANAGEMENT: CONFRONTING TRADEOFFS, 2010, 15-16.

The management of fisheries and more broadly all LMRs [living marine resources] (i.e. including marine

mammals) has been for the most part single species in orientation. Institutional structures the world over generallyseek to manage fish stocks on a stock-by-stock basis; this is a logical and natural product of the underlying scientificmodels used for most fisheries assessments. Using the assessment advice to nominally determine the status of stocks

relative to some established benchmark levels (i.e. reference points in fisheries parlance), decision criteria, or control

rules are then implemented accordingly.

B. SINGLE-SPECIES REGULATION IS INCAPABLE OF PROTECTING THE FUTURE OF FISHERIES.

Jason Link, (Fisheries Biologist, National Marine Fisheries Service), ECOSYSTEM-BASED FISHERIES

MANAGEMENT: CONFRONTING TRADEOFFS, 2010, 17.

Beyond the stock focus, SS [single-species] approaches will never be able to provide insights into a broader

suite of pressing issues: for example, changes in ecosystem structure and functioning, biodiversity, fishing gear

impacts on habitat, needs of protected or rare species relative to other species or other sources of removals (e.g.

fishing), ecosystem effects of discarding unwanted bycatch, fishing impacts on energy flows of a food web, orparticularly non-fishing but LMR-[living marine resources]-related ecosystem services and values, and so on.

Anne Hayden, (Prof., Environmental Studies, Bowdoin College), ROGER WILLIAMS UNIVERSITY LAW

REVIEW, Winter 2012, 76.

Focus on single species management and regulation undercuts the conservation incentive of small-scale

diversified fisheries by reinforcing a shift to larger scale, "roving bandit" fisheries. Management at the scale of the

Gulf of Maine allowed open access on substocks resulting in local extirpations and sharply reducing the viability ofthe small boat fleet.

Mark Kurlansky, (Journalist), WORLD WITHOUT FISH, 2011, 94.

These laws also give fishermen an incentive to waste fish. A fisherman hauls in his net, calls into the markets on

his cell phone to find out what fish are selling for the highest price that day, and then dumps the fish that is selling

for the lowest prices. Why would he use up his quota on a species on a day when the price is low?

Mark Kurlansky, (Journalist), WORLD WITHOUT FISH, 2011, 94.

Another problem is that the quota system tends to direct fishermen to constantly target new species. This

happened in New England. When the cod quota was small, fishermen went after haddock, which are in the samebiological family as cod. Darwin noted that competition is particularly intense between related species because they

tend to eat similar things. Because fishermen interfered with these struggles by killing large numbers of cod, the

haddock population flourished. Great cod ports, such as Gloucester, have become haddock ports now. But if thefishermen also kill too many of the haddock before the cod have recovered, a wide swath out of the food chain willhave been irreparably damaged, shifting the entire balance of nature.

AFFIRMATIVE CASES BAYLOR BRIEFS 30

C. THE PERCENTAGE OF OCEAN AREAS SET ASIDE AS MARINE PROTECTED AREAS IS INADEQUATE.

Ocean Conservancy, MARINE PROTECTED AREAS, 2014. Retrieved Apr. 16, 2014 from http://www.ocean

conservancy.org/our-work/marine-protected-areas/.

In the United States, more than 10 percent of our land has been reserved as protected parks, wildlife refuges and

wilderness areas, but the same level of care has yet to be given to our ocean, where less than 1 percent is protected.

Charles Peterson, (Analyst, Pew Environment Group), A ONCE AND FUTURE GULF OF MEXICO

ECOSYSTEM, 2011, 67.

The establishment of marine protected areas (MPAs) is an important conservation approach that simultaneouslyprotects biodiversity and promotes rebuilding of depleted fish stocks, especially demersal fishes of reefs.

Unfortunately, the amount of habitat currently protected in the ocean is far below that recommended by scientists.

III. THE EXPANSION OF MARINE PROTECTED AREAS WILL BEST PROMOTE THE SUSTAINABLE

DEVELOPMENT OF THE OCEANS.

A. MARINE PROTECTED AREAS SERVE AS THE NURSERIES OF THE OCEANS.

Ocean Conservancy, MARINE PROTECTED AREAS, 2014. Retrieved Apr. 16, 2014 from http://www.ocean

conservancy.org/our-work/marine-protected-areas/.

Underwater parks, called marine protected areas, strongly improve our ocean’s health. Take fish, for example:

Studies show that these areas allow fish to grow larger, stay healthier and reach greater abundance and diversity.

Fish thrive in these protected areas, then move out into other parts of the ocean and replenish weaker populations.

This not only makes a difference for the fish, but for the people and wildlife that depend on healthy fish for their

survival. Studies also show that underwater parks are more resilient in the face of threats and hold up even in theface of disaster.

Jane Lubchenco, (U.S. Undersecretary of Commerce for Oceans and Atmosphere), OCEANS: THE THREATS TO

OUR SEAS, 2010, 216.

The science of marine reserves is clear: No-take areas are powerful tools to protect habitats, biodiversity, and

the large individuals in fish or invertebrate populations that are so critical for the future health of the population. Inmany cases, reserves can also help recover depleted fisheries, acting as natural hatcheries to provide a source of fishor other species to repopulate adjacent areas.

B. MARINE PROTECTED AREAS RESTORE FISHERIES.

Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting), THE ATLAS OF COASTS & OCEANS:

ECOSYSTEMS, THREATENED RESOURCES, MARINE CONSERVATION, 2011, 100.

The benefits of conserving marine areas are increasingly evident: when the US state of Florida set up a series of

marine protected areas and no-fish zones, scientists noted that within four years densities of yellow-tailed snapper

increased more than 15 times, compared to unprotected areas; after Apo Island, off the coast of Negros, Philippines,

set up a marine protected area in 1986 comprising just eight percent of the 106 hectare reef that fringed the island,

catches of fish rebounded after two years and have since increased ten-fold.

Ray Hilborn, (Prof., Aquatic Science, U. Washington), OVERFISHING: WHAT EVERYONE NEEDS TO KNOW,

2012, 108.

In general, ecological theory expects and predicts that if overfishing is a major problem, establishing an MPAwill result in more fish in the system overall. This is because eggs and larvae drift out of the reserve and reseed theadjacent overfished areas and thereby increase overall abundance.

Callum Roberts, (Prof., Marine Conservation, U. of York), OCEANS: THE THREATS TO OUR SEAS, 2010, 226.

Fishery regulations can be wiped out by the stroke of an official's pen, whereas marine reserves are moreenduring because permanence is a cornerstone of the idea of protection, making it much harder to remove them on a

legislative whim. They should provide inviolable asylums for marine life. If management goes wrong outside

reserves, and populations are overfished, there will still be protected animals left to kick-start recovery. Reserves

provide insurance against management failure.

C. MARINE PROTECTED AREAS REBUILD ENTIRE OCEAN ECOSYSTEMS.

Callum Roberts, (Prof., Marine Conservation, U. of York), OCEANS: THE THREATS TO OUR SEAS, 2010, 227.

Reserves do not just promote resilience of the species we catch to eat but will also restore it in their habitats.

Putting areas off-limits to fishing allows recovery of species such as corals, sponges, sea squirts, and mollusks thatcreate complex bottom structures that bind the seabed and perform countless other vital roles such as filtering the

water. Protecting these species is important because the mechanical destruction caused by fishing has depleted

populations of these animals, too. With time, after reserves have become established, such "bioengineers" will alsobegin to experience higher and more stable reproduction. In turn, the recovery of habitats that have been damaged

by fishing will aid the productivity of commercially valuable species.

AFFIRMATIVE CASES BAYLOR BRIEFS 31

PROTECTING THE WHALES

The thesis of this case is that the U.S. federal government has a special responsibility to protect intelligent ocean

creatures such as whales and dolphins. Unfortunately, the Obama administration has recently authorized the use of expandedseismic airgun blasting in regions of the oceans that will have a dramatic impact on whales, dolphins, and many other oceancreatures. This case argues that the U.S. federal government should return to its earlier policy of banning seismic airgunblasts in the oceans.

Plan: The United States federal government will ban the use of seismic airgun blasts in ocean waters under U.S. control.

OBSERVATION

I. THERE IS A MORAL IMPERATIVE FOR THE PROTECTION OF WHALES.

A. WHALES ARE A MAJESTIC SPECIES WHOSE SURVIVAL IS THREATENED BY HUMANS.

Philippa Brakes, (Marine Biologist & New Zealand Rep. to International Whaling Commission), WHALES AND

DOLPHINS, 2011, 1.

First, whales remain today, as they did in the 1960s and 1970s, an icon for the environmental movement; a

motivating emblem of what could be lost forever if we do not act swiftly to protect these remarkable animals and

their habitats. In this role, they are not only ambassadors for their own species, but also for entire marine ecosystemsand, potentially, for the biosphere as a whole.

Whale and Dolphin Conservation Society, SENTIENT AND SAPIENT WHALES AND DOLPHINS, 2011.

Retrieved Apr. 16, 2014 from http://us.whales.org/issues/sentient-and-sapient-whales-and-dolphins.

WDC believes that as sentient and sapient individuals, whales and dolphins have an entitlement to have their

homes, families and cultures protected as well as being protected as individuals. We argue that their intelligence and

understanding of the world around them is such that protecting their physical and basic psychological wellbeing is

insufficient and that beyond a basic ‘right to life, liberty and wellbeing’, they also have the right to freedom of

movement and residence within their natural environment; the protection of their natural environment; and not to besubjected to the disruption of their cultures. These are some of the principles enshrined in the Declaration of Rights

for Cetaceans: Whales and Dolphins.

Jane Goodall, (Founder, Jane Goodall Institute), SENTIENT AND SAPIENT WHALES AND DOLPHINS, 2011.

Retrieved Apr. 16, 2014 from http://us.whales.org/issues/sentient-and-sapient-whales-and-dolphins.

Whales and dolphins are ancient and wonderful sapient and sentient beings. How would we be judged by our

great, great grandchildren and all unborn generations if, knowing what we do, we do not fight to prevent their

extinction? The whales and dolphins need and deserve our help – now, before it is too late

B. WHALES ARE VITAL TO THE PRESERVATION OF THE OCEAN ECOSYSTEM.

David Blockstein, (Sr. Scientist, National Council for Science and the Environment), CLIMATE SOLUTIONS

CONSENSUS, 2010, 75.

The story of declining marine life becomes crystal clear if we look at the long-term effect of the killing of the

ocean's largest creatures, its whales. Removing the largest animals from an ecosystem can cause strong enduring

changes throughout the entire ecosystem, as predator-prey balances are upset and begin to shift to affect other

species.

CONTENTION

I. THE USE OF SEISMIC AIRGUN BLASTS THREATENS THE VIABILITY OF OCEAN SPECIES.

A. THE OBAMA ADMINISTRATION HAS ANNOUNCED PLANS TO ALLOW USE OF SEISMIC AIRGUN

BLASTS IN U.S. OCEAN WATERS.

Sean Cockerham, (Staff, McClatchy News Service), STAR-NEWS, Feb. 28, 2014, 1A.

The Interior Department is endorsing seismic exploration for oil and gas in Atlantic waters, a crucial movetoward starting drilling off the Carolinas, Virginia and possibly down to Florida. The department released its final

review Thursday, favoring a plan to allow the intense underwater seismic air gun blasts that environmentalists andsome members of Congress say threatens the survival of whales and dolphins.

Sean Cockerham, (Staff, McClatchy News Service), STAR-NEWS, Feb. 28, 2014, 1A.

The Interior Department's plan is to start allowing underwater seismic air gun tests in an area from Delaware to

Florida's Cape Canaveral, though most of the push for offshore drilling involves the waters off the Carolinas and

Virginia. The seismic tests involve vessels towing an array of air guns that blast compressed air underwater, sending

intense sound waves to the bottom of the ocean. The booms are repeated every 10 seconds or so for days or weeks.

WASHINGTON POST, Sept. 6, 2013, A16.

In 2010, President Obama cleared the way for opening some 330,000 square miles of ocean off the East Coast,

from the Delaware Bay to Florida's Cape Canaveral, to exploration for oil and gas, of which there's likely anenormous amount. As The Washington Post's Lenny Bernstein reported recently, the Bureau of Ocean EnergyManagement (BOEM) estimates that there are some 3.3 billion barrels of oil and 3.1 trillion cubic feet of natural gas

off the East Coast, and those figures are based on data collected using outdated technology. The use of seismic gunshas become a contentious issue among oil companies, conservationists and members of Congress since the Interior

Department announced in March 2012 that it planned to allow them in the Atlantic.

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B. SEISMIC AIRGUN BLASTS TRAVEL THOUSANDS OF MILES THROUGH THE OCEANS.

Michael Jasny, (Analyst, Natural Resource Defense Counsel), BOOM, BABY, BOOM: THE ENVIRONMENTAL

IMPACTS OF SEISMIC SURVEYS, June 4, 2014, 2.

Noise from a single seismic survey, operating in the direction of the upper right corner, saturates an area in theNorth Atlantic larger than the state of West Virginia (10,000 square nautical miles), masking low frequencies usedby endangered baleen whales. Red signifies noise several orders of magnitude higher than the prevailing backgroundnoise in the region. In fact, biologists have found that airguns cause endangered fin and humpback whales to go

silent over an area at least 10 times larger than this.

Lindy Weilgart, (Ph.D., Biology, Dalhousie U.), A REVIEW OF THE IMPACTS OF SEISMIC AIRGUN

SURVEYS ON MARINE LIFE, 2013. Retrieved Apr. 11, 2014 from http://www.cbd.int/doc/?meeting=MCBEM2014-

01.

Nieukirk et al. analyzed 10 years of recordings from the Mid-Atlantic Ridge, finding that seismic airguns wereheard at distances of 4,000 km from survey vessels and present 80-95% of the days/month for more than 12consecutive months in some locations. When several surveys were recorded simultaneously, whale sounds were

masked (drowned out), and the airgun noise became the dominant part of background noise levels.

Matthew Huelsenbeck, (Analyst, Oceana), A DEAF WHALE IS A DEAD WHALE, June 6, 2013, 7.

For marine mammals that are more sensitive to sound and depend greatly on their hearing, such as whales anddolphins, the airgun noise can be a severe threat. Airguns shoot low and high frequency sound, both of which can beharmful. The low frequency sound can travel thousands of miles away from the airgun source, interrupting whalecalls and altering their behavior even at great distances. This is especially of concern for endangered baleen whales,

such as the North Atlantic right whale, humpback whale, blue whale and fin whale. Fin and humpback whales in a100,000 square mile area stopped singing in the North Atlantic because of such noise, and bowhead whales have

abandoned their habitat because of it in Alaska. Scaring whales away from important habitats can prevent them from

feeding, migrating or reproducing for days to weeks at a time and these reoccurring disturbances could affect theirsurvival and the health of their populations.

C. SEISMIC AIRGUN BLASTS WILL CAUSE INJURY OR DEATH FOR MANY OCEAN SPECIES.

1. Seismic airgun blasts injure and kill whales.

Matthew Huelsenbeck, (Analyst, Oceana), A DEAF WHALE IS A DEAD WHALE, June 6, 2013, 10.

In 2008 in Madagascar, dozens of melon-headed whales washed up dead following offshore seismic testing

by Exxon Mobil. Melon-headed whales are a mid-water species that is believed to be sensitive to sound. The

people of Madagascar had never before seen this species, and beaching events of melon-headed whales in thisregion are rare. An investigation was conducted into the link between the noise source and the stranding incident,

and the results will be an important indicator of worst case scenarios following seismic testing.

William Pike, (Staff), WORLD OIL, June 2013. Retrieved Apr. 11, 2014 from Nexis.

In mid-April, Oceana, a marine conservation group, estimated that nearly 140,000 whales and dolphins

would be injured or displaced if the Obama administration allows offshore seismic to be shot along the U.S.

Atlantic coast. The group cited a Bureau of Ocean Energy Management (BOEM) environmental study releasedin 2012 that estimated that seismic acquisition could negatively impact as many as 11,748 bottlenose dolphins,

4,631 short-finned pilot whales and 6,147 short-beaked common dolphins, in addition to eliminating some of the

remaining 500 endangered North Atlantic right whales.

Lindy Weilgart, (Ph.D., Biology, Dalhousie U.), A REVIEW OF THE IMPACTS OF SEISMIC AIRGUNSURVEYS ON MARINE LIFE, 2013. Retrieved Apr. 11, 2014 from http://www.cbd.int/doc/?meeting=

MCBEM-2014-01.

Seismic air guns are a probable cause of whale strandings and deaths as well, especially in beaked whales. A

stranding of two individuals was tied very closely in space and time to a seismic survey in the Gulf of California.

Even if impacts are fatal, only 2% of all cetacean carcasses are detected, on average. The authors state that for

cryptic mortality events such as acoustic trauma, analytical methods are necessary to take into consideration thesmall percentage of carcasses that will be recovered.

Lindy Weilgart, (Ph.D., Biology, Dalhousie U.), A REVIEW OF THE IMPACTS OF SEISMIC AIRGUNSURVEYS ON MARINE LIFE, 2013. Retrieved Apr. 11, 2014 from http://www.cbd.int/doc/?meeting=

MCBEM-2014-01.

It is clear that a human-caused modification that extends across 300,000 km squared or distances of 4,000

km from the noise source 80-95% days of the month, year-round, is an ecosystem-wide impact. That seismicairguns are the second highest contributor of human-caused underwater noise in total energy output per year,

following only nuclear and other explosions, should underline this point. At least 37 marine species have been

shown to be affected by seismic airgun noise. These impacts range from behavioral changes such as decreasedforaging, avoidance of the noise, and changes in vocalizations through displacement from important habitat,

stress, decreased egg viability and growth, and decreased catch rates, to hearing impairment, massive injuries,

and even death by drowning or strandings. Seismic airgun noise must be considered a serious marine

environmental pollutant.

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2. Seismic airgun blasts injure and kill fish.

Lindy Weilgart, (Ph.D., Biology, Dalhousie U.), A REVIEW OF THE IMPACTS OF SEISMIC AIRGUNSURVEYS ON MARINE LIFE, 2013. Retrieved Apr. 11, 2014 from http://www.cbd.int/doc/

?meeting=MCBEM-2014-01.

A wide range of acoustic impacts on fish has been observed. Seismic air guns extensively damaged fish ears

at distances of 500 m to several kilometres from seismic surveys. No recovery was apparent 58 days after

exposure. Behavioral reactions of fish to anthropogenic noise include dropping to deeper depths, milling incompact schools, ‘‘freezing’’, or becoming more active. Reduced catch rates of 40%–80% and decreased

abundance have been reported near seismic surveys in species such as Atlantic cod, haddock, rockfish, herring,

sand eel, and blue whiting.

Michael Jasny, (Analyst, Natural Resource Defense Counsel), BOOM, BABY, BOOM: THE

ENVIRONMENTAL IMPACTS OF SEISMIC SURVEYS, June 4, 2014, 2.

Airgun surveys also have serious consequences for the health of fisheries. For example, airguns have beenshown to dramatically depress catch rates of various commercial species (by 40 to 80 percent) over thousands ofsquare kilometers around a single array, leading fishermen in some parts of the world to seek industry

compensation for their losses. These compensations are already occurring

Matthew Huelsenbeck, (Analyst, Oceana), A DEAF WHALE IS A DEAD WHALE, June 6, 2013, 14.

Opening up new areas in the Atlantic to harmful seismic airguns and offshore drilling is unnecessary and

puts coastal economies and jobs at risk. Commercial and recreational fishing in the mid- and southeast Atlantic,

where seismic airgun testing is being proposed, generates $11.8 billion annually and supports 222,000 jobs.

Several ports within the proposed area for seismic airgun testing have among the highest commercial fishingrevenues in the United States. Seismic airgun testing could impact 108 fishing communities along the coast fromDelaware to Florida.

3. Seismic airgun blasts injure and kill endangered sea turtles.

Matthew Huelsenbeck, (Analyst, Oceana), A DEAF WHALE IS A DEAD WHALE, June 6, 2013, 8.

Sea turtles are impacted by airguns at every stage in life from hatchlings to adults, but they are thought to bemost vulnerable while they are young. One of the greatest concerns is disruption to nesting females as they head

to beaches to lay their eggs. Sea turtle behavior is most altered by seismic sounds at low frequencies, like those

emitted by airguns. Airgun sounds can startle them and cause them to be unable to detect sounds that arenecessary for important activities. All species of sea turtles are listed as endangered or threatened in U.S. waters

and they could be seriously harmed by seismic surveys or future oil and gas drilling.

D. BANNING THE USE OF SEISMIC AIRGUN BLASTS IS VITAL FOR THE PRESERVATION OF WHALES AND

OTHER OCEAN SPECIES.

1. Seismic airgun blasts in U.S. waters should be banned.

Matthew Huelsenbeck, (Analyst, Oceana), A DEAF WHALE IS A DEAD WHALE, June 6, 2013, 19.

The use of seismic airguns poses unavoidable and unacceptable impacts to marine life, including injuries or

disturbances to protected and endangered species of marine mammals, sea turtles and fish. Due to the severity of

acoustic harm caused by airguns, they should be phased out of use in U.S. waters, and all current proposals thatincorporate the use of airguns should be denied.

Matthew Huelsenbeck, (Analyst, Oceana), A DEAF WHALE IS A DEAD WHALE, June 6, 2013, 4.

DOI should permanently close large areas to seismic surveying and drilling to protect vulnerable habitats

and species. “No activity zones” must be large enough to create a buffer area between the airgun source and the

protected area because airgun noise can disturb marine life from hundreds to thousands of miles away.

2. Alternatives to seismic airgun blasts are available.

Aimee Leslie, (Analyst, World Wildlife Fund), AN OCEAN OF NOISE: REDUCING THE IMPACT OFINDUSTRIAL NOISE ON WHALES, Mar. 3, 2014, 3.

Seismic surveys using air guns are extremely noisy. Much of the frequency spectrum of the noise created by

the airgun explosions is not required for seabed analysis and surveys may be repeated over the same areas of

seabed. Other techniques for oil exploration are available (such as Vibroseis, which uses a vibrating device on

the sea floor).

Matthew Huelsenbeck, (Analyst, Oceana), A DEAF WHALE IS A DEAD WHALE, June 6, 2013, 4.

The Obama administration should deny all current proposals that incorporate airgun use and phase out the

use of airguns in U.S. waters. If seismic surveying does occur, the following measures must be taken to minimize

impacts on marine life: DOI should make all seismic data publically available to reduce the redundancy inseismic surveys and allow the public to be more engaged in decision-making regarding offshore drilling. Ifseismic testing is going to occur, DOI should require it be done using the least harmful technology available.

Marine vibroseis could completely alleviate the need for airguns in three to five years. However, marine

vibroseis is not a panacea and the best option continues to be a flat rejection of such activities.

AFFIRMATIVE CASES BAYLOR BRIEFS 34

INVASIVE SPECIES: IMPROVING REGULATION OF SHIPS TRANSPORTING MARINE SPECIES IN AN ERA

OF GLOBALIZATION

The thesis of this case is that coastal ecosystems in the United States are endangered by the invasion of non-nativespecies. These species, when introduced in the ecosystem, begin to dominate because they have no natural predators. Theyeventually displace native species which function to make the ecosystem work. Eventually ecosystems can and do collapsebecause of devastation caused by invasive species. Most invasive species are brought into America’s coastal ecosystems in

the ballasts of ships which come into United States ports. Ballast tanks are parts of ships which fill up with seawater tobalance the ships. International action is underway to deal with this problem – the International Convention for the Control

and Management of Ship's Ballast Water and Sediments, more commonly called the Ballast Water Management Conventionor BWM. The BWM Convention recommends that improved ballast exchange standards be phased in where Phase 1 (to be

implemented by 2013, involving light treatment and ballast exchange) and Phase 2 (to be implemented by 2016, involvingfully complete ballast water treatment). The U.S. Environmental Protection Agency has agreed only to implement Phase 1 ofthe BWM standard, ignoring the dramatic need to meet the recommended international standard in Phase 2 implementation.

This case calls on the EPA to implement Phase 2 of the BWM standard.

Plan: The United States federal government will require that all ships entering U.S. ports will be required to meet Phase 2standards of the International Ballast Water Management Convention by July 1, 2016, meaning that ships must install atreatment system for ballast water capable of destroying all living organizations carried in the ballast water. The plan will

be enforced by the U.S. Environmental Protection Agency.

I. INVASIVE SPECIES ENDANGER AMERICA’S OCEAN ECOSYSTEMS.

A. SHIP BALLAST EXCHANGE SYSTEMS INTRODUCE INVASIVE SPECIES INTO AMERICA’S OCEAN

ECOSYSTEMS.

Philip Mladenov, (Dir., Seven Seas Consulting & Former Prof., Marine Sciences, U. Alago, New Zealand),

MARINE BIOLOGY: A VERY SHORT INTRODUCTION, 2013, 54.

Many other kinds of marine organisms in coastal waters besides toxic algae are pumped into the ballast tanks ofships. When a ship is in shallow water it can also pump in sediments and any associated bottom-dwelling organisms.

When the ballast water is next released these organisms may also be released. In this way non-native, or exotic,

invaders are introduced into areas where they would never normally be found without human intervention.

James Olmsted, (Founder, Conservation and Preservation Counsel), BOSTON COLLEGE ENVIRONMENTAL

AFFAIRS LAW REVIEW, 2011, 51.

A major, reckless cause of the accidental introduction of non-native, aquatic species is the use of seawater for

ballast to stabilize oceangoing vessels. Remarkably, this process has been ongoing since the 1840s, and modern

ships have evolved to the point that they can carry ballast water in the tens of millions of gallons. In the typical

scenario, ships take on ballast water in one harbor and then pump the ballast water in the destination harbor where itis no longer needed for ballast. Ballast water is now known to carry a very large number of species, many of which

become successful in their new habitats.

B. INVASIVE SPECIES ARE A MAJOR ENVIRONMENTAL THREAT.

1. Invasive species displace native species, causing extinction.

National Environmental Coalition on Invasive Species, COMMENT ON PROPOSED RULEMAKING, Jan. 15,

2010. Retrieved Apr. 6, 2014 from www.necis.net/wp-content/uploads/2010/11/necis-cg-ballast-comments.pdf.

Ballast water from ocean-going vessels transiting to the United States is a main vector for introductions of

new, damaging invasive species. A strong federal program that effectively eliminates the risk of new

introduction and spread of invasive species in the United States is urgently needed, especially in light of the

documented high rate of extinction plaguing many aquatic ecosystems.

Eric Hull, (Prof., Law, Florida Coastal School of Law), GEORGETOWN INTERNATIONAL

ENVIRONMENTAL LAW REVIEW, Fall 2012, 54.

The United States has a long, unfortunate history of dealing with the impacts of aquatic invasive species.

Invasive species already established in U.S. waters have altered habitats and trophic dynamics, decreasedjuvenile recruitment through increased predation on native species, spread new diseases including humanpathogens, increased parasitism, altered genetic diversity through hybridization, decreased resilience to future

invasions, impaired nutrient cycling and altered water quality, caused the loss of biodiversity, and contributed to

extinctions. In fact, approximately forty-two percent of all species listed on the endangered species list have beenor continue to be significantly impacted by invasive species within their range.

2. Invasive species endanger entire ecosystems.

Cory Hebert, (J.D. Southern U. Law Center), SOUTHERN UNIVERSITY LAW REVIEW, Spr. 2010, 315.

The waters and shores of the United States were under siege by alien attacks long before E.T. decided that it

liked Reeses Pieces. Aliens, carried into U.S. waters aboard vessels, are allowed to decimate native species thatare unprepared for their new competition and diseases. These invaders take many forms such as fish, mollusks

and disease-causing bacteria. Any of which may have a tremendous and tragic effect on an unsuspecting

ecosystem. These plunderers are non-indigenous, nuisance species that are transported from foreign seas in the

ballast tanks of ocean-going vessels. These intruders are known as "aquatic nuisance species" (ANS), and theymay find themselves thousands of miles from their original habitats, inserted into a new environment that is

simply not evolved in such a way as to handle their kind.

AFFIRMATIVE CASES BAYLOR BRIEFS 35

II. CURRENT SHIPPING REGULATIONS CANNOT PREVENT INTRODUCTION OF INVASIVE SPECIES TO OUR

OCEAN ECOSYSTEMS.

A. THE U.S. HAS DECIDED TO IMPLEMENT ONLY PHASE 1 OF THE INTERNATIONAL CONVENTION FOR

THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS (BWM).

Jacquelyn Aaron, (J.D. Candidate), LOYOLA MARITIME LAW JOURNAL, Winter 2013, 198-199.

On March 23, 2012 the United States Coast Guard adopted final regulations on ballast water discharge

standards to further prevent the introduction of nonindigenous species into waters of the United States. The final rulediffered from the NPRM [Notice of Proposed Rule Making] on an integral component — the adopted regulationslacked the implementation of a second phase of BWM [Ballast Water Management]. The adopted phase-one

standard contains the same discharge standards as the D-2 standards adopted under the BWM Convention five years

earlier. The phase-two standards outlined in the NPRM contained more stringent discharge requirements. The

proposed phase-two standards were numerically one thousand times more stringent than phase-one standards.

Ultimately, these stricter standards were deemed economically and technologically infeasible to implement at thetime the final rule was adopted. Therefore, in issuing the final rule the USCG deferred implementation of phase-twoBWDS [Ballast Water Discharge Standard].

B. THE RECOMMENDED PHASE 2 STANDARD WOULD HAVE BEEN 1,000 TIMES MORE EFFECTIVE.

Lee Bergquist, (Staff), MILWAUKEE JOURNAL SENTINEL, Mar. 23, 2014. Retrieved Apr. 6, 2014 from Nexis.

A tentative version of the Coast Guard rule issued in 2009 called for starting with the international standard,

then making it 1,000 times stronger by 2016. But the final regulation drops the second level in favor of more

research.

III. U.S. IMPLEMENTATION OF THE STRICT STANDARDS RECOMMENDED BY THE BWM CONVENTION WILL

BEST PROTECT AGAINST INVASIVE SPECIES.

A. DEOXYGENATION TREATMENT SYSTEMS ARE ALREADY AVAILABLE.

BWTS INTELLIGENCE, 2011. Retrieved Apr. 16, 2014 from http://www.ballastwater-treatment.org/product

list/venture-oxygen-stripping.

VOS [Venturi Oxygen Stripping] ballast water treatment system induces a low-oxygen (hypoxic) condition in

ship ballast tanks using inert gas. This hypoxic condition deprives aquatic organisms – both plants and animals – ofthe oxygen needed to survive. This low-oxygen environment also limits the amount of oxygen available to form ironoxide, or rust, thereby protecting the internal steel surfaces of the ballast tank against corrosion and preventing

premature deterioration of ballast tank coatings.

NEI Treatment Systems, NEI MARINE, Apr. 2014. Retrieved Apr. 12, 2014 from Nexis.

The concept of deoxygenation as a ballast water treatment method had been tested successfully in the

laboratory. In addition, the possibility of simultaneously reducing corrosion of ballast tanks stirred interest in the

shipping community. But, until now no method to effectively deoxygenate water had been developed for large-scale

shipboard application. NEI's patented ballast water treatment method, Venturi Oxygen Stripping, has beendeveloped to address this issue. To evaluate the effectiveness of our method, a team of scientists from the Universityof Maryland, the Smithsonian Environmental Research Center, and the US Naval Research Laboratory were

awarded a series of grants from the National Oceanic and Atmospheric Administration (NOAA) Sea Grant Program.

Their research is proving that Venturi Oxygen Stripping‚ is an effective ballast water treatment method thatsignificantly reduces corrosion.

B. SHORT TERM IMPLEMENTATION OF THE PHASE 2 BWM TREATMENT STANDARD BEST SOLVES FOR

INVASIVE SPECIES PROBLEMS.

National Environmental Coalition on Invasive Species, COMMENT ON PROPOSED RULEMAKING, Jan. 15,

2010. Retrieved Apr. 6, 2014 from www.necis.net/wp-content/uploads/2010/11/necis-cg-ballast-comments.pdf.

Clearly, the development of treatment technology is advancing rapidly, making a deadline later than 2016 for

compliance with the Phase Two standards unjustified.

Rebecca Thibault, (J.D., Washington U. School of Law), WASHINGTON UNIVERSITY GLOBAL STUDIES

LAW REVIEW, 2011, 857.

The estimated cost of installing treatment technology, though variable, are between $ 200,000 and $ 300,000

per vessel to retrofit for mechanical treatment. Mandatory compliance is likely the only way to ensure ships install

the required technology. Requiring ships to install such technology is a solution that employs a "polluter pays"

principle into a model that offers a workable solution for this problem. The polluter pays principle requires that the

one causing the damage to the "free" natural resource pays for the damage caused. While the costs of suchtechnology may seem prohibitive to an individual ship owner, the costs of doing nothing have such a greater impactupon the broader population that the technology costs are warranted. Lacking any type of regulation, neitherindividual ships nor the shipping industry as a whole is held responsible for the effects caused by the practice ofreckless ballast water discharge.

AFFIRMATIVE CASES BAYLOR BRIEFS 36

OTHER THOUGHTS: SUBMARINE CABLES

The thesis of this case is that the U.S. federal government needs to act to preserve the security of Internet

communications by adopting the United Nations Convention on the Law of the Sea (UNCLOS). UNCLOS contains severalspecific provisions protecting the laying of submarine communication cables as well as procedures for facilitating the

protection and repair of the cables. U.S. national security interests in the protection of Internet communications requires theacceptance of UNCLOS.

Plan: The United States federal government will accede to the UN Convention on the Law of the Sea.

OBSERVATION:

I. THE UNITED STATES SENATE HAS FAILED TO RATIFY THE UN CONVENTION ON THE LAW OF THE SEA.

Jane Perlez, (Staff), NEW YORK TIMES, June 1, 2012, A10.

China is one of 162 countries that has ratified the Law of the Sea treaty. But the United States has not done so,

holding back from formal approval ever since President Ronald Reagan refused to sign it when it was completed in1982.

CONTENTIONS:

I. SUBMARINE CABLES ARE ESSENTIAL TO THE SECURITY OF INTERNET COMMUNICATION.

A. THE VAST MAJORITY OF INTERNET COMMUNICATION IS CARRIED VIA SUBMARINE CABLES.

Tara Davenport, (Research Associate, Centre for International Law at the National University of Singapore), THE

STRAITS TIMES, Dec. 23, 2010. Retrieved Apr. 6, 2014 from Nexis.

FIBRE-OPTIC submarine cables are the foundation of the world's telecommunications systems. They are laid

on the seabed, are often no bigger than a garden hose, and transmit huge amounts of data across oceans.

B. SUBMARINE CABLES REPRESENT VITAL U.S. INFRASTRUCTURE.

Laurence Wrathall, (J.D., U. San Diego School of Law), SAN DIEGO INTERNATIONAL LAW JOURNAL, Fall

2010, 224.

Today's submarine pipelines and cables form modern sea lines of communication with important implications

for global economic and maritime security. This vital infrastructure is designed to be resilient; however, stabilityrests on international cooperation and law. Continued advances in international communications and energy

exploration hinge on international legal standards that protect private investors (i.e., companies who build, maintainand operate underwater networks) from untoward acts.

II. THE SECURITY OF SUBMARINE CABLE COMMUNICATION IS THREATENED AT PRESENT.

A. U.S. FIRMS ARE CURRENTLY OBSTRUCTED IN THEIR EFFORTS TO LAY SUBMARINE CABLES.

Thomas Donohue, (CEO, U.S. Chamber of Commerce), THE LAW OF THE SEA CONVENTION, Senate Hearing,

June 28, 2012, 264.

Securing international recognition for U.S. rights in these areas and defending against the unreasonable claims

of other nations is vital to the economic prosperity of our Nation. The telecommunications industry needs the treaty

to codify the right to lay and maintain underwater cables in the oceans of the world. It also needs them to provide

stronger protections for cables against damages by other parties.

B. SUBMARINE CABLES ARE A LIKELY TARGET FOR INTERNATIONAL TERRORISTS.

Tara Davenport, (Research Associate, Centre for International Law at the National University of Singapore), THE

STRAITS TIMES, Dec. 23, 2010. Retrieved Apr. 6, 2014 from Nexis.

A greater danger, however, is the possibility of terrorist acts damaging submarine cables. As Mr Menon noted:

'If an accident, or worse, a deliberate, well-planned act of sabotage knocks out a key node or portion of these cables,

countries and even whole regions could suffer massive economic losses, social disruptions and compromises to

national security.' This concern was reinforced by the recent WikiLeaks disclosure of a 2008 United States reportdescribing submarine cables outside the US as 'critical foreign dependencies', whose loss could greatly impact US

security and the economy.

III. RATIFICATION OF THE UN CONVENTION ON THE LAW OF THE SEA BEST PROTECTS SUBMARINE

CABLES.

Bill Smith, (Pres., AT&T Network Operations), THE LAW OF THE SEA CONVENTION, Senate Hearing, June

28, 2012, 77.

The Convention expands the right to lay and maintain submarine cables in the oceans of the world. Articles 58.79 and 112 establish the rights of nations and private parties to lay and maintain submarine cables on the continental

shelf, in the Exclusive Economic Zone f EEZ) and on the bed of the high seas. These articles — when supplemented

by the compulsory dispute resolution procedures available to parties to the Convention under Article 297 — provide

important recourse for AT&T and other U.S. submarine cable operators against onerous and unreasonable

permitting requirements by coastal slates that may impede the timely repair and maintenance of undersea cables, ordelay the construction of new cables.

FIRST NEGATIVE BAYLOR BRIEFS 37

LAW OF THE SEA

I. THE BENEFITS OF THE UNITED STATES JOINING THE LAW OF THE SEA ARE EXAGGERATED.

A. THE UNITED STATES VOLUNTARILY FOLLOWS THE LAW OF THE SEA NOW.

Hillary Clinton, (Former U.S. Secretary of State), THE LAW OF THE SEA CONVENTION, Senate Hearing, June

28, 2012, 64.

U.S. agencies, including the Coast Guard, EPA, and the Justice Department, have been acting in accordance

with the Convention since President Reagan directed the U.S. Government to abide by the bulk of the Convention's

provisions in 1983.

B. THE LAW OF THE SEA IS ALREADY OUTDATED BY CHANGES IN THE OCEAN ENVIRONMENT.

Steven Swanson, (Prof., Law, Yale Law School), CONNECTICUT LAW REVIEW, Feb. 2011, 712-713.

The United Nations Conference on the Law of the Sea, which produced the United Nations Convention on the

Law of the Sea ("UNCLOS"), met from 1973-1982. Although the UNCLOS was successful in codifying and

moving forward the international law of the sea, it did not anticipate the radical changes in sea usage that havesubsequently occurred. After all, the world's oceans had been used for a limited number of purposes. Transportation

of goods and passengers and fishing were early traditional uses. Over time, navies plied the oceans in support of

national goals, and communications cables ran across ocean floors. More recently, the seas have provided a sourcefor the exploration and exploitation of natural resources and scientific study. The oceans have also served as a venuefor human recreation. The UNCLOS's provisions understandably attempted to provide an overarching set of normsto regulate these routine activities, but these provisions present an awkward framework for today's myriad high-tech

uses.

C. THE LAW OF THE SEA DOES NOT PREVENT UNILATERAL ACTION BY A NATION TO UTILIZE THE

RESOURCES OF THE OCEAN.

Steven Groves, (Sr. Research Fellow, HERITAGE BACKGROUNDER, May 14, 2012, 1.

Proponents of U.S. accession to the United Nations Convention on the Law of the Sea (UNCLOS) insist that the

U.S. must join the convention in order to secure title to oil and gas resources located on the U.S. extendedcontinental shelf (ECS). However, that argument has no basis in fact or law. Under international law and longstanding

U.S. policy and practice, the U.S. has already established jurisdiction and control over its ECS and is in the

process of delimiting the boundaries of its ECS. The United States as a sovereign nation can accomplish its

objectives regarding the ECS and its resources without acceding to a deeply flawed treaty or seeking the approval of

an international commission of experts housed at the United Nations.

II. RELIANCE ON THE UNITED NATIONS FOR DIRECTIONS TO PROTECT THE NATURAL RESOURCES OF THE

OCEANS IS UNACCEPTABLE.

A. THE UN LAW OF THE SEA CONVENTION CREATES AN UNDEMOCRATIC PROCESS FOR REGULATING

THE OCEANS.

Donald Rumsfeld, (Former U.S. Secretary of Defense), THE LAW OF THE SEA CONVENTION, Senate Hearing,

June 28, 2012, 175-176.

The treaty proposes to create a new global governance institution that would regulate American citizens and

businesses, but which would not be accountable politically to the American people. Some of the Law of the SeaTreaty's proponents pay little attention to constitutional concerns about democratic legislative processes and

principles of self-government, but I believe the American people take seriously threats to these foundations of our

Nation.

B. THE UN LAW OF THE SEA ACTUALLY PROMOTES EXPLOITATION OF OCEAN RESOURCES.

Denise Russell, (Research Fellow, Philosophy, U. Wollongong, Australia), WHO RULES THE WAVES: PIRACY,

OVERFISHING, AND MINING THE OCEANS, 2010, 99.

The Law of the Sea may be another part of the problem, unwittingly promoting exploitation rather than puttinga curb on it. This follows for several reasons: 1. Although the Law of the Sea addresses issues of conservation it isnot binding on states that don't ratify the Law; 2. Conservation is discussed as conservation of a resource rather thanan ecosystem, as mentioned above; 3. Conservation is tied up with maximum sustainable yield as laid down inArticle 119: 'States shall ... take measures which are designed, on the best scientific evidence available to the States

concerned, to maintain or restore populations of harvested species at levels which can produce the maximumsustainable yield, as qualified by relevant environmental and economic factors.' The aim is to secure the maximum

supply of food and other marine products; 4. The Law of the Sea Article 116 enshrines the concept of the freedom tofish the high seas; 5. In the way zoning systems have been worked out an inequitable arrangement has been placed

into law. The EEZs and their extensions deliver unfair advantages to coastal states or territories. This could lead to

resentment and might lie behind some of the 'pirate' operations.

FIRST NEGATIVE BAYLOR BRIEFS 38

REGIONAL ORGANIZATIONS ARE SUPERIOR TO THE UN LAW OF THE SEA IN AVOIDING CONFLICTS

OVER OCEAN RESOURCES

I. THE ARCTIC COUNCIL OFFERS A SUPERIOR MEANS OF AVOIDING CONFLICTS OVER ARCTIC

RESOURCES.

A. THE UNIQUE CHARACTERISTICS OF THE ARCTIC OCEAN REQUIRE A REGIONAL APPROACH TO

GOVERNANCE.

Peter Spotts, (Staff), CHRISTIAN SCIENCE MONITOR, June 27, 2012. Retrieved Apr. 2, 2014 from Nexis.

The unique demands of working in the Arctic, which include environmental and indigenous concerns, mean that

"the Arctic demands its own approach," Salazar said. As a result, representatives from the US, Canada, Russia,

Norway, and Iceland are meeting in Trondheim, Norway, to try to come up with an integrated "step-by-step

approach" that gives due consideration to these concerns, while incorporating the latest science into decisionmaking.

The meeting aims to "create what we believe would be the gold standard for how to approach any oil and gas

activities in the Arctic," says Deputy Secretary Hayes.

Sara Dresser, (J.D. Southwestern Law School), SOUTHWESTERN JOURNAL OF INTERNATIONAL LAW,

2010, 546.

Because the Arctic Council represents the collective interests of the eight Arctic states and indigenous groups, it

can more effectively achieve common goals. Moreover, the Arctic Council is uniquely positioned to make

recommendations regarding Arctic policies based on the information gained from their scientific assessments. Thus,

the Arctic Council may be particularly well-suited for projects requiring the communal efforts of the Arctic states,

such as gaining PSSA designation or collaborating with the IMO. And with respect to oil pollution, the Arctic states'

share a collective interest in protecting the marine environment from accidental oil spills.

B. ALL ARCTIC NATIONS BELONG TO THE ARCTIC COUNCIL.

PETROLEUM ECONOMIST, Mar. 2014. Retrieved Apr. 19, 2014 from Nexis.

The Arctic Council is comprised of member states, permanent participants and observers. Member states are the

founding Arctic nations: Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the US; Permanent

participants include indigenous groups such as the Inuit Circumpolar Council, the Arctic Athabaskan Council andthe Russian Association of Indigenous Peoples of the North; and Observers do not take part in decision-making, butthey participate in Arctic council meetings. They include non-Arctic countries such as China, India, Germany, Japan

and the UK, as well as other international non-governmental groups such as the UN Development Programme andWWF. The Arctic Council's chairmanship rotates among member states every two years. Canada is the currentchair, and the US will take over in 2015.

C. THE ARCTIC COUNCIL BEST BALANCES ENVIRONMENTAL PROTECTION WITH OIL EXPLORATION IN

THE ARCTIC.

Jarondakie Patrick, (Staff, McClatchy Newspapers), THE POLITICS OF THE OCEANS, 2011, 44.

In Greenland, the eight countries — the United States, Russia, Canada, Denmark, Norway, Iceland, Sweden and

Finland — signed several accords, including a pact to cooperate on search and rescue missions in a region that hasminimal resources for such expeditions. The agreement is recognition that more people will be in the area, whether

they're on cruise ships, cargo planes or oil rigs. They also laid the groundwork for a multi-nation task force toaddress oil and gas development in the Arctic. Since last year's oil spill in the Gulf of Mexico, many nations have reevaluated

the safety of offshore drilling, and the U.S. is considering how to proceed in the Arctic Ocean off Alaska's

northern coast.

D. THE ARTIC COUNCIL BEST OFFERS REPRESENTATION TO INDIGENOUS PEOPLES.

Sara Dresser, (J.D. Southwestern Law School), SOUTHWESTERN JOURNAL OF INTERNATIONAL LAW,

2010, 518.

The Arctic Council has also provided indigenous groups with an intergovernmental communications forum that

enables them to collectively pursue policy and environmental agendas.

Samantha Fow, (J.D., U. Vermont School of Law), VERMONT JOURNAL OF ENVIRONMENTAL LAW, Spr.

2012, 547.

The fact that non-governmental indigenous groups are allowed to participate in Arctic governance through theArctic Council is truly unique. Although sustainable development inherently focuses on indigenous economics, thedegree of indigenous participation in Arctic decision-making within the Arctic Council is particular to the concept ofsustainable development in the Arctic. The "Arctic Sustainability Principle" arose within the context of this uniquegovernance structure, defined by the combination of multinational cooperative governance and a focus on

indigenous expertise.

FIRST NEGATIVE BAYLOR BRIEFS 39

E. THE ARCTIC COUNCIL BEST AVOIDS CONFLICTS OVER ARCTIC RESOURCES.

Paul Berkman, (Dir., Arctic Ocean Program, Polar Research Institute, U. Cambridge), ENVIRONMENTAL

SECURITY IN THE ARCTIC OCEAN, 2010, 3.

After the end of the Cold War, the Arctic states and indigenous peoples collectively established sustainabledevelopment as a common interest. In this new era, cooperation has flourished, especially with the high-level forum

of the Arctic Council. Tensions have been low, even with the strategic military activities which have been ongoingin the Arctic Ocean for the past half-century. Territorial disputes are being dealt with in an amicable fashion.

Everything appears to be going along smoothly.

F. THE SOFT-LAW APPROACH OF THE ARCTIC COUNCIL IS SUPERIOR TO THE UNCLOS MODEL.

1. The Arctic Council employs a cooperative, soft-law approach to resolving conflicts.

Jennifer Jeffers, (J.D., U. California at Berkeley School of Law), ECOLOGY LAW QUARTERLY, 2010, 961.

Although the Arctic Council's recommendations are soft law, and a number of other regional organizations

and councils have proliferated over the last 20 years, the institution serves as the Arctic regime's primarygoverning body. The Arctic Council was formed to extend the previous AEPS strategy "beyond purelyenvironmental issues," and the Council has assumed an important role in the governance of the region. Forinstance, the Council has overseen and drafted regional management guidelines for protected areas, datamonitoring, and oil spill assessment and response actions. Its six working groups have also produced highly-

regarded and comprehensive documents. Most importantly, the Council has served as a key link betweenregional concerns and actors and the broader global governance scene, and it is one of the few existingoperational models for international cooperation on sustainable development.

2. The Arctic Council’s soft-law approach is better able to consider the needs of all stakeholders.

E.A. Barry-Pheby, (J.D. Candidate, Newcastle U. College of Law), SUSTAINABLE DEVELOPMENT LAW &

POLICY, 2013, 49.

Soft law can provide more detail, and be quicker and less cumbersome to create (as it does not demanddomestic ratification), than hard law. Furthermore, it often supports enhanced stakeholder involvement. It is alsoacknowledged that soft law has the potential to better address politically sensitive issues, allowing for the

retention of sovereignty while resulting in the integration of the essence of soft law into domestic legislation.

Fitzmaurice identifies that soft law can play a "fundamental" role in environmental protection.

3. UNCLOS excludes the interests of indigenous peoples and environmental groups.

Bradley Roth, (J.D., Cardozo School of Law), CARDOZO JOURNAL OF INTERNATIONAL AND

COMPARATIVE LAW, Summer 2011, 876.

In part because of their exclusion from intergovernmental groupings framed by UNCLOS (as was the case

with the Arctic Ocean Conference), indigenous groups now fear they will be marginalized and their interests

disregarded in a dash to extract valuable resources from the ocean.

Bradley Roth, (J.D., Cardozo School of Law), CARDOZO JOURNAL OF INTERNATIONAL AND

COMPARATIVE LAW, Summer 2011, 874-875.

An additional reason UNCLOS processes are inadequate to meet the challenges presented by Arctic region

issues is that critical, non-legal stakeholders are more likely to be marginalized. These stakeholders include: (a)

Arctic Council members and participants; (b) non-Arctic states and intergovernmental entities; and (c) nongovernmental

organizations (NGOs), including those representing the interests of wildlife, nature, and futuregenerations. Each of these groups, by contrast, could be included in interest-based, multi-stakeholder mediation

processes.

4. Cooperative, mediation-based approaches are able to settle Arctic disputes in a timely fashion, unlike UNCLOS.

Bradley Roth, (J.D., Cardozo School of Law), CARDOZO JOURNAL OF INTERNATIONAL AND

COMPARATIVE LAW, Summer 2011, 891.

Additionally, as discussed previously, it may be many years before boundaries are established under

UNCLOS processes. Engaging in mediation during this time period could resolve in a timely manner importantenvironmental, fishery, navigational, mining, military, and other matters. Should mediation efforts fail, parties

will have sacrificed none of their potential rights or claims.

5. A cooperative regional approach best avoids conflict in the Arctic.

PETROLEUM ECONOMIST, Mar. 2014. Retrieved Apr. 19, 2014 from Nexis.

Yet in the Arctic, cooperation is winning the day. Rather than fuelling conflict, the region's riches have

pulled the Arctic nations together. When Russia sent a pair of submarines to plant its flag on the seabed at theNorth Pole in August 2007, a potential provocation that could have escalated tension, the move was widelydismissed by other Arctic nations." This isn't the 15th century," Peter MacKay, Canada's foreign minister at the

time, said. "You can't go around the world and just plant flags and say, 'We're claiming this territory'." The eight

Arctic nations — Russia, Canada, the US, Denmark (via Greenland and the Faroe Islands), Norway, Iceland,

Sweden and Finland — have come together under several international organisations that provide a legalframework for cooperation.

FIRST NEGATIVE BAYLOR BRIEFS 40

II. THE ASSOCIATION OF SOUTH EAST ASIAN NATIONS (ASEAN) OFFERS A SUPERIOR MEANS OF

AVOIDING CONFLICTS IN THE SOUTH CHINA SEA.

A. THE UNIQUE CIRCUMSTANCES OF THE EAST ASIA REGION DEMAND A REGIONAL APPROACH.

Jonathan Odom, (Judge Advocate, U.S. Navy), UNIVERSITY OF HAWAII ASIAN-PACIFIC LAW & POLICY

JOURNAL, 2012, 8.

Senior U.S. officials have expressed an appreciation for the unique characteristics of each of these individual

alliances as well as the special circumstances and security needs of Australia, Japan, Korea, Philippines, andThailand. If the United States were to treat each alliance with a one-size-fits-all approach, it would ignore critical

realities, including the cultural and political history of each ally, the origins and development of the respective

alliances, their unique relationships with their respective neighbors, and the particular security threats facing each ofthose allies. It would also overlook what each relationship can contribute to the overall security effort in the region

and the world. As a result, the United States must treat each alliance according to the unique characteristics and

special needs of each nation.

B. UNCLOS IS INCAPABLE OF RESOLVING CONFLICTS IN THE SOUTH CHINA SEA.

Christopher Linebaugh, (Editor), COLUMBIA JOURNAL OF TRANSNATIONAL LAW, 2014, 544.

For one, it is unclear which nation(s) have title to the islands, as the claims are based on a variety of ambiguous

historical arguments and current occupation. Furthermore, the United Nations Convention on the Law of the Sea(UNCLOS) only governs sea-use rights rather than issues of territorial sovereignty. Consequently, the sovereigntydispute cannot be solved through the UNCLOS arbitration framework.

C. THE ASSOCIATION OF SOUTHEAST ASIAN NATIONS (ASEAN) OFFERS THE BEST HOPE FOR AVOIDING

CONFLICT IN THE SOUTH CHINA SEA.

CHINA DAILY, Oct. 11, 2013. Retrieved Apr. 16, 2014 from Nexis.

China and the Association of Southeast Asian Nations have been pushing for negotiations aimed at resolvingthe disputes peacefully. China and ASEAN member states held two important meetings last month and agreed to

work together to effectively implement the Declaration on the Conduct of Parties in the South China Sea and hold

consultations to forge a binding code of conduct for the South China Sea. Li's speech at the EAS reiterates China's

resolve to properly handle the South China Sea disputes and uphold peace and stability in the region.

Christopher Linebaugh, (Editor), COLUMBIA JOURNAL OF TRANSNATIONAL LAW, 2014, 543-544.

However, military violence has declined considerably ever since China and the ten members of the Associationof Southeast Asian Nations (ASEAN) signed the Declaration on the Conduct of Parties in the South China Sea in2002. In the declaration, the parties undertook "to resolve their territorial and jurisdictional disputes by peacefulmeans." Indeed, since the signing of the Declaration there has been some positive cooperation amongst the claimantstates. Notably, in March 2005, "state-owned oil companies in China, the Philippines and Vietnam signed an

unprecedented tripartite agreement on joint seismic surveying activities."

D. CHINA HAS MADE A COMMITMENT TO WORK COOPERATIVELY WITH ASEAN MEMBERS.

Kishore Mahbubani, (Dean, Lee Yew School of Public Policy, National U. of Singapore), GLOBAL TIMES, Mar.

5, 2014. Retrieved Apr. 16, 2014 from Nexis.

Indeed China-ASEAN relations have grown positively in many ways in the last 30 years, since the landmark

visit of former Chinese leader Deng Xiaoping to Bangkok, Kuala Lumpur and Singapore in November 1978. Yet

there are also some continuing difficulties in the China-ASEAN relationship. One good example of this is providedby the competing claims in the South China Sea. Fortunately, all parties agree that the disputes should be resolved

peacefully. It is also good that China and ASEAN have concluded the ASEAN Declaration on the Conduct of

Parties in the South China Sea and are now working on the ASEAN Code of Conduct.

CHINA DAILY, Mar. 7, 2014. Retrieved Apr. 16, 2014 from Nexis.

China is willing to work with the Association of Southeast Asian Nations (ASEAN) to formulate a code of

conduct (COC) for the South China Sea, Foreign Ministry spokesman Qin Gang said on Friday. Qin's comment

came ahead of the 10th joint working group meeting between China and ASEAN on the implementation of the

declaration on the conduct (DOC) of parties in the South China Sea. The meeting will be held on March 18 in

Singapore. "China is ready to work with ASEAN for comprehensive and effective implementation of DOC andsteadily push forward consultations on COC," Qin said. Practical maritime cooperation will also be touched upon

during the meeting, Qin said. Qin called for favorable conditions for the implementation of DOC and formulation ofCOC to maintain peace and stability on the South China Sea.

E. THE UNITED STATES IS FULLY SUPPORTING THE ASEAN PEACE BUILDING PROCESS.

Jonathan Odom, (Judge Advocate, U.S. Navy), UNIVERSITY OF HAWAII ASIAN-PACIFIC LAW & POLICY

JOURNAL, 2012, 26-27.

Third, the United States will promote the rules-based international order through regional institutions, such as

the East Asia Summit, APEC, ASEAN, and the ARF. Within these institutions, the United States will seek to

"muster collective action when it is called for" to reinforce the rules and responsibilities of each nation, to reward

constructive behavior, and to hold to account negative behavior by state and non-state actors.

FIRST NEGATIVE BAYLOR BRIEFS 41

THE U.S. DOES NOT NEED TO INCREASE OFFSHORE OIL DRILLING

I. REDUCTION OF THE U.S. BUDGET DEFICIT DOES NOT JUSTIFY EXPANDED OIL DRILLING.

A. THE U.S. BUDGET DEFICIT IS DECREASING.

Annie Lowrey, (Staff), NEW YORK TIMES, Feb. 28, 2014, B3.

Closing the books on a fiscal year in which the federal budget deficit fell more sharply than in any year sincethe end of World War II, the Treasury Department reported on Thursday that the deficit for 2013 dropped to $680billion, from about $1.1 trillion the previous year. In nominal terms, that is the smallest deficit since 2008, and

signals the end of a five-year stretch beginning with the onset of the recession when the country's fiscal gap came in

at more than $1 trillion each year. As a share of the nation's economy, the budget deficit fell to about 4.1 percent,

from a high of more than 10 percent during the depths of the Great Recession.

Jeffrey Birnbaum, (Staff), WASHINGTON TIMES, May 8, 2013, B4.

The U.S. budget deficit is dropping sharply. Hundreds of billions of dollars that analysts once thought the

Treasury would be forced to borrow this year are rolling in steadily, thanks to tax-rate increases, spending cuts and

economic growth. The government's total deficit so far for the fiscal year that started in October is $600 billion,

down 23 percent from the same period the year before. Put another way, the deficit averaged 4.5 percent of grossdomestic product in the first three months of 2013, which is less than half the peak annual deficit of 10.1 percent ofGDP four years ago. The money keeps flowing in.

B. THE CHINESE THREAT TO DUMP U.S. SECURITIES SHOULD NOT BE TAKEN SERIOUSLY.

Tony Cappacio, (Staff, Bloomberg News), CHINA’S DEBT HOLDINGS AREN’T THREAT SAYS PENTAGON,

Sept. 10, 2012. Retrieved Apr. 16, 2014 from http://www.bloomberg.com/news/2012-09-11/china-s-u-s-debtholdings-

aren-t-threat-pentagon-says.html.

“Attempting to use U.S. Treasury securities as a coercive tool would have limited effect and likely would domore harm to China than to the United States,” according to the report, which was sent to congressional committees

by Defense Secretary Leon Panetta. “As the threat is not credible and the effect would be limited even if carried out,

it does not offer China deterrence options” in a diplomatic, economic or military situation, the Pentagon found. The

Pentagon’s conclusions were backed by analysts such as David Ader, head of U.S. government bond strategy atCRT Capital Group LLC in Stamford, Connecticut. The Chinese “are very astute money managers and they would

recognize that the damage of doing that would have negative consequences for them and for global trade, which isalready in a difficult place,” Ader said in an interview.

Tony Cappacio, (Staff, Bloomberg News), CHINA’S DEBT HOLDINGS AREN’T THREAT SAYS PENTAGON,

Sept. 10, 2012. Retrieved Apr. 16, 2014 from http://www.bloomberg.com/news/2012-09-11/china-s-u-s-debtholdings-

aren-t-threat-pentagon-says.html.

The Pentagon said in its report that the Fed also is “fully capable of purchasing U.S. Treasuries dumped” byChina and “reducing the economic impact.” A Chinese move to “suddenly and significantly” reduce its Treasuryholdings “would fundamentally change the international finance and business community’s perception of China as a

reliable and respected economic and financial partner,” the Pentagon said.

II. CONCERNS OVER ENERGY INDEPENDENCE DO NOT JUSTIFY EXPANDED OIL DRILLING.

A. U.S. DEPENDENCE ON OIL IMPORTS IS DECREASING.

Adam Wilmoth, (Staff), DAILY OKLAHOMAN, July 6, 2012. Retrieved Apr. 16, 2014 from Nexis.

A nearly 50-year trend was then suddenly and dramatically reversed as the recession and conservation effortshave driven down demand while improved drilling techniques have allowed domestic producers to increase their oiloutput by about 1 million barrels per day over the past three years. As a result, America's imports have dropped tojust less than half the country's usage today.

Bloomberg News, PITTSBURGH TRIBUNE REVIEW, Feb. 8, 2012. Retrieved Apr. 16, 2014 from Nexis.

The result: The United States has reversed a two-decade-long decline in energy independence, increasing the

proportion of demand met from domestic sources over the last six years to an estimated 81 percent through the first10 months of 2011, according to data compiled by Bloomberg from the Department of Energy. That would be the

highest level since 1992.

B. THE U.S. IMPORTS MORE OIL FROM DEPENDABLE ALLIES THAN IT DOES FROM THE MIDDLE EAST.

Sam Kalen, (Prof., Law, U. Wyoming College of Law), ENVIRONMENTAL & ENERGY LAW & POLICY

JOURNAL, Fall 2012, 157.

Energy independence generally is a surrogate for increased domestic petroleum production, and until recently

this illusive goal was more political rhetoric than reality. During the spring of 2012, the New York Times reported

that "[a]cross the country, the oil and gas industry is vastly increasing production, reversing two decades of decline."

The United States, which today imports more oil from Canada and Mexico than from the Middle East, is no longer

acutely dependent upon oil from politically unstable nations.

FIRST NEGATIVE BAYLOR BRIEFS 42

THE PROBLEM OF GLOBAL WARMING IS EXAGGERATED

I. THE EXISTENCE OF GLOBAL WARMING IS HIGHLY QUESTIONABLE.

A. GLOBAL TEMPERATURES HAVE BEEN STABLE FOR MORE THAN A DECADE.

Jeff Tollefson, (Staff), NATURE, Jan. 16, 2014, 276.

For several years, scientists wrote off the stall as noise in the climate system: the natural variations in the

atmosphere, oceans and biosphere that drive warm or cool spells around the globe. But the pause has persisted,

sparking a minor crisis of confidence in the field. Although there have been jumps and dips, average atmospheric

temperatures have risen little since 1998, in seeming defiance of projections of climate models and the ever-

increasing emissions of greenhouse gases.

Lamar Smith, (Chair, U.S. House Committee on Science, Space, and Technology), POLICY RELEVANT

CLIMATE ISSUES IN CONTEXT, House Hearing, Apr. 25, 2013, 14.

As we will hear today, there is still a great amount of uncertainty associated with our understanding of human

influences on climate. A recent article in The Economist pointed out that climate models have greatly over-predicted

warming. In fact, global temperatures have held steady over the past 15 years despite rising greenhouse gasemissions. The magazine calls the lack of warming a "surprise." It notes that the climate might be changing in waysnot properly understood, which "could have profound significance for climate science and for environmental andsocial policy." This statement, from a respected publication that had previously supported aggressive emissionlimits, highlights the complexity of the climate issue.

B. THE OCEANS ARE COOLING, RATHER THAN WARMING.

Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OF CORRUPTION: POLITICS AND POWER

BEHIND THE GLOBAL WARMING HOAX, 2011, 75.

The oceans appear to now be heading into one of their periodic cooling phases in accordance with a typical 55to-

70-year dipolar warm/cool pattern. Whether ocean waters warm or cool depends upon where you happen to bewithin these large-scale processes. The current trend is ongoing and is expected to dominate global circulationbetween 2008 and 2012. The effect of this cycle can be witnessed in recent long, cold winters with near-record low

temperatures caused by highly mobile polar cold fronts measured as cold high-pressure regions in various places.

This cold phase may be expected to continue for about 20 to 25 years before a transition into another epoch ofgenerally warmer, remedial climate.

C. RECENT STUDIES DEMONSTRATE THAT CURRENT TEMPERATURE INCREASES ARE CONSISTENT

WITH NORMAL CLIMATE VARIABILITY.

Lorne Gunter, (Staff, National Post), OCEANS: OPPOSING VIEWPOINTS, 2011, 19.

Modellers are also perplexed by the findings of NASA's eight weather satellites that take more than 300,000

temperature readings daily over the entire surface of the Earth, versus approximately 7,000 random readings from

Earth stations. In nearly 30 years of operation, the satellites have discovered a warming trend of just 0.14 [degrees]

C per decade, less than the models and well within the natural range of temperature variation.

II. EVEN THE ADVOCATES OF GLOBAL WARMING PREDICT ONLY SMALL NON-HARMFUL LEVELS OF

WARMING.

A. THE LOWER RANGE OF WARMING IN THE IPCC REPORT IS MORE LIKELY.

James Taylor, (Sr. Fellow, Heartland Institute), FORBES MAGAZINE, Aug. 22, 2013. Retrieved Apr. 21, 2014

from www.forbes.com/sites/jamestaylor/2013/08/22/why-republicans-and-others-place-a-low-priority-on-globalwarming/.

First, the pace of global warming has been very moderate. The Little Ice Age, which ended a little over 100years ago, brought the coldest temperatures of the past 10,000 years. The warming of the late 20th century has yet toreturn us to the temperature norms that predominated during most of the past 10,000 years. There has been no

warming at all in the past 15 years. Second, the climate models that predict substantial future warming are failing

miserably to replicate real-world temperatures. Even top scientists with the United Nations Intergovernmental Panelon Climate Change (IPCC), such as lead author Hans von Storch in a recent interview with der Spiegel, concede

IPCC’s climate models cannot explain the 15-year pause in global warming and will likely require adjustments toreduce their sensitivity to carbon dioxide. In short, real-world temperatures are proving IPCC climate models to betoo alarmist.

B. THE LEVELS OF WARMING PREDICTED BY THE IPCC WOULD PROBABLY BE BENEFICIAL.

Patrick Michaels, (Sr. Fellow, Cato Institute), GLOBAL WARMING AND GLOBAL FOOD SECURITY, June 30,

2011. Retrieved Jan. 15, 2014 from http://www.cato.org/publications/commentary/global-warming-global-foodsecurity.

Global surface temperature rose about three-fourths of a degree Celsius in the 20th century. U.S. corn yields

quintupled. Life expectancy doubled. People got fat. Global warming didn’t cause all of this, but increasedatmospheric carbon dioxide directly stimulated plant growth. Further, greenhouse warming takes place more in thewinter, which lengthens growing seasons. With adequate water, plants then fix and yield more carbohydrate.

FIRST NEGATIVE BAYLOR BRIEFS 43

III. PREDICTIONS OF FUTURE HARMS FROM GLOBAL WARMING ARE EXAGGERATED.

A. THE THREAT TO CORAL REEFS IS MINIMAL.

Melanie Lenart, (Research Associate, Institute of the Environment), LIFE IN THE HOTHOUSE: HOW A LIVING

PLANET SURVIVES CLIMATE CHANGE, 2010, 163.

The fact that reefs thrived during previous interglacial warm periods and the Cretaceous suggests that warmtemperatures alone do not lead to widespread dissolution of carbonate systems.

B. THE THREAT OF SEA LEVEL RISE IS NONEXISTENT.

Nils-Axel Morner, (Chair, Dept. of Paleogeophysics & Geodynamics, Stockholm U.), WATER: OPPOSING

VIEWPOINTS, 2010, 38.

Now, back to satellite altimetry, which shows the water, not just the coasts, but in the whole of the ocean. And

you measure it by satellite. From 1992 to 2002, [the graph of the sea level] was a straight line, variability along a

straight line, but absolutely no trend whatsoever. We could see those spikes: a very rapid rise, but then in half a year,

they fall back again. But absolutely no trend, and to have a sea-level rise, you need a trend.

Nils-Axel Morner, (Chair, Dept. of Paleogeophysics & Geodynamics, Stockholm U.), WATER: OPPOSING

VIEWPOINTS, 2010, 39-40.

We went to the Maldives. I traced a drop in sea level in the 1970s, and the fishermen told me, "Yes, you are

correct, because we remember" — things in their sailing routes have changed, things in their harbor have changed. I

worked in the lagoon, I drilled in the sea, I drilled in lakes, I looked at the shore morphology — so many different

environments. Always the same thing: In about 1970, the sea fell about 20 cm, for reasons involving probably

evaporation or something. Not a change in volume or something like that — it was a rapid thing. The new level,

which has been stable, has not changed in the last 35 years. You can trace it so very, very carefully. No rise at all is

the answer there.

C. EVIDENCE THAT WARMING WILL CAUSE SPECIES EXTINCTION IS FLAWED.

Matt Ridley, (Science Writer & Member, British Parliament’s House of Lords), THE RATIONAL OPTIMIST:

HOW PROSPERITY EVOLVES, 2010, 338.

So far, despite two bursts of twentieth-century warming, not a single species has unambiguously been shown tosuccumb to global climate trends. The golden toad of Costa Rica, sometimes cited as the first casualty, died outeither from a fungal disease or because of the drying of its cloud forest, probably caused by deforestation on the

lower slopes of its mountain home: a local, not a global cause.

D. THERE IS NO THREAT THAT THE GULF STREAM WILL SHUT DOWN.

Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OF CORRUPTION: POLITICS AND POWER

BEHIND THE GLOBAL WARMING HOAX, 2011, 80.

Global circulation models based upon real-world data also don't indicate any danger. A team of researchers atthe Lamont-Doherty Earth Observatory ran several versions of the Gulf Stream Collapse Theory on a global climate

model at NASA's GISS and found no evidence of a "tipping point" that would produce a Gulf Stream shutdown."

E. THE THREAT OF VIOLENT STORMS IS NOT CREDIBLE.

Richard Rahn, (Sr. Fellow, Cato Institute), WASHINGTON TIMES, Dec. 24, 2013, B3.

This year was supposed to be a very active year for Atlantic hurricanes, particularly destructive ones hitting the

U.S. coast — which got big headlines. However, you may have noticed that there were only two small, short-livedhurricanes far out in the Atlantic that never got close to the coast. This year was also supposed to a big year for

tornadoes, but again, thankfully, they were near a record low.

WASHINGTON TIMES, Apr. 3, 2012, B2.

Roger A. Pielke Jr., a professor of environmental studies at the University of Colorado, notes that globally,

hurricane wind speed — an indicator for the amount of energy in the atmosphere — has remained steady for the past15 years. Accordingly, there is no evidence that weather extremes are on the rise globally, much less that they're

increasing because of human activity.

IV. U.S. CARBON DIOXIDE EMISSIONS ARE ALREADY IN DECLINE.

Charles Krauthammer, (Syndicated Columnist), WASHINGTON POST, July 5, 2013, A19.

The United States has already radically cut carbon dioxide emissions — more than any country on earth since2006, according to the International Energy Agency. Emissions today are back down to 1992 levels.

Patrick Michaels, (Analyst at the Center for the Study of Science). GLOBAL SCIENCE REPORT, Dec. 13, 2013.

Retrieved Jan. 15, 2014 from http://www.cato.org/blog/tags/global-science-report.

Carbon dioxide emissions in the United States from the production and consumption of energy have been on thedecline since about 2005, after generally being on the rise ever since our country was first founded. The decline in

emissions between 2012 and 2011 was 3.8 percent, which, according to the Energy Information Administration

(EIA) was the largest decline in a non-recession year since 1990 and the first time that carbon dioxide (CO2)

emissions fell while the per capita economic output increased by more than 2 percent. In other words, we are

producing more while emitting less carbon dioxide.

FIRST NEGATIVE BAYLOR BRIEFS 44

ONSHORE RENEWABLE ENERGY IS SUPERIOR TO OFFSHORE

I. ONSHORE RENEWABLE ENERGY RESOURCES ARE ABUNDANTLY AVAILABLE.

A. SOLAR ENERGY CAN MEET U.S. ELECTRICAL ENERGY NEEDS.

1. Solar energy development is experiencing explosive growth.

Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE EDGE: HOW TO PREVENT

ENVIRONMENTAL AND ECONOMIC COLLAPSE, 2011, 122.

The growth in solar cell production can only be described as explosive. It climbed from an annual expansion

of 38 percent in 2006 to an off-the-chart 89 percent in 2008, before settling back to 51 percent in 2009. At the

end of 2009, there were 23,000 megawatts of PV installations worldwide, which when operating at peak power

could match the output of 23 nuclear power plants.

2. Solar energy costs are decreasing.

Leonardo Maugeri, (Sr. Fellow, Harvard University’s Belfer Center for Science & International Affairs),

BEYOND THE AGE OF OIL: THE MYTHS, REALITIES, AND FUTURE OF FOSSIL FUELS AND THEIR

ALTERNATIVES, 2010, 162.

Historically, photovoltaic cell costs have dropped almost 20 percent each time world production doubled.

This is still happening in spite of the recent silicon supply shortage. The production of polysilicon rose sharply in2008, providing more than enough raw material to industry. Furthermore, overproduction of solar cells globally

and the threat of subsidy reductions and market shrinkage during the economic crisis have helped lower pricessince their 2008 peak.

3. Solar energy has the potential to meet U.S. electrical energy needs.

Arjun Makhijani, (Pres., Institute for Energy and Environment Research), NUCLEAR POWER, 2010, 45.

The sunshine falling on rooftops and parking lots alone can provide much or most of the electricity

requirements of the United States.

B. ONSHORE WIND POWER CAN MEET U.S. ELECTRICAL ENERGY NEEDS.

1. Wind energy is experiencing explosive growth in the U.S.

Nicola Armaroli, (Sr. Research Scientist, Italian National Research Council), ENERGY FOR A SUSTAINABLEWORLD: FROM THE OIL AGE TO A SUN-POWERED FUTURE, 2011, 240.

In the US wind accounted for 39% of all new electrical capacity in 2009, up from less than 2% in 2004.

Nearly 10 GW of new wind turbines were installed in 2009 thanks to the Recovery Act incentives, bringing thecumulative US value to 35 GW, ahead of Germany (25.8 GW), which had been the world leader for 15 years.

2. Wind energy costs are competitive with coal-fired power plants.

Ramez Naam, (Fellow, Institute for Ethics and Emerging Technologies), THE INFINITE RESOURCE: THE

POWER OF IDEAS ON A FINITE PLANET, 2013, 161.

Today, new wind power installations in good locations are producing electricity at a cost of 5 cents per

kilowatt hour, competitive with the wholesale prices of coal and natural gas at the power plants.

3. Onshore wind power has the potential to meet U.S. electrical energy needs.

Daniel Botkin, (Prof., Marine Ecology, U. California at Santa Barbara), POWERING THE FUTURE: A

SCIENTIST’S GUIDE TO ENERGY INDEPENDENCE, 2010, 120.

The windiest 20 states have enough wind energy to potentially provide one-third to one-half of the total U.S.

energy use, and all of its electricity, now and in the next 40 years.

II. OFFSHORE RENEWABLE ENERGY FACILITIES DISADVANTAGEOUS.

A. OFFSHORE WIND DEVELOPMENT WILL HARM FISHERIES.

Center for Regulatory Effectiveness, COASTAL AND MARINE SPATIAL PLANNING, Apr. 8, 2011. Retrieved

Mar. 10, 2014 from http://www.whitehouse.gov/sites/default/files/microsites/ceq/cmsp\_comments\_and\_

attachments\_1.24.11-4.29.11.pdf.

Fishermen will be adversely affected by the proposed wind farms in the Atlantic OCS. The AMI is an area thatis heavily fished and navigated by fishermen. Accordingly, the offshore wind farm proposed has great potential todisplace fishermen from their managed grounds.

B. OCEAN ENERGY FACILITIES ARE NOT COST EFFECTIVE TO CONSTRUCT OR OPERATE.

Subramaniam Neelamani, (Coastal Management Program, Kuwait Institute for Scientific Research), ON A

SUSTAINABLE FUTURE OF EARTH’S NATURAL RESOURCES, 2013, 309.

One of the main reasons for the slow development of the technology for ocean energy conversion is that the

structures to be built in the ocean accommodating the ocean energy power plant are very expensive with low returns.

FIRST NEGATIVE BAYLOR BRIEFS 45

OCEAN EXPLORATION IS ADEQUATE IN THE PRESENT SYSTEM

I. SATELLITE EXPLORATION OF THE OCEANS IS ALREADY EXTENSIVE.

A. SATELLITES HAVE MAPPED THE SEAFLOOR.

Sylvia Earle, (National Geographic Explorer in Residence), THE WORLD IS BLUE: HOW OUR FATE AND

OCEANS ARE ONE, 2010, 201.

Data from satellites have greatly improved overall knowledge about the configuration of the seafloor far below,

and have helped fill in many of the unknowns that existed until the latter part of the 20th century.

B. SATELLITES ARE ACTIVELY STUDYING HARMFUL ALGAL BLOOMS.

Christopher Jackson, (Scientist, National Oceanic and Atmospheric Administration), STAR LOOKS AT THE

EARTH: SATELLITE MEASUREMENTS OF THE ATMOSPHERE, OCEANS, AND LAND, 2012, 100.

A harmful algal bloom is a rapid growth of algae, typically from nutrient rich waters, that impacts marine life or

people by eutrophication (depletion of the oxygen in the water) or the production of toxic substances. In the late1980s, a harmful algal bloom blanketed a section of the North Carolina coast and reportedly cost the community $25

million in damage and clean-up costs. In response to this event, STAR led the development of a NOAA program to

collect satellite data to monitor the conditions of such blooms and give coastal managers advance warning of similarcircumstances. Since then, this CoastWatch system has evolved into a robust collection of products that make nearreal-time oceanographic satellite data available to everyone.

C. SATELLITES ARE STUDYING THE IMPACT OF THE OCEANS ON CLIMATE.

Mary Kicza, (Assistant Administrator, National Oceanic and Atmospheric Administration), STAR LOOKS AT THE

EARTH: SATELLITE MEASUREMENTS OF THE ATMOSPHERE, OCEANS, AND LAND, 2012, 3.

NOAA's mission is to understand and predict changes in climate, weather, oceans, and coasts, to share that

knowledge and information with others, and to conserve and manage coastal and marine ecosystems and resources.

This mission is central to many of today's greatest environmental challenges: climate change, severe weather,

natural and human-induced disasters, declining biodiversity, ocean acidification, threatened or degraded ocean and

coastal resources. Successfully addressing these pressing issues requires timely and usable information to aid

decision-making, and the science that underpins our knowledge of these systems. NESDIS and STAR are key inputs

into NOAA's success in addressing these important challenges.

II. OCEAN EXPLORATION IS EXTENSIVE IN THE PRESENT SYSTEM.

A. PRIVATE FOUNDATIONS FUND THEIR OWN PROGRAMS OF OCEAN EXPLORATION.

Geoff Holland, (Former Chair, Intergovernmental Oceanic Commission), TROUBLED WATERS: OCEAN

SCIENCE AND GOVERNANCE, 2010, 3-4.

Good science requires conclusions to be independent of the expectations of the funding sources, and scientistsneed freedom to apply their professional skills without interference. Governments naturally desire control ofexpenditures and seek to ensure that research results lead to more efficient and effective services for theirconstituents. While governments need operating systems that can feed information into established managementregimes, scientists are concerned that the results of labors will lead to an erosion of their scarce research funds topay for the on-going expenses of such systems.

B. OCEANOGRAPHERS ALREADY HAVE ACCESS TO A MOUNTAIN OF DATA FROM OCEAN SENSORS.

Paul Snelgrove, (Prof., Oceanography, Memorial U., Newfoundland), DISCOVERIES OF THE CENSUS OF

MARINE LIFE: MAKING OCEAN LIFE COUNT, 2010, 84.

By October 2010, viewers will find nearly 30 million data records at www.iobis.org. Each record identifies

geographic position, depth, collection date, source, and verified species name of each specimen. Analysts can

overlay global distributions of species and diversity mapped on environmental drivers like water temperature or

salinity.

III. TSUNAMI BUOYS HAVE BEEN OF MINIMAL VALUE IN PROVIDING WARNINGS.

Jim Borg, (Staff), HONOLULU STAR-ADVERTISER, Mar. 12, 2012. Retrieved Apr. 16, 2014 from Nexis.

Gerard Fryer, a geophysicist at the Pacific Tsunami Warning Center in Ewa Beach, says a tsunami warning

would go out well before any wave hits the DART buoys. DART stands for Deep-Ocean Assessment and Reporting

of Tsunamis, a program under the National Oceanic and Atmospheric Administration. "Our warnings initially arebased purely on what we know about the earthquake," he said in an interview at the center Friday. "We make ourwarnings from seismology and those warnings — we're pretty proud of our recent record. Those warnings are darn

good. Our false-alarm rate is way lower than it used to be. In fact, there has been no recent event for which theDARTs actually were needed. There were no events for which the DART data changed our decision."

FIRST NEGATIVE BAYLOR BRIEFS 46

THE U.S. IS NOT THREATENED BY A SHORTAGE OF RARE EARTH ELEMENTS

I. CHINA IS NOT LIKELY TO CUT OFF THE SUPPLY OF RARE EARTH ELEMENTS.

A. THE U.S. AND CHINESE ECONOMIES ARE NOW FULLY INTERDEPENDENT, MAKING ANY CUTOFF OF

RARE EARTH MINERALS UNLIKELY.

Catherine Ngai, (Staff, Medill News Service), REPLACING OIL ADDICTION WITH METALS DEPENDENCE,

Oct. 1, 2010. Retrieved Apr. 5, 2014 from http://news.nationalgeographic.com/news/2010/10/101001-energy-rareearth-

metals/.

Some academics aren’t too concerned that the United States would be held hostage by China over rare-earthminerals. “The fact is that the more the Chinese and American economics are interrelated, the less likely conflictmight be,” said Jerry Taylor, senior fellow at the Cato Institute, a libertarian public policy think tank in Washington,

who has written extensively on energy issues. “What would it [China] gain at the end of the day? They would risk a

trade war with a country where a huge volume of its liquid capital assets are invested.”

B. RECENT CHINESE EXPORT CONTROLS ON RARE EARTH ELEMENTS HAVE NOT CONSTRAINED THE

U.S. SUPPLY – U.S. IMPORTS HAVE NOT EVEN REACHED THE LEVEL OF THE CHINESE LIMITS.

FINANCIAL TIMES, Mar. 14, 2012, 8.

Last year, buyers of China's rare earths did not use up the available export quotas. In most cases, no one has

been prevented from acquiring the rare earths they needed if they were prepared to pay the price.

II. LAND-BASED MINING OF RARE EARTH ELEMENTS IS SUPERIOR TO MINING THE SEABED.

A. U.S. HAS ACCESS TO ITS OWN LAND-BASED SOURCES OF RARE EARTH MINERALS.

Gal Luft, (Dir., Institute for the Analysis of Global Security), WASHINGTON TIMES, Oct. 21, 2010, 4.

This should not be a tall order. After all, one-fifth of the world's known commercially available non-Chinese

rare-earth reserves are concentrated in the United States. In fact, until the 1970s, the California-based Mountain Pass

Mine (then owned by Chevron) was the world's largest supplier of rare earths. But in the decades since, China's

lower production cost because of weak environmental enforcement and significant wage differentials has broughtthe U.S. rare-earth industry to extinction.

B. THE U.S. IS ALREADY MAKING PLANS TO RE-ACTIVATE ITS OWN RARE EARTH MINES.

Emily Coppel, (Research Assistant, American Security Project), RARE EARTH METALS AND U.S. NATIONAL

SECURITY, Feb. 1, 2011, 4.

The U.S. is currently working on reopening the mine at Mountain Pass, California, and expects it to be fully

operational by the end of 2012. Experts believe that North American mines alone could produce as much as 40,000

metric tons of rare earth metals per year, or double what the U.S. currently uses. If the U.S. could fully develop these

mines, it would have sufficient rare earths to supply its domestic needs, as well as enough to satisfy future growth in

demand.

C. MINING OF THE SEABED FOR RARE EARTH ELEMENTS WILL POLLUTE THE OCEANS.

NEW ZEALAND HERALD, May 17, 2013. Retrieved Apr. 4, 2014 from Nexis.

The rare earths industry produces heavy metals and radioactive waste. Processing deposits from mud, using acid

leaching, is easier. But big pitfalls remain. Critically, life in the ocean deep is sulphur-, not oxygen-based, provoking

concerns about damage to fish stocks if sulphite particles enter food chains, driving acidification. For Pacific states

that depend on fishing and tourism, this is a serious threat. There are also fears that mining could trigger ocean floor

landslides, damage hydrothermal vents or release radiation.

III. U.S. ALLIES, BOTH MEMBERS OF UNCLOS, ARE PLANNING TO MINE THE SEABED, MEANING THAT THE

CHINESE MONOPOLY WILL BE BROKEN IN ANY EVENT.

A. JAPAN IS MAKING PLANS TO MINE RARE EARTH MINERALS FROM THE SEABED.

Ambrose Evans-Pritchard, (Staff), THE DAILY TELEGRAPH, Mar. 25, 2013, 4.

Japanese scientists have found vast reserves of rare earth metals on the Pacific seabed that can be mined

cheaply, a discovery that may break the Chinese monopoly on a crucial raw material needed in hi-tech industries andadvanced weapons systems. "We have found deposits that are just two to four metres from the seabed surface at

higher concentrations than anybody ever thought existed, and it won't cost much at all to extract," said professor

Yasuhiro Kato from Tokyo University, the leader of the team.

B. BRITAIN IS MAKING PLANS TO MINE THE SEABED.

Emma Rowley, (Staff), THE DAILY TELEGRAPH, Aug. 20, 2013, 5.

In the UK, David Cameron in March unveiled a plan to harvest rare earths, among other natural riches, that lieat the bottom of the ocean. Sponsored by the Government, a company called UK Seabed Resources has won the first

commercial exploration rights over a 58,000 square-kilometre area of the Pacific, with the eventual aim of collecting

mineral-rich polymetallic modules — mysterious formations on the ocean floor — which contain rare earths.

FIRST NEGATIVE BAYLOR BRIEFS 47

OCEAN SEAPORTS ARE ADEQUATELY MAINTAINED AT PRESENT

I. THERE IS NO NEED FOR ALL U.S. SEAPORTS TO HANDLE LARGE CONTAINER SHIPS.

A. THE U.S. ALREADY HAS WEST COAST PORTS CAPABLE OF HANDLING LARGE VESSELS.

Jim Watts, (Staff), BOND BUYER, Jan. 6, 2014. Retrieved Apr. 7, 2014 from Nexis.

Ports in Miami, Houston, New York, New Orleans, Savannah and others are either working on or have plan todeepen shipping channels and expand cargo handling facilities to accommodate the larger ships capable of transiting

the new wider and deeper canal. The massive container ships can currently berth at several ports on the West Coast,

including Los Angeles, Oakland, and Seattle.

B. THE U.S. ALREADY HAS A SUFFICIENT NUMBER OF EAST COAST PORTS CAPABLE OF HANDLING

LARGE VESSELS.

Dan Chapman, (Staff), ATLANTA JOURNAL-CONSTITUTION, June 14, 2012, 1A.

No one in Washington or anywhere else plays referee to determine which ports should handle the ever-largercargo ships expected to traverse the Panama Canal en route to the East Coast by 2015. "We don't need a half-dozendeep-water ports on the Eastern seaboard. We just need a couple to deal with the larger ships coming on line," saidSteve Ellis, vice president of Taxpayers for Common Sense, a nonpartisan budget watchdog group in Washington.

"Spending all this money is clearly in the ports' and shippers' interests, but it's not in the taxpayers' interest."

Savannah and Charleston, for example, compete for the same ships and plan to spend almost $4 billion upgrading

harbors, docks and terminals. South Carolina politicians, who've plowed billions of dollars into the port of

Charleston, vow to stop Savannah from deepening its river and harbor.

C. THE CLAMOR FOR DEEPER PORTS IS REALLY AN EFFORT OF SMALLER EAST COAST PORTS TO

DIVERT TRAFFIC FROM WEST COAST PORTS.

Ryan Holeywell, (Staff), TRIBUNE REGIONAL NEWS, July 1, 2012. Retrieved Apr. 8, 2014 from Nexis.

Industry experts say that nearly 80 percent of ships on order are post-Panamax size, and elected officials on the

East and Gulf coasts are predicting that if they can expand their ports to accommodate these larger ships, they can

capture much of the traffic that currently goes to West Coast ports and reaches the East Coast by rail.

D. SMALLER PORTS WILL STILL HAVE CONTAINER TRAFFIC, EVEN AFTER THE EXPANSION OF THE

PANAMA CANAL.

Dan Chapman, (Staff), THE ATLANTA JOURNAL-CONSTITUTION, Jan. 26, 2014, 1D.

Eager to squeeze more revenue from every container, shipping lines are switching to larger ships capable ofcarrying as many as 18,000 containers. Savannah, once deepened, will only be able to routinely handle ships with as

many as 10,000 containers. But that may not matter. Rodrigue and other maritime experts expect ships traversing the

Panama Canal to off-load containers onto smaller ships in Panama, Jamaica or Puerto Rico that will then stop alongthe East Coast.

II. STATES AND LOCALITIES ARE MANAGING PORT EXPANSION, EVEN WITHOUT FEDERAL ASSISTANCE.

A. BALTIMORE IS EXPANDING ITS HARBOR THROUGH A PUBLIC-PRIVATE PARTNERSHIP.

Ryan Holeywell, (Staff), TRIBUNE REGIONAL NEWS, July 1, 2012. Retrieved Apr. 8, 2014 from Nexis.

The Port of Baltimore just completed deepening a berth at one of its container terminals to 50 feet. The $105

million project, which includes four new cranes for ships that are two to three times larger than vessels currently

calling on the port, was accomplished through a public-private partnership with a company called Ports America

Chesapeake. Under the agreement, the company paid for the improvements as part of its 50-year lease to operate theterminal. Maryland officials viewed the project as a critical economic and jobs driver. Without the public-private

arrangement, "we wouldn't have been ready," says White.

B. MIAMI IS FUNDING ITS OWN PORT EXPANSION.

James Hider, (Staff), LONDON TIMES, Mar. 3, 2014, 42.

Billions of dollars have been sunk into upgrading ports for the new breed of mega-vessels that will transform

shipping lanes along the United States' eastern seaboard and will bolster global trade. The port of Miami alone is

spending $2 billion on dredging and enhancing its facilities, including the construction of an underwater tunnel forlorries ferrying goods to the maritime monsters that will use the new canal. While the so-called Panamax ships —

those that at present squeeze through the 50-mile waterway — can carry 4,500 20ft containers, the new mega-

vessels will be able to ship 13,200 containers each, making global trade cheaper. Rivers along the eastern coast of

the United States are being dredged and deepened and bridges raised to accommodate the new ships, while the boomin America's natural gas from "fracking" is driving the construction of giant tankers to feed Asia's demand for

cheaper fuel.

C. SAVANNAH IS FUNDING ITS OWN PORT EXPANSION.

John Schwarz, (Staff), THE NEW YORK TIMES, Aug. 21, 2012, A10.

Savannah is preparing to move forward with a $652 million deepening project, while the South Carolina

Legislature has committed $300 million to dredging for Charleston.

FIRST NEGATIVE BAYLOR BRIEFS 48

THE LOSS OF CORAL REEFS IS EXAGGERATED

I. THE IMPACT OF CLIMATE CHANGE ON CORAL REEFS IS EXAGGERATED.

A. CORAL REEFS IN THE MOST ACIDIC OCEAN WATERS ARE DOING WELL.

National Science Foundation, US OFFICIAL NEWS, Jan. 20, 2014. Retrieved Apr. 16, 2014 from Nexis. Thenew research results, published in a paper in Geophysical Research Letters, a journal of the American Geophysical

Union, explain the biological and geomorphological causes of the more acidic waters near Palau's Rock Islands. The

paper also describes a surprising second finding — that the corals living in those more acidic waters were

unexpectedly diverse and healthy. The unusual finding, contrary to what has been observed in other naturally lowpH coral reef ecosystems, has important implications for the conservation of corals in all parts of the world. "Whenyou move from a high pH reef to a low pH neighboring reef, there are big changes, and they are negative changes,"

said Cohen, a co-author of the paper and principal investigaor of the project. "However, in Palau wherever the water

is most acidic, we see the opposite. There's a coral community that is more diverse, hosts more species and has

greater coral cover than in the non-acidic sites.

Pacific Islands Development, (An Agency of the State of Hawaii), US OFFICIAL NEWS, Mar. 20, 2014. Retrieved

Apr. 16, 2014 from Nexis.

The Woods Hole Oceanographic Institution (WHOI) is a private, nonprofit research and higher education

facility dedicated to the study of all aspects of marine science and engineering and to the education of marineresearchers. Established in 1930, it is the largest independent oceanographic research institution in the U.S., with

staff and students numbering about 1,000. Anne Cohen, a member of the group, was quoted in the report as saying

that there was something special with the presence of this coral ecosystem at Nikko Bay. "This raucous coral

ecosystem shouldn't even exist. The water is way too acidic," Cohen was quoted as stating in the article. Cohen

disclosed in the article that of the 17 coral reef systems around the world that they have been monitoring, that is themost acidic site they have found. "The higher acidity of the water here is natural, but it defies all expectations.

Conventional wisdom is that corals don't like acidic water, and the water in Nikko Bay is acidic enough that itshould keep many of these corals from building up their calcium carbonate skeletons," she pointed out. The report

says that acidity goes up as you move from the barrier reefs offshore into Palau's island bays and that as thathappens, the coral cover and the coral diversity increase as well.

B. CORAL REEFS HAVE SURVIVED PAST WARMING EVENTS.

Heartland Institute, U.S. OFFICIAL NEWS, Jan. 23, 2014. Retrieved Apr. 16, 2014 from Nexis.

"My impression of concerns raised by climate-change alarmists involving purported adverse effects on coral

reefs from warming oceans and rising dissolved CO2 concentrations in the seawater surrounding coral reefs is that

the claims are naturally inconsistent and greatly overblown. Others factors more likely account for instances of

dying or sick reefs," said William D. Balgord, Ph. D., a geochemist and president of Middleton, Wis.-basedEnvironmental & Resources Technologies, Inc. "The Great Barrier Reef has persisted throughout geological ages,"

including periods of fluctuating temperatures and atmospheric carbon dioxide levels, Balgord observed. Balgordnoted studies show the recent warming seems to be beneficial to coral.

C. SEA RISE ACTUALLY BENEFITS CORAL REEFS.

Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof., Emeritus, Environmental Science, U. Virginia),

CLIMATE CHANGE RECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 799.

Rising sea levels may actually have a positive effect on coral reefs. Over the past 6,000 years, relatively stable

sea levels have limited upward reef growth, resulting in the development of extensive reef flats. As Buddemeier and

Smith and Wilkinson have noted, the sea-level rises predicted to result from CO2-induced global warming should bebeneficial, permitting increased growth in these growth-restricted areas. As Chadwick-Furman noted, “many coral

reefs have already reached their upward limit of growth at present sea level, and may be released from this verticalconstraint by a rise in sea level.” She also notes rising sea levels may allow more water to circulate betweensegregated lagoons and outer reef slopes, which could “increase the exchange of coral propagules between reefhabitats and lead to higher coral diversity in inner reef areas.” She, too, concludes “coral reefs are likely to survive

predicted rates of global change.”

D. CLIMATE CHANGE IS AS LIKELY TO BENEFIT COAL REEFS AS TO HARM THEM.

Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof., Emeritus, Environmental Science, U. Virginia),

CLIMATE CHANGE RECONSIDERED: 2011 INTERIM REPORT, 2011, 5.

While some corals exhibit a propensity to bleach and die when sea temperatures rise, others exhibit a positive

relationship between calcification, or growth, and temperature. "Such variable bleaching susceptibility implies that

there is a considerable variation in the extent to which coral species are adapted to local environmental conditions."

The latest research suggests corals have effective adaptive responses to climate change, such as symbiont shuffling,

that allow reefs in some areas to flourish despite or even because of rising temperatures. Coral reefs have been ableto recover quickly from bleaching events as well as damage from cyclones.

FIRST NEGATIVE BAYLOR BRIEFS 49

AQUACULTURE PRODUCTION IN DEVELOPING COUNTRIES PROTECTS THE OCEAN ENVIRONMENT

I. IMPORTED AQUACULTURE DOES NOT HARM THE ENVIRONMENT.

A. MOST AQUACULTURE IMPORTS COME FROM CHINA.

Elizabeth DeSombre, (Prof., Environmental Science, Wellesley College), FISH, 2011, 114.

This sector is dominated by developing countries. China alone accounts for almost two-thirds of the global totalaquaculture production as measured by weight (although under half by value), and the top five aquacultureproducers globally — India, Vietnam, Indonesia, and Thailand follow China — are all developing countries (againby weight; measured by value Japan comes in fifth). A large majority of the world's fish farming happens in Asia —

almost nine-tenths by weight, and about three-quarters by value.

Sylvia Earle, (National Geographic Explorer in Residence), THE WORLD IS BLUE: HOW OUR FATE AND

OCEANS ARE ONE, 2010, 227.

China continues to lead in freshwater and ocean aquaculture, contributing about half of all cultivated aquatic

organisms produced in the world. In these aquatic farms, as elsewhere, the 10,000-year development of agriculture

is now compressed into a few decades.

B. CHINESE AQUACULTURE UTILIZES RECYCLING SYSTEMS PROTECTIVE OF THE ENVIRONMENT.

Sylvia Earle, (National Geographic Explorer in Residence), THE WORLD IS BLUE: HOW OUR FATE AND

OCEANS ARE ONE, 2010, 223.

For thousand of years, Chinese farmers have been combining agriculture and aquaculture for an efficient and

effective use of land and water. They nourish rice and fish in the same flooded paddies, using wastes from humans

and farm animals — pigs, chickens, ducks, geese — to provide nutrition for crops. They have perfected the

cultivation of several kinds of hardy freshwater fish that grow fast, eat plants, taste good, reproduce in captivity, and

can be raised in large numbers in closed systems. When the goal is to obtain great quantities of high-quality protein

with minimum cost to the farmer and to the environment, these are good features to look for.

Alex Steffen, (Journalist & Editor, Worldchanging.org), WORLDCHANGING: A USER’S GUIDE FOR THE 21ST

CENTURY, 2011, 517.

Aquaponics, an engineered version of the fish-farming polyculture that has long been practiced in Southeast

Asia and China, can turn a kitchen counter or a backyard garden into a fish farm. Aquaponics is a combination ofaqua-culture and hydroponics, a symbiotic setup in which plants and fish are raised simultaneously in recirculating

water. The two "crops" are complementary: fish waste fertilizes the plants, which naturally filter the water so that it

stays clean even when many fish are raised in close quarters. These systems can be as simple as a few fish feeding a

tabletop herb garden or they can be serious gardening endeavors involving up to one hundred fish and a dedicatedgreenhouse, and yielding more substantial crops of squash, tomatoes, and other vegetables.

C. MOST CHINESE AQUACULTURE FARMING IS DONE AWAY FROM THE OCEAN.

Netherlands Business Support Office, AN OVERVIEW OF CHINA’S AQUACULTURE, Spring 2010, 6.

Unlike marine culture, freshwater culture is scattered all over the country. The main species are common carp,

bighead carp, silver carp, grass carp, Tilapia, Chinese mitten crab, eel, river crab and shrimp. Most farms of freshwater culture are small scale and distributed in a wide geographical range, which makes freshwater products mainlyfocusing on local market. Also, in recent years, with the decrease of caught fish outputs and the increase of the price,

the outputs of some freshwater fishes such as catfish and tilapia are growing rapidly to meet international market

D. CHINESE AQUACULTURE USES PROBIOTIC SYSTEMS IN ORDER TO AVOID ANTIBIOTIC OVERUSE.

Netherlands Business Support Office, AN OVERVIEW OF CHINA’S AQUACULTURE, Spring 2010, 14.

With increasing demand for environment friendly aquaculture, the use of probiotics in aquaculture is nowaccepted. In Guangdong area, some farmers have used the probiotics to improve the quality of the water. Recentresearch also shows that the use of commercial probiotics in Penaeus vannamei Pond can reduce concentration of

nitrogen and phosphorus and increase the shrimp yields

E. CHINA IS WORKING WITH ENVIRONMENTAL GROUPS TO IMPROVE THE ENVIRONMENTAL

PERFORMANCE OF AQUACULTURE FARMING.

Aquaculture Stewardship Council, GREENING THE SUPPLY OF CHINESE TILAPIA, Oct. 12, 2012. Retrieved

Apr. 21, 2014 from http://www.asc-aqua.org/index.cfm?act=update.detail&uid=137.

Through the encouragement from capable and responsible big Tilapia companies that implement the ASC

standards first, the whole tilapia industry can enjoy an improvement in environmental and social benefits. CAPPMA

really hopes that the goal of the sustainable development of the Chinese Tilapia industry can be achieved early asmore companies achieve ASC certification.“ A spokesman for the third partner, WWF China, Wang Songlin, Senior

Marine Programme Officer said “this is a remarkable moment for WWF and our partners to kick off the

transformative change in China’s enormous Tilapia aquaculture sector towards higher efficiency and measurable

environmental sustainability. It is great that we are not only witnessing this change, but also contributing to it.”

FIRST NEGATIVE BAYLOR BRIEFS 50

ONSHORE AQUACULTURE DEVELOPMENT IS SUPERIOR TO OFFSHORE

I. ONSHORE AQUACULTURE AVOIDS THE HARMS OF OPEN-OCEAN FISH FARMING.

A. MOST U.S. FISH FARMS ARE LOCATED INLAND – ISOLATED FROM OCEAN WATERS.

Garret Wheeler, (J.D. Golden Gate U. College of Law), GOLDEN GATE UNIVERSITY ENVIRONMENTAL

LAW JOURNAL, Spr. 2013, 299.

The United States ranks thirteenth in total aquaculture production. In 2010, Asia accounted for eighty-ninepercent of world aquaculture production by volume. In the United States, the majority of aquaculture currentlyoccurs on land, with channel catfish representing eighty-one percent of the 287,132 tons of finfish produced in 2008.

Catfish production takes place in large freshwater ponds in the southeastern states of Mississippi, Louisiana,

Arkansas, and Alabama. Domestic catfish production peaked in 2008, with 234,000 tons valued at $ 39 million. Thestates of Arkansas, Louisiana, and Mississippi provide aquaculture jobs to nearly 4,000 people, representing thirty-

seven percent of the nation's total direct employment in the industry.

B. ONSHORE FACILITIES ARE ENVIRONMENTALLY SUPERIOR.

Garret Wheeler, (J.D. Golden Gate U. College of Law), GOLDEN GATE UNIVERSITY ENVIRONMENTAL

LAW JOURNAL, Spr. 2013, 297.

Although considerable scholarly analysis has been devoted to the environmental problems and legal

complexities surrounding the development of open-ocean aquaculture, little has been written on the alternative:

sustainable land-based facilities. These systems are models of modern ecological engineering and can be located

anywhere, including urban settings such as brownfields, abandoned industrial sites, and warehouses. They can feed

local populations and provide local jobs without compromising the health of our oceans and wild fish stocks.

Sustainable land-based systems are already operating in American cities like Brooklyn, Baltimore, and Milwaukee.

C. ONSHORE SYSTEMS DO NOT SPREAD DISEASE TO WILD FISH POPULATIONS.

Garret Wheeler, (J.D. Golden Gate U. College of Law), GOLDEN GATE UNIVERSITY ENVIRONMENTAL

LAW JOURNAL, Spr. 2013, 301.

Compared to the negative environmental impacts of ocean-based aquaculture facilities, the negative impacts ofland-based systems are easily minimized. Unlike ocean-based operations, isolated terrestrial facilities have fewerproblems with escapement. The spread of disease is also easier to control because fecal matter and feed waste arenot in direct contact with the surrounding marine ecosystem.

D. ONSHORE AQUACULTURE AVOIDS GENETIC CONTAMINATION OF WILD FISH.

Paul Greenberg, (Staff, National Geographic), FOUR FISH: THE FUTURE OF THE LAST WILD FOOD, 2010,

252-253.

American striped bass, meanwhile, have staged a strong recovery in the wild even in the presence of anaquaculture program that now accounts for 60 percent of all striped bass consumed. The difference? The fish called

"farmed striped bass" is a sterile hybrid created by crossing a female striped bass with a male of a related freshwater

species called white bass. The farmed hybrid striped bass cannot interbreed with the wild population of striped bass

and thus cannot spread its genes beyond the farm. Furthermore, the hybrid striped bass is grown exclusively infreshwater ponds away from the migration lanes of wild striped bass. Wild populations are thus buffered againstcontracting farm-born diseases.

II. OFFSHORE FISH FARMING THREATENS SIGNIFICANT HARM TO THE OCEAN ENVIRONMENT.

A. OFFSHORE FISH FARMS CAUSE POLLUTION OF THE OCEANS.

Marianne Cufone, (Dir., Food and Water Watch), COASTAL AND MARINE SPATIAL PLANNING, Apr. 27,

2011. Retrieved Mar. 10, 2014 from www.whitehouse.gov/sites/default/files/microsites/ceq/cmsp\_comments\_and\_

attachments\_1.24.11-4.29.11.pdf.

Ocean finfish farming can be problematic for both the environment and the economy. The waste – fecal matter,

uneaten food, and any chemicals or drugs used in the operation – flows directly into the ocean, and the ecological

equilibrium of the seafloor or surrounding area could be permanently damaged. Fish often escape from ocean cages,

and once in the wild, they can interbreed with or outcompete wild fish, leading to decreased genetic viability and

potential population collapses. Even before fish escape, they can spread diseases and parasites to nearby wild fish.

For example, sea lice have been well documented to be problematic around salmon farms.

Richard Oppenlander, (Environmentalist), COMFORTABLY UNAWARE: WHAT WE CHOOSE TO EAT IS

KILLING US, 2012, 56.

These fish farms now greatly contribute to water pollution on two levels. The first is by further concentrating

toxin levels and creating a higher potential for our exposure to them. When fishmeal and fish oil are used in

aquaculture, the process concentrates carcinogens such as dioxins. This occurs because various contaminants and

chemicals are found in many types of fish, which are then passed on, in more condensed forms, as they work up the

food chain.

FIRST NEGATIVE BAYLOR BRIEFS 51

B. ESCAPEES FROM FISH FARMS CAUSE GENETIC POLLUTION OF WILD FISH POPULATIONS.

1. A significant number of fish escape from offshore fish farms.

Daniel Chiras, (Prof., Ecology, Colorado College), NATURAL RESOURCE CONSERVATION:

MANAGEMENT FOR A SUSTAINABLE FUTURE, 2010, 343.

"Biological contamination" of native species by farmed species has also proven to be a widespread problem.

Escaped, farm-raised Atlantic salmon account for as much as 40% of the salmon catch in the North Atlantic

region, and more than 250,000 farmed salmon have escaped into the North Pacific Ocean in the past two

decades. Escaped salmon may hybridize with native stocks, irreversibly altering the genetic makeup of wildstocks, many of which are already endangered.

Coastal Alliance for Aquaculture Reform, OCEANS: OPPOSING VIEWPOINTS, 2011, 67.

Despite regulations and management practices intended to limit farmed salmon escapes, escapes still happenin every salmon farming region in the world.

2. Escapees undermine the genetic fitness of wild fish populations.

Garret Wheeler, (J.D. Golden Gate U. College of Law), GOLDEN GATE UNIVERSITY ENVIRONMENTALLAW JOURNAL, Spr. 2013, 301.

Escaped fish also pose a threat to marine ecosystems by introducing non-indigenous species, compromisingthe genetic fitness of native populations through interbreeding, and disease translocation. Disease and parasites

may also spread to nearby native populations, and attempts by operators to apply drugs and chemicals to contain

those threats can damage the surrounding ecosystem.

3. Genetic pollution will cause the extinction of wild fish species.

Yukon River Drainage Fisheries Association, GENETIC ENGINEERING, 2012, 86.

Research on such genetic pollution resulting from what scientists call the "Trojan gene" effect published inthe Proceedings of the National Academy of Sciences notes that a release of just sixty GE fish into a wildpopulation of 60,000 would lead to the extinction of the wild population in less than 40 fish generations.

C. OVERUSE OF ANTIBIOTICS THREATENS BOTH WILD FISH AND HUMAN POPULATIONS.

1. Offshore fish farms overuse antibiotics.

Coastal Alliance for Aquaculture Reform, OCEANS: OPPOSING VIEWPOINTS, 2011, 66.

The vast majority of salmon farming operations depend on the use of vaccines, antibiotics and pesticides tocontrol disease and parasites that are often exacerbated by the high densities required to make industrial livestock

operations profitable.

2. Overuse of antibiotics harms wild fish populations.

Elizabeth DeSombre, (Prof., Environmental Science, Wellesley College), FISH, 2011, 133-134.

The second is that over time habitual antibiotic use leads to the evolution of salmon that have weaker natural

immune systems, because fish with weaker disease resistance that would otherwise die before breeding are kept

alive by antibiotics, and are able to breed and pass on their genes. Were it the case that farmed salmon were kept

entirely separate from the natural breeding stock, this problem would only affect fish farmers. But farmedsalmon are kept in pens in the ocean and some inevitably escape. The widespread use of prophylactic antibioticsin farmed salmon thus weakens the disease resistance of the natural stock.

3. Overuse of antibiotics creates resistant bacteria harmful to humans.

Callum Roberts, (Prof., Marine Conservation, U. of York), THE OCEAN OF LIFE: THE FATE OF MAN ANDTHE SEA, 2012, 255.

You might think that there is little chance of marine bugs causing trouble for us, but bacteria are able toswap genetic material, and genes for resistance have already made the leap from sea to land, and from bugs thataffect animals to ones that infect people. A cholera outbreak in South America in the 1990s was of a strain thathad picked up antibiotic resistance from contact with a bacterium that owed its enhanced resistance to the heavy

use of drugs in Ecuadorian shrimp farms. The sometimes fatal gut bacterium E. coli has also acquired antibioticresistance via aquaculture. For some human pathogens, exposure to antibiotics in aquaculture can be direct.

D. OFFSHORE FISH FARMS SPREAD DISEASE TO WILD FISH POPULATIONS.

Daniel Chiras, (Prof., Ecology, Colorado College), NATURAL RESOURCE CONSERVATION: MANAGEMENT

FOR A SUSTAINABLE FUTURE, 2010, 343.

A study published in 2006 in the Proceedings of the National Academy of Sciences USA found that sea lice —

a fish parasite — from salmon farms along the British Columbia coast can kill up to 95% of the wild juvenilesalmon that pass near them heading out to sea. Biological pollution also includes the spread of diseases from farmed

populations to wild populations. Whitespot and yellowhead viruses have spread from domestic to wild shrimp stocks

in Asia and the United States, causing tremendous economic losses to shrimp farmers and fishers alike.

FIRST NEGATIVE BAYLOR BRIEFS 52

OVERFISHING: NEW ACTIONS BY THE FEDERAL GOVERNMENT ARE NOT REQUIRED

I. OVERFISHING IS EXAGGERATED.

A. OVERFISHING IN U.S. WATERS IS NOW A THING OF THE PAST.

Ray Hilborn, (Prof., Aquatic Science, U. Washington), OVERFISHING: WHAT EVERYONE NEEDS TO KNOW,

2012, 124.

As concerns the management of yield overfishing, the United States, New Zealand, Norway, and Iceland stand

out. The United States in particular is the only country that has formally defined overfishing and has strict laws thatrequire actions to be taken with violators. In January 2011, Steve Murawski from the University of South Florida

and former chief scientist for the U.S. national fisheries management agency announced that overfishing in U.S.

federally managed fisheries had ended. No other country can make that claim.

B. THE MAGNUSON-STEVENS ACT HAS RETURNED U.S. FISHERIES TO A HEALTHY STATE.

Peter Shelley, (Sr. Counsel, Conservation Law Foundation), THE MAGNUSON-STEVENS ACT IS WORKING IN

NEW ENGLAND. Nov. 4, 2013. Retrieved Feb. 10, 2014 from http://www.talkingfish.org/national-policy/themagnuson-

stevens-act-is-working-in-new-england.

The Magnuson-Stevens Act is working in New England. Most of our fisheries are healthy and sustainable. From1996 when the Sustainable Fisheries Act went into effect to 2011, gross boat revenues for all fish and shellfish

landed in New England grew from $779 million to over $1 billion (2010 dollars). Massachusetts fishermenincreased their gross revenues from $316 million to $537 million. All the major ports in Massachusetts from NewBedford to Chatham-Provincetown to Gloucester have shared in these increased revenues.

C. AN INCREASE IN MARINE PROTECTED AREAS IS NOT WARRANTED BY THE CURRENT STATE OF U.S.

FISHERIES.

Don Hansen, (Former Chair, Pacific Fishery Mgt. Council), OCEANS: OPPOSING VIEWPOINTS, 2011, 118.

While there are examples of overfishing and declining fish stocks in oceans around the world, such is not thecase off the coasts of California, Oregon and Washington. The fisheries crisis that protected areas are supposed tosolve simply doesn't exist. In these three states, there is not one marine fisheries stock currently experiencingoverfishing, and the few stocks still experiencing stress can be found in abundance due to the strict management andrebuilding plans established more than 20 years ago.

D. THERE IS NO NEED TO MODIFY THE MAGNUSON-STEVENS ACT.

Peter Shelley, (Sr. Counsel, Conservation Law Foundation), THE MAGNUSON-STEVENS ACT IS WORKING IN

NEW ENGLAND. Nov. 4, 2013. Retrieved Feb. 10, 2014 from http://www.talkingfish.org/national-policy/themagnuson-

stevens-act-is-working-in-new-england.

Magnuson-Stevens Act is not broken or misguided. Most of the criticisms of the act that I have heard are — atbest — implementation or appropriation issues, not structural problems with the act. They need to be and are beingdealt with at the agency level, not in a reauthorization. The major ports in New England are all better off today —

considerably better off — than they were twenty years ago. As the economic data shows, fishing operations in New

England are more efficient, more diversified, and many are more profitable than they ever were in the past. Now isnot to time to tinker with a law that’s working.

II. THE HARMS OF BOTTOM TRAWLING ARE EXAGGERATED.

A. FISHERIES REMAIN ABUNDANT DESPITE THE USE OF BOTTOM TRAWLING.

Ray Hilborn, (Prof., Aquatic Science, U. Washington), OVERFISHING: WHAT EVERYONE NEEDS TO KNOW,

2012, 101.

The best evidence comes from those parts of the ocean that are heavily trawled and also well studied. Three

such areas are the North Sea, the northeastern United States (where the scallop fishery is located), and the Gulf of

Mexico. Each one of these areas has been trawled intensively for a century. In New England, on average, every

place is trawled once a year. Some habitats are trawled many times a year, others not at all. In the Gulf of Mexico,

the average spot is trawled twice a year. But after a century of industrial trawling, each of these places still produces

fantastic amounts of fish on a sustainable basis, and in each one the commercially important species recover whenoverfishing is stopped.

B. BANNING OF BOTTOM TRAWLING WILL TRADE OFF WITH MORE ENVIRONMENTALLY DAMAGING

PRACTICES.

Ray Hilborn, (Prof., Aquatic Science, U. Washington), OVERFISHING: WHAT EVERYONE NEEDS TO KNOW,

2012, 99-100.

Why, then, are trawls and dredges still used? They make money. But before outrage sets in consider this: about

20% of the world's fish catch comes from trawls. Those 20% are very important to the world food supply. Without it

we will need to spread more fertilizer and pesticides on land and will have to cut down more native forests for more

arable land. Everything has its price. While some of the trawled species could be caught by hook and line or withpots and traps, many others such as the Atlantic scallop can be caught only by being scraped off the sea floor.

FIRST NEGATIVE BAYLOR BRIEFS 53

WHALES: NO NEED TO BAN THE USE OF SEISMIC AIRGUNS IN THE OCEANS

I. THE HARM TO WHALES AND OTHER SPECIES FROM SEISMIC AIRGUN BLASTS IS EXAGGERATED.

A. THERE IS NO EVIDENCE OF HARM FROM THE USE OF SEISMIC AIRGUNS.

Lenny Bernstein, (Staff), WASHINGTON POST, Aug. 19, 2013, A6.

Chip Gill, president of the International Association of Geophysical Contractors, said there has been no

evidence of air guns harming marine mammals in the nearly four decades since they replaced dynamite as thepreferred method of mapping mineral deposits below the seabed in sites around the world. Companies go toextraordinary lengths to protect marine life, and they must map the earth below the ocean floor not only to determine

what it holds but also to ensure that oil rigs can be safely erected, he said.

Randall Luthi, (Pres., National Offshore Industries Association), NATION CANNOT AFFORD TO DELAY

ATLANTIC SEISMIC, 2013. Retrieved Apr. 10, 2014 from http://www.noia.org/the-nation-cannot-afford-to-delayatlantic-

seismic/.

Evidence from decades of worldwide seismic surveying activity and research has shown it causes no injury tomarine mammals (“Debate over seismic air guns should wait until science has spoken,” Sept. 5). In fact, last year inthe Federal Register, the Administration acknowledged that, “there is no evidence that serious injury, death, or

stranding by marine mammals can occur from exposure to airgun pulses.” Based on scientific evidence and federalapproval of thousands of similar permits over the years, seismic surveying in the Atlantic would hardly be uncharted

territory.

B. MARINE MAMMALS DO NOT SHOW BEHAVIORAL DIFFERENCES WHEN SEISMIC AIRGUNS ARE USED.

William Pike, (Staff), WORLD OIL, June 2013. Retrieved Apr. 11, 2014 from Nexis.

Industry pointed to a study by San Diego scientists in which experimenters could not induce temporary losses inhearing sensitivity in dolphins after exposing them to 10 air gun impulses. In fact, the scientists could not identifyany significant behavioral reactions to the air gun exposures in dolphins and, therefore, concluded that the risk ofharm to the mammals is minimal. Going further, the industry spokespersons noted that exploring with seismic wasless intrusive on marine life than the previous practice of exploring with a drill bit.

C. STUDIES SHOW THAT WHALES HAVE THE CAPABILITY TO REDUCE THEIR HEARING SENSITIVITY

WHEN CONFRONTED WITH LOUD NOISES.

William Broad, (Staff), INTERNATIONAL HERALD TRIBUNE, July 18, 2012, 7.

Now, scientists have discovered that whales can decrease the sensitivity of their hearing to protect their ears

from loud noise. Humans tend to do this with index fingers; scientists haven't quite pinpointed how whales do it, butthey have seen the first evidence of the protective behavior. ''It's equivalent to plugging your ears when a jet flies

over,'' said Paul E. Nachtigall, a marine biologist at the University of Hawaii who led the discovery team. ''It's like avolume control.'' The finding, while preliminary, is already raising hopes for the development of warning signals

that would alert whales, dolphins and other sea mammals to auditory danger.

D. MARINE MAMMALS CAN SIMPLY MOVE AWAY FROM AREAS WHERE SEISMIC AIRGUNS ARE IN USE.

Lindy Weilgart, (Ph.D., Biology, Dalhousie U.), A REVIEW OF THE IMPACTS OF SEISMIC AIRGUN

SURVEYS ON MARINE LIFE, 2013. Retrieved Apr. 11, 2014 from http://www.cbd.int/doc/?meeting=MCBEM2014-

01.

Marine mammals also avoid seismic noise by vacating the area. Castellote et al. showed extended displacement

of fin whales by a seismic survey which lasted well beyond the survey length. Weir found that Atlantic spotteddolphins showed stronger responses to seismic airgun exposure than humpback or sperm whales. These dolphinswere found significantly farther away from the airguns when they were on vs. off and only approached the seismicvessel when the airguns were silent. An analysis of cetacean responses to 201 seismic surveys in UK watersexhibited evidence of disturbance. During active seismic surveying, all small odontocetes, killer whales, and allmysticetes were found at greater distances from the seismic vessel than when it was not shooting.

E. THOUGH THE DEPARTMENT OF THE INTERIOR IS ALLOWING SEISMIC AIRGUN BLASTS, IT IS

LIMITING THEIR USE TO AREAS NOT NORMALLY FREQUENTED BY WHALES.

Lenny Bernstein, (Staff), WASHINGTON POST, Feb. 28, 2014, A4.

Marine mammals such as whales that rely on sound for navigation are sensitive to such blasts of sound,

conservationists say. To protect the endangered North Atlantic right whale and nesting turtles, the rules would

prohibit use of the air guns in certain areas and at certain times during migration and nesting periods. Vessels would

be required to employ passive acoustic technology to determine when marine life is nearby instead of the visualspotting that was relied upon in the past.

FIRST NEGATIVE BAYLOR BRIEFS 54

INVASIVE SPECIES: THE MORE THE MERRIER

I. THE THREAT OF INVASIVE SPECIES IS EXAGGERATED.

A. MOST ALIEN SPECIES DIE IN NEW ENVIRONMENTS.

Philip Mladenov, (Dir., Seven Seas Consulting & Former Prof., Marine Sciences, U. Alago, New Zealand),

MARINE BIOLOGY: A VERY SHORT INTRODUCTION, 2013, 54.

Typically, very few of these foreign invaders will survive in their new surroundings. However, some encounter

conditions that allow them to become well established and sometimes overwhelm the natural marine community inthe area. This may be because the invader lacks the natural predators, pathogens, or parasites in its new location thatwould normally keep its numbers in check. Or it may encounter an unusually abundant food supply or is able tooutcompete native species for available food and habitat space.

B. ALIEN SPECIES DO NOT CAUSE EXTINCTION OF INDIGENOUS SPECIES.

Alan Burdick, (Journalist), WATER: OPPOSING VIEWPOINTS, 2010, 80-81.

Marine environments turn out to be particularly absorbent to — and forgiving of — alien species. Although

exotic crabs, sea worms, sponges, clams, and diseases have been introduced around the world for hundreds of yearson or in ships (and by many other means), marine biologists have documented not a single example of an invadingmarine species driving a native marine species extinct, whether by predation, competition, or disease.

C. INCREASED SPECIES DIVERSITY IS DESIRABLE IN ANY ENVIRONMENT.

Alan Burdick, (Journalist), WATER: OPPOSING VIEWPOINTS, 2010, 81.

Invasion is not a zero-sum game, with invaders replacing natives at a one-to-one (or a one-to-two, or more)

ratio. Rather, and with critical exceptions, it is a sum-sum game, in which ecosystems can accept more and morespecies. Indeed, in both marine and terrestrial ecosystems, the big surprise is that the incursion of alien species can

actually increase, rather than decrease, biodiversity at a local level. This makes sense: If you add many new species

and subtract no or only a few native ones, the overall species count goes up.

II. EXISTING MEASURES TO REGULATE SHIP BALLAST MANAGEMENT ARE ADEQUATE.

A. THE NATIONAL INVASIVE SPECIES ACT (NISA) PROPERLY MANAGES BALLAST OPERATIONS.

Corey Hebert, (J.D. Southern U. Law Center), SOUTHERN UNIVERSITY LAW REVIEW, Spr. 2010, 322.

Under the NISA, the Coast Guard requires that vessels operating in US waters that carry ballast must: Avoidballast operations in protected areas; must avoid taking up ballast waters in areas likely to contain harmful

organisms or pathogens; must clean tanks; must discharge minimal ballast in coastal areas; must rinse anchors and

chains; must remove organisms from anchors, chains, and hulls; must have a specific ballast management plan; andmust train personnel in special procedures for handling ballast.

Eric Hull, (Prof., Law, Florida Coastal School of Law), GEORGETOWN INTERNATIONAL ENVIRONMENTAL

LAW REVIEW, Fall 2012, 62.

For all other ships equipped with ballast tanks that operate in the "waters of the United States" and that are

bound for ports or places in the United States, Coast Guard regulations require additional action. For those vessels,

operators are required to (1) eliminate all discharge or uptake of ballast water in areas within or that may directlyaffect marine sanctuaries, marine preserves, marine parks, or coral reefs, (2) minimize or avoid the uptake of ballastwater in certain "danger zones," (3) clean the ballast tanks regularly to remove sediments in mid-ocean or under

controlled arrangements in port, or at dry dock, (4) discharge only the minimal amount of ballast water essential forvessel operations while in the waters of the United States, (5) rinse anchors and anchor chains upon retrieval toremove organisms and sediments at their place of origin, (6) remove fouling organisms from hull, piping, and tankson a regular basis and dispose of any removed substances in accordance with local, State and Federal regulations,

(7) maintain a ballast water management plan that has been developed specifically for the vessel, and (8) train the

master, operator, person-in-charge, and crew on the application of ballast water and sediment management andtreatment procedures. In addition, if the vessel carries ballast water that was taken on in areas less than 200 nautical

miles from any shore into the waters of the United States after operating beyond the Exclusive Economic Zone, the

vessel operator must either (1) perform complete ballast water exchange, (2) retain ballast water onboard the vessel,

or (3) use an alternative method of ballast water management approved by the U.S. Coast Guard.

B. THE NONINDIGENOUS AQUATIC NUISANCE PREVENTION AND CONTROL ACT OF 1990 (NANPCA)

ADEQUATELY MANAGES BALLAST OPERATIONS.

Flynn Boonstra, (J.D., U. Connecticut School of Law), CONNECTICUT LAW REVIEW, May 2011, 1196-1197.

The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA) was created to controlunintentional introductions of invasive species, primarily through ballast water. In its original incarnation, NANPCA

focused on preventing further spread of invasive species in the Great Lakes region and the Hudson Valley watershed

through ballast water. Ships are required to minimize aquatic invasive species introduction by exchanging their

ballast water away from ports. Violations of these regulations can result in a civil penalty of up to $ 25,000 per dayor criminal prosecution.

FIRST NEGATIVE BAYLOR BRIEFS 55

PROBLEMS OF INTERNET DEPENDENCE ON SUBMARINE CABLES ARE EXAGGERATED

I. THE THREATS TO SUBMARINE CABLES ARE EXAGGERATED.

A. MULTIPLE SUBMARINE CABLE CONNECTIONS PROVIDE REDUNDANT INTERNET CONNECTIONS.

Matthew Hilburn, (Staff, Voice of America), SABOTAGE THREAT TO UNDERSEA CABLE IS OVERBLOWN,

Apr. 3, 2013. Retrieved Apr. 11, 2014 from http://www.voanews.com/content/sabotage-threat-to-undersea-cablesoverblown/

1637672.html.

Rawle added that because of increased redundancy, cutting one cable probably wouldn’t cause a dramatic and

widespread outage. He said $1.3 billion is invested in new cables every year, which translates to roughly 20 to 30short, medium and long-haul cables installed annually. According to Stronge, even though the pace of increasing

global bandwidth has slowed in recent years, “the growth is still tremendous,” with the world’s international

bandwidth having doubled between 2010 and 2012, he said.

B. WHEN CABLES HAVE BEEN CUT IN THE PAST, NO SIGNIFICANT INTERNET PROBLEMS HAVE

RESULTED.

Eado Hecht, (Researcher, Begin-Sadat Center for Strategic Studies), UNDERWATER INTERNET CABLE

CUTTING, Apr. 18, 2013. Retrieved Apr. 11, 2014 from http://besacenter.org/perspectives-papers/underwaterinternet-

cable-cutting-a-neglected-aspect-of-cyber-warfare/.

Cables have been cut by nature (earthquakes, currents, and even shark bites) but mostly by human-caused

accidents (trailing anchors or fishing nets) as well as deliberate military or criminal activity (stealing and selling

sections of cable). In fact, damage to cables is quite common, with several dozen up to a few hundred incidents peryear. The response to this, in addition to technical improvements such as burying the cables and conducting repairs,

has been to manufacture redundancy into the system, allowing for multiple cables to connect to different points byseparate routes. This process has been improved by having a number of junctions connecting parallel cables, thus

enabling the bypassing of specific sections that have been cut by transferring the traffic en route to other cables.

C. THE TERRORIST THREAT TO SUBMARINE CABLES IS EXAGGERATED.

Matthew Hilburn, (Staff, Voice of America), SABOTAGE THREAT TO UNDERSEA CABLE IS OVERBLOWN,

Apr. 3, 2013. Retrieved Apr. 11, 2014 from http://www.voanews.com/content/sabotage-threat-to-undersea-cablesoverblown/

1637672.html.

Julian Rawle, a managing partner at Pioneer Consulting, and an expert on the submarine fiber optic cableindustry, said sabotage such as terrorist attack on a subsea cable is a “little bit far-fetched.” Tim Stronge, a

researcher with Telegeography, a telecommunications market research and consulting firm, said “as far as I know,

there has never been a deliberate case of sabotage of an undersea fiber optic cable.”

D. SUBMARINE CABLES ARE FULLY ARMORED.

Matthew Hilburn, (Staff, Voice of America), SABOTAGE THREAT TO UNDERSEA CABLE IS OVERBLOWN,

Apr. 3, 2013. Retrieved Apr. 11, 2014 from http://www.voanews.com/content/sabotage-threat-to-undersea-cablesoverblown/

1637672.html.

According to Simpson, there are many things cable operators do to minimize the chance for damage, including

armoring them with steel, especially near the shore. Where the cables make landfall, he said they are protected byconcrete encasements. To lessen the chances of damage by a dragging anchor, he said industry works with local portauthorities and tries to keep cables away from shipping channels when possible. In especially vulnerable areas, the

cables are sometimes buried and even run through rocks as further protection.

E. WARNING SYSTEMS ARE DESIGNED TO WARN SHIPS AS THEY APPROACH SUBMARINE CABLES.

Matthew Hilburn, (Staff, Voice of America), SABOTAGE THREAT TO UNDERSEA CABLE IS OVERBLOWN,

Apr. 3, 2013. Retrieved Apr. 11, 2014 from http://www.voanews.com/content/sabotage-threat-to-undersea-cablesoverblown/

1637672.html.

The shipping and fishing industries are regularly made aware of new cables, he said, and in some ports, ships

are monitored via a tracking system and warned away when they approach a cable, especially if they are slowing

down and give the appearance that they might drop anchor. Simpson added that when there are incidents such as the

recent ones near Egypt, industry will come together to try to agree on better ways to protect the cables.

F. SATELLITE CONNECTIONS WILL PRESERVE INTERNET COMMUNICATION IF SUBMARINE CABLES ARE

CUT.

Meng Choon, (Staff, StarOnline.com), GOING FURTHER WITH FIBRE OPTICS, Jan. 16, 2012. Retrieved Apr.

11, 2014 from http://www.thestar.com.my/story.aspx/?file=%2f2012%2f1%2f16%2flifefocus%2f9609667.

Satellites also form a valuable back-up for disaster-prone regions, where repairs to damaged submarine cables

may take weeks. “Where there is already cable, satellite is the backup. They are not really competitors, but

complementary services,” said Hibbard.

SECOND NEGATIVE BAYLOR BRIEFS 56

FEDERALISM DISADVANTAGE

The thesis of this disadvantage is that the affirmative plan’s federal ocean policy will undermine the balance of power

between the states and the federal government. It is the states, not the federal government, that control ocean policy near theshores of the United States. An aggressive federal approach in these waters will disrupt state ocean policy, undermining the

careful balance of power between the federal government and the states. This not only undermines the affirmative’s solvency,

but risks undermining the powerful federalism model the United States sends, one that is necessary for peace and liberty

worldwide.

I. THE AFFIRMATIVE PLAN UNDERMINES THE FEDERAL-STATE BALANCE OF POWER.

A. FEDERALISM IS STRONG IN THE PRESENT SYSTEM.

1. Rights based federalism is increasing now.

Manoj Mate (Assistant Professor of Law, Whittier Law School), COLUMBIA HUMAN RIGHTS LAW

REVIEW, Winter 2014. Retrieved Apr. 22, 2014 from Lexis/Nexis.

Constitutional review at the state level is likely to garner increased attention as a result of the U.S. SupremeCourt's recent decisions in Hollingsworth v. Perry and U.S. v. Windsor. These decisions can arguably be read tostand for "rights federalism," the concept that state governments will have the final say in defining the range andscope of fundamental rights protections. Although the U.S. Supreme Court may define and set a "floor" ofguaranteed federal constitutional rights, in light of the decisions in Perry and Windsor, state supreme courts will

continue to play a key role on these issues.

2. Obama is devolving authority over the oceans to the states now.

Tundi Agardy, (Dir., World Ocean Conservancy), OCEAN ZONING: MAKING MARINE MANAGEMENTMORE EFFECTIVE, 2010, 169.

The Obama Administration has fully embraced marine spatial planning and is looking to devolve planning

(presumably including ocean zoning) to regional councils, in which the time-tested state agencies can play a

large role.

B. STATES HAVE THE RIGHT TO CONTROL THE OCEANS WITHIN THEIR BORDERS.

1. States legally control the ocean within three miles of the shore:

Christopher Mann, (Sr. Officer, Pew Env. Group), OCEANS: THE THREATS TO OUR SEAS, 2010, 210.

Legal jurisdiction over the oceans is divided between the states and the federal government, with coastal

states generally controlling marine resources out three miles from the shore and the federal government

controlling resources in the exclusive economic zone, or EEZ, which extends from three miles to two hundredmiles offshore.

2. Formal federal law recognizes state control of the oceans in the band of coastal waters:

Robin Craig, (Prof., Law, U. Utah College of Law), PUBLIC LAND & RESOURCES LAW REV., 2013, 58-59.

As a legal matter, reasonable minds differed over which government owned and/or controlled the first threemiles of ocean. As a practical matter, however, those who emphasized the federal government's pervasive

laissez-faire attitude toward the oceans — except where its interests in national security, national defense,

international relations, or national commerce were directly concerned, which was a relatively rare event duringthe 19th-century United States' overall isolationist approach to the world — probably had the better of the

argument. Coastal states had exercised fairly plenary authority in regulating offshore coastal activities such as

fishing, sand and gravel mining, and, as oil and gas became increasingly important, offshore oil and gas leasing,

with little to no interference from the federal government until the 1930s. Moreover, the formal federal law

descriptions of many coastal states' boundaries, especially on the Pacific coast and along the Gulf of Mexico,

seemed to confirm state jurisdiction over a band of coastal waters and the corresponding continental shelf.

C. FEDERAL ACTION UNDERMINES STATE SOVEREIGNTY.

1. Federal ocean policy risks subsuming state jurisdiction:

Cathy Hansen, (Dir., Southeast Alaska Fishermen’s Alliance), NATIONAL OCEAN POLICY: COMMENTSON ALL 9 STRATEGIC ACTION PLANS, Apr. 29, 2011. Retrieved Mar. 10, 2014 from

http://www.whitehouse.gov/sites/default/files/microsites/ceq/comments\_on\_all\_9\_saps\_1.24.11-4.29.11.pdf.

The State of Alaska is again in a unique position. We are the only one state region within the framework

developed. While this is appropriate based on the amount of coastline, fisheries and relatively healthy habitat still

intact, it makes us difficult to fit the one size fits all action plans that are usually developed on a top downplanning process. The issue has been raised but we don’t believe sufficiently answered that as envisioned if the

National Ocean policy and planning is “defined to include landward to the mean high-water line, includes bays

and estuaries, and may include additional inland areas as deemed appropriate” would completely subsumed the

State of Alaska jurisdictional rights.

SECOND NEGATIVE BAYLOR BRIEFS 57

2. National ocean policy squeezes out successful state solutions:

Sean Parnell, (Governor of Alaska), NATIONAL OCEAN POLICY: COMMENTS, Apr. 29, 2011. RetrievedMar. 10, 2014 from www.whitehouse.gov/sites/default/files/microsites/ceq/comments\_on\_all\_9\_saps\_1.24.114.29.11.

pdf

Given the vast differences in regions, we believe that it is important that any planning effort remainregionally and state focused. Flexibility to respond to regional needs and changing conditions is crucial tosuccessful management of our marine and coastal resources and their uses. Any plans that may be developed

need to be driven at the state level and not driven by national policies that are overly prescriptive and inflexible.

In other words, the plans need to be driven from the bottom up rather than the top down.

D. SMALL ACTIONS UNDERMINE FEDERALISM.

1. Even small actions erode federalism:

Stephen R. McCullough (Judge, Court of Appeals of Virginia) UNIVERSITY OF RICHMOND LAW REVIEW.

2011. Retrieved Apr. 25, 2014 from Lexis/Nexis.

Professor Tribe warned, in a different context, of the danger that resides "in the tyranny of small decisions,

in the prospect that Congress will nibble away at state sovereignty, bit by bit, until someday essentially nothingis left but a gutted shell." Although this admonition was directed at the United States Congress, it also holds true

for state governments, including state courts. To uphold the vitality of a state constitution is to uphold the vitalityof states as integral parts of a framework of government that has served us well for over two centuries.

2. Small decisions are actually the key danger in undermining federalism.

Elizabeth Weeks Leonard (professor of law, University of Kansas School of Law) KANSAS JOURNAL OFLAW & PUBLIC POLICY. Spring, 2011. Retrieved Apr. 25, 2014 from Lexis/Nexis.

Printz v. United States: "It is incontestable that the Constitution established a system of "dual sovereignty.”

"If there is any danger, it lies in the tyranny of small decisions — in the prospect that Congress will nibble away

at state sovereignty, bit by bit, until someday essentially nothing is left but a gutted shell," (quoting Laurence

Tribe, American Constitutional Law.

E. US FEDERALISM IS MODELED ABROAD.

1. US Constitutionalism is a model for nations abroad:

David S. Law & Mila Versteeg (Professor of Law and Professor of Political Science, Washington University inSt. Louis) June 2012. NEW YORK UNIVERSITY LAW REVIEW. Retrieved Apr. 25, 2014 from Lexis/Nexis.

In 1987, to mark the bicentennial of the U.S. Constitution, Time magazine released a special issue in whichit called the Constitution "a gift to all nations" and proclaimed proudly that 160 of the 170 nations then inexistence had modeled their constitutions upon our own. As boastful as the claim may be, the editors of Timewere not entirely without reason. Over its two centuries of history, the U.S. Constitution has had an immense

impact on the development of constitutionalism around the world. Constitutional law has been called one of the

"great exports" of the United States. In a number of countries, constitutional drafters have copied extensively,

and at times verbatim, from the text of the U.S. Constitution. Countless more foreign constitutions have been

characterized as this country's "constitutional offspring."

2. Other nations view the US Constitution as a hegemonic model:

David S. Law & Mila Versteeg (Professor of Law and Professor of Political Science, Washington University inSt. Louis) June 2012. NEW YORK UNIVERSITY LAW REVIEW. Retrieved Apr. 25, 2014 from Lexis/Nexis.

It is widely assumed among scholars and the general public alike that the United States remains "the

hegemonic model" for constitutionalism in other countries. The U.S. Constitution in particular continues to bedescribed as "the essential prototype of a written, single-document constitution." There can be no denying the

popularity of the Constitution's most important innovations, such as judicial review, entrenchment againstlegislative change, and the very idea of written constitutionalism. Today, almost 90% of all countries possess

written constitutional documents backed by some kind of judicial enforcement. As a result, what Alexis deTocqueville once described as an American peculiarity is now a basic feature of almost every state.

F. FEDERALISM SOLVES FOR WARFARE AROUND THE GLOBE.

1. Federalism solves ethnic conflicts:

Keshav Bhattarai (Professor of Geography at University of Central Missouri) MY REPUBLICA, Oct. 16, 2011.

Retrieved Apr. 25, 2014 from Lexis/Nexis.

While numerous forms of federalism exist, no two forms are identical. The characteristic common to all

federalist systems is some form of power-sharing agreement or understanding between at least two distinctgovernment bodies within a state. This distribution of powers differs from the unitary power structure

characteristic of ethnically homogenous, Western European, nations-states governed from a single power center.

Over time and with increased demands to recognize distinct ethnic groups, federalism has emerged as a popular

solution to manage and solve ethnic differences and conflicts. Power-sharing agreements between national and

sub-national governments ideally will improve representation and political efficacy among numerous and diverse

groups of citizens.

SECOND NEGATIVE BAYLOR BRIEFS 58

2. Federalism bolsters peace-making:

Daniel J. Elazar (Jerusalem Center for Public Affairs) FEDERALISM AND PEACE-MAKING. April 19, 2012.

Retrieved Apr. 25, 2014 from http://www.jcpa.org/dje/articles/fed-peace.htm

No matter what form federalism takes, how federal institutions are designed, and what federal principles areemphasized, it is generally clear by now that where there is a positive attitude toward federalism and a will tobuild a federal system, where the political society involved rests on sufficient trust, sufficiently widespread to

allow the many leaps of faith that must be taken to make federalism work, where political culture is eitherfavorable or at least open to federal arrangements, where all of this leads to a wider understanding of liberty as

federal liberty, then federalism has a good chance of succeeding when used for peace-making. It may havealmost as good a chance if most of those elements are present and some chance even if one or two of them is.

But it seems quite clear that without any, the chances of success are extremely limited.

G. STATES SOLVE OCEAN POLICY BETTER THAN THE FEDERAL GOVERNMENT.

1. States are more efficient in management and regulation than the federal government:

Tundi Agardy, (Dir., World Ocean Conservancy), OCEAN ZONING: MAKING MARINE MANAGEMENTMORE EFFECTIVE, 2010, 178.

Municipal and other local governments are strengthening in power and in their ability to influence

environmental and public policy at broader levels of government as well (note how the state of California, forinstance, has affected US national energy and environmental policy, providing leadership through example).

Divesting power and authority to the local level in an effort to find ways to co-manage is not something most

governments are in a rush to do but are doing nonetheless as the burdens of management and regulation becomeoverwhelming.

2. Alaska proves: states are best at managing their own oceans:

Don Young, (U.S. Representative, Alaska), ALASKA'S SOVEREIGNTY IN PERIL: THE NATIONAL

OCEAN POLICY'S GOAL TO FEDERALIZE ALASKA, House Hearing, Apr. 3, 2012, 3.

Alaska has the most productive fisheries in the U.S. and possibly the world. The North Pacific FisheryManagement Council has allowed the fishermen themselves to be a part of the process — to participate in the

development and interpretation of the science used to create the management plans. Almost 60% of the seafoodproduced in U.S. waters comes from Alaska. But now the federal government is proposing a new overlay thatwill second guess the North Pacific Council system and will require that they meet some new criteria — criteriathat are NOT included in the Magnuson-Stevens Act.

3. The unique nature of states means centralization is a bad approach:

United Fishermen of Alaska, COASTAL AND MARINE SPATIAL PLANNING, Apr. 27, 2011. Retrieved Mar.

10, 2014 from http://www.whitehouse.gov/sites/default/files/ microsites/ceq/cmsp\_comments\_and\_attachments\_

1.24.11-4.29.11.pdf.

Alaska stands out as the sole state under jurisdiction of the North Pacific Fishery Management Council(NPFMC), while every other regional fishery management council includes the federal waters of more than one

state or territory. With over 44,000 miles of coastline, Alaska has more coastline than the other eightmanagement regions combined. The federal waters off Alaska, as well as state waters remain healthy andproductive. We do not feel we have the same problems that may exist in the rest of the United States that are the

impetus behind the Ocean Policy Council, and we feel that the current management process through the NPFMCis not likely to be improved upon through an overarching centralized authority from outside our region. We are

concerned that the Ocean Policy Council has not adequately defined the problems the administration is

attempting to address and we question whether these are relevant problems in Alaska

4. Alaska proves: states are key to ocean health and biological diversity:

Steve Denton, (Member, Alaska Mitigation Advisory Group), CHANGING CONDITIONS IN THE ARCTIC,

Jan. 24, 2011. Retrieved Mar. 10, 2014 from www.whitehouse.gov/sites/default/files/microsites/

ceq/arctic\_comments\_1.24.11-4.29.11.pdf.

Alaska’s coastline is at near peak health and biological productivity. Management of Alaska’s coastalresources produces a wild fish harvest unequaled in the world and with one tragic exception, the Exxon Valdezoil spill, a harmonious record of commerce related use of the ocean. These two, often conflicting or competing,

uses of the ocean have coexisted in Alaska for centuries. Since Statehood, a diverse suite of concurrent uses of

ocean resources has yielded an economy where both renewable and non- renewable resource development have

flourished. The same waters, Cook Inlet, that produce the oil and gas that underpin a vibrant economy for

Southcentral Alaska also produce record harvests of fish to support a robust recreational and commercial fishing

industry. Federal ocean policy should be careful not to undermine such success stories and not be so myopic in

focus that such successes are precluded in the future.

SECOND NEGATIVE BAYLOR BRIEFS 59

OIL PRICES DISADVANTAGE

The thesis of this disadvantage is that the affirmative plan’s efforts to expand oil production in the oceans will crash

world oil prices and destabilize Saudi Arabia. Proposals like ratifying the Law of the Sea signal to the world that the United

States is interested in accessing Arctic oil reserves. Even the signal of drilling is sufficient to trigger the disadvantage, as

markets will react to the signal sent by the plan. Lowering oil prices will destabilize Saudi Arabia, which relies on oil prices

to fuel its economy. Instability in Saudi Arabia risks terrorism and warfare in the Middle East.

I. THE AFFIRMATIVE PLAN UNDERMINES WORLD OIL PRICES, THREATENING INSTABILITY AND

TERRORISM.

A. SAUDI ARABIA’S ECONOMY IS STRONG IN THE PRESENT SYSTEM.

1. High oil prices are triggering strong Saudi growth rates in the present system.

Dana El Baltaji & Zoya Shilova (staff writers) SAUDI ECONOMY GROWS AT FASTEST PACE SINCE 2012AS OIL CLIMBS, Apr. 21, 2014. Retrieved Apr. 26, 2014 from http://www.businessweek.com/news/2014-0421/

saudi-economy-grows-at-fastest-pace-since-2012-as-oil-climbs

Saudi Arabia’s economy expanded at the fastest pace in five quarters at the end of last year as the world’s

biggest oil exporter benefits from higher crude prices. Gross domestic product rose 4.7 percent in the fourthquarter from a year ago, according to preliminary data from the Central Department of Statistics and

Information. That was the highest rate of expansion since the third quarter of 2012. GDP increased 1.6 percent

from the previous quarter. Saudi Arabia, the Arab world’s biggest economy that derives about 90 percent ofrevenue from oil sales, is spending billions of dollars to add jobs and build homes in response to unrest thattoppled leaders from Egypt to Yemen. The average price of West Texas Intermediate oil during the fourthquarter was $97.68 a barrel compared with $88.29 a barrel a year ago, according to data compiled by Bloomberg.

2. Saudi Arabian economic growth is strong now.

MENAFN Press, BRIGHT ECONOMIC GROWTH PROSPECTS FOR THE UAE AND SAUDI ARABIA,

Apr. 16, 2014. Retrieved Apr. 27, 2014 from http://www.menafn.com/1093811681/Bright-economic-growthprospects-

for-the-UAE-and-Saudi-Arabia

(MENAFN Press) The latest Crdit Agricole Private Banking research report, 'Macro Comment “ Eastern

Promises: MENA Update', noted that in terms of economic growth, Q1 2014 ended on a bright note in the UAE

and Saudi Arabia, and on a sour one in Egypt and Lebanon.

3. Saudi Arabia’s economy is booming now.

Shane Croucher (staff writer) INTERNATIONAL BUSINESS TIMES, Apr. 7, 2014. Retrieved Apr. 27, 2014from http://www.ibtimes.co.uk/saudi-arabia-why-uk-must-not-ignore-sickening-regime-sake-trade-1443785

UK Trade & Investment, the government's overseas business department, gives a different view. To them,

Saudi Arabia's "fast-growing economy is creating opportunities for both exporters and investors. These are

further boosted by moves to diversify the economy away from dependence on oil and gas, economic reform,

market liberalisation and a growing private sector."

B. SIGNALING AN INCREASE IN OIL DRILLING WILL DECREASE OIL PRICES.

1. Ratification of the Law of the Sea gives the US access to oil reserves in the Arctic:

Marta Kolcz-Ryan, (student author) UNIVERSITY OF DAYTON LAW REVIEW, 2009. Retrieved Apr. 26,

2014 from http://www-staging.udayton.edu/law/\_resources/documents/ law\_review/anarctic\_race.pdf, 2009

Determination of who owns the Arctic Ocean and any resources that might be found beneath those waters

will have significant economic implications. The U.S. Department of Energy predicts a decline in petroleumreserves and, despite oil prices topping $146 in June 2008, the demand for oil is growing. 6 In addition to the vastmineral resources, the unpredictability of the Persian Gulf region makes the Arctic region even more attractive

for exploitation. Russia and Norway have already submitted their claims to the Commission on the Limits of theContinental Shelf (“the Commission”), while Canada and Denmark are collecting evidence to prepare theirsubmissions in the near future. 7 All of these nations can gain considerable oil and gas resources as a result of the

Convention. However, one Arctic state has so far failed to join the race. Unlike the other Arctic nations, the

United States has not ratified the Convention. Although the United States has complied voluntarily with the

Convention, the failure to ratify the Convention could foreclose its ability to tap into potential energy resources.

This failure could prevent significant contributions to American energy independence, and increase securitythreats. Thus, the best way to guarantee access to the Arctic’s resources and to protect other economic and noneconomic

interests is for the United States to become a party to the Convention.

SECOND NEGATIVE BAYLOR BRIEFS 60

2. Signaling to the world that we are developing America’s offshore oil resources collapses world oil prices:

Phil Kerpen, (president of American Commitment) TOWNHALL.COM. Oct. 19, 2012. Retrieved Apr. 27, 2014from http://townhall.com/columnists/philkerpen/2012/10/19gas\_prices\_are\_up\_because\_of\_obamas\_

offshore\_ban/page/full/

In the Hofstra presidential debate, President Obama said: "when I took office, the price of gasoline was

$1.80. Why is that? Because the economy was on the verge of collapse." Wrong. Prices collapsed because wesignaled to the world that we were finally moving forward with developing America's massive offshore oil and

gas resources — and they shot back up when Obama reimposed the offshore ban.

3. Proposals to increase oil supply send a signal to oil markets that immediately brings down prices

Peter Ferrera (Director, Entitlement and Budget Policy, Heartland Institute), AMERICAN SPECTATOR, May 4,2011. Retrieved Apr. 27, 2014 from http://spectator.org/archives/2011/05/04/obamas-war-on-oil

Supply down, prices up. That should not be too hard to understand even for a grassroots Democrat. Buthighly skilled Obama propagandists say, hold on, domestic oil production for 2009 and 2010 is up, not down.

President Obama cited the figures himself, saying, “So any notion that my administration has shut down oilproduction might make for a good political sound bite, but it doesn’t match up with reality.” But the reality isthat just as the economy grows over time, oil production is supposed to grow with it. All of the above actions the

Obama Administration has taken to shut down oil production means unambiguously that oil production is now orsoon will be lower than it would have been otherwise. Which means prices are higher than they would have been

otherwise. Moreover, oil is not produced by flipping a switch. It takes years of development. Which means the

increasing oil production in 2009 and 2010 that Obama and his propagandists cite is due to the policies of the

Bush Administration. The impact of the policies adopted by the Obama Administration over the last two years,

as part of its War on Oil, will be seen in oil production figures in the years ahead. Already the EnergyDepartment projects that oil production in the Gulf will be down 20% just this year. That translates into a loss of375,000 much needed, good paying jobs. The Department further projects that domestic oil production overall

will drop sharply over the next two years. In addition, oil markets today are not blind to what is coming down thepike. Today’s oil price reflects the outlook for tomorrow. And constrained supplies tomorrow mean higher prices

today. Opening up new oil supplies for tomorrow will similarly mean lower prices today.

C. A DECREASE IN WORLD OIL PRICES WILL UNDERMINE THE SAUDI ARABIAN ECONOMY.

1. Growing oil production for the United States devastates the Gulf economies — risking massive instability.

Thanassis Cambanis (fellow at The Century Foundation) May 25, 2013. Retrieved Apr. 27, 2014 from

http://www.bostonglobe.com/ideas/2013/05/25/american-energy-independence-greatshake/

pO9Lsad4cVQvjdpyxMI1DO/story.html

Energy independence looks different today, however, than it did in the oil-shocked 1970s. For one thing, the

energy market is a linchpin of the world order, and any big shift is likely to have costs to stability. Some analysts

have warned that America’s growing oil production will create a glut that lowers prices, eating up the profits of

oil countries and destabilizing their regimes. (That’s in the short term, anyway; worldwide, oil demand is stillrising fast.) Falling prices mean that countries that depend on oil will face sudden cash shortages. It’s easy toimagine how destabilizing that could be for a natural-resource power like Russia, for the monarchs of the PersianGulf, or for the dictators in Central Asia. No matter how distasteful their rule, the prospect of an unrulytransition, or worse still, a protracted conflict, in any of those countries could cause havoc.

1. Reduced oil demand from the United States undermines the Gulf state economies.

Yousef Gamal El-Din (staff writer) May 15, 2013. Retrieved Apr. 27, 2014 from

http://www.cnbc.com/id/100739228

The idea of an energy-independent United States — thanks to a revolution in the way North American shale isharvested — is reigniting vociferous debate about what it could mean for global markets, and especially the oil-

rich Gulf states of the Arabian Peninsula. "Reduced demand for oil from the US could undermine the oil price

globally, thereby placing pressure on regional budgets which are increasingly reliant on the price of oil staying

firm," Tim Fox, chief economist at Emirates NBD, Dubai's largest bank, explained to CNBC.

3. The United States is the world’s number one oil consumer.

Eithne Treanor (staff writer) May 18, 2013. Retrieved Apr. 27, 2014 from

http://gulfbusiness.com/2013/05/charting-the-cost-of-crude/

“It might be a Rip Van Winkle year; if you go to sleep in 2013, you will not miss much, but you also won’t

wake up in the middle of the night screaming,’’ said Jason Schenker, president of Prestige Economics in Texas.

Schenker expects “modest growth” in the US, the world’s number one oil consumer in 2013, which will help theglobal oil market. But he also agrees that Europe could pose downside risks to commodity markets unless the

situation improves.

SECOND NEGATIVE BAYLOR BRIEFS 61

D. A WEAKENED SAUDI ARABIAN ECONOMY UNDERMINES ITS ABILITY TO FIGHT TERRORISM

1. Declining oil prices undermine Saudi Arabia and threatens their ability to fight terrorism.

Benjamin Alter & Edward Fishman (editors, Foreign Affairs), NEW YORK TIMES, Apr. 28, 2013. Retrieved

Apr. 27, 2014 from http://www.nytimes.com/2013/04/28/opinion/sunday/the-dark-side-of-energyindependence.

html?pagewanted=all&\_r=0

Even more alarming is the prospect of instability in Saudi Arabia. In 2011, the Saudi royal family was able

to head off an Arab Spring-style revolution because of its enormous oil revenues, doling out $130 billion in

benefits to pacify the country’s younger and poorer inhabitants. Should lower oil prices make such patronage

impossible in the future, the kingdom could face domestic unrest — making the country a far less reliable partner

for America in fighting terrorism and countering Iran. Moreover, if Saudi Arabia has less of its own money tospend on regional security, Washington will have to make up for the shortfall.

2. High oil prices are key to Saudi Arabia’s ability to check extremism and terrorist groups.

J. MICHAEL MCCONNELL (Director of National Intelligence) “CQ Congressional Testimony,” Feb. 27, 2008. Retrieved

Apr. 27, 2014, Lexis/Nexis.

In Saudi Arabia, the long-term challenge from Islamic extremism has been checked for now, and the

government benefits from steady, oil price-driven economic growth. Saudi security forces have achieved notablesuccesses against al-Qa'ida networks inside the Kingdom since 2003, killing or capturing al- Qa'ida's original

Saudi-based leadership and degrading its manpower, access to weapons, and operational capability.

3. Saudi Arabia needs high oil prices to minimize unrest in the country.

Andrew Holland (staff writer) May 7, 2013. Retrieved Apr. 27, 2014 from

http://www.csmonitor.com/Environment/Energy-Voices/2013/0507/US-oil-boom-means-oil-prices-must-drop-

right-Wrong

Today, the geopolitical incentives go the other way. After the Arab Spring, the Saudis significantly

increased the subsidies (in both direct and implicit grants) to its people. They know that they need high oil prices

in order to keep their population happy.

4. Terrorist groups will use nuclear weapons, risking escalation to a full-scale nuclear conflict.

Mohamed Sid-Ahmed, (staff writer) “Extinction!” 2004. Retrieved May 8, 2012 at

http://weekly.ahram.org.eg/2004/705/op5.htm

What would be the consequences of a nuclear attack by terrorists? Even if it fails, it would further

exacerbate the negative features of the new and frightening world in which we are now living. Societies would

close in on themselves, police measures would be stepped up at the expense of human rights, tensions between

civilisations and religions would rise and ethnic conflicts would proliferate. It would also speed up the arms raceand develop the awareness that a different type of world order is imperative if humankind is to survive. But the

still more critical scenario is if the attack succeeds. This could lead to a third world war, from which no one will

emerge victorious. Unlike a conventional war which ends when one side triumphs over another, this war will bewithout winners and losers. When nuclear pollution infects the whole planet, we will all be losers.

E. INSTABILITY IS CAPABLE OF OVERTAKING SAUDI ARABIA

1. Tensions still simmer below the surface of Saudi Arabia.

Frederic Wehrey (Senior Associate Middle East Program, Carnegie Endowment for International Peace) May 22,2013. Retrieved May 26, 2013 from http://carnegieendowment .org/2013 /05/22/new-saudi-arabia/g5em

The House of Saud appears stable amid the turmoil across the Middle East. But tensions still simmer below

the surface. The youth are agitating for change, economic instability looms, and the kingdom will be influenced

by the storms brewing around it.

2. Saudi Arabia’s ability to satisfy the youth population is declining.

Frederic Wehrey (Senior Associate Middle East Program, Carnegie Endowment for International Peace) May 22,2013. Retrieved May 26, 2013 from http://carnegieendowment .org/2013 /05/22/new-saudi-arabia/g5em

Two-thirds of Saudis are under the age of thirty and in 2010, 80 percent of unemployed Saudis registered

with the Ministry of Labor were between the ages of twenty and thirty-four. While material expectations and

political awareness have grown, the state’s ability to satisfy its youth population is declining.

SECOND NEGATIVE BAYLOR BRIEFS 62

COAST GUARD DISADVANTAGE

The thesis of this disadvantage is that the affirmative plan’s system of management will overwhelm the Coast Guard,

preventing its ability to fight terrorism. The Coast Guard is currently effectively deterring terrorism, but the need to enforce

the plan will allow terrorists to come by sea into the United States. By overstretching the resources of the Coast Guard, the

affirmative risks widespread drug smuggling and terrorism.

I. THE AFFIRMATIVE PLAN UNDERMINES THE COAST GUARD’S ABILITY TO COMBAT TERRORISM.

A. THE COAST GUARD IS EFFECTIVELY DETERRING TERRORISM NOW.

1. The Coast Guard is effective at preventing terrorism now.

Jim Kouri (Law Enforcement Examiner) DRUG TRAFFICKERS BENEFIT, Mar. 21, 2014, Retrieved Mar. 28,

2014 from http://www.examiner.com/article/drug-traffickers-benefit-from-obama-cuts-to-coast-guard

But the Coast Guard's commanding officer, Adm. R.J. Papp, does believe his subordinates will continue toaccomplish their primary goals. "We will preserve our critical front-line operations in direct support of our

Department of Homeland Security mission programs; prevent terrorism and enhance security, secure and manage

our borders, and strengthen national resilience. We will make difficult decisions to scale activities, but will bethere to answer the call for any maritime domain emergency, to protect America’s safety, and to add to our

national security," he said regarding his new budget.

2. The Coast Guard is currently keeping our ports secure.

R.J. Papp, Jr. (Admiral, U.S. Coast Guard) Mar. 7 2014, ALWAYS READY, Retrieved May 28, 2014 from

http://www.uscg.mil/budget/docs/2015\_Budget\_in\_Brief.pdf

Despite the 2013 fiscally constrained environment, the men and women of the Coast Guard exhibited the

honor, respect, and devotion to duty that has kept us America’s premier maritime responder for the last 223years. Every day they exercised critical prevention activities to help keep our mariners and ports safe and secure.

They braved uncertain waters and responded to the movement of illicit goods and people, man-made and natural

disasters, and other high priority national safety, security and stewardship needs. They provided the maritime

governance that our Nation demands to ensure safe, secure, and environmentally sound approaches to America’s

shores.

3. The Coast Guard currently has the readiness to fight terrorism.

R.J. Papp, Jr. (Admiral, U.S. Coast Guard) Mar. 7 2014, ALWAYS READY, Retrieved May 28, 2014 from

http://www.uscg.mil/budget/docs/2015\_Budget\_in\_Brief.pdf

These new cutters are replacing our forty-five year old high endurance cutters and provide vital response

capability in the offshore environment. Hamilton’s fellow National Security Cutters, Bertholf, Waesche, andStratton are already proving to be superlative examples of “useful sentinels of the law” – the words Alexander

Hamilton used in 1787 when he described an enduring need for ships to protect our Nation’s maritime borders

and interests on the sea. In FY 2015, our voyage to a modernized offshore Coast Guard fleet will continue withthe President’s Budget request for the production of the eighth National Security Cutter and continued work onthe Offshore Patrol Cutter project. As prudent stewards of our resources, we will hold our course rebuilding

Coast Guard assets in an affordable and responsible manner. On the horizon, we look to the recapitalized fleet for

future operations and to provide our men and women the tools they need to continue the great work they do for

our Nation. We will preserve our critical front-line operations in direct support of our Department of HomelandSecurity mission programs; prevent terrorism and enhance security, secure and manage our borders, and

strengthen national resilience. We will make difficult decisions to scale activities, but will be there to answer the

call for any maritime domain emergency, to protect America’s safety, and to add to our national security.

4. The Coast Guard successfully interdicts drugs now:

R.J. Papp, Jr. (Admiral, U.S. Coast Guard) Mar. 7 2014, ALWAYS READY, Retrieved May 28, 2014 from

http://www.uscg.mil/budget/docs/2015\_Budget\_in\_Brief.pdf

The Coast Guard is the lead Federal maritime law enforcement agency that directly supports the security andmanagement of our Nation’s borders on the Great Lakes, inland waterways, ports, littorals and on the high seas.

The Coast Guard’s success in the interdiction of illegal drugs serves as an example of that maritime governance.

In 2013, the Coast Guard removed more than 125 metric tons of illegal drugs from the maritime domain anddetained over 190 suspected smugglers for prosecution in the United States.

B. THE PLAN WOULD BE ENFORCED BY THE COAST GUARD.

1. The Coast Guard operates in both national security and law enforcement capacities.

Jim Kouri, (Law Enforcement Examiner), OBAMA'S BUDGET CUTS ON U.S. SECURITY

UNCONSTITUTIONAL, SAY EXPERTS, Apr. 24, 2012. Retrieved Mar. 28, 2014 from www.examiner.com/

article/obama-s-budget-cuts-on-u-s-security-unconstitutional-say-experts

Eaglen and Dolbow confirm that the U.S. Coast Guard is the only federal agency with dual Title 10 andTitle 14 law enforcement and regulatory authorities. These unique authorities, diverse capabilities, and potentialto accept multiple sources of funding allow the Coast Guard to operate alone on the seam between national

security and law enforcement threats, they maintain.

SECOND NEGATIVE BAYLOR BRIEFS 63

2. The Coast Guard would enforce marine protected areas.

R.J. Papp, Jr. (Admiral, U.S. Coast Guard) Mar.7 2014, ALWAYS READY, Retrieved May 28, 2014 from

http://www.uscg.mil/budget/docs/2015\_Budget\_in\_Brief.pdf

In the interest of protecting America’s natural resources, endangered marine species, and marine sanctuaries,

the Coast Guard conducted over 5,000 fisheries boardings on U.S. vessels. Close collaboration with partner

agencies is a key part of this effort. For example, Coast Guard supports enforcement of Illegal, Unregulated, andUnderreported (IUU) fishing. IUU fishing is global in reach and Coast Guard efforts are critical to stem this

illegal activity that is harmful to ecosystems for natural resources and a threat to global food security. The CoastGuard detected 184 incursions of foreign flagged fishing vessels into America’s exclusive economic zone (EEZ)

as part of these efforts in 2013.

3. Protecting marine protected areas requires a great deal of Coast Guard resources:

Mike Gravitz (staff writer), GLORES TEAM EVALUATES DRONE SAILBOATS, Feb. 21, 2014. RetrievedMar. 29, 2014 from http://blog.marine-conservation.org/2014/02/glores-team-evaluates-drone-sailboats-to-helppatrol-

and-enforce-rules-in-remote-marine-protected-areas.html

Marine Conservation Institute is currently researching various surveillance technologies that can be used for

enforcement purposes to limit illegal, unreported and unregulated (IUU) fishing within remote marine protectedareas and US marine monuments in the Pacific. Monitoring and enforcement of rules in marine protected areascan be expensive, especially in remote places, with current technologies . things like big Coast Guard ships thatcost $25,000 per day to operate, airplanes and satellites. We have to find some way to lower the cost of doingessential surveillance and enforcement or else our marine protected areas will turn into marine poaching areas.

So, we are investigating small autonomous sail boats equipped with cameras on top of the mast, radar to “see”

boats from far away and underwater sound receivers (hydrophones) to help find and locate intruders. This kind

of technology is important as we implement the recently announced Global Ocean Refuge System since manydesignated areas will be difficult to patrol and enforce otherwise.

4. The Coast Guard will be sent to protect fisheries:

Nadav Morag, (Ph.D., University Dean of Security Studies), THE UNITED STATES COAST GUARD: A

JACK OF ALL TRADES, Dec. 2013. Retrieved Mar. 29, 2014 from www.colorado

tech.edu/resources/blogs/december-2013/coast-guard-jobs

In the latter half of the 19th century, the service’s responsibilities broadened to protect the nation’s

ecological resources. The USCG engaged in missions as diverse as protecting seals in Alaska and fisheries in the

Gulf of Mexico. In the 20th century, the Coast Guard also engaged in combatting the pollution of waterways and

oil spills. As part of its mission to provide search and rescue resources when there are maritime accidents, theservice also began regulating ship and boat safety. Since most waterways cross state boundaries, the USCGstepped in to support states that were unable to effectively manage this task on their own.

5. The Coast Guard conducts maritime interception operations:

R.J. Papp Jr. (Admiral, U.S. Coast Guard) Mar.7 2014, ALWAYS READY, Retrieved May 28, 2014 from

http://www.uscg.mil/budget/docs/2015\_Budget\_in\_Brief.pdf

Additionally, as both a federal law enforcement agency and an armed service, the Coast Guard is uniquelypositioned to conduct defense operations in support of Combatant Commanders. The Coast Guard supports our

Department of Defense (DoD) partners by performing rotary-wing air intercept operations and providing assetsto work with U.S. Naval forces. In direct support of DoD’s theater security cooperation efforts, the Coast Guard

conducts port operations, maritime interception operations and the training of international partners.

C. A STRAIN ON COAST GUARD RESOURCES UNDERMINES THEIR ABILITY TO FIGHT DRUG SMUGGLING.

1. A strain on the US Coast Guard undermines its effectiveness against drug smugglers:

Adam Housley (staff writer), DRUG SMUGGLERS HITTING HIGH SEAS AS COAST GUARD FACES

BUDGET CUTS, Mar. 20, 2014. Retrieved Mar. 28, 2014 from www.foxnews.com/politics/2014/03/20/drugsmugglers-

hitting-high-seas-as-coast-guard-faces-budget-cuts/

Budget cuts at the Coast Guard are coming at an unfortunate time. As the service, like other branches of themilitary, makes do with less, drug smugglers are increasingly turning to the high seas — and challenging the

Coast Guard's already strained resources. Officials tell Fox News that drug smugglers are moving some of their

operations away from the U.S.-Mexico land border and out into the ocean where it's easier to avoid law

enforcement. And for U.S. patrollers, that theater is becoming harder and harder to defend. "As the Department

of Homeland Security became more effective at stopping smuggling across the land borders, the cartels shifted

some of the traffic to the maritime, so that is why we saw an increase in smuggling by boats," said Capt. Jim

Jenkins, Coast Guard commander for Los Angeles and Long Beach.

SECOND NEGATIVE BAYLOR BRIEFS 64

2. A decrease in Coast Guard resources undermines effective drug interdictions:

Adam Housley (staff writer), DRUG SMUGGLERS HITTING HIGH SEAS AS COAST GUARD FACES

BUDGET CUTS, Mar. 20, 2014. Retrieved Mar. 28, 2014 from www.foxnews.com/politics/2014/03/20/drugsmugglers-

hitting-high-seas-as-coast-guard-faces-budget-cuts/

"We deal with the assets and the hours that we have, and we try to use them as best we can to stop the

smuggling," Hehr said. Over the last several years, the cartels have moved further offshore as their boats havegotten more sophisticated. The area they operate in has tripled in size in just the last year — and is now roughlythe size of Montana. Some of the modern smuggling boats have three engines and can hold up to 20 tons ofdrugs. Plus, they can travel hundreds of miles north of the border. "A huge part to the puzzle is the interdiction ofthese vessels before they reach shore," said Immigration and Customs Enforcement agent Claude Arnold. "So if

resources are cut, that's going to have an effect, and our investigations are largely based upon those

interdictions."

3. Each decline in the capacity of the Coast Guard increases illegal smuggling:

Adam Housley (staff writer), DRUG SMUGGLERS HITTING HIGH SEAS AS COAST GUARD FACES

BUDGET CUTS, Mar. 20, 2014. Retrieved Mar. 28, 2014 from www.foxnews.com/politics/2014/03/20/drugsmugglers-

hitting-high-seas-as-coast-guard-faces-budget-cuts/

"We deal with the assets and the hours that we have, and we try to use them as best we can to stop the

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4. A decline in assets for the Coast Guard leads to more drugs getting through:

Associated Press, Jan 28, 2014. “Budget cuts impacting Coast Guard's fight against drug smugglers on the highseas,” Retrieved Mar. 28, 2014 from http://www.foxnews.com/us/2014/02/24/budget-cuts-impacting-coastguard-

fight-against-drug-smugglers-on-high-seas/

"Our interdictions are down 30 percent from the year before, when we had more assets out there, so that's an

indicator to me that as soon as we start pulling assets away, they're running more drugs and they're getting

through," Papp said.

5. Smugglers are increasingly moving overseas with smuggling operations:

Associated Press, BUDGET CUTS IMPACTING COAST GUARD, Jan. 28, 2014. Retrieved Mar. 28, 2014

from http://www.foxnews.com/us/2014/02/24/budget-cuts-impacting-coast-guard-fight-against-drug-smugglerson-

high-seas/

Jan. 28, 2014: Coast Guard officer William Pless communicates on the radio while steering the 45 footCoast Guard vessel through a dense fog during a patrol off the San Diego coast in San Diego. With the drug warlocking down land routes across Latin America and at the U.S. border, smugglers have been increasingly usinglarge vessels to carry multi-ton loads of cocaine and marijuana hundreds of miles offshore, where the leadfederal agency with extensive law enforcement powers is the Coast Guard, a military service roughly the size ofthe New York Police Department.

D. DRUG SMUGGLING INCREASES THE RISK OF TERRORIST ATTACKS.

1. The Coast Guard is key to effective anti-terrorism efforts:

R.J. Papp, Jr. (Admiral, U.S. Coast Guard) Mar.7 2014, ALWAYS READY, Retrieved May 28, 2014 from

http://www.uscg.mil/budget/docs/2015\_Budget\_in\_Brief.pdf

The Coast Guard’s terrorism prevention and security enhancement activities encompass the detection,

deterrence, prevention, disruption, and recovery from terrorist attacks and other criminal acts in the maritimedomain. The Coast Guard executes antiterrorism, response, salvage operations, and supports various DoD

Combatant Commanders in the maritime environment. In order to ensure the safety and security of the Americanpeople, the Coast Guard conducted over 21,000 waterborne patrols of critical maritime infrastructure and

resources, escorted over 2,000 high-capacity passenger vessels, and conducted over 8,400 security boardings inand around U.S ports in 2013. The Coast Guard plays a key role in the surge response to a known security threat

or event. As part of the overall Department of Homeland Security (DHS) response to the Boston Marathonbombing, the Coast Guard Captain of the Port (COTP) raised the Maritime Security (MARSEC) level, whichresulted in the immediate implementation of additional safety measures and activities to ensure the safety and

security of the citizens and infrastructure of Boston. During 2013, to enhance security and help preventwaterborne delivery of a terrorist threat, the Coast Guard conducted inspections on over 11,000 vessels, over

23,700 shipping containers, and completed more than 10,000 waterside facility safety and security reviews.

SECOND NEGATIVE BAYLOR BRIEFS 65

2. Drug trafficking increases the risk of terrorist attacks:

Ionas Alexandru (Prof., Law, Adm. Sciences of Brasov), FINANCING TERRORISM, Nov. 16, 2011. RetrievedMay 28, 2014 from http://aspeckt.unitbv.ro/jspui/bitstream/123456789/201/1/ionas%20a%20ionas%20c.pdf

Drug trafficking represents one of the most important threats to modern society. Usually terrorists are

constant seeking ways to finance their illegal plans and expensive attacks through illicit means such as drug

trafficking. By these means the society, the health of its citizens and also its serenity is being affected by drug

trafficking, and by the chaos that terrorists attacks induce.

3. Drug trafficking fosters terrorism:

Ionas Alexandru (Prof., Law, Adm. Sciences of Brasov), FINANCING TERRORISM, Nov. 16, 2011. RetrievedMay 28, 2014 from http://aspeckt.unitbv.ro/jspui/bitstream/123456789/201/1/ionas%20a%20ionas%20c.pdf

The financing of terrorism through illicit drug trafficking has been touted as a major problem since the

terrorist attacks of September 11, 2001. Indeed, during the last decade, Afghanistan has been the most important

opium producing country in the world. It was under Taliban rule in 1999 that opium production reached its heightwith a 4,5812ton yield. Moreover, the fact that al2Qaeda and Osama bin Laden found a safe haven in thatcountry, raised concerns about the possible emergence of a more global and pernicious alliance between drugtraffickers and terrorists.

4. Fighting drug trafficking equals fighting terrorism:

Ionas Alexandru (Prof., Law, Adm. Sciences of Brasov), FINANCING TERRORISM, Nov. 16, 2011. RetrievedMay 28, 2014 from http://aspeckt.unitbv.ro/jspui/bitstream/123456789/201/1/ionas%20a%20ionas%20c.pdf

But three years after the ouster of the Taliban, Afghanistan's opium production is expected to exceed even

1999's record high, thus raising concerns that the country is on the verge of becoming a "narco2state" and a

bastion of "narco2terrorism." Antonio Maria Costa, the Executive Director of the United Nations Office on Drugsand Crime, warned of "mounting evidence of drug money being used to finance criminal activities, includingterrorism," and declared that "fighting drug trafficking equals fighting terrorism."

E. TERRORISM AGAINST THE UNITED STATES RISKS A DEVASTATING ATTACK.

1. Terrorism risks a nuclear terrorist attack against the United States:

Graham Allison (professor at Harvard) MOTHER JONES, Oct. 18, 2004. Retrieved Apr. 27, 2014 from

http://www.motherjones.com/politics/2004/10/ultimate-preventable-catastrophe

MotherJones.com: What’s the likelihood of a nuclear terrorist attack on the U.S.? Graham Allison: I would

say more likely than not — so greater than 51 percent — in the next decade if we just keep doing what we’re

doing today. MJ.com: Which terrorist groups that we know of have tried to attain these weapons? GA: Well, the

one that is of greatest interest to us is of course Al-Qaeda. In the 9/11 Commission Report, and in my book, thereare extensive discussions about their nuclear ambitions, which stretch back at least a decade. So I describe bin

Laden’s having two of the Pakistani nuclear scientists who were colleagues of A.Q. Khan, the father of the

Pakistani nuclear bomb, visit him on several occasions. As they’ve told interrogators, he was mainly interested in

quizzing them about nuclear weapons and how he could get them. We know that Al-Qaeda has actually spent

some money to buy material. In one scam, they bought some South African material that was not the stuff of anuclear bomb. And we know that bin Laden has said that getting nuclear weapons is a religious duty. Then thereare the Chechens, this fellow [Shamil] Basayev, who has claimed responsibility for the killing of the children at

the Russian school in Beslan. They actually planted a dirty bomb — not a nuclear bomb, but a dirty bomb — in a

park in Moscow several years ago, and then called the police to warn them, rather than exploding it.

2. A terrorist attack against the United States is an existential threat:

Graham Allison (professor at Harvard) MOTHER JONES, Oct. 18, 2004. Retrieved Apr. 27, 2014 from

http://www.motherjones.com/politics

MJ.com: What steps would you like the United States to take to avert a nuclear terrorist attack? GA: A

president should feel it in his head, and in his heart, and in his gut that this is the gravest threat to Americans. It’s

really the only existential threat to America as we know it — as a free country that plays a leading role in the

world. And he should say publicly: I am going to do everything humanely possible to prevent this. Then, he

would have an administration in which you had people which were convinced of this, including somebody whoworked for him at the presidential level, whose job it would be to get up each morning and say, the president has

said that this is the most important problem and that we’re going to do everything humanely possible, what is the

list of the things that I am going to do today? And go to bed at night saying, which of those things did I

accomplish, and which ones been laying, and what else needs to be done? So you’re going to have people doingheavy lifting on this topic everyday. This would include the Secretary of Defense, the Secretary of State, the

Secretary of Energy, and a number of others.

SECOND NEGATIVE BAYLOR BRIEFS 66

NASA SPENDING TRADE-OFF DISADVANTAGE

The thesis of this disadvantage is the plan will result in spending cuts to NASA. Funding for exploration or development

of the oceans trades-off with other scientific endeavors in the federal government, and NASA’s budget is at risk. If NASA’s

budget is cut, it will greatly damage space exploration, resulting in disastrous effects for the United States and the world.

I. CURRENT FUNDING FOR SPACE EXPLORATION IS STABLE

A. NASA’S BUDGET IS CURRENTLY STABLE BUT TIGHT.

Julie Pixler, (CNN), CNN WIRE. April 11, 2014, Retrieved April 24, 2014 from Lexis/Nexis

According to NASA.gov and Whitehouse.gov, the 2014 NASA budget is $17.7 billion dollars, the same as 2013and a .3% decrease from 2012. That translates to a $50 million cut from 2012 funding.

B. NASA’S BUDGET WILL BE FLAT IN THE PRESENT SYSTEM.

Dan Leone (staff writer) SPACE NEWS, Apr. 7, 2014. Retrieved Apr. 27, 2014 from www.space

news.com/article/civil-space/40138mikulski-nasa’s-2015-budget-will-be-no-worse-than-flat

Although the White House has proposed cutting NASA’s 2015 budget by $185 million, the U.S. space agencywill not lose a single dollar next year if the head of the Senate Appropriations Committee gets her way. “My goal for

NASA is to make sure we’re at least at the 2014 level,” Sen. Barbara Mikulski (D-Md.) told the Maryland SpaceBusiness Roundtable during an April 7 luncheon here. “And if we can find more money I will take you above that.

We’re not going to go backward.” The search for extra NASA funding is “a work in progress,” Mikulski toldSpaceNews after the speech. She acknowledged that there might be no additional money found for NASA.

II. THE PLAN WILL TRADE OFF WITH FUNDING FOR NASA.

A. FUNDING FOR OCEAN POLICY COMPETES WITH OTHER INITIATIVES, INCLUDING NASA.

Al Dove and Craig McClain, (Director of Research and Conservation at the Georgia Aquarium Research Center in

Atlanta and Chief Editor for Deep Sea News), DEEP SEA NEWS, October 16, 2012 Retrieved on April 24, 2014

from http://deepseanews.com/2012/10/we-need-an-ocean-nasa-now-pt-2/

85% of Americans express concerns about stagnant research funding and 77% feel we are losing our edge inscience. So how did we get here? Part of the answer lies in how ocean science and exploration fit into the US federalscience funding scene. Ocean science is funded by numerous agencies, with few having ocean science and

exploration as a clear directive. Contrast to this to how the US traditionally dealt with exploration of space. NASA

was recognized early on as the vehicle by which the US would establish and maintain international space

supremacy, but the oceans have always had to compete with other missions. We faced a weak economy and in tough

economic times we rightly looked for areas to adjust our budgets. Budget cuts lead to tough either/or situations: dowe fund A or B? Pragmatically we choose what appeared to be most practical and yield most benefit.

B. NASA’S BUDGET WILL BE RAIDED TO FUND THE PLAN.

Lamar Smith, (R-Texas), March 26, 2014, CQ CONGRESSIONAL TESTIMONY, Mar. 26, 2014, Retrieved April

24, 2014 from Lexis/NexisPerhaps the greatest example of the White House's lack of leadership is with America's space program. The

White House's approach has been to raid NASA's budget to fund the Administration's environmental agenda.

C. THE WHITE HOUSE IS WILLING TO CUT NASA TO FUND THE PLAN.

Dan Leone (staff writer) SPACE NEWS, Apr. 7, 2014. Retrieved Apr. 27, 2014 from www.space

news.com/article/civil-space/40138mikulski-nasa’s-2015-budget-will-be-no-worse-than-flat

The White House is seeking $17.5 billion for NASA in 2015, roughly $185 million less than what the agency is

getting this year under an omnibus spending bill signed in January. About 40 percent of the proposed reduction

would come from canceling the Stratospheric Observatory for Infrared Astronomy (SOFIA), a telescope-equipped747SP jetliner the White House wants NASA to mothball after this year.

SECOND NEGATIVE BAYLOR BRIEFS 67

D. SHRINKING BUDGETS WILL REQUIRE TRADE-OFFS BETWEEN OCEAN FUNDING AND SPACE FUNDING.

Michael Conathan (Director of Ocean Policy at the Center for American Progress), CENTER FOR AMERICAN

PROGRESS, June 18, 2013. Retrieved Apr. 27, 2014 from www.americanprogress.org/issues/green/news/

2013/06/18/66956/rockets-top-submarines-space-exploration-dollars-dwarf-ocean-spending/

In a time of shrinking budgets and increased scrutiny on the return for our investments, we should be taking along, hard look at how we are prioritizing our exploration dollars. If the goal of government spending is to spur

growth in the private sector, entrepreneurs are far more likely to find inspiration down in the depths of the oceanthan up in the heavens. The ocean already provides us with about half the oxygen we breathe, our single largest

source of protein, a wealth of mineral resources, key ingredients for pharmaceuticals, and marine biotechnology. Of

course space exportation does have benefits beyond the “cool factor” of putting people on the moon and astronaut-

bards playing David Bowie covers in space. Inventions created to facilitate space travel have become ubiquitous in

our lives — cell-phone cameras, scratch-resistant lenses, and water-filtration systems, just to name a few — and

research conducted in outer space has led to breakthroughs here on earth in the technological and medical fields. Yetdespite far-fetched plans to mine asteroids for rare metals, the only tangible goods brought back from space to dateremain a few piles of moon rocks.

III. STRONG NASA FUNDING IS NECESSARY FOR HUMAN SURVIVAL.

A. FUNDING IS CRUCIAL TO NASA’S SUCCESS

Tyler Their, (Commentator), THE LAMRON: SUNY AT GENESEO, April 3, 2014, 1. Retrieved April 24, 2014

from Lexis/Nexis.

Let's face it, space exploration is extremely costly and needs a multi-billion dollar budget to function even

remotely well. Results are dependent upon technology and equipment, which in turn are dependent upon money.

Furthermore, the support for these expenditures and subsequent missions comes from us, the public. The periodicgovernmental budget cuts for National Aeronautics and Space Administration only get worse, further alienating —

no pun intended — the space program and the public's attention for such matters.

B. EVEN MODEST BUDGET CUTS AT NASA HAVE BIG EFFECTS ON SPACE SCIENCE.

STEVENS POINT JOURNAL (WISCONSIN), March 12, 2014, A6. Retrieved April 24, 2014 from Lexis/Nexis.

The 2015 budget request for space science, released Tuesday, is just under $5 billion, $100 million less than

was appropriated three years ago. The good news is that several projects — most notably the James Webb SpaceTelescope and various Earth monitoring programs — are funded. But the modest overall cuts for science translate

into bigger ones in NASA's planetary probes and astrophysics programs. In each of the past three years, Obama hasproposed major cuts to the NASA division that sends robots to explore the solar system. Its request for the upcoming

year is just under $1.3 billion (0.03 percent of all federal spending), compared with $1.5 billion three years ago.

Similar cuts have been made in the astrophysics division, which funds space observatories. Among the effects of thisunfortunate austerity would be an end to the Curiosity rover, currently wheeling itself around on Mars, and the

Stratospheric Observatory for Infrared Astronomy (Sofia, for short), a deep space observatory just beginning to yield

results.

C. NASA AND SPACE EXPLORATION IS CRITICAL TO AVOID HUMAN EXTINCTION.

AIM WEST MILFORD (PASSAIC, NORTH JERSEY), March 14, 2013, A8. Retrieved April 24, 2014 from

Lexis/Nexis.

I will never understand the zeal with which we've abandoned our space program, and the lack of progress we've

made since the leaps and bounds of the mid-20th century is especially frustrating. But hopefully, the Russian meteor

will renew both interest in and concern about our space program and let us move forward again on the grand plans

we've walked away from. After all, as the famous Bill Nye succinctly said in a CNN interview last summer: "If the

Earth gets hit by an asteroid, it's game over. It's control-alt-delete for civilization." Being as we are the only species

to walk the Earth that has both the technology and the ability to avoid this fate, I suggest we take this responsibilitymore seriously.

Mary Nichols (staff writer) MANNED MISSION TO MARS NECESSARY FOR HUMAN SPECIES TO

SURVIVE INDEFINITELY, Apr. 24, 2014. Retrieved Apr. 27, 2014 from www.designntrend.com/

articles/13119/20140424/manned-mission-to-mars-necessary-for-human-species-to-survive-indefinitely-says-nasachief.

htm

NASA chief Charles Bode told attendees at the Humans to Mars Summit that a manned mission to Mars is

necessary for our "species to survive." The Humans to Mars Summit was held on April 22 at George Washington(GW) Univeristy. Boden, the head of the US space program, outlined a series of "stepping stones" to be completed

before a manned mission to Mars. These included "lassoing" an asteroid and bringing it into the Moon's orbit by2015, growing plants in space and using 3D printers for onboard repairs, writes Science Recorder. The "stepping

stones" would give scientists new samples from space to study but would provide a valuable testing ground for keytechnologies necessary to reach — and potentially set up residence on Mars. "For one thing, Mars' formation andevolution are comparable to Earth's and we know that at one time Mars had conditions suitable for life," he told

attendees at the Summit.

SECOND NEGATIVE BAYLOR BRIEFS 68

MIDTERM ELECTIONS DISADVANTAGE

The thesis of this disadvantage is that the affirmative plan will be popular, allowing the Democrats to have an issue torally their constituency and hang on to their majority in the US Senate. Ocean protection is popular in the United States,

giving the Democrats a wedge issue to prevent the GOP from gaining control of the Senate. Unfortunately, a GOP Senate is

critical to pass fast track trade legislation, which is crucial for US leadership and the economy.

I. THE AFFIRMATIVE PLAN ALLOWS THE DEMOCRATS TO RETAIN THEIR SENATE MAJORITY.

A. REPUBLICANS WILL RETAKE THE SENATE IN THE PRESENT SYSTEM.

1. Republicans are favored to win back the Senate now

Leigh Ann Caldwell (CNN reporter) 2014 MIDTERMS: WHAT’S AT STAKE? Apr. 16, 2014. Retrieved Apr.

28, 2014 from http://www.kcra.com/politics/2014-midterms-What-s-at-stake/25496204

Control of the Senate: That's the big story of the year. Republicans have their best chance of winning backthe majority since they lost it in the 2006 elections. Democrats hold a 55-45 seat majority (53 Democrats and two

independents who caucus with them) and could lose control of the chamber if they drop six seats. That mattersbecause Republicans would then likely control the House and the Senate. Government would be truly divided

with President Barack Obama, a Democrat, still in the White House. Republicans would likely pass morelegislation through Congress and the President would be forced to either allow GOP priorities to go through or

stop them in their tracks with a veto. Democrats face a difficult task of maintaining their Senate majority. Of the

36 Senate races this year (a third of the Senate is up for election every two years), Democrats hold 21 seats. In

other words, they are forced to play major defense.

2. Republicans are favored to re-take the Senate now:

Nate Silver (political commentator for New York Times), GOP IS SLIGHT FAVORITE, Mar. 23, 2014.

Retrieved Apr. 28, 2014 from http://fivethirtyeight.com/features/fivethirtyeight-senate-forecast/

When FiveThirtyEight last issued a U.S. Senate forecast — way back in July — we concluded the race forSenate control was a toss-up. That was a little ahead of the conventional wisdom at the time, which characterized

the Democrats as vulnerable but more likely than not to retain the chamber. Our new forecast goes a half-step

further: We think the Republicans are now slight favorites to win at least six seats and capture the chamber. TheDemocrats’ position has deteriorated somewhat since last summer, with President Obama’s approval ratingsdown to 42 or 43 percent from an average of about 45 percent before. Furthermore, as compared with 2010 or

2012, the GOP has done a better job of recruiting credible candidates, with some exceptions.

B. THE AFFIRMATIVE PLAN IS POPULAR (NOTE: READ ONLY THE LINKS RELEVANT TO THE AFFIRMATIVE PLAN)

1. Ocean protections are popular in America:

Ocean Foundation, ENVIRONMENTAL PROTECTION, Sep. 8, 2011. Retrieved Apr. 28, 2014 from http://

eponline.com/articles/2011/09/08/public-opinion-research-shows-american-interest-in-livinggreen.

aspx?admgarea=News

A new report offers insight into public opinion about the environment, including the need to conserve andsafeguard the health of our ocean. "The latest research indicates that most Americans want to be seen as 'being

green'," said Bill Mott, director of The Ocean Project, the lead organization on a collaborative market research

initiative that is now the most extensive such effort ever undertaken on any environmental issue. "Americans are

looking for meaningful ways to reinforce and express this self-perception of 'green-friendliness,' something thatis especially true among youth."

2. Renewable energy is popular and will surface as an issue in the midterms:

Steven Mufson & Tom Hamburger (staff writers). WASHINGTON POST. Apr. 25, 2014. Retrieved Apr. 29,

2014 from http://www.washingtonpost.com/business/economy/a-battle-is-looming-over-renewable-energy-andfossil-

fuel-interests-are-losing/2014/04/25/24ed78e2-cb23-11e3-a75e-463587891b57\_story.html

The measures, which have been introduced in about 18 states, lie at the heart of an effort to expand to the

state level the battle over fossil fuel and renewable energy. The new rules would trim or abolish climate

mandates — including those that require utilities to use solar and wind energy, as well as proposed

Environmental Protection Agency rules that would reduce carbon emissions from power plants. But the

campaign — despite its backing from powerful groups such as Americans for Prosperity — has run into a

surprising roadblock: the growing political clout of renewable-energy interests, even in rock-ribbed Republican

states such as Kansas. The stage has been set for what one lobbyist called “trench warfare” as moneyed interestson both sides wrestle over some of the strongest regulations for promoting renewable energy. And the issues are

likely to surface this fall in the midterm elections, as well, with California billionaire Tom Steyer pouring moneyinto various gubernatorial and state and federal legislative races to back candidates who support tough rules

curbing pollution.

SECOND NEGATIVE BAYLOR BRIEFS 69

3. Offshore drilling is popular with the American public:

John M. Broder (staff writer) NEW YORK TIMES, June 16, 2011. Retrieved Apr. 29, 2014 from

http://www.nytimes.com/2011/06/17/business/energy-environment/17drilling.html

Throughout that time, the American public’s attitudes toward domestic oil and gas development have been

remarkably consistent: Americans are in favor of it, though Democrats and those on the coasts are much lesslikely than Republicans and those in the South and Southwest to be supportive. National support for offshore

drilling and for domestic oil and gas development generally dipped for a time after the BP disaster — from a

strong majority to a bare majority — but quickly rebounded. A Gallup poll taken immediately after the gulf spill

showed that 50 percent of Americans supported offshore drilling while 46 percent opposed it. By March of this

year, public support had risen to 60 percent versus 37 percent.

C. POPULAR ISSUES WILL ALLOW DEMOCRATS TO RALLY AND HOLD ON TO THE SENATE

1. The plan will create a rallying effect for the Democrats:

Leigh Ann Caldwell (CNN reporter) 2014 MIDTERMS: WHAT’S AT STAKE? Apr. 16, 2014. Retrieved Apr.

28, 2014 from http://www.kcra.com/politics/2014-midterms-What-s-at-stake/25496204

Democrats looking for something to rally around: Democrats are working to do everything possible tomotivate their base. A March CBS News poll found that while 70% of Republicans are excited to vote only 58%

of Democrats are. The enthusiasm gap doesn't bode well for Democrats who are well aware that Democraticvoters are less likely to vote in non-presidential election years.

2. The race is tight and can easily revert to the Democrats:

Nate Silver (political commentator for New York Times), GOP IS SLIGHT FAVORITE, Mar. 23, 2014.

Retrieved Apr. 28, 2014 from http://fivethirtyeight.com/features/fivethirtyeight-senate-forecast/

There are 10 races that each party has at least a 25 percent chance of winning, according to our ratings. If

Republicans were to win all of them, they would gain a net of 11 seats from Democrats, which would give thema 56-44 majority in the new Senate. If Democrats were to sweep, they would lose a net of just one seat and hold a54-46 majority. So our forecast might be thought of as a Republican gain of six seats — plus or minus five. Thebalance has shifted slightly toward the GOP. But it wouldn’t take much for it to revert to the Democrats, nor for

this year to develop into a Republican rout along the lines of 2010.

D. REPUBLICAN SENATE LEADERSHIP IS CRITICAL TO PASSAGE OF FAST TRACK TRADE AUTHORITY

1. A Republican Senate will allow Obama to pass fast-track trade authority:

Darren Samuelsohn and Manu Raju (staff writers) POLITICO, Apr. 17, 2014. Retrieved Apr. 29, 2014 from

http://www.politico.com/story/2014/04/democrats-fear-president-obama-could-give-in-106078.html

Democrats are mindful of how toxic some of Obama’s other proposed deals have been with the party’s base,

such as the 2010 law to extend Bush-era tax cuts or his international trade deals. Indeed, Rep. Gary Peters, aDemocrat running for Senate in Michigan, is openly campaigning against the president’s free-trade agenda.

Others know full well that if a Republican Congress makes entitlement cuts and free trade a priority, it could putthem in a bind. “If a Republican Congress establishes a goal of working with the president on trade, it will

certainly facilitate” passing fast-track trade authority, said Rep. Jared Polis (D-Colo.). But he also cautioned that

Republicans will have some work to do since they’ve been split on trade issues as well as on issues like

reforming entitlement programs.

2. Obama would cave to a Republican majority on issues like trade:

Darren Samuelsohn and Manu Raju (staff writers) POLITICO, Apr. 17, 2014. Retrieved Apr. 29, 2014 from

http://www.politico.com/story/2014/04/democrats-fear-president-obama-could-give-in-106078.html

Democrats have something else to fear after the November midterms besides just an all Republican-

controlled Congress: President Barack Obama. With Obama’s political career winding down and poll numbers

continuing to languish, his party brethren fret that their own president — forced to work with GOP majorities —

would give away the store on key policy issues ranging from the budget to energy and trade. It’s a concerncongressional Democrats have voiced every time Obama and Vice President Joe Biden tried to cut big fiscal

deals with Republicans — and the panic is now more palpable with the growing prospect of a Senate GOPmajority.

SECOND NEGATIVE BAYLOR BRIEFS 70

E. FAST TRACK TRADE AUTHORITY IS CRUCIAL TO THE ECONOMY AND US LEADERSHIP

1. Trade promotion authority is key to the economy:

Stephen DeMaura (president of Americans for Job Security) DAILY CALLER. Mar. 6, 2014. Retrieved Apr. 28,

2014 from http://dailycaller.com/2014/03/06/trade-promotion-authority-for-the-tpp-and-ttip-is-a-vital-step-forour-

economy/

For decades, free trade has been a boon to the American economy, injecting capital into our markets andspurring job creation. But amidst negotiations for two major trade deals, known as the Trans-Pacific Partnership(TPP) and the Transatlantic Trade and Investment Partnership (TTIP), there are a select few who are seeking to

obstruct any progress on expanding free trade and growing our economy. The most recent example comes in theform of an op-ed written by Brian O’Shaughnessy in the Daily Caller, which, while well-intentioned,

mischaracterizes just about every aspect of the debate. O’Shaughnessy argues that free trade is harming the

American people, but his reasoning does not stand up to the facts. He goes to great length to besmirch free trade,

but conveniently forgoes any mention of how intertwined it is with the American economy. Just imagine the

impact in the marketplace if our country reverted to isolationist policies that restricted U.S.-based employersfrom freely and easily engaging in commerce with foreign allies. Free trade is the lifeblood of our economy —

more than 38 million jobs in the United States depend on trade, roughly one in five jobs.

2. Economic decline causes multiple scenarios for nuclear war:

Geoffrey Kemp (Director of Regional Strategic Programs at The Nixon Center), THE EAST MOVES WEST:

INDIA, CHINA, AND ASIA’S GROWING PRESENCE IN THE MIDDLE EAST. 2012, 2032.

The second scenario, called Mayhem and Chaos, is the opposite of the first scenario; everything that can gowrong does go wrong. The world economic situation weakens rather than strengthens, and India, China, and

Japan suffer a major reduction in their growth rates, further weakening the global economy. As a result, energydemand falls and the price of fossil fuels plummets, leading to a financial crisis for the energy-producing states,

which are forced to cut back dramatically on expansion programs and social welfare. That in turn leads to

political unrest and nurtures different radical groups, including, but not limited to, Islamic extremists. The

internal stability of some countries is challenged, and there are more “failed states.” Most serious is the collapse

of the democratic government in Pakistan and its takeover by Muslim extremists, who then take possession of a

large number of nuclear weapons. The danger of war between India and Pakistan increases significantly. Iran,

always worried about an extremist Pakistan, expands and weaponizes its nuclear program. That further enhancesnuclear proliferation in the Middle East, with Saudi Arabia, Turkey, and Egypt joining Israel and Iran as nuclear

states. Under these circumstances, the potential for nuclear terrorism increases, and the possibility of a nuclearterrorist attack in either the Western world or in the oil-producing states may lead to a further devastatingcollapse of the world economic market, with a tsunami-like impact on stability. In this scenario, major

disruptions can be expected, with dire consequences for two-thirds of the planet’s population.

3. Trade promotion authority is key to US leadership:

Stephen DeMaura (president of Americans for Job Security) DAILY CALLER. Mar. 6, 2014. Retrieved Apr. 28,

2014 from http://dailycaller.com/2014/03/06/trade-promotion-authority-for-the-tpp-and-ttip-is-a-vital-step-forour-

economy/

It isn’t just conservatives, though; an overwhelming majority of Americans support free trade precisely

because they understand its immense benefit. Given the state of the economy, it is imperative that we allow for

trade promotion authority and pass these individual agreements, so that our country can continue to remain the

world’s preeminent economic superpower. If we fail to act, then China surely will, stealing coveted opportunities

from American businesses resulting in less employment opportunities and greater hardship.

4. Leadership decreases the risk of war:

Stephen G. Brooks, G. John Ikenberry, & William C. Wohlforth (associate professor of government at

Dartmouth, professor of politics @ Princeton & professor of government @ Dartmouth) FOREIGN AFFAIRS.

Jan/Feb. 2013. Retrieved Apr. 28, 2014 from http://www.foreignaffairs.com/articles/138468/stephen-g-brooks-gjohn-

ikenberry-and-william-c-wohlforth/lean-forward

If anything, alliances reduce the risk of getting pulled into a conflict. In East Asia, the regional security

agreements that Washington struck after World War II were designed, in the words of the political scientist

Victor Cha, to "constrain anticommunist allies in the region that might engage in aggressive behavior againstadversaries that could entrap the United States in an unwanted larger war." The same logic is now at play in the

U.S.-Taiwanese relationship. After cross-strait tensions flared in the 1990s and the first decade of this century,

U.S. officials grew concerned that their ambiguous support for Taiwan might expose them to the risk ofentrapment. So the Bush administration adjusted its policy, clarifying that its goal was to not only deter China

from an unprovoked attack but also deter Taiwan from unilateral moves toward independence.

SECOND NEGATIVE BAYLOR BRIEFS 71

POLLUTION DISADVANTAGE

The thesis of this disadvantage is that ocean exploration and development come at the cost of increased pollution. Bothexploration and development require increased shipping and exploitation of the oceans, no matter how noble the statedintentions of the plan. Increased traffic in the ocean results in exploitation of the environment, air pollution, noise pollution,

marine pollution, and the spread of invasive species. This results in increased stress on the oceans, a loss of crucial

biodiversity, and disastrous impacts on the long-term sustainability of oceanic goods.

I. THE AFFIRMATIVE PLAN CREATES MASSIVE POLLUTION IN OCEAN ECOSYSTEMS.

A. THE OCEANS HAVE BEEN PUSHED TO THE BREAKING POINT.

1. We are approaching a tipping point for oceanic health.

John B. Thomas, (Rockefeller Foundation), HUFFINGTON POST, February 12, 2014. Retrieved April 25, 2014from Lexis/Nexis.

In ocean health, we're approaching ecological and likely social tipping points beyond which there is little tono recovery possible, where no one country or body is able to exert influence over a global commons, wheremarket incentives are in place that encourage us to pull fish out of the sea as fast as possible, and whereconsumers of fish, almost every one of us around the globe, is generating the demand driving this negative cycle

in the first place. As these problems are bigger than any one individual or institution, building coalitions and

global partnerships are a good place to start. But no one actor or set of actors has a monopoly on the rightapproach, intervention, or world view in all places; these problems are too complex and rapidly evolving to be

tamed by no less than the very best of every sector with a stake in our ocean's health.

2. Oceanic exploration and development will remain limited in the present system.

Michael Conathan, (Center for American Progress), June 20, 2013, NEWS WATCH, Retrieved April 29, 2014

from http://newswatch.nationalgeographic.com/2013/06/20/space-exploration-dollars-dwarf-ocean-spending/

All it takes is a quick comparison of the budgets for NASA and the National Oceanic and Atmospheric

Administration, or NOAA, to understand why space exploration is outpacing its ocean counterpart by such a

wide margin. In fiscal year 2013 NASA’s annual exploration budget was roughly $3.8 billion. That same year,

total funding for everything NOAA does — fishery management, weather and climate forecasting, ocean

research and management, among many other programs — was about $5 billion, and NOAA’s Office of

Exploration and Research received just $23.7 million. Something is wrong with this picture.

II. THE PLAN CAUSES ENVIRONMENTAL DESTRUCTION OF THE OCEANS

A. EXPLORATION AND DEVELOPMENT OF THE OCEAN CAUSES ENVIRONMENTAL DISTRESS THROUGH

POLLUTION AND ENVIRONMENTAL DISTURBANCES

Yereth Rosen, (Columnist), ALASKA DISPTACH, April 11, 2014. Retrieved April 21, 2014 from Lexis/Nexis.

Where there is competition for space, shipping poses significant risks to Arctic seabirds, from oil spills created

by marine wrecks, obviously, but also from routine operations, Huettmann said. Ship traffic creates chronic waterpollution from small oil and grease leaks, he said. Ship noise is known to disturb marine life. Invasive species arealready being carried by ships to the far north, and air pollution produced by marine fuels is 'dramatic.' 'You can

actually track from space where these vessels go because of the bunker fuel,' he said. The very presence of large

ships creates a visual change that threatens to disrupt flight patterns and create new stresses in seabird populations,

according to Huettmann. Birds like gulls are known to be attracted to ships, meaning flight patterns are likely to be

disrupted as the birds follow the vessels and their bright lights. Such disruptions will mean ripple effects for other

bird populations, like greater predation, he said. Any shipping-related disruptions are on top of the myriad climate-

change impacts already underway on Arctic lands and in freshwater systems feeding into the Arctic Ocean,

Huettmann said. He fears that seabirds, unlike charismatic animals like polar bears, have already been neglected and

'marginalized' in the commercial rush to the Arctic — even by government environmental agencies andnongovernmental environmental organizations. He said he hopes that seabirds' territory will be respected before

Arctic shipping is expanded but is pessimistic about the chances for that. There should be a cost-benefit analysis that

considers full impacts, including those to seabirds, he said. 'Perhaps there's some benefit to shipping, but I'd like tosee what it is,' he said. A similar mapping project was recently completed for three types of whales found in Arctic

regions where new oil and gas development and new shipping has started or is anticipated.

B. OCEAN DEVELOPMENT CAUSES ENVIRONMENTAL HARM

Michael LeVine, (Pacific senior counsel for OCEANA), FEDERAL NEWS SERVICE, June 11, 2013, Retrieved

April 21, 2014 from Lexis/Nexis.

Third, we must more fully and fairly evaluate the risks and benefits of proposed activities. Ultimately, allowing

industrial activities like oil and gas leasing, exploration and development amounts to a tradeoff: accepting risks that

are certain for benefits that may or may not outweigh them. The risks, including threats to fisheries, coastal

communities and food security are borne by all of us; by contrast, large companies stand to benefit the most fromthese activities.

SECOND NEGATIVE BAYLOR BRIEFS 72

C. SHIP TRAFFIC RESULTING FROM THE PLAN CAUSES WATER POLLUTION, NOISE POLLUTION, AIR

POLLUTION, AND PROBLEMS FROM INVASIVE SPECIES

Yereth Rosen, (Columnist), ALASKA DISPATCH, Apr. 11, 2014. Retrieved April 25, 2014 from Lexis/Nexis.

Ship traffic creates chronic water pollution from small oil and grease leaks, he said. Ship noise is known todisturb marine life. Invasive species are already being carried by ships to the far north, and air pollution produced bymarine fuels is 'dramatic.' 'You can actually track from space where these vessels go because of the bunker fuel,' hesaid. The very presence of large ships creates a visual change that threatens to disrupt flight patterns and create newstresses in seabird populations, according to Huettmann. Birds like gulls are known to be attracted to ships, meaning

flight patterns are likely to be disrupted as the birds follow the vessels and their bright lights. Such disruptions willmean ripple effects for other bird populations, like greater predation, he said. Any shipping-related disruptions areon top of the myriad climate-change impacts already underway on Arctic lands and in freshwater systems feeding

into the Arctic Ocean, Huettmann said.

III. ENVIRONMENTAL DESTRUCTION OF THE OCEANS HAS DEVASTATING IMPACTS

A. ENVIRONMENTAL DESTRUCTION OF THE OCEANS WILL HAVE FAR-REACHING AND DEVASTATING

IMPACTS.

John B. Thomas, (Columnist), HUFFINGTON POST, February 12, 2014, Retrieved April 25, 2014 fromLexis/Nexis.

The world's oceans cover 70 percent of our planet and provide countless benefits to people and societies —

food, jobs, recreation, shipping, tourism, natural resources, and climate regulation in addition to their critical rolein cultures, traditions, and well-being for those who live on or near coasts. But there is an emerging consensusthat our oceans are in poor and declining health, with implications almost too big to fathom for the billions ofpeople who rely on fish for food and the hundreds of millions directly and indirectly employed in ocean-relatedindustries. This declining health is due to our over-exploitation of these critical resources through overfishing,

coastal development, shipping and mining, pollution, and myriad other threats.

B. ENVIRONMENTAL DESTRUCTION OF THE OCEANS THREATENS HUMAN SURVIVAL.

Robin Kundis Craig, (Associate Professor of Law, Indiana University School of Law), MCGEORGE L. REV.,

Winter, 2003, 155. Retrieved April 29, 2014 from Lexis/Nexis.

The United States has traditionally failed to protect marine ecosystems because it was difficult to detectanthropogenic harm to the oceans, but we now know that such harm is occurring — even though we are not

completely sure about causation or about how to fix every problem. Ecosystems like the NWHI coral reef

ecosystem should inspire lawmakers and policymakers to admit that most of the time we really do not knowwhat we are doing to the sea and hence should be preserving marine wilderness whenever we can — especiallywhen the United States has within its territory relatively pristine marine ecosystems that may be unique in the

world. We may not know much about the sea, but we do know this much: if we kill the ocean we kill ourselves,

and we will take most of the biosphere with us.

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DEFINITIONS OF TERMS

I. TERMS OF THE TOPIC ARE DEFINED.

A. “United States federal government” is defined. (1-4)

B. “Substantially” is defined.

1. “Substantial” means the “essential” part of something. (5-8)

2. “Substantial” means “important.” (9-12)

3. “Substantial” means “not imaginary.” (13)

4. Developing the oil and gas resources of the Arctic would be

substantial. (14)

5. The extension of the extended continental shelf (OCS) enabled byratifying the Law of the Sea would be substantial. (15)

6. The economic benefit from saving whales would be “substantial.”

(16)

7. The potential of the development of renewable energy offshore

would be “substantial.” (17)

C. “Increase” is defined. (18-22)

D. “Its” is defined. (23-26)

E. “Non-military” is defined.

1. Non-military means “civilian” or not of the armed forces. (27)

2. The U.S. Coast Guard is military. (28)

F. “Exploration” is defined. (29-30)

G. “Development” is defined.

1. Aquaculture is development. (31)

2. Development means to “bring to a more advanced form.” (32)

3. Development means “the state of being developed.” (33)

4. Development means “to expand or enlarge.” (34)

5. Development means “to make a product or plan better.” (35)

6. Development means “to bring out the potential” of something. (36)

7. Development means to bring proper management to fisheries. (37)

8. Development includes the promotion of coastal tourism. (38)

H. “Oceans” is defined. (39-40)

UN CONVENTION ON THE LAW OF THE SEA

AFFIRMATIVE

I. THE U.S. REFUSES TO RATIFY THE LAW OF THE SEA.

A. The U.S. is one of few nations not to ratify the Law of the Sea. (41)

B. Senate Republicans are blocking ratification. (42)

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A. The Law of the Sea preserves U.S. sovereignty. (43-48)

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B. The U.S. will be shut out of seabed mining if the Law of the Sea is

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C. U.S. leadership will be undermined if the Law of the Sea is not

ratified. (78-81)

D. The Law of the Sea provides the opportunity to extend the outer

continental shelf. (82-92)

E. The Law of the Sea would serve U.S. interests if ratified. (93-101)

F. Many U.S. interest groups support ratification of the Law of the Sea.

(102-104)

G. Ratification of the Law of the Sea would benefit U.S. businesses.

(105-109)

H. Ratification of the Law of the Sea would allow the U.S. to shape the

future of seabed mining. (110-112)

IV. RATIFICATION OF THE LAW OF THE SEA WILL HELP

PREVENT CONFLICT WITH CHINA.

A. China is becoming more assertive in the South China Sea. (113-125)

B. The South China Sea is a vital area. (126-130)

C. The Law of the Sea would promote freedom of navigation in the

South China Sea. (131-141)

V. RATIFICATION OF THE LAW OF THE SEA WILL PROMOTE THE

DEVELOPMENT OF THE RESOURCES OF THE ARCTIC.

A. Extensive oil and gas resources are available in the Arctic. (142-156)

B. The Arctic could help solve energy problems. (157-158)

C. Russia becoming more aggressive in claiming Arctic resources. (159163)

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Arctic. (164-167)

E. The U.S. is the only Arctic nation not to have ratified the Law of the

Sea Convention. (168-169)

F. The scramble for resources increases the risk of conflict. (170-172)

G. Ratification of the Law of the Sea gives the U.S. access to the

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B. Ratification of the Law of the Sea will better protect the ocean

environment. (189-194)

C. The Law of the Sea provides a constitution for the oceans. (195-196)

NEGATIVE

I. RATIFICATION OF THE LAW OF THE SEA IS NOT IN THE BEST

INTEREST OF THE U.S.

A. Ratification would force the U.S. to pay royalties for resources on its

own continental shelf. (197)

B. Ratification of the Law of the Sea would undermine U.S. armed

forces. (198)

C. The cultural heritage provisions in the Law of the Sea are overly

ambiguous. (199-201)

D. Ratification of the Law of the Sea will cost the U.S. significant

amounts of money. (202-203)

E. Ratification of the Law of the Sea would subject the U.S. to

expensive climate change lawsuits. (204-211)

D. Ratification of the Law of the Sea would provide funding for

dictators and terrorists. (212-213)

II. RATIFICATION OF THE LAW OF THE SEA IS NOT NECESSARY

FOR THE DEVELOPMENT OF ARCTIC RESOURCES.

A. Arctic nations are already working well together. (214-216)

B. The Arctic Council is able to resolve most issues. (217-222)

C. Russia is not acting in an overly aggressive manner in the Arctic.

(223-228)

III. THE DEVELOPMENT OF THE RESOURCES OF THE ARCTIC IS

UNDESIRABLE.

A. An oil spill in the environment would be devastating. (229-241)

B. Arctic resources should be left alone. (242-243)

C. An oil spill in the environment is likely if development proceeds.

(244-248)

RENEWABLE ENERGY FROM THE OCEANS

AFFIRMATIVE

I. GLOBAL WARMING IS A SIGNIFICANT PROBLEM.

A. Global warming is happening.

1. The evidence of warming is now obvious. (249-273)

2. Carbon dioxide levels are rising. (274-281)

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3. Ice is melting. (282-309)

4. The oceans are warming. (310-311)

5. Warming will be rapid. (312-315)

B. Global warming is caused by CO2 emissions.

1. Global warming is caused by human activities in burning fossil

fuels. (316-320)

2. The sun is not the cause of global warming. (321-322)

C. Global warming is harmful.

1. Global warming is causing ocean acidification. (323-343)

2. Ocean acidification is harmful. (344-370)

3. Warming will harm agricultural production. (371-382)

4. Warming will a variety of devastating impacts. (383-394)

5. Global warming kills hundreds of thousands of people. (395-396)

6. Global warming causes international conflict. (397-399)

7. Global warming is killing coral reefs. (400-402)

8. Melting glaciers causes serious harm. (403-407)

9. The ocean conveyor belt might shift. (408)

10. Methane hydrate release would be catastrophic. (409-412)

11. Warming may actually provide snowier winters. (413)

12. Sea rise is happening. (414-437)

13. Sea rise is significantly harmful. (438-454)

14. Global warming causes more severe storms. (455-458)

15. Global warming could cause chaotic change. (459-460)

16. The risks of climate change are too great to ignore. (461-462)

17. Time is short, requiring immediate action. (463-464)

II. OCEAN RENEWABLE ENERGY SHOULD BE DEVELOPED.

A. The U.S. must develop new alternatives to continued reliance on

petroleum products.

1. Dependence on oil harms the U.S. economy. (465-467)

2. The world is running out of oil. (468-489)

3. Biofuels represent a poor alternative. (490-526)

4. Geothermal energy is a poor alternative. (527-529)

5. Nuclear energy is poor alternative. (530-546)

B. The potential for offshore renewable energy is huge. (547-551)

NEGATIVE

I. GLOBAL WARMING IS NOT A SIGNIFICANT PROBLEM.

A. Global warming is not happening.

1. Global warming activists overuse alarmist rhetoric. (552-553)

2. The evidence of global warming is not clear. (554-559)

3. There is no consensus in favor of global warming. (560-565)

4. Cooling is a more likely trend than warming. (566-586)

5. The Climate Research Institute emails illustrate climate alarmism

and a willingness to bend the data. (587-595)

6. Ice melting does not indicate a serious problem. (596-607)

7. Climate models are bad. (608-618)

B. Global warming is not caused by CO2 emissions.

1. The role of CO2 in climate change is exaggerated. (619-627)

2. Changes in solar radiation are responsible for much of climate

change. (628)

3. There are many greenhouse gases other than CO2. (629)

C. The harms of global warming are exaggerated.

1. The harm of ocean acidification is exaggerated. (630-637)

2. Increased CO2 levels will benefit plant growth and agricultural

production. (638-648)

3. Coral reefs have survived many cycles of global warming in the

historic past. (649)

4. Global warming actually increases the abundance of life in the

oceans. (650-655)

5. Polar bears are not significantly impacted by climate change. (656658)

6. Sea rise is not a major threat. (659-664)

7. The threat of global warming to species is exaggerated. (665-666)

8. Storms are not becoming more severe. (667-669)

II. OTHER ENERGY OPTIONS ARE ABUNDANTLY AVAILABLE.

A. The claim that petroleum resources will soon run out is incorrect.

(670-690)

B. Geothermal energy resources are available. (691-695)

C. Nuclear energy is an available option. (696-704)

D. Natural gas is abundantly available. (705-726)

E. Solar power can meet U.S. energy needs. (727-747)

F. Land-based wind energy can meet U.S. electrical energy needs. (748778)

III. OCEAN RENEWABLE ENERGY IS NOT A DESIRABLE OPTION.

A. Ocean thermal gradients (OTEC) technology works only in tropical

ocean waters. (779)

B. Wave energy has many problems to overcome. (780)

C. Tidal power has failed in tests of its potential. (781)

D. Maintenance requirements in ocean wind systems are unduly high.

(782)

E. Ocean renewable energy systems are not cost competitive. (783)

OCEAN EXPLORATION

AFFIRMATIVE

I. THE FEDERAL COMMITMENT TO OCEAN EXPLORATION IS

INADEQUATE.

A. Less than 10% of the ocean has been mapped. (784)

B. We understand too little about the oceans. (785)

C. Ocean exploration has been given a much lower priority than space

exploration. (786)

D. Funding for the National Undersea Research Program (NURP) is

inadequate. (787)

E. Inadequate funding limits ocean exploration. (788)

F. The U.S. needs more ships devoted to ocean exploration. (789)

G. The Obama administration is cutting funding for its tsunami warning

system. (790-792)

II. OCEAN EXPLORATION IS ADVANTAGEOUS.

A. The U.S. would benefit from greater attention to basic ocean research

related to the role of the oceans in climate change. (793-795)

B. The U.S. would benefit from more satellite-based ocean observation

systems. (796)

C. Greater attention to study of tsunamis is needed. (797)

D. More study of the coastal zone is needed. (798)

E. Study of the oceans will produce medical breakthroughs. (799)

F. More study of the oceans is needed in order for ecosystem-based

management to work properly. (800)

NEGATIVE

I. OCEAN EXPLORATION IS ADEQUATE AT PRESENT.

A. The United Nations engages in a significant amount of ocean

research. (801)

B. Studies of ocean acidification are already underway. (802)

C. The Census of Marine Life is already underway. (803)

RARE EARTH ELEMENTS

AFFIRMATIVE

I. RELIANCE ON CHINESE RARE EARTH ELEMENTS IS

PROBLEMATIC.

A. U.S. industry relies on rare earth elements. (804)

B. Green technology depends upon rare earth elements. (805)

C. Defense industries and U.S. national security depend upon access to

rare earth elements. (806-811)

D. China has a monopoly on the supply of rare earth elements. (812813)

E. China has demonstrated its willingness to cut off the supply of rare

earth elements. (814-815)

II. THE U.S. SHOULD MINE RARE EARTH ELEMENTS FROM THE

SEABED.

A. Rare earth elements are available on the seabed. (816-818)

B. Ratification of the Law of the Sea will enable seabed mining. (819)

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NEGATIVE

I. THERE IS NO NEED TO RATIFY THE LAW OF THE SEA TO

PROVIDE A SUPPLY OF RARE EARTH ELEMENTS.

A. The U.S. has access to land-based supplies of rare earth elements.

(820)

B. Ratification of the Law of the Sea is not necessary to mine the

seabed. (821)

SEAPORT DEVELOPMENT

AFFIRMATIVE

I. THE FEDERAL GOVERNMENT SHOULD TAKE ACTION TO

PROPERLY MAINTAIN SEAPORTS.

A. Seaports are vital. (822-823)

B. Seaports are inadequately maintained at present. (824-825)

C. The Panama Canal is expanding. (826)

D. Larger vessels are coming as a result of Panama Canal expansion.

(827)

E. The Harbor Maintenance Tax takes in more money than the federal

government is spending for port maintenance. (828-829)

F. The purpose of the Harbor Maintenance Tax and the Harbor

Maintenance Trust Fund is the dredging of harbors. (830)

G. As the RAMP Act provides, the federal government should be

required to spend 100% of the money that it collects for harbor

maintenance to be spent as intended – on harbor maintenance. (831)

NEGATIVE

I. THERE IS NO NEED FOR THE U.S. GOVERNMENT TO SPEND

MORE MONEY ON HARBOR MAINTENANCE.

A. Port expansion on the East Coast simply takes shipping traffic away

from the West Coast seaports. (832)

B. Port expansion offers only minimal benefits. (833)

CORAL REEFS

AFFIRMATIVE

I. THE DESTRUCTION OF CORAL REEFS IS A SIGNIFICANT

PROBLEM.

A. Some fishing practices result in the destruction of coral reefs. (834)

B. Coral reefs are in a state of decline. (835)

C. Coral reefs are the “rain forests” of the oceans. (836)

D. Coral reefs support tourism. (837)

E. Oyster reefs are in decline. (838)

F. Oyster reefs are vital to the health of the oceans. (839)

G. Existing federal programs are ineffective in reef restoration. (840)

II. BIOROCK RESTORATION OF CORAL REEFS WOULD BE

EFFECTIVE.

A. Biorock provides an excellent system of reef restoration. (841-842)

B. Biorock reefs are self-repairing. (843)

C. Biorock reefs survive stress. (844)

D. Biorock reefs have proven effective in testing. (845)

E. There is no limit on the size of biorock reefs. (846)

F. The biorock system provides for rapid coral growth. (847)

G. Biorock can also be used for oyster reef restoration. (848)

H. Biorock reefs promote biodiversity. (849)

NEGATIVE

I. BIOROCK REEF RESTORATION IS NOT NECESSARY.

A. Leaving old oil platforms in place works effectively as artificial reefs.

(850)

B. Reefs are being restored now. (851)

C. Reefs will rebound if left alone. (852)

AQUACULTURE

AFFIRMATIVE

I. THERE IS A NEED FOR THE DEVELOPMENT OF A DOMESTIC

AQUACULTURE INDUSTRY.

A. There is a significant need for a steady supply of seafood. (853-854)

B. We cannot continue to depend upon wild fish catches to meet the

growing demand for seafood. (855-856)

C. Most U.S. seafood is imported now. (857-858)

D. Offshore aquaculture needs to grow. (859-860)

II. THE FEDERAL GOVERNMENT SHOULD INCREASE ITS

PROMOTION OF A DOMESTIC AQUACULTURE INDUSTRY.

A. The absence of a clear regulatory framework impedes aquaculture

development. (861-862)

B. It is possible for aquaculture to be managed in an environmentally

appropriate way. (863)

C. The National Sustainable Offshore Aquaculture Act would best

promote sustainable aquaculture in the U.S. (864)

NEGATIVE

I. THE U.S. SHOULD NOT PROMOTE A DOMESTIC AQUACULTURE

INDUSTRY.

A. Aquaculture promotes ocean pollution. (865-866)

B. Aquaculture promotes the overuse of antibiotics. (867)

C. Escapees from aquaculture operations harm wild fisheries. (868)

D. Aquaculture is not a proper way to save wild fish. (869)

E. Aquaculture operations spread disease. (870)

OVERFISHING

AFFIRMATIVE

I. THERE IS A NEED FOR ACTION TO BE TAKEN TO HALT

OVERFISHING IN U.S. AND WORLD FISHERIES.

A. Overfishing is an extensive problem. (871-873)

B. Bottom-trawling significantly harms fisheries. (874-876)

C. Tuna are being overfished. (877)

D. Overfishing is a manifestation of the “tragedy of the commons.”

(878-880)

E. Overfishing threatens the future of the oceans. (881)

F. Overfishing destroys coral reefs. (882)

G. Bycatch is a significant problem. (883-885)

H. The decline of fisheries threatens the world’s food supply. (886-887)

I. At present, we are “fishing down the food web,” meaning that large

fish are taken out first, causing fisheries to move to smaller and

smaller fish. (888-890)

J. The collapse of the cod fishery in the Northeast provides a cautionary

tale. (891)

K. Illegal fishing is a major problem. (892-893)

L. The improvement of fishing gear is a cause of overfishing. (894)

II. EXISTING MEASURES TO CONTROL OVERFISHING ARE

INADEQUATE.

A. The “Maximum Sustainable Yield” approach in the Magnuson

Stevens Act is flawed. (895)

B. Subsidies promote overfishing. (896-900)

C. The “single species” approach to fisheries management is defective.

(901-902)

D. Fisheries protections in the present system are being removed too

quickly. (903-904)

E. Voluntary solutions do not work. (905)

F. Property-based solutions do not work. (906-908)

G. Individual Transferable Quota (ITQ) systems do not work. (909-910)

III. MARINE PROTECTED AREAS PROVIDE AN OPTIMUM

SOLUTION TO OVERFISHING.

A. Marine protected areas (MPAs) protect whole regions of the oceans.

(911-912)

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B. The connectivity of MPAs is important. (913-914)

C. The areas currently set aside in MPAs are too small. (915-925)

D. Marine protected areas provide a superior solution to the current

“single species” approach. (926)

E. Ocean management is too piecemeal at present. (927-928)

F. Eventually, 30% of the oceans should be set aside in MPAs. (929930)

G. The expansion of MPAs is essential to provide a nursery for fisheries.

(931-939)

H. MPAs offer a cost effective solution to overfishing. (940-941)

I. Piecemeal measures will not solve in the way that MPAs can. (942)

J. MPAs are needed to protect migratory species. (943)

K. MPAs will correct for overfishing. (944-949)

L. Ocean regulation is a federal responsibility. (950)

M. MPAs best provide for ecosystem-based management of the oceans.

(951-952)

NEGATIVE

I. THE PROBLEM OF OVERFISHING IS EXAGGERATED.

A. Fisheries have rebounded from past overfishing. (953-954)

B. Aquaculture expansion is saving wild fisheries. (955-960)

C. The Magnuson-Stevens Act is solving for overfishing. (961-972)

II. THE EXPANSION OF MARINE PROTECTED AREAS IS

UNNECESSARY.

A. Marine protected areas have been expanded in the present system.

(973-979)

B. The Coastal Zone Management Act is preserving the ocean

environment. (980)

WHALES AND DOLPHINS

AFFIRMATIVE

I. ACTION SHOULD BE TAKEN TO PROTECT WHALES AND

DOLPHINS.

A. Whales are disappearing at present. (981)

B. Whales should be protected from suffering. (982)

C. Whales and dolphins are seriously impacted by loud noises. (983986)

D. Seismic airgun blasts are very loud. (987)

E. Seismic airgun blasts travel horizontally through the ocean, not

simply vertically to the ocean floor. (988)

F. Seismic airgun blasts harm whales and dolphins. (989)

NEGATIVE

I. NEW MEASURES TO PROTECT WHALES AND DOLPHINS ARE

UNNECESSARY.

A. Whale populations are rebounding. (990)

B. Whales have the ability to adjust the sensitivity of their hearing so as

to prevent damage. (991)

INVASIVE SPECIES

AFFIRMATIVE

I. ACTION SHOULD BE TAKEN TO PREVENT ADDITIONAL HARM

FROM INVASIVE SPECIES.

A. Invasive species travel in ship ballast water. (992)

B. Invasive species are significantly harmful. (993-996)

C. Invasive species spread quickly. (997)

D. Native species are endangered by invasive species. (998)

NEGATIVE

I. THERE IS NO NEED FOR NEW ACTIONS TO PREVENT INVASIVE

SPECIES.

A. Ballast exchange is already regulated. (999)

B. The technology to implement Phase 2 of the BWM standard is not yet

available. (1000)

EXTENSION EVIDENCE FOR

DISADVANTAGES AND DISADVANTAGE

ANSWERS

extensions to THE asia pivot disadvantage

EXTENSIONS TO THE FEDERALISM DISADVANTAGE

I. STATES HAVE CONTROL OVER OCEAN POLICY NOW.

A. States control authority on fishing now (1001).

B. States have the right to establish coastal zone management now

(1002).

II. FEDERAL REGULATIONS UNDERMINE STATE OCEAN

SOLUTIONS.

A. Federal ocean regulations undermine the ability of states to act as

laboratories (1003).

B. Mandating federal principles undermines state conservation

techniques (1004).

C. States maintain jurisdiction out to three nautical miles (1005).

D. New policies must respect the traditional role of the states in

managing coastal resources (1006).

III. OTHER NATIONS MODEL US CONSTITUTIONALISM (1007).

IV. STATE SOLUTIONS ARE SUPERIOR TO FEDERAL SOLUTIONS

FOR OCEAN POLICY

A. Alaska proves:

strong state decision-making best protects marine &

coastal resources (1008).

B. States have unique knowledge & expertise in ocean management

(1009).

C. State level management of oceans is the best solution (1010).

V. FEDERALISM PROTECTS INDIVIDUAL LIBERTIES

A. Federalism best secures individual liberties (1011).

B. Federalism Protects the liberty of the individual from arbitrary power

(1012).

C. Limits on federal power exist to protect individual liberty (1013).

D. DOMA decision illustrates the federalism can protect individual

liberty (1014).

E. Liberty springs from limiting federal control (1015).

ANSWERS TO THE FEDERALISM

DISADVANTAGE

I. OTHER NATIONS DON’T MODEL US FEDERALISM

A. Other nations don’t model US federalism (1016).

B. Other nations no longer model the US Constitution (1017).

C. Other nations no longer model US federalism (1018).

D. Other nations no longer use the US Constitution as their pre-eminent

model (1019).

E. The US Constitution is no longer modeled (1020).

F. The US Constitution is no longer a model for other nations (1021).

G. Nations model the European, not the US constitution (1022).

II. FEDERALISM FAILS IN OTHER NATIONS

A. Federalism quickly breaks down in other nations (1023).

B. Failure of proper attitudes towards federalism prevents its success in

peace-making (1024).

C. No causal relationship between federalism and peace (1025).

D. Federalism does not consistently settle ethnic conflicts (1026).

E. Federalism is not a one-size fits all solution to ethnic conflict (1027).

EXTENSIONS TO THE OIL PRICES

DISADVANTAGE

I. SAUDI ARABIA HAS STRONG ECONOMIC GROWTH NOW (1028).

II. INCREASING OIL PRODUCTION IN THE UNITED STATES WILL

DECREASE WORLD OIL PRICES.

A. Increasing oil production in the United States plummets world oil

prices (1029).

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B. Policies that increase support for offshore drilling decrease oil prices

(1030).

C. Lifting bans on offshore oil drilling create a market signal that

decreases oil prices (1031).

D. The plan dramatically escalates production levels, causing a sharp

crude oil price drop (1032).

E. More spare capacity shatters OPEC’s price controls and causes spirals

of declining prices (1033).

F. Supply problems are responsible for high oil prices (1034).

III. FALLING OIL PRICES WILL UNDERMINE SAUDI ARABIA

A. Falling oil prices would devastate the Saudi economy (1035).

B. Saudi Arabia’s economy is very vulnerable to an oil price shock

(1036).

C. High oil prices sustain the Saudi economy (1037).

D. High oil prices are bolstering the Saudi economy now (1038).

E. OPEC nations need high oil prices to balance their budgets (1039).

F. High oil prices are necessary for Saudi stability (1040).

G. The Saudi government relies on high oil prices to finance its budget

(1041).

H. High oil prices benefit the Saudi economy (1042).

I. Lower oil prices undermine the Saudi economy (1043).

J. Saudi Arabia needs high oil prices to bolster its economy (1044).

K. Lower oil prices undermine Saudi Arabia’s fiscal position (1045).

IV. STABILITY IN SAUDI ARABIA CHECKS TERRORISM.

A. Oil price declines will unleash unrest in Persian Gulf nations (1046).

B. Lower oil prices will unsettle Gulf nations (1047).

C. Oil prices under $85 a barrel hurt the Saudi economy (1048).

D. US energy independence increases warfare throughout the Middle

East (1049).

V. THE TIME-FRAME IS RAPID.

A. Rising supply will immediately decrease oil prices (1050).

B. A powerful new event can send the price of oil into a tailspin (1051).

C. Markets can change rapidly to new events (1052).

EXTENSIONS TO THE COAST GUARD

DISADVANTAGE

I.

THE COAST GUARD CAN EFFECTIVELY FIGHT TERRORISM

NOW.

A. The US Coast Guard combats terrorism now (1053).

B. Drug interdictions are up now (1054).

C. The current budget is adequate for the Coast Guard (1055).

D. The Homeland Security budget is adequate to deter terrorism now

(1056).

II. THE AFFIRMATIVE PLAN WILL UNDERMINE THE COAST

GUARD.

A. Patrolling Marine Protected Areas trades-off with the Homeland

Security responsibilities of the Coast Guard (1057).

B. Constraints on the Coast Guard undermine the ability to combat illicit

drug trafficking operations (1058).

C. Pulling assets away from anti-drug smuggling efforts causes more

drug running (1059).

D. Coast Guard resources trade-off (1060).

E. Budget constraints will undermine the Coast Guard (1061).

III. DRUG SMUGGLING IS A THREAT AT SEA.

A. Drug smugglers are moving operations away from the land border to

the ocean (1062).

B. Drugs smugglers increasingly turning to the high seas to smuggle

drugs (1063).

C. Smugglers will take to the high seas with their drug shipments

(1064).

D. Smugglers are moving to the high seas with drug shipments (1065).

E. Smugglers are increasingly using large vessels at sea to move drugs

(1066).

F. Drug smugglers are increasingly moving to the high seas (1067).

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IV. THE COAST GUARD IS KEY TO COUNTER-TERROR AND

COUNTER-DRUG OPERATIONS.

A. The Coast Guard is in charge of counter-drug operations (1068).

B. The Coast Guard performs counter-terrorism operations (1069-1070).

C. Other nations can’t help the Coast Guard stop drug smugglers (1071).

V. THE COAST GUARD IS CRITICAL TO ALL KINDS OF

OPERATIONS.

A. The terrorist threat is growing—there is a greater need for counter-

terrorism (1072).

B. The Coast Guard is key to solving oil spills (1073).

C. The Coast Guard is key to US-Latin American relations (1074).

D. The Coast Guard effectively combats piracy (1075).

E. The Coast Guard performs a wide variety of functions (1076).

ANSWERS TO THE COAST GUARD

DISADVANTAGE

I. THE COAST GUARD IS INEFFECTIVE NOW.

A. The Coast guard can’t successfully intercept drugs now (1077).

B. Budget cuts prevent the Coast Guard ability to interdict drug

traffickers (1078).

C. The Coast Guard lacks adequate capabilities now (1079).

D. The aging fleet undermines the Coast Guard (1080).

EXTENSIONS TO THE NASA TRADE-OFF

DISADVANTAGE

I. NASA FUNDING IS ADEQUATE NOW (1181).

II. FUNDING FOR OCEANS WILL REMAIN LIMITED NOW.

A. Funding for ocean exploration will remain limited now (1182).

B. Funding for oceans is low in the present system (1183).

III. FUNDING FOR OCEANS WILL TRADE-OFF WITH NASA

FUNDING

A. Ocean spending is unpopular and will not escape notice (1184).

B. Funding for oceans will trade-off with other initiatives (1185).

C. NASA is on the chopping block—the plan will result in cuts to space

exploration (1186-1187).

D. NASA is at risk of being cut (1188).

E. Congress will look to cut NASA (1189).

F. NASA’s budget will be targeted if cuts are needed (1190).

G. NASA funding lacks support (1191).

IV. FUNDING IS CRITICAL FOR NASA SUCCESS

A. We are at a critical cross-roads—funding is vital to save space

exploration (1192).

B. Understanding of space is critical to the future of the species (1193).

C. Space exploration is vital to human survival (1194-1195).

D. Private enterprise cannot replace government funding of space

exploration (1196).

E. Space exploration is key to US leadership (1197).

F. US leadership prevents global conflict (1198).

G. Space exploration is vital to the future of the US economy (11991200).

H. Continued US growth is key to avoid war (1201).

ANSWERS TO THE NASA TRADE-OFF

DISADVANTAGE

I. NASA’S BUDGET WILL BE CUT NOW

A. NASA will have its budget cut in the present system (1202).

B. NASA’s budget will be cut now (1203).

C. Sequestration already caused big cuts to NASA (1204).

II. NASA WON’T FUND IMPORTANT SPACE MISSIONS

A. NASA won’t fund important space missions (1205).

B. Cuts in major programs are inevitable (1206).

C. Other nations will fill the space exploration gap (1207).

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EXTENSIONS TO THE MIDTERM ELECTIONS

DISADVANTAGE

I.

THE REPUBLICANS WILL LIKELY RE-TAKE THE SENATE NOW

(1208).

II. THE AFFIRMATIVE PLAN WILL HELP THE DEMOCRATS WIN

THE ELECTION.

A. Alternative energy is popular with the American public (1209).

B. Environmentalists are crucial to the nationwide Democratic coalition

(1210)

C. Offshore drilling is popular despite the BP oil spill (1211).

D. Global warming issues will increase campaign funding for the

Democrats (1212).

E. Increased campaign spending will increase Democratic turnout

(1213).

F. Young voters care about protecting the oceans (1214).

G. Youth turnout is key to the election for the Democrats (1215).

H. Enthusiasm among Democrats is key to avoiding midterm losses

(1216).

I. Voter turnout is key for the Democrats (1217).

J. Turnout is key to the election (1218).

K. Turnout is key to Democratic success (1219).

L. Turnout is key for the Democrats to remain in charge (1220).

M. Obama’s approval rating is key to the election (1221-1223).

N. Obamacare will not cost the Democrats the election (1224-1225).

III. A REPUBLICAN SENATE WILL ALLOW OBAMA TO PASS A

FREE TRADE AGENDA.

A. A Republican Senate majority will cause Obama to work with the

Republicans (1226).

B. Obama would bargain with a Republican Senate majority (1227).

IV. LEADERSHIP SOLVES MUTIPLE WORLD PROBLEMS.

A. US leadership solves great power conflicts (1228).

B. US leadership solves proliferation (1229-1230).

C. Proliferation risks war (1231).

D. Leadership solves a host of world problems (1232).

E. Leadership prevents the outbreak of conflict (1233).

ANSWERS TO THE MIDTERM ELECTIONS

DISADVANTAGE

A. The elections are too far away to predict (1234-1235).

B. Obamacare, not the plan, is key to the election (1236).

C. Equal pay and the minimum wage are key to the election (1237).

D. Global warming is at the bottom of voter’s priorities (1238).

E. The fossil fuel lobby is still more powerful than the renewable energy

lobby (1239).

EXTENSIONS TO THE POLLUTION

DISADVANTAGE

I. OCEAN POLLUTION IS CATASTROPHIC.

A. Ocean pollution threatens vital areas of ocean biodiversity (1240).

B. Loss of biodiversity outweighs all other harms (1241).

C. Ocean health is key to feeding the planet (1242).

II. OCEAN EXPLORATION & DEVELOPMENT CAUSES

ENVIRONMENTAL DESTRUCTION.

A. Shipping and exploration cause environmental destruction (1243).

B. Ocean exploration causes environmental harm (1244).

C. Economic development leads to ocean pollution (1245).

D. The Arctic proves increased shipping and economic development

results in environmental problems (1246).

E. Development causes ocean sprawl, resulting in incredible

environmental damage (1247).

ANSWERS TO THE POLLUTION

DISADVANTAGE

A. Climate change will inevitably cause ocean damage (1248).

B. The oceans are resilient (1249).

C. The international nature of the problem makes the harm inevitable

(1250).

EVIDENCE

1. Amy Blackwell, (J.D., Staff, U. Virginia Law Library), THEESSENTIAL LAW DICTIONARY, 2008, 187. Federal: Relating to thecentral government of a union of states, such as the national government of

the United States.

2. Carol-June Cassidy, (Editor), CAMBRIDGE DICTIONARY OF

AMERICAN ENGLISH, 2nd Ed., 2008, 308. Federal government: of orconnected with the central government

3. Daniel Oran, (Assitant Dir., National Paralegal Institute & J.D., Yale

Law School), ORAN’S DICTIONARY OF THE LAW, 4th Ed., 2008, 206.

Federal government: The U.S. federal government is the national, as

opposed to state, government.

4. Carol-June Cassidy, (Editor), CAMBRIDGE DICTIONARY OF

AMERICAN ENGLISH, 2nd Ed., 2008, 308. Federal government: a systemof government in which states unite and give up some of their powers to a

central authority

5. Elizabeth Jewell, (Editor), THE OXFORD DESK DICTIONARY ANDTHESAURUS, 2nd Ed., 2007, 835. Substantially: Essentially, at bottom,

fundamentally, basically, in essence, intrinsically.

6. Elizabeth Jewell, (Editor), THE OXFORD DESK DICTIONARY ANDTHESAURUS, 2nd Ed., 2007, 835. Substantially: Essential; true in large

part.

7. Maurice Waite, (Editor), OXFORD DICTIONARY & THESAURUS,

2007, 1032. Substantially: concerning the essential points of something

8. Maurice Waite, (Editor), OXFORD DICTIONARY & THESAURUS,

2007, 1032. Substantially: fundamental, essential, basic.

9. Amy Blackwell, (J.D., Staff, U. Virginia Law Library), THEESSENTIAL LAW DICTIONARY, 2008, 477. Substantial: Important,

large, considerable, valuable.

10. Carol-June Cassidy, (Editor), CAMBRIDGE DICTIONARY OF

AMERICAN ENGLISH, 2nd Ed., 2008, 873. Substantially: large in size,

value, or importance

11. Christine Lindberg, (Editor), OXFORD COLLEGE DICTIONARY, 2nd

Ed., 2007, 1369. Substantially: Of considerable importance, size, or worth.

12. Elizabeth Jewell, (Editor), THE OXFORD DESK DICTIONARY ANDTHESAURUS, 2nd Ed., 2007, 835. Substantially: Of real importance, value,

or validity.

13. Christopher Leonesio, (Managing Editor), AMERICAN HERITAGE

HIGH SCHOOL DICTIONARY, 4th Ed., 2007, 1376. Substantial: True or

real; not imaginary.

14. Rob Huebert, (Prof., Political Science, U. Calgary), CHANGES IN THEARCTIC ENVIRONMENT AND THE LAW OF THE SEA. 2010, 45. At

the heart of the promise has been a study conducted by the United StatesGeological Survey. It has come to the conclusion that the Arctic possiblycontains a very substantial proportion of the world’s undeveloped oil and

gas resources. It has estimated that up to 13 percent of undiscovered oil

resources and 30 percent of undiscovered gas is located in the Arctic. If thisnumber is correct, this equals to the second or third largest reserve of oil

behind Saudi Arabia and Canada.

15. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEACONVENTION, Senate Hearing, June 28, 2012, 17. Fourth, accessionwould ensure our ability to reap the benefits, again as the Secretary has

pointed out, of the opening of the Arctic. Joining the Convention wouldmaximize international recognition and acceptance of our substantial

Extended Continental Shelf claims in the Arctic. And, as again pointed out,

we are the only Arctic nation that is not a party to this Convention. Moreimportantly, from our navigation and military point of view, accession

would secure our freedom of navigation, our freedom of overflight rightsthroughout the Arctic. And it would strengthen the freedom of navigation

arguments with respect to the northern sea route in the Northwest Passage.

16. Erich Hoyt, (Sr. Research Fellow, Massachusetts Institute of

Technology), MARINE PROTECTED AREAS FOR WHALES,

DOLPHINS, AND PORPOISES, 2011, 42. Cetaceans are not only the high-

profile attractions that bring people to the sea, but, by their presence, theyadvertise the health of that part of the sea since they are known to the public

as inhabitants of clean, healthy waters. The tourism and local communitybenefits from cetaceans, as well as the economic impact, can be substantial.

Furthermore, whales, as 'flagship' species, can be a tool for raising

awareness about the role of MPAs in marine conservation initiatives.

17. Chris Goodall, (Staff, The Guardian), TEN TECHNOLOGIES TOSAVE THE PLANET, 2010, 88. Costs have fallen several-fold in the past

fifteen years. Marine power has a similar potential to provide a substantial

fraction of the electricity supply of coastal countries at prices no higher thancoal or gas.

18. Carol-June Cassidy, (Editor), CAMBRIDGE DICTIONARY OF

AMERICAN ENGLISH, 2nd Ed., 2008, 441. Increase: to become or make

something larger or greater.

19. Christopher Leonesio, (Managing Editor), AMERICAN HERITAGE

HIGH SCHOOL DICTIONARY, 4th Ed., 2007, 702. Increase: To become

greater or larger.

BAYLOR BRIEFS 79

20. Elizabeth Jewell, (Editor), THE OXFORD DESK DICTIONARY ANDTHESAURUS, 2nd Ed., 2007, 415. Increase: Build up, enlarge, amplify,

expand.

21. WORDS AND PHRASES CUMULATIVE SUPPLEMENTARY

PAMPHLET, Vol. 20A, 07, 76. Increase: Salary change of from zero to$12,000 and $1,200 annually for mayor and councilmen respectively was an“increase” in salary and not merely the fixing of salary. King v. Herron, 243

S.E.2d36, 241 Ga. 5.

22. Elizabeth Jewell, (Editor), THE OXFORD DESK DICTIONARY ANDTHESAURUS, 2nd Ed., 2007, 415. Increase: Advance in quality, attainment,

etc.

23. Justin Crozier, (Editor), COLLINS DICTIONARY AND

THESAURUS, 2005, 448. Its: Of or belonging to it.

24. Carol-June Cassidy, (Managing Editor), CAMBRIDGE DICTIONARYOF AMERICAN ENGLISH, 2nd Ed., 2008, 464. Its: Belonging to or

connected with the thing or animal mentioned; the possessive form of it.

25. Frederick Mish, (Editor-in-chief), WEBSTER'S COLLEGIATE

DICTIONARY, 10th ed., 1993, 623. Its: Of or relating to it or itself, esp. as

possessor.

26. Sandra Anderson, (Editor), COLLINS ENGLISH DICTIONARY, 8th

Ed., 2006, 867. Its: Belonging to, or associated in some way with.

27. OXFORD DICTIONARY ONLINE, 2014. Retrieved Apr. 21, 2014

from

http://www.oxforddictionaries.com/us/definition/american\_english/nonmilit

ary. Non-Military: Not belonging to, characteristic of, or involving the

armed forces; civilian

28. U.S. Coast Guard, OVERVIEW OF THE U.S. COAST GUARD, Mar.

20, 2014. Retrieved Apr. 9, 2014 from http://www.uscg.mil/top/about/. The

U.S. Coast Guard is one of the five armed forces of the United States and

the only military organization within the Department of Homeland Security.

29. Elizabeth Jewell, (Editor), NEW OXFORD AMERICAN

DICTIONARY, 2005, 594. Exploration: The action of traveling in or

through an unfamiliar area in order to learn about it.

30. Paul Peacock, (Editor), CAMBRIDGE DICTIONARY OF

AMERICAN ENGLISH, 2008, 294. Explore: To travel to a new place tolearn about it or become familiar with it.

31. Biliana Cicin-Sain, (Researcher, Center for the Study of Marine Policy,

U. Delaware), TRENDS AND FUTURE CHALLENGES FOR U.S.

NATIONAL AND COASTAL POLICY, Aug. 1999, 10. DeVoe begins by

noting that while domestic aquaculture production has not grown rapidly

enough to balance the consumer demand for seafood, the development ofthe industry is considered to be critical to the future of the United States

because it has the potential to produce: (1) high quality seafood to replace

declining wild harvests; (2) products for export to aid in the reduction of the

nation’s foreign trade deficit; (3) stock enhancement of important

commercial and recreational fisheries species; (4) economic developmentopportunities; and (5) new employment opportunities.

32. Paul Peacock, (Editor), CAMBRIDGE DICTIONARY OF

AMERICAN ENGLISH, 2008, 229. Develop: To grow or cause to grow or

change into a more advanced form.

33. Joseph Pickett, (Editor), AMERICAN HERITAGE COLLEGE

DICTIONARY, 2002, 388. Development: The state of being developed.

34. Joseph Pickett, (Editor), AMERICAN HERITAGE COLLEGE

DICTIONARY, 2002, 388. Develop: To expand or enlarge.

35. Stephen Bullon, (Editor), LONGMAN DICTIONARY OF

CONTEMPORARY ENGLISH, 2005, 428. Development: Improvement; A

change that makes a product, plan, idea, etc., better.

36. Ian Brookes, (Editor), CHAMBERS DICTIONARY, 2006, 410.

Develop: To bring out what is latent or potential in; to bring to a moreadvanced or more highly organized state.

37. Pew Oceans Commission, AMERICA’S LIVING OCEANS:

CHARTING A COURSE FOR SEA CHANGE, 2003, 110-111. Enact an

emerging fisheries policy. The purpose of the policy should be to allow

industry development of new fisheries in a manner that promotes sound

scientific management and long-term conservation of the resources being

developed and the relevant ecosystem.

38. Biliana Cicin-Sain, (Researcher, Center for the Study of Marine Policy,

U. Delaware), TRENDS AND FUTURE CHALLENGES FOR U.S.

NATIONAL AND COASTAL POLICY, Aug. 1999, 74. Federal policies

and programs essential for sustainable tourism development are interrelatedand should be treated as such. Consideration should be given to the creationof a standing interagency group devoted to coastal tourism among the

various federal agencies with programs in this area.

39. Joseph Pickett, (Editor), AMERICAN HERITAGE COLLEGE

DICTIONARY, 2002, 961. Ocean: The entire body of salt water that coversmore than 70% of the earth’s surface.

EVIDENCE BAYLOR BRIEFS 80

40. Elizabeth Jewell, (Editor), NEW OXFORD AMERICAN

DICTIONARY, 2005, 1117. Ocean: A very large expanse of sea, inparticular, each of the main areas into which the sea is divided

geographically.

41. Michael Kelly, (Prof., Law, Creighton U. School of Law), CASE

WESTERN RESERVE JOURNAL OF INTERNATIONAL LAW, Fall

2012, 471. The rest of the permanent members of the UN Security Council

belong to UNCLOS, as do the rest of the Arctic Council members, all of theAntarctic claimants, all of the South China Sea claimants, and all of the

other North Pacific regional powers except North Korea. Not only willWashington not be able to contain China through UNCLOS, as a non-party,

the United States will not be able to stake its own nautical claims for fossil

fuel development or even challenge the claims of others like Russia, which

has staked out a region in the Arctic the size of France and Spain combined

for exclusive Russian oil and natural gas development.

42. Yann-Huei Song, (Research Fellow, Center for Asia-Pacific Area

Studies, Taipei), JOURNAL OF MARITIME LAW & COMMERCE, Oct.

2012, 461. To date, 34 Republican Senators have declared their opposition

to the LOS Convention, blocking accession in the Senate. 31 Senators tookthis stance via an open letter to Harry Reid, which has gathered signatures

slowly through the course of the SFRC hearings. On July 16, adding their

names to this number, Robert Portman (R-OH) and Kelly Ayotte (R-NH)

co-wrote an additional letter outlining their reasons for opposing the treaty.

Senator Isaakson (R-GA) has voiced the final "no." Because treaty

ratification requires 67 votes, a minority of 34 objecting Senators is

sufficient to block accession.

43. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEACONVENTION, Senate Hearing, June 28, 2012, 21. First, some have put

forward the myth that the Law of the Sea Convention would force us to

surrender U.S. sovereignty. Nothing could be further from the truth. Not

since we acquired the lands of the American West and Alaska have we had

such an opportunity to expand U.S. sovereignty.

44. John Moore, (Dir., Center for Oceans Law & Policy, U. Virginia), THELAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 102. My opponent and those who make this

argument should also go back and look at their US foreign relations law andunderstand that under the classic Supreme Court precedent of Whitney v.

Robertson a treaty can never remove an ounce of sovereignty of the United

States of America. That is, you can never violate the Constitution or remove

the ability of the Congress of the United States to override a treaty and have

a new policy. We do not lose an ounce of sovereignty from this Convention.

45. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 16. Some critics assert that

joining the Convention would impinge upon U.S. sovereignty. On the

contrary, joining the Convention will increase and strengthen our

sovereignty. The Convention secures the United States an expansiveExclusive Economic Zone and Extended Continental Shelf, with vast

resources in each. U.S. accession would lock-in our rights to all of thismaritime space.

46. Thomas Wright, (Fellow, Brookings Institution), FOREIGN AFFAIRS,

Aug. 7, 2012. Retrieved Jan. 3, 2014 from http://www.foreignaffairs.com/

articles/137815/thomas-wright/outlaw-of-the-sea. An international

organization might very marginally limit U.S. freedom of action, but this is

negligible in comparison to the harm that instability and conflict in the

South China Sea could inflict on U.S. interests. Previous presidents fromboth parties understood the trade-off: In challenging times, and to exercise

global leadership, Washington protected its interests by making enlightened

commitments overseas, whether in the form of alliances, institutions, or

foreign assistance.

47. John Kerry, (U.S. Senator, Mass.), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 10. I know some areconcerned that the treaty's provisions for binding dispute settlement would

impinge on our sovereignty. We are no stranger to similar provisions,

including in the World Trade Organization, which have allowed us to bring

trade cases, many of them currently pending, against abusers around the

world. As with the WTO, the United States has much more to gain than lose

by being able to hold others accountable under clear and transparent rules.

48. Yann-Huei Song, (Research Fellow, Center for Asia-Pacific Area

Studies, Taipei), JOURNAL OF MARITIME LAW & COMMERCE, Oct.

2012, 459. Being a party to the Law of the Sea Convention would nothinder the U.S. security posture, nor would it have any adverse impact on

our sovereignty. In fact, becoming a party would enhance our security

posture by enabling the United States to reinforce the Convention's freedomof navigation and overflight rights, including transit passage in strategic

straits, and preserve our rights and duties in the Arctic. In addition,

becoming a Party to the Convention would support combined operations

with coalition partners and support the Proliferation Security Initiative;

establish undisputed title to our extended continental shelf areas; and bolsterour leadership in future developments in the law of the sea.

49. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEACONVENTION, Senate Hearing, June 28, 2012, 21. Third, some allege that

in joining, our military would be subject to the jurisdiction of internationalcourts—and that this represents a surrendering of U.S. sovereignty. But

once again, this is not the case. The Convention provides that a party may

declare it does not accept any dispute resolution procedures for disputesconcerning military activities. This election has been made by 20 other

nations that have joined the Convention, and the United States would do the

same. The bottom line is that neither U.S. military activities nor a U.S.

decision as to what constitutes a U.S. military activity would be subject toreview by any international court or tribunal.

50. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEACONVENTION, Senate Hearing, June 28, 2012, 21. Second, there are somewho claim that accession to the Convention will restrict our military's

operations and activities, or limit our ability to collect intelligence interritorial seas. Quite simply, they are wrong. The Convention in no way

harms our intelligence collection activities or constrains our military

operations. On the contrary, U.S. accession to the Convention secures ourfreedom of navigation and overflight rights as bedrock treaty law.

51. John Kerry, (U.S. Senator, Mass.), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 11. Now some

mischaracterize the payments for benefit of resource rights beyond 200

miles as "a U.N. tax"—and this is my personal favorite of the arguments

against the treaty—that will be used to support state sponsors of terrorism.

Honestly, I don't know where these people make these things up. But

anyway, the Convention does not contain or authorize any such taxes. Any

royalty fee does not go to the United Nations. It goes into a fund fordistribution to parties of the Convention, and we, were we actually to jointhe Convention, would have a permanent veto power over how the funds are

distributed. And we could prevent them from going anywhere we did not

want them to go.

52. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEACONVENTION, Senate Hearing, June 28, 2012, 18. Some allege that the

Convention would subject us to the jurisdiction of international courts andthat this represents a surrendering of our sovereignty. Once again, this is not

the case. The Convention provides that a party may declare it does notaccept any dispute resolution procedures for disputes concerning military

activities, and we would do the same, as so many other nations have chosenlikewise to do. Moreover, it would be up to the United States to decide

precisely what constitutes a military activity, not others.

53. John Kerry, (U.S. Senator, Mass.), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 11. Disputes concerning

U.S. military activities are clearly excluded from dispute settlement under

the Convention. And neither is it true that the Convention would prohibit

intelligence activities. The intelligence community has once again in 2012,

as it did in 2007, as it did in 2003, confirmed that is absolutely not true.

54. Nong Hong, (Visiting Fellow, Center of Oceans Law and Policy, U.

Virginia), UNCLOS AND OCEAN DISPUTE SETTLEMENT: LAW ANDPOLITICS IN THE SOUTH CHINA SEA, 2012,81-82. Traditionally the

freedom of the high seas included the use of the high seas for militarymaneuvers or exercises, including the use of weapons. This freedom hasbeen incorporated in UNCLOS, and it has been generally believed,

particularly by maritime states, that this applies also to the EEZ. However,

upon signing or ratifying UNCLOS, several states, including Bangladesh,

Brazil, Cape Verde, Pakistan, Malaysia, and Uruguay, declared that suchkind of military activities are not permitted in the EEZ without the consent

of the coastal state. Article 298 1 (b) provides states with the right toexclude "military activities" from compulsory dispute settlement. The

minimal substantive regulations along with an optional exclusion coveringmilitary activities on the high seas and in the EEZ are indicative of apreference on the part of states not to use compulsory third-party procedures

for resolving disputes about military activities.

55. Nong Hong, (Visiting Fellow, Center of Oceans Law and Policy, U.

Virginia), UNCLOS AND OCEAN DISPUTE SETTLEMENT: LAW ANDPOLITICS IN THE SOUTH CHINA SEA, 2012, 79. Traditionally,

intelligence gathering activities have been regarded as part of the exerciseof freedom of the high seas and, therefore, through Article 58 (1), lawful inthe EEZ as well. All major maritime powers have been routinely conductingsuch activities without protest from the coastal state concerned, unless they

became excessively provocative. The US Navy expressly takes the view

that such activities are part of high seas freedoms.

56. Division of Ocean Affairs, UN Office of Legal Affairs, THE POLITICSOF THE OCEANS, 2011, 18-19. The adoption of the Agreement on Part XI

has eliminated this threat. With nearly all States now adhering, even on aprovisional basis pending ratification or accession, to the Convention, thethreat to the Convention has been eliminated. The Agreement has

particularly removed those obstacles which had prevented the industrialized

countries from adhering to the Convention. Those same countries haveeither ratified the Convention or submitted it for their internal legislative

procedures. Even more important, is their active participation in theinstitutions created by the Convention and their strong support for the

regime contained in it.

EVIDENCE BAYLOR BRIEFS 81

57. David Balton, (Deputy U.S. Assistant Secretary of State for Oceans),

THE LAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 45. The only reason we did not become a party

in the 1980s was due to our objections to Part XI of the Convention. The

1994 Implementing Agreement addressed those objections in a manner that

is both satisfactory and legally effective.

58. John Negroponte, (Former U.S. Deputy Secretary of State), THE LAW

OF THE SEA CONVENTION, Senate Hearing, June 28, 2012, 178. U.S.

firms would be able to obtain essential internationally recognized and

exclusive rights to explore and exploit deposits of strategic minerals on theocean floor beyond national jurisdiction and secure recognized title to therecovered resources. The Convention, as revised by the 1994 Agreement onImplementation, provides the commercial regime needed for private

industry, and it fully satisfies the criteria articulated in 1982 by President

Reagan.

59. Nanette DeRenzi, (Rear Admiral, U.S. Navy), THE LAW OF THE SEA

CONVENTION: US ACCESSION AND GLOBALIZATION, 2012, 100101.

The provisions in the 1982 Convention in Part XI concerning seabed

mining were not consistent with American needs. Indeed, as one who hadsupervised the preparation of the instructions for the United States in these

negotiations, but who was then outside the government, I sent a letter to

then-President Reagan saying, "I think there are six changes that need to be

made in Part XI on seabed mining before the United States should goforward." I am delighted to say that Reagan did a thorough review and cameout of that review agreeing exactly as I did, that there were six changes that

needed to be made in the deep seabed mining area, but only in the deepseabed mining area, and that the rest of the treaty was strongly in the

interests of the United States. Now, Reagan at that time then put out a press

statement indicating that there were these six changes that needed to be

made for US adherence to the Convention. That became the official US

policy. Happily in 1994 there was a successful re-negotiation of Part XI thatresulted in achieving all of the Reagan conditions and additionally someother excellent changes we had not thought about at that time.

60. Thomas Wright, (Fellow, Brookings Institution), FOREIGN AFFAIRS,

Aug. 7, 2012. Retrieved Jan. 3, 2014 from

http://www.foreignaffairs.com/articles/ 137815/thomas-wright/outlaw-ofthe-

sea. UNCLOS was first negotiated 30 years ago. But back then, U.S.

President Ronald Reagan objected to it because, he argued, it would

jeopardize U.S. national and business interests, most notably with respect toseabed mining. A major renegotiation in 1994 addressed his concerns, and

the United States signed. Now, the U.S. Navy and business community are

among UNCLOS' strongest supporters. So, too, was the George W. Bush

administration, which tried to get the treaty ratified in 2007 but failed due to

Republican opposition in the Senate.

61. Thomas Wright, (Fellow, Brookings Institution), FOREIGN AFFAIRS,

Aug. 7, 2012. Retrieved Jan. 3, 2014 from

http://www.foreignaffairs.com/articles/ 137815/thomas-wright/outlaw-ofthe-

sea. Protecting national sovereignty is a legitimate aim — and one thatsome liberal internationalists may have been too cavalier about in the past.

But for the goal to have any meaning, it must be framed so that it can bemet. This is certainly what Reagan had in mind when he articulated a

specific set of problems with the original UNCLOS that could be (andeventually were) dealt with. This time around, however, those who object tothe treaty have defined sovereignty in such ideological terms that they will

never be satisfied. By their reckoning, the United States can never be partyto an international organization, even if it has veto status in it.

62. Donald Rothwell, (Prof., International Law, Australian National U.),

THE INTERNATIONAL LAW OF THE SEA, 2010, 121. Twelve yearsafter the LOSC was concluded, its complex seabed mining provisions weremodified by a supplementary agreement, the 1994 Agreement Relating to

the Implementation of Part XI (1994 Agreement). The 1994 Agreement

satisfied many of the concerns that western states harbored in relation to the

common heritage regime, thereby enabling them to ratify the LOSC without

concerns that it would disadvantage their mining industries.

63. John Kerry, (U.S. Senator, Mass.), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 10. Some critics invoke

the concern we would be submitting to mandatory technology transfer and

cite this and President Reagan's other initial objections to the treaty. Youknow, those concerns might have been relevant decades ago, but today, theyare not. In 1994, negotiators made modifications specifically to addresseach of President Reagan's objections, including mandatory technologytransfer, which is why President Reagan's own Secretary of State, George

Shultz, has since written that we should join the Convention in light of

those modifications having been made.

64. Thomas Donohue, (CEO, U.S. Chamber of Commerce), THE LAW OF

THE SEA CONVENTION, Senate Hearing, June 28, 2012, 292. As you

know, no organization has been more adamantly opposed to the Kyoto

Protocol than the Chamber. As a result, we are extremely concerned by

efforts to impose Kyoto onto the United States and American businesses.

The Chamber is not concerned that United States approval of LOS would

impose any new environmental requirements on the United States and

American business primarily for two reasons. First, LOS does not requireparties to comply with other international environmental treaties. Thus, the

Kyoto Protocol does not apply to the United States because we are not party

to it.

65. U.S. Department of State, THE LAW OF THE SEA CONVENTION,

Senate Hearing, June 28, 2012, 39. Were a State Party to seek to invoke the

Framework Convention on Climate Change (to which the United States is a

Party) as the basis for a challenge under the LOS Convention, Articles 280

and 281 of the Convention would further preclude recourse to the Law of

the Sea Convention's dispute resolution procedures. (These Articles provide

that Parties can choose to resolve disputes by means of their own choosing,

including through other agreements. The Framework Convention on

Climate Change already contains provisions for dispute settlement, and

those provisions do not entail any legally binding procedures between

Parties unless the Parties agree on such procedures.) Thus, the Convention

would not obligate the United States to have in place any particular climate

laws or policies, and it would not subject U.S. climate change approaches to

dispute resolution.

66. U.S. Department of State, THE LAW OF THE SEA CONVENTION,

Senate Hearing, June 28, 2012, 38. The Law of the Sea Convention is an

oceans treaty, not a climate treaty. Joining the Convention would not

require the United States to implement the Kyoto Protocol or any other

particular climate change laws or policies, and the Convention's provisionscould not legitimately be argued to create such a requirement. Part XII of

the Convention addresses the marine environment. "Pollution of the marine

environment" is defined in Article 1, paragraph 4. Even if one assumed, forthe sake of argument, that (1) Part XII applied to the issue of climatechange; (2) "pollution of the marine environment" existed within the

meaning of Article 1(4); (3) there was a causal link between a Party's GHG

emissions and such pollution; and (4) other requirements were satisfied,

Part XII would still not require a Party to adopt particular climate laws orpolicies.

67. John Bellinger, (Former Legal Adviser, U.S. Deputy Secretary of State),

THE LAW OF THE SEA CONVENTION, Senate Hearing, June 28, 2012,

188. The terms of the Convention do not require Parties to comply with

other international environmental treaties. With respect to land-based

sources and pollution through the atmosphere, Part XII, Section 5 of the

Convention requires Parties at most to adopt laws and regulations to

prevent, reduce and control marine pollution, but in doing so, parties are

required only to "tak[e] into account internationally agreed rules, standards

and recommended practices and procedures." This does not impose an

obligation to comply with Kyoto or any other environmental treaty or

standard, including treaties to which the U.S. is not a party. In addition, the

U.S. would not be subject to dispute resolution for allegedly violating the

Kyoto protocol or any other environmental treaty, including agreementsgoverning pollution from land-based sources. The Convention's dispute

settlement system applies only to disputes "concerning the interpretation or

application" of the Convention itself, not to the alleged violation of other

treaties.

68. U.S. Department of State, THE LAW OF THE SEA CONVENTION,

Senate Hearing, June 28, 2012, 39. The Convention would also not providea forum for challenging U.S. climate change policies. Domestically, theConvention could not be invoked in court; it does not create rights of action

or other enforceable individual legal rights in U.S. courts. (See declaration

24 of the draft resolution of advice and consent and the Committee Reportof December 19, 2007, at page 18.) Internationally, dispute resolution is notopen to individuals or groups, only States Parties. Were a State Party toseek to challenge U.S. climate policies under the guise of a "marine

environment" dispute, the Convention's dispute settlement procedures

would not be available.

69. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 16. Some say that theConvention's dispute resolution provisions are not in the U.S. interest. On

the contrary, these procedures—which the United States sought—help

protect rather than harm U.S. interests. As in many other treaties, includingfree trade agreements, such procedures provide the United States with an

important tool to help ensure that other countries live up to their obligations.

And U.S. military activities will never be subject to any form of disputeresolution.

70. Donald Rothwell, (Prof., International Law, Australian National U.),

THE INTERNATIONAL LAW OF THE SEA, 2010, 123. The first

resource to be identified on the abyssal plains were polymetallic nodules,

which were found during the 1872-77 scientific expedition of HMS

Challenger. These are small ball-like rock concretions, between 0.5 and 25centimetres in diameter, scattered on the deep seabed at depths of about

4,000 to 6,000 metres. Among other materials, these nodules contain

manganese, nickel, copper, cobalt, aluminium and iron. While polymetallic

nodules are distributed widely, only three areas have attracted attention byindustrial prospectors: the north central Pacific Ocean, the Peru Basin in the

south-east Pacific Ocean and the middle of the north Indian Ocean.

71. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

142. During an eight-year project in the 1970s, an international consortiumcollected tons of manganese nodules from the abyssal plains of the easternPacific and succeeded in extracting significant quantities of nickel, copper,

and cobalt, but not enough to justify scaling up to full commercial

operations. Since the mid-1980s, interest in mining manganese nodules has

diminished, but in recent years, enthusiasm for the recovery of polymetallic

crusts associated with volcanic activity around hydrothermal vents in the

deep sea has grown.

EVIDENCE BAYLOR BRIEFS 82

72. Thomas Donohue, (CEO, U.S. Chamber of Commerce), THE LAW OF

THE SEA CONVENTION, Senate Hearing, June 28, 2012, 266. Many

opponents present a false option to LOS that does not exist: that the United

States can enjoy the benefits of LOS without joining it. In reality, only byjoining can the U.S. reap the full economic and national security benefits of

the Convention. Like any agreement, LOS isn't perfect. But its benefits far

outweigh the costs of continuing to stand on the sidelines. The Chamber and

the business community do not fear adverse rulings under the Conventionso much as we fear being left behind by our global competitors.

73. David Balton, (Deputy U.S. Assistant Secretary of State for Oceans),

THE LAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 45. Only as a party could the United States exert

full influence over the development of rules for mining the seabed beyondnational jurisdiction. Only as a party could the United States sponsor a UScompany seeking to engage in such mining.

74. David Balton, (Deputy U.S. Assistant Secretary of State for Oceans),

THE LAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 44. The United States is the world's leading

maritime power. Only as a party could we best invoke and ensureobservance of the rules of the Convention protecting freedom of navigation

to advance our commercial and national security interests.

75. David Balton, (Deputy U.S. Assistant Secretary of State for Oceans),

THE LAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 46. Our status as a non-party puts us at a

significant disadvantage in our endeavor to secure international recognition

of and legal certainty about the outer limits of our continental shelf — in the

Arctic and elsewhere. But this disadvantage has become much more

apparent recently. By last count, 43 other States have made partial or full

submissions to the Continental Shelf Commission in support of their claimsto continental shelf beyond 200 nautical miles. In addition, 34 States havesubmitted preliminary information. Thus, a total of 77 States are actively

engaged with the Commission, with others soon to follow. But not theUnited States.

76. David Balton, (Deputy U.S. Assistant Secretary of State for Oceans),

THE LAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 44. The United States has the world's largest

EEZ and a continental shelf that is likely to be the envy of most other

States. Only as a party could we best ensure respect for our rights as acoastal State and best secure international recognition of and legal certaintywith respect to, the outer limits of our continental shelf.

77. David Balton, (Deputy U.S. Assistant Secretary of State for Oceans),

THE LAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 46. Some may say that the massive oil spill in

the Gulf of Mexico will severely dampen enthusiasm for future exploitation

of hydrocarbons in offshore areas, including areas of the US extended

continental shelf. That may be true. But whether the United States chooses

to exploit those resources or chooses not to, the point is that we are better

off being the ones to make that choice over as large an area of seafloor as

possible. Only as a party could we best secure our right to make that choice

with respect to the full extent of our continental shelf.

78. John Moore, (Dir., Center for Oceans Law & Policy, U. Virginia), THELAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 113. There are 160 other members, plus the

European Union that are parties to this treaty at this point [May, 2010].

There are only 193 countries in the world. This is an overwhelming

participation of the international community, but Steven tells us, well wait a

minute because there are some bad actors out there, we shouldn't join thistreaty. That is, in fact, an argument that the United States should never be

able to enter into any international agreements because there might be in

any kind of multilateral agreement some bad party out there. That is a kind

of crippling isolationism to be imposed on the United States of America that

I don't think is going to be very appealing.

79. John Negroponte, (Former U.S. Deputy Secretary of State), THE LAW

OF THE SEA CONVENTION, Senate Hearing, June 28, 2012, 181. Moredifficult to measure than the tangible benefits gained from U.S. accession isthe diplomatic blight on America's reputation for rejecting a carefully

negotiated accord that enjoys overwhelming international consensus and atreaty that was adjusted in unprecedented fashion to specifically meet the

demands put forth by President Reagan. Remaining outside the Convention

undermines U.S. credibility and limits our ability to achieve critical national

security objectives.

80. Richard Lugar, (U.S. Senator, Indiana), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 6. Every year that goes by

without the United States joining the Convention results in deepening ourcountry's submission to ocean laws and practices determined by foreign

governments without U.S. input. Our Navy and our ocean industries operate

every day in a maritime environment that is increasingly dominated by

foreign decisionmaking. In almost any other context, the Senate would be

outraged at subjecting Americans to foreign controls without U.S. input.

81. John Moore, (Dir., Center for Oceans Law & Policy, U. Virginia), THELAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 104-105. We have lost US oceans leadership by

failing to have a seat at the table. We do not participate, except as anobserver in the meeting of States Parties every year. We do not have a US

national as a representative on the International Seabed Authority or theInternational Law of the Sea Tribunal and that has had significant costs. Let

me just give you one. By not having a participant on the Commission on the

Limits of the Continental Shelf, we have never had access, for example, to

the Russian submission about the Arctic. By not taking our permanent seat

on the Council of the ISA, we would not be able to exercise our veto to

block, for example, any effort to transfer funds to a national liberation

group. Yet, if we are on the Council, we would have a veto on that and

other important issues.

82. Angelle Smith, (J.D. George Washington U. Law School), GEORGE

WASHINGTON INTERNATIONAL LAW REVIEW, 2010, 662. Under

UNCLOS, the continental shelf is defined as "the sea-bed and subsoil of the

submarine areas that extend beyond [a state's] territorial sea throughout the

natural prolongation of its land territory to the outer edge of the continental

margin." A state's continental shelf also includes the twelve miles of

territorial waters extending from its shoreline and includes the "200 nautical

miles from the baselines from which the breadth of the territorial sea is

measured." These 200 nautical miles comprise an exclusive economic zone

(EEZ) where "the coastal State [has] the right to exploit, develop, manageand conserve all resources – fish or oil, gas or gravel, nodules or sulphur –

to be found in the waters, on the ocean floor and in the subsoil." Beyond theEEZ, a state may claim a continental shelf that is a "natural prolongation" ofits territory for up to 350 nautical miles.

83. Patricio Bernal, (Exec. Secretary, Intergovernmental Oceanic

Commission), TROUBLED WATERS: OCEAN SCIENCE AND

GOVERNANCE, 2010, 41. The United Nations Convention on the Law of

the Sea (UNCLOS) entered into force on 16 November 1994. It defines the

rights and responsibilities of nations in their use of the world's oceans,

establishing guidelines for businesses, the environment and the management

of marine natural resources.

84. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 15. The Convention

provides for an Extended Continental Shelf, beyond 200 nautical miles fromshore, if certain criteria are met. A coastal State can exercise sovereignrights over its Extended Continental Shelf, including exploration,

exploitation, conservation, and management of nonliving resources, such asoil, gas, and other energy and mineral resources, and of living, "sedentary"

species, such as clams, crabs, and sponges. The size of the U.S. Continental

Shelf—just the portion beyond 200 miles from shore—is probably more

than one and one-half times the size of Texas, and could be considerably

larger than that. For this reason, the U.S. oil and gas industry, including the

American Petroleum Institute, are in favor of joining the Convention.

85. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 15. The ability to gain

international recognition of a coastal State's sovereignty over the

Continental Shelf resources beyond 200 miles from shore was a major

achievement in the 1982 Convention for the United States and for other

coastal States with an Extended Continental Shelf. International recognition

is necessary for the legal certainty that will allow oil and gas companies to

attract the substantial investments needed—and create the many jobs—toextract these far-offshore resources.

86. John Bellinger, (Former Legal Adviser, U.S. Deputy Secretary of State),

THE LAW OF THE SEA CONVENTION, Senate Hearing, June 28, 2012,

185. Second, the [Bush] administration concluded that the Convention was

in the U.S. commercial and economic interests because it codified U.S.

rights to exploit the vast and valuable resources in the U.S. ExclusiveEconomic Zone—the largest in the world—and on its substantial ExtendedContinental Shelf (ECS), to lay and service submarine telecommunicationscables, and to engage in mining in the deep seabed outside the sovereign

jurisdiction of the United States. Later, as the melting Arctic ice opened up

new commercial opportunities on the U.S. Extended Continental Shelf off

of Alaska, the administration concluded that codifying U.S. rights in theArctic and participating on the Continental Shelf Commission created by

the Convention was even more important than before.

87. Thomas Donohue, (CEO, U.S. Chamber of Commerce), THE LAW OF

THE SEA CONVENTION, Senate Hearing, June 28, 2012, 266. In addition

to a 12-mile territorial sea, the Convention provides for a 200-mile

Exclusive Economic Zone, over which a coastal state has exclusive resource

management rights. If certain geological criteria are met, the Convention

also provides sovereign rights to seabed resources on the Continental Shelfbeyond 200 nautical miles. The United States has the world's second-

longest coastline and likely has an Extended Continental Shelf in at least sixdifferent locations, including off of the Eastern seaboard and up to 600

miles off the coast of Alaska. In total, the Convention would confer a

resource jurisdiction larger than that of any other nation in the world—an

additional 4.1 million square miles of ocean floor, greater than the area ofthe contiguous 48 States. Securing international recognition for U.S. rights

in these areas—and defending against the outsized claims of other

nations—is vital to the economic prosperity of our Nation.

EVIDENCE

88. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 15. More than 40 countrieshave made submissions regarding their Continental Shelves beyond 200nautical miles to the expert Commission. Sixteen States, including Russia,

Brazil, Australia, France, Indonesia, and Mexico, have received

recommendations from the Commission and are proceeding to establish the

outer limits of their Continental Shelves. As a nonparty, the United States is

sitting on the sidelines while this happens.

89. Jack Gerard, (Pres., American Petroleum Institute), THE LAW OF THESEA CONVENTION, Senate Hearing, June 28, 2012, 272. The Conventionbroadens the definition of the Continental Shelf in a way that significantly

favors the United States with its broad continental margins, particularly inthe North Atlantic, Gulf of Mexico, the Bering Sea, and the Arctic Ocean.

In the case of the United States, this secures an additional 4.1 million squaremiles of ocean under U.S. jurisdiction. That's more than 3 billion acres—an

area that is larger than the U.S. land area.

90. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 15. Much is at stake in thevast areas of Continental Shelf beyond 200 nautical miles from shore, and

the Convention's procedures enable Parties—and only Parties—to fully

secure their sovereign rights therein. Unlike the 1958 law of the sea treaty

on the Continental Shelf, this Convention contains a detailed definition of

the Continental Shelf and well-defined procedures for a country to establish

the outer limits of its Continental Shelf. Specifically, Parties to the

Convention enjoy access to the expert body whose technical

recommendations provide the needed international recognition and legalcertainty regarding Continental Shelf areas beyond 200 nautical miles.

91. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 12. We have the world's

second-longest coastline, so the United States benefits greatly from theConvention's favorable provisions on offshore natural resources. The treaty

accords sovereign rights over natural resources within a 200-mile Exclusive

Economic Zone. The United States is further advantaged by provisions in

the treaty that allow the Continental Shelf—and oil and gas rights—to

extend beyond 200 miles in certain areas. Off the north shore of Alaska, our

Continental Shelf could extend 600 miles into the Arctic.

92. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEACONVENTION, Senate Hearing, June 28, 2012, 19. Let me give you five

important reasons as to why joining this Convention would provide

enhanced national security. First, as the world's preeminent maritime power,

and the country with one of the longest coastlines and largest ExtendedContinental Shelf, we have more to gain from accession to the Convention

than any other country.

93. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 7. We believe that it isimperative to act now. No country is better served by this Convention thanthe United States. As the world's foremost maritime power, we benefit fromthe Convention's favorable freedom of navigation provisions. As the

country with the world's second-longest coastline, we benefit from its

provisions on offshore natural resources. As a country with an exceptionally

large area of sea floor, we benefit from the ability to extend our Continental

Shelf and the oil and gas rights on that shelf. As a global trading power, we

benefit from the mobility that the Convention accords to all commercial

ships. And as the only country under this treaty that was given a permanent

seat on the group that will make decisions about deep seabed mining, we

will be in a unique position to promote our interests.

94. John Kerry, (U.S. Senator, Mass.), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 2. Ratifying the treaty willlock in the favorable navigational rights that our military and shipping

interests depend on every single day. It will strengthen our hand against

China and others who stake out claims in the Pacific, the Arctic, or

elsewhere. It will give our oil and gas companies the certainty that they

need to make crucial investments to secure our energy future. It will put our

telecommunications companies on an equal footing with their foreign

competitors, and it will help secure access to rare earth minerals, which weneed for weapon systems, computers, cell phones, and the like. It will alsoaddress issues of military effectiveness. As our national security focus shiftstoward the Asia-Pacific region, it is more important than ever that we arepart of this treaty. China and other countries are staking out illegal claims inthe South China Sea and elsewhere. Becoming a party to the treaty would

give an immediate boost to U.S. credibility as we push back against

excessive maritime claims and illegal restrictions on our warships or

commercial vessels.

BAYLOR BRIEFS 83

95. Nong Hong, (Visiting Fellow, Center of Oceans Law and Policy, U.

Virginia), UNCLOS AND OCEAN DISPUTE SETTLEMENT: LAW ANDPOLITICS IN THE SOUTH CHINA SEA, 2012, 239-240. A constitutional

perspective suggests that UNCLOS was not intended to be comprehensive

to the extent that there would be no need to create further law. This means

that, although UNCLOS made use of vagueness, ambiguity, and silence at

certain points and in respect of certain controversial matters, it could beregarded as legally effective to the extent that it provides clearly for a

system within which to address substantive issues as they arise. The goal of

a constitution is to provide for a system of governance rather than to dealwith all substantive matters. UNCLOS refers in almost 70 provisions to the

possibility that the subject in question may be governed by another

international instrument, bilateral or multilateral, anterior or posterior.

96. John Moore, (Dir., Center for Oceans Law & Policy, U. Virginia), THELAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 101. Indeed, there is absolutely no US oceans or

foreign policy interest which would be better off without the treaty than

with the treaty. Now, that is highly unusual. Typically there are trade-offs in

treaties. But in this case, there were no trade-offs of US oceans, foreign

affairs or security interests. All are served by the Convention.

97. Thomas Donohue, (CEO, U.S. Chamber of Commerce), THE LAW OF

THE SEA CONVENTION, Senate Hearing, June 28, 2012, 266. The

Convention provides stability, predictability, and clear legal rights, whichare essential for American investment in our oceans, and therefore to

sustaining and creating American jobs. The oceans, which comprise 70

percent of the earth's surface, are integral to global commerce. Ships carryvirtually all goods passing in international trade, and submarine cables—not

satellites—relay virtually all modern communications. Oceans also promise

enormous frontiers of untapped resources. Development of hydrocarbon

resources on the U.S. ECS in the Arctic and elsewhere would create

thousands of new jobs for Americans, generate billions of dollars in new

economic activity, and increase our energy security. Similarly, mining on

the U.S. ECS and the deep seabed presents vast new opportunities to tapinto deposits of manganese, nickel, cobalt, copper, and vital rare earthminerals.

98. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

211. As the 21st century gets under way, Law of the Sea provides a

comprehensive global legal framework that governs human activities on and

in the world's ocean. Hundreds of pages of fine print, painstakingly

hammered out during years of intense negotiations over words, paragraphs,

principles, and even punctuation, define the rights of military mobility on

the high seas, through international straits, and in coastal waters; the free

movement of global commerce; high-seas freedoms for laying cables and

pipelines; an international framework for maritime law enforcement; marine

environmental protection; marine scientific research; and creation of a

mechanism for settling international disputes.

99. Gunnar Kullenberg, (Former Exec. Secretary, Intergovernmental

Oceanic Commission), TROUBLED WATERS: OCEAN SCIENCE AND

GOVERNANCE, 2010, 83-84. The UNCLOS provides a stronginternational instrument to help achieve equity and benefit sharing. It waspresented by the Secretary-General of the United Nations as 'one of thegreatest achievements of this century'. It establishes a regime by which

Coastal States can benefit from the resources of their continental shelf and

provides a foundation for utilizing the ocean areas beyond national

jurisdiction for the benefit of all. A future, however, that imposes

stewardship obligations and requires knowledge and wise management

based on scientific findings.

100. Lowell McAdam, (CEO, Verizon Communications, Inc.), THE LAW

OF THE SEA CONVENTION, Senate Hearing, June 28, 2012, 282. Once

the United States is a party to the Convention, Verizon, and other U.S.

telecommunications companies can work with the appropriate U.S. agenciesto enforce, when necessary, the freedoms to lay and repair cables on the

Continental Shelf and the EEZ—saving millions of dollars over the life of a

cable system, improving the reliability of our critical infrastructure, and

putting U.S. companies on a level playing field for operating internationalcable systems.

101. Nong Hong, (Visiting Fellow, Center of Oceans Law and Policy, U.

Virginia), UNCLOS AND OCEAN DISPUTE SETTLEMENT: LAW ANDPOLITICS IN THE SOUTH CHINA SEA, 2012, 240. The acceptance of

third-party dispute settlement procedures, and their application in practice,

can serve as a more or less objective criterion for the extent to which states

are prepared to subject themselves to the rule of international law.

Improving compulsory international third-party dispute settlement is not anaim in itself. It is the reflection of the acceptance of the rule of law in

international relations. Improving third-party dispute settlement therefore isan element of all attempts to create a safer and better world.

EVIDENCE BAYLOR BRIEFS 84

102. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 12. The U.S. military has

consistently and unequivocally supported the Convention for its national

security benefits. Affected U.S. industries, including shipping, fisheries,

telecommunications, and energy, have consistently supported U.S.

accession for its economic benefits. Nongovernmental organizations

concerned with the protection of natural resources have consistently

supported U.S. accession. And both Republican and Democratic Presidents

have supported U.S. accession. I have never seen another treaty with such

intensive and broad support.

103. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 19. The Law of the SeaConvention is supported, as pointed out, by major U.S. industries, by the

Chamber of Commerce, by our energy, oil, shipbuilding, shipping, andcommunications companies, by our fishing interests, and by environmental

organizations, along with past and present Republican and Democratic

administrations, strong bipartisan majorities of this committee, and the

entire national security leadership.

104. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 8. Now the many benefits

of this Convention have attracted a wide-ranging coalition of supporters.

Obviously, as we heard from both Senator Kerry and Senator Lugar,

Republican and Democratic Presidents have supported U.S. accession.

Military leaders see the benefits for our national security. Americanbusinesses, including strongly the U.S. Chamber of Commerce, see the

economic benefits. It has the support of every affected industry, including

shipping, fisheries, telecommunications, energy, and environmental groups

as well. We have a coalition of environmental, conservation, business,

industry, and security groups all in support of this Convention.

105. R. Bruce Josten, (Executive Vice President, U.S. Chamber of

Commerce), THE LAW OF THE SEA CONVENTION: US ACCESSIONAND GLOBALIZATION, 2012, 72. United States ratification of the

Convention would: Establish international legal framework, allowing USindustry to compete for strategic minerals and search for offshore energysources; Create a fluid maritime and aircraft navigation system, and provideright-of-way for undersea cable, crucial to global communications; Securesovereign rights over extensive marine areas; Provide certainty and stability(crucial) for investment in global marine enterprises; and Create a moreeffective and less costly way of preserving naval power and maritime

commerce interests.

106. R. Bruce Josten, (Executive Vice President, U.S. Chamber of

Commerce), THE LAW OF THE SEA CONVENTION: US ACCESSIONAND GLOBALIZATION, 2012, 72. Failure to approve LOS (UNConvention on the Law of the Sea) will be a strategic disadvantage to USindustry. LOS, unlike most other treaties, will form the basis of maritimelaw regardless of our participation. The cost of non-participation is too high.

By ratifying the treaty, the US becomes a member of the Commission on

the Limits of the Continental Shelf, the body that ultimately determines the

validity of a country's claim to a natural extension of its continental shelf,

ensuring exploration for natural resources.

107. R. Bruce Josten, (Executive Vice President, U.S. Chamber of

Commerce), THE LAW OF THE SEA CONVENTION: US ACCESSIONAND GLOBALIZATION, 2012, 72. The Law of the Sea Convention is an

essential action to protect the interests of American industry in thedevelopment and use of the oceans and their sea beds.

108. R. Bruce Josten, (Executive Vice President, U.S. Chamber of

Commerce), THE LAW OF THE SEA CONVENTION: US ACCESSIONAND GLOBALIZATION, 2012, 73. In lieu of accession to the LOS

Convention, American business is unable to obtain international recognitionof exclusive rights to mine sites that it has claimed under US law, andwithout being party to the Convention.

109. R. Bruce Josten, (Executive Vice President, U.S. Chamber of

Commerce), THE LAW OF THE SEA CONVENTION: US ACCESSIONAND GLOBALIZATION, 2012, 74. Business will not invest in explorationof the extended shelf until it is clear that licenses to deposits will berecognized by all nations. Failure to join the Convention during thisadministration will deflect consideration of Arctic and other offshore

development from the US shelf to that of other Arctic countries or awayfrom the Arctic altogether, a cost to the US economy and to our energy

security.

110. John Negroponte, (Former U.S. Deputy Secretary of State), THE LAW

OF THE SEA CONVENTION, Senate Hearing, June 28, 2012, 181. U.S.

firms would be able to obtain essential internationally recognized exclusive

rights to explore and exploit deposits of critical and strategic minerals on

the ocean floor beyond national jurisdiction and secure recognized title to

the recovered resources. The Convention, as revised by the 1994 Agreement

on Implementation, provides the commercial regime needed for private

industry in full compliance with the criteria articulated in 1982 by PresidentReagan when he laid out his conditions for a convention he would sign.

111. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 15-16. Second, once the

United States becomes a party, we would have an unprecedented ability toinfluence deep seabed mining activities worldwide. In revising theConvention's deep seabed provisions in the 1994 Agreement, our

negotiators obtained a permanent U.S. seat on the seabed Council. This is

the key decisionmaking body established by the Convention on deep seabedmatters. I know of no other international body that accords one country, and

one country only—the United States—a permanent seat on its

decisionmaking body. In this way, the Convention's institutions provide the

United States with a level of influence commensurate with our interests and

global standing. Until we join, however, our reserved seat remains empty.

As a result, we have limited ability to shape the rules and no ability to help

U.S. companies pursue their job-creating initiatives to exploit deep seabed

resources.

112. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 66. As a nonparty, the

United States participates as an observer to the International Seabed

Authority. As an observer, without a vote or formal voice, the United States

has very limited ability to shape deep seabed mining rules in its interests.

For instance, the United States has no ability as an observer to block

proposals by members of the Seabed Authority's Council, including

proposals by members related to deep seabed mining rules and proposals for

the distribution of payments made for oil and gas production on the

Continental Shelf beyond 200 nautical miles.

113. TORONTO STAR, July 13, 2012, A16. The U.S. government is once

again wading into the high-stakes battle for control of the resource-richSouth China Sea. Amid discussions with senior Chinese diplomats at the

Association of Southeast Asian Nations' annual conference in Cambodia's

capital, U.S. Secretary of State Hillary Clinton told reporters Thursday that

China must be more willing to compromise over its claims on the South

China Sea. "We recognize that a zero-sum approach in the Asia-Pacific will

lead only to negative-sum results," Clinton said in Phnom Penh, where

China and its neighbours are meeting to discuss a code of conduct for thewaters. "No nation can fail to be concerned by the increase in tensions, theuptick in confrontational rhetoric, and disagreements over resource

exploitation," Clinton said.

114. Jane Perlez, (Staff), NEW YORK TIMES, Dec. 2, 2012, A4. New

rules announced by a Chinese province last week to allow interceptions ofships in the South China Sea are raising concerns in the region, and in

Washington, that simmering disputes with Southeast Asian countries over

the waters will escalate. The move by Hainan Province, which administers

China's South China Sea claims, is being seen by some outside analysts asanother step in the country's bid to solidify its claims to much of the sea,

which includes crucial international shipping lanes through which morethan a third of global trade is carried.

115. Jane Perlez, (Staff), NEW YORK TIMES, Aug. 12, 2012, A6. In the

past several weeks, China has steadily increased its pressure, sending

patrols with bigger ships and issuing persistent warnings in government-

controlled newspapers for Washington to stop supporting its Asian friends

against China. The leadership in Beijing appears to have fastened on to the

South China Sea as a way of showing its domestic audience that China isnow a regional power, able to get its way in an area it has long consideredrightfully its own. Some analysts view the stepped-up actions as a diversionfrom the coming once-a-decade leadership transition, letting the

government show strength at a potentially vulnerable moment.

116. Jemy Gatdula, (Staff), BUSINESS WORLD, Dec. 7, 2012, S5. China'sgovernment, for some inexplicable reason, is again playing the bully card.

Less than a month after declaring its desire of resolving the territorial

disputes peacefully among the Asian countries involved, it then pulls abizarre stunt of legislating a measure that will supposedly authorize its

police officers to board and inspect vessels found within the said territories.

As the New York Times reported: "New rules announced by a Chinese

province last week to allow interceptions of ships in the South China Sea

are raising concerns in the region, and in Washington, that simmering

disputes with Southeast Asian countries over the waters will escalate. Themove by Hainan Province, which administers China's South China Sea

claims, is being seen by some outside analysts as another step in the

country's bid to solidify its claims to much of the sea, which includescrucial international shipping lanes through which more than a third ofglobal trade is carried."

117. Jemy Gatdula, (Staff), BUSINESS WORLD, Dec. 7, 2012, S5.

However, as the New York Times correctly points out, "China, now the

owner of an aircraft carrier and a growing navy, is plowing ahead withplans to enforce its claims that it has sovereign rights over much of the sea,

which includes dozens of islands that other countries say are theirs. And top

Chinese officials have not yet clarified their intent, leaving room for

speculation. If China were to enforce these new rules fully beyond the 12nautical-

mile zones, naval experts say, at stake would be freedom of

navigation, a principle that benefits not only the United States and other

Western powers but also China, a big importer of Middle East oil."

EVIDENCE

118. Jemy Gatdula, (Staff), BUSINESS WORLD, Dec. 7, 2012, S5. As I

wrote previously, this is simply a country whose government cannot be

trusted. As reported by the Wall Street Journal ("China's aggressive new

diplomacy," Oct. 1, 2010), when: "Hillary Clinton took the side of Vietnamin mildly pushing back against China's claims to the South China Sea,

Foreign Minister Yang Jiechi could barely contain his anger. Calling the

Secretary of State's remarks 'an attack on China,' he lectured that 'China is abig country and other countries are small countries, and that's just a fact.'"

119. Jonathan Odom, (Judge Advocate, U.S. Navy), UNIVERSITY OF

HAWAII ASIAN-PACIFIC LAW & POLICY JOURNAL, 2012, 29. In

recent years, China has dramatically increased the size of its military. With

its rising military capabilities, China "began to show some muscle." In theSouth China Sea, it began to "assert" itself. It started moving to block oil

exploration to countries.

120. Michael Kelly, (Prof., Law, Creighton U. School of Law), CASEWESTERN RESERVE JOURNAL OF INTERNATIONAL LAW, Fall

2012, 466. To be sure, as the globe's manufacturing hub, China's vault intogreat power status rests on expansive foreign trade. This trade requiressecure trade routes for large fleets of merchant vessels and, eventually, a

deployable blue water navy (which they are quickly developing). But

Chinese assertiveness of late has bordered on belligerency.

121. P.K. Ghosh, (Sr. Fellow, International Study Group on MaritimeSecurity), NEW INDIAN EXPRESS, Feb. 2, 2013. Retrieved Apr. 12, 2014from Nexis. Chinese foreign policy with respect to the South and East

China seas seems to have undergone a perceptible shift in recent times

raising the debate that this might be a fallout of the change in central CPC

(Communist Party of China) leadership that may well have initiated a jostlefor power in the lower levels against the projected facade of seamless powertransition at the senior-most level. The Chinese foreign policy changes

involve overcoming of the phase of 'biding time' to a stance that has beentermed as increasingly aggressive on issues related to their sovereignty

claims in the South and East China seas.

122. Peter Pedrozo, (Prof., Law, U.S. Naval War College), JOURNAL OF

NATIONAL SECURITY LAW & POLICY, 2012, 211. Over the past

decade, as China has struggled to expand its maritime boundaries in waters

off its coast, assert sovereignty over disputed islands and vast maritimeresources in the South China and East China Seas, and enhance its naval

capabilities to counter U.S. dominance in the Western Pacific. There havebeen a number of close encounters between Chinese and U.S. ships and

aircraft operating in China's claimed zone of interest.

123. Peter Pedrozo, (Prof., Law, U.S. Naval War College), JOURNAL OF

NATIONAL SECURITY LAW & POLICY, 2012, 221. The PRC has

shown an unwillingness to serve as a responsible state actor and complywith the terms of existing agreements. If past practice is any indication,

China will continue to violate COLREGS [International Regulations for

Prevention of Collisions at Sea] and the "due regard" safety standards

contained in various international instruments.

124. Peter Pedrozo, (Prof., Law, U.S. Naval War College), JOURNAL OF

NATIONAL SECURITY LAW & POLICY, 2012, 223. China has also

repeatedly failed to comply with its 2008 agreement with Japan to jointly

explore oil and gas resources in the East China Sea. In short, when it comesto military activities in the EEZ, China wants the international communityto "do what I say, not what I do." And when it comes to joint development

of ocean resources, China operates on the principle, "what is mine is mine,

what is yours is also mine but we are willing to share yours."

125. Richard Cronin, (Dir., Southeast Asia Program, Stimson Center),

INVESTOR'S BUSINESS DAILY, Apr. 3, 2013, A17. Territorial disputes

are threatening to spark deadly clashes that could have worldwide

repercussions between China and some or all of its neighbors in the South

China Sea – Vietnam, the Philippines, Indonesia, Malaysia and Brunei.

China has deployed a powerful force of civilian, paramilitary and naval

vessels to back up its disputed claims to about 80% of the waters and

seabed of the South China Sea, including hundreds of tiny islands and reefsscattered across thousands of miles. While it has little or no basis in

international maritime law for its claims, China has become increasingly

assertive because of its growing military power and fast-growing demand

for the abundant supplies of oil, natural gas and fish in the South China Sea.

126. Jane Perlez, (Staff), NEW YORK TIMES, Oct. 10, 2013, A4. The

shipping lanes in the South China Sea are estimated to carry more than half

the world's trade, and substantial deposits of oil and gas lie in the seabed.

127. Jane Perlez, (Staff), NEW YORK TIMES, June 1, 2012, A10. Two-

thirds of the world's natural gas trade passes through the waters of the South

China Sea, according to a report by Yang Jiemian, president of the

Shanghai Institutes for International Studies. The sea is the main

passageway for oil from the Middle East to China, Japan, South Korea and

the rest of Asia. Now the sea itself is believed to hold a substantial reservoir

of energy, with some experts predicting that under the seabed lies as muchas 130 billion barrels of oil and 900 trillion cubic feet of gas.

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128. P.K. Ghosh, (Sr. Fellow, International Study Group on MaritimeSecurity), NEW INDIAN EXPRESS, Feb. 2, 2013. Retrieved Apr. 12, 2014from Nexis. The South China Sea region has proven oil reserves to the tune

of 1,2 Km3 (7.7 billion barrels) with an approximate estimate of a total of

4.5km3(24 billion barrels) and natural gas reserves of 7,500km3 (266

trillion cubic feet) making it virtually a fountain head of energy and themain suspected rationale behind the Chinese re-assertion of their claims.

129. Nong Hong, (Visiting Fellow, Center of Oceans Law and Policy, U.

Virginia), UNCLOS AND OCEAN DISPUTE SETTLEMENT: LAW ANDPOLITICS IN THE SOUTH CHINA SEA, 2012, 71. The SCS is one of the

richest fishing areas in the world, and the disputed coral reefs are vitalbreeding grounds for the fish stocks. There are large populations heavily

dependent, directly and indirectly, on fishing, in one of the world's most

biodiverse marine areas. The exploitation of its fisheries, both legal andillegal, by family boats and industrial deep-sea trawlers now threatens todeplete fish stocks that millions of people rely on. There is an urgent needfor an internationally recognized fishery regime, with a regional authority

that has the power to enforce regulations.

130. Nong Hong, (Visiting Fellow, Center of Oceans Law and Policy, U.

Virginia), UNCLOS AND OCEAN DISPUTE SETTLEMENT: LAW ANDPOLITICS IN THE SOUTH CHINA SEA, 2012, 92. The SCS is not just a

potential scene of military conflict; it is also a rich marine environment. The

sea produces fish, seagrass, and other living and non-living resources forone of the most populous regions in the world. The total population of theentire Asia-Pacific region is close to two billion people, and embraces seven

of the world's 14 largest cities. In the Southeast Asian region alone morethan 70 percent of the population lives in coastal areas, and their

dependency on the sea for resources and a means of transportation is rather

high.

131. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 21. By not acceding to the

Convention, we give up the strongest legal footing for our actions. Weundercut our credibility in a number of Asia-focused multilateral venues—

just as we're pushing for a rules-based order in the region and the peacefulresolution of maritime and territorial disputes in the South China Sea and

elsewhere. How can we argue that other nations must abide by international

rules when we haven't joined the treaty that codifies those rules?

132. Robert Papp, (Commandant, U.S. Coast Guard), THE LAW OF THE

SEA CONVENTION, Senate Hearing, June 28, 2012, 106. As the AsiaPacific region continues to rise, competing claims and counter claims in the

maritime domain are becoming more prominent. Nowhere is this more

prevalent than in the South China Sea. Numerous claimants have assertedbroad territorial and sovereignty rights over land features, sea space, and

resources in the area. The United States has consistently encouraged allparties to resolve their disputes peacefully through a rules-based approach.

The Convention is an important component of this rules-based approach

and encourages the peaceful resolution of maritime disputes. Here again

though, the effectiveness of the U.S. message is somewhat less credible

than it might otherwise be, due to the fact that we are not a party to the

Convention.

133. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 17. By not acceding, we

undercut our credibility in a number of focused multilateral venues that

involve that arc I just defined. We are pushing, for example, for a rules-

based order in the region and the peaceful resolution of maritime and

territorial disputes in the South China Sea, in the Strait of Hormuz and

elsewhere. How can we argue—how can we argue that other nations must

abide by international rules when we haven't joined the very treaty that

codifies those rules?

134. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 42. And the claims that

China has made, and I'm not saying anything other than what I have saidrepeatedly to the Chinese themselves, are, in our view, beyond what is

permitted under the Law of the Sea. We are working to try to help toresolve these disputes peacefully, and particularly to give support to the

countries that are being threatened by these claims. Yet, as a nonparty to the

Convention, we are forced to advance our interests from a position ofweakness, not strength. As a nonparty, we cede the legal high ground toChina. We put ourselves on the defensive. We're not as strong an advocate

for our friends and allies in the region as I would like us to be. And I don't

think that's anyplace for the world's preeminent maritime power to find

ourselves.

135. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 21. Freedom of navigation

is essential for any global power, but equally applies to all maritime

states—everywhere. This Convention helps ensure that this freedom is

preserved and secured through reasoned, deliberate, international ruleswhich are fully in accord with the freedom of navigation asserted by theUnited States around the world for decades. It provides the stable,

recognized legal regime we need to conduct our global operations today,

and in the future.

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136. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 12. U.S. interests are

deeply tied to the oceans. No country is in a position to gain more from the

Law of the Sea Convention than the United States: As the world's foremost

maritime power, the United States benefits from the Convention's favorable

freedom of navigation provisions. These are the provisions that enable our

vessels to transit the maritime domain—including the high seas,

international straits, and the exclusive economic zones and territorial seas of

other countries.

137. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 12. Our economy dependson international trade, and the United States benefits from the globalmobility that those navigational provisions accord to commercial ships of

all nations.

138. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 19. Second, by joining the

Convention, we can secure our navigational freedoms and global access for

military and commercial ships, aircraft, and undersea fiber optic cables. Asit currently stands, we are forced to assert our rights to freedom of

navigation through customary international law, which can change to ourdetriment. Treaty law remains the firmest legal foundation upon which to

base our global presence, on, above, and below the seas. By joining the

Convention, we would help lock in rules favorable to freedom of navigationand our global mobility.

139. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 20-21. Fifth, and finally,

our new defense strategy emphasizes the strategically vital arc extending

from the Western Pacific and East Asia into the Indian Ocean region and

South Asia. Becoming a party to the Convention would strengthen ourposition in this key area. For example, numerous countries sit astride criticaltrade and supply routes and propose restrictions on access for military

vessels in the Indian Ocean, Persian Gulf, and the South China Sea. The

United States has long declared our interests and respect for international

law, freedom of navigation, and peaceful resolution of disputes. We havedemonstrated our commitment to those interests through our consistent

presence and engagement in these critical maritime regions.

140. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 21. At the other end of thisarc sits the Strait of Hormuz, a vital sea lane of communication to us and

our partners. We are determined to preserve freedom of transit there despite

Iranian threats to impose a blockade. U.S. accession to the Convention

would help strengthen worldwide transit passage rights under international

law and help to further isolate Iran as one of the few remaining nonparties

to the Convention.

141. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 14. Joining the

Convention would secure our navigational rights and our ability to

challenge other countries' behavior on the firmest and most persuasive legal

footing, including in critical areas such as the South China Sea and theArctic. Only as a party to the Convention can the United States best protect

the navigational freedoms enshrined in the Convention and exert the level

of influence that reflects our status as the world's foremost maritime power.

The highest levels of our Nation's military have expressed their solid and

unwavering support for joining this Convention over and over again.

142. Michael Byers, (Prof., International Law, University of British

Columbia), WHO OWNS THE ARCTIC?: UNDERSTANDING

SOVEREIGNTY DISPUTES IN THE NORTH, 2010, 9-10. In May 2009,

the U.S. Geological Survey released some truly stunning projections ofundiscovered oil and gas resources north of the Arctic Circle: 83 billionbarrels of oil, which is enough to meet current global demands for three

years; and 44 trillion cubic metres of natural gas, or about fourteen years'

worth of supply. With most of the projected reserves located in waters less

than 500 metres deep, the resources will likely fall within the uncontested

jurisdiction of one or another Arctic Ocean coastal state.

143. Uijayant Chakravorty, (Prof., Economics, Tufts U.), THE OCEAN AS

A GLOBAL SYSTEM, 2013, 78. Current scientific studies suggest that the

Arctic region harbors substantial resource deposits. It is estimated that 30%

of undiscovered gas and 13% of undiscovered oil can be found in themarine areas of the Arctic Circle. As yet, it is hard to predict when or even

whether extraction will begin in the Arctic, especially because it is a

sensitive ecological region and considerable environmental oppositionwould be likely were large-scale drilling to take place. As yet, production isnot viable in these undeveloped areas, since prospecting will requirecomplex and expensive operations using icebreaking techniques.

144. Michael Byers, (Prof., International Law, University of British

Columbia), WHO OWNS THE ARCTIC?: UNDERSTANDING

SOVEREIGNTY DISPUTES IN THE NORTH, 2010, 89-90. Considerable

excitement has been generated by U.S. Geological Survey reports that the

Arctic might contain as much as 83 billion barrels of oil and 44 trillion

cubic metres of natural gas. However, as noted in Chapter I, the 2009 reportindicated that most of the projected reserves are located in waters less than500 metres deep. While this makes them accessible to drilling, it also means

that they will probably be located on the continental shelf—and therefore

within the uncontested jurisdiction—of one of the Arctic Ocean coastal

states.

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145. Michael Klare, (Prof., Global Studies, Hampshire College), THE

RACE FOR WHAT’S LEFT: THE GLOBAL SCRAMBLE FOR THE

WORLD’S LAST RESOURCES, 2012, 80. The Beaufort and the Chukchi

Seas are, in essence, extensions of the Arctic Ocean, with the Beaufort Sea

stretching above northern Alaska and the Chukchi Sea wedged between

northwestern Alaska and the easternmost reach of Siberia. Together withAlaska's other offshore regions, these two bodies of water are thought to

hold 26.7 billion barrels of oil equivalent—an amount roughly equal to theoriginal reserves of the Prudhoe Bay field, and several times greater than

the estimated reserves of the Arctic National Wildlife Refuge.

146. Peter Spotts, (Staff), CHRISTIAN SCIENCE MONITOR, June 27,2012. Retrieved Apr. 2, 2014 from Nexis. "We have seen very strong

interest in the Arctic . . . and the oil industry is clearly moving north,"

Norwegian Petroleum and Energy Minister Ola Borten told Reuters. By

some estimates, the undersea reserves are enormous. The US Geological

Survey has calculated that the Arctic sea floor caps 13 percent of the world's

undiscovered "conventional" oil reserves and 30 percent of undiscovered

natural-gas reserves. (ellipsis in original)

147. Riki Ott, (Founder, Ultimate Civics, Earth Island Institute), ARCTIC

VOICES: RESISTANCE AT THE TIPPING POINT, 2012, 64. Alaska

holds the largest offshore oil reserves in the nation—an estimated 27 billion

barrels, more than double the Atlantic and Pacific Coasts combined. But the

United States now has less than 2 percent of the world's proven oil

resources.

148. Rob Huebert, (Prof., Political Science, U. Calgary), CHANGES IN

THE ARCTIC ENVIRONMENT AND THE LAW OF THE SEA. 2010,

45. At the heart of the promise has been a study conducted by the United

States Geological Survey. It has come to the conclusion that the Arctic

possibly contains a very substantial proportion of the world’s undeveloped

oil and gas resources. It has estimated that up to 13 percent of undiscoveredoil resources and 30 percent of undiscovered gas is located in the Arctic. Ifthis number is correct, this equals to the second or third largest reserve ofoil behind Saudi Arabia and Canada.

149. Sara Dresser, (J.D. Southwestern Law School), SOUTHWESTERN

JOURNAL OF INTERNATIONAL LAW, 2010, 509. The United States

Geological Survey (USGS) estimates that the Arctic Circle holds 90 billion

barrels of oil. In May 2008, the USGS announced that the "extensive Arctic

continental shelves may constitute the geographically largest unexploredprospective area for petroleum remaining on Earth."

150. Layer Mayer, (Dir., Center for Coastal Mapping, U. New Hampshire),

THE LAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 518. Recent studies by the US Geological

Survey have estimated that the Arctic contains about 22 of percent of the

world's undiscovered, but recoverable hydrocarbon resources. This is

broken down as 13 percent of the world's undiscovered oil, 30 percent ofthe undiscovered natural gas, and 20 percent of the undiscovered natural gasliquids. About 84 percent of the estimated resources are expected to occur

offshore.

151. Lisa Murkowski, (U.S. Senator, Alaska), THE LAW OF THE SEA

CONVENTION: US ACCESSION AND GLOBALIZATION, 2012, 18-19.

Until recently, the resources of the Arctic were deemed to be too difficultand expensive to develop. But with increasing access and high energy and

mineral prices, the Arctic's wealth is now being increasingly discovered,

explored, and developed. This includes conventional oil and natural gas as

well as methane hydrates and other less conventional forms. In offshore

Alaska we are estimating fifteen billion barrels of oil in a concentrated areaof the Chukchi Sea and eight billion barrels in the Beaufort Sea, and I amhopeful that exploratory wells will prove up this summer.

152. Lisa Murkowski, (U.S. Senator, Alaska), THE LAW OF THE SEA

CONVENTION: US ACCESSION AND GLOBALIZATION, 2012, 19.

The United States Geological Survey tells us that the region has possibly up

to 30 percent of the world's undiscovered gas and 13 percent of its oil. We

also think it holds huge amounts of other minerals — like coal, nickel,

copper, tungsten, lead, zinc, gold, silver, diamonds, manganese, chromiumand titanium. But there's a natural, sometimes reflexive tendency to

question how in the world it can ever be safe or even economical to drilland produce in such harsh, misunderstood, and distant environments. But

it's happening, and the technology and engineering behind some of the

existing and proposed activities are fascinating. We already know that theRussians are turning their eyes to the Arctic's vast energy reserves as they

are building the first offshore oil rig that can withstand temperatures as low

as minus 50 degrees Celsius and heavy pack ice.

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153. Michael Becker, (Co-Chair, American Bar Association Section of

International Law), AMERICAN UNIVERSITY INTERNATIONAL LAW

REVIEW, 2010, 236. USGS scientists estimate that the Arctic contains

conventional oil and gas resources totaling approximately 90 billion barrelsof oil, 1,669 trillion cubic feet of natural gas, and 44 billion barrels of

natural gas liquids. This could amount to "just over a fifth of the world'sundiscovered, recoverable oil and natural-gas resources." These numbers

highlight the importance of the UNCLOS provisions that govern the

exploitation of resources in the continental shelf and beyond. By reachingagreements with neighboring states as to the delimitation of its continentalshelf within the 200 nm limit – and by "certifying" claims to the extendedcontinental shelf beyond that limit with the Commission on Limits of theContinental Shelf ("Commission") – each Arctic coastal state can securelegal certainty over the scope of its jurisdiction. This is a prerequisite to

resource recovery projects that require massive amounts of public and

private investment.

154. Marvin Odum, (Pres., Shell Oil Co.), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 260. The U.S. Geological

Survey (USGS) estimates that the area north of the Arctic Circle containsnearly a hundred billion barrels of oil and trillions of cubic feet of natural

gas. The USGS estimates that this constitutes one-quarter of the world'sundiscovered reserves, as well as extensive deposits of valuable minerals.

Conservative estimates from the Bureau of Ocean and Energy Managementplace roughly 27 billion barrels of oil and over 120 trillion cubic feet of gas

in Alaska's offshore without factoring in the massive U.S. Extended

Continental Shelf.

155. Michael Klare, (Prof., Global Studies, Hampshire College), THE

RACE FOR WHAT’S LEFT: THE GLOBAL SCRAMBLE FOR THE

WORLD’S LAST RESOURCES, 2012, 100. Approximately 600 miles

south of the Arctic Circle, in the boreal forest of northeastern Alberta, lies

another hydrocarbon reserve of immense interest to energy companies: the

Athabasca tar sands, a colossal deposit of sand and clay mixed with

petroleum-rich bitumen. Geologists believe that the Albertan tar sands—

often called "oil sands" by industry and government officials—mayencompass as much as 1.7 trillion barrels of oil equivalent, of which anestimated 170 billion barrels are recoverable using existing technologies.

156. PETROLEUM ECONOMIST, Mar. 2014. Retrieved Apr. 19, 2014

from Nexis. The Arctic may hold around a quarter of the world's untapped

oil and gas deposits: 80 billion barrels of recoverable oil and 1,670 trillion

cubic feet of gas, according to a 2008 US Geological Survey study. Most of

those oil- and gasfields are thought to lie in the Arctic's icy shallow waters.

157. Jarondakie Patrick, (Staff, McClatchy Newspapers), THE POLITICS

OF THE OCEANS, 2011, 43. Although numerous logistical challenges to

oil and gas exploration in the region remain, the U.S. Geological Survey

estimates that as much of a third of the world's undiscovered gas and 13percent of its undiscovered oil may be in the offshore Arctic, in relatively

shallow water.

158. Joe Ralson, (Former Vice Chair, U.S. Joint Chiefs of Staff), THEPOLITICS OF THE OCEANS, 2011, 42. In addition to sovereignty and

shipping, energy is a looming global problem, and the Arctic provides

solutions. The U.S. Geological Survey estimates that 13 percent of theworld's undiscovered oil and 23 percent of the world's undiscovered gas

will be found in the Arctic.

159. Michael Klare, (Prof., Global Studies, Hampshire College), THE

RACE FOR WHAT’S LEFT: THE GLOBAL SCRAMBLE FOR THE

WORLD’S LAST RESOURCES, 2012, 96. The U.S. dispute with Russia

can be traced back to the original acquisition of Alaska from the czarist

empire: though the 1867 purchase agreement mentions a U.S.-Russia

maritime border in the Bering and Chukchi Seas, no official maps have

been preserved from that transaction, and the precise location of the

dividing line was never fully determined. To rectify this situation, the

United States and the USSR agreed on a common boundary in 1990, but the

Soviet Union fell apart shortly thereafter and Russia's new leadership has

challenged the accord, saying that it unfairly deprives Russia of 15,000

square miles of offshore territory that may harbor valuable oil and gas

deposits. At present, the treaty remains in limbo: while considered

legitimate and enforceable by the U.S. government, it still awaits

ratification by the Russian parliament.

160. Rob Huebert, (Prof., Political Science, U. Calgary), CHANGES IN

THE ARCTIC ENVIRONMENT AND THE LAW OF THE SEA. 2010,

42. The Bering Sea delimitation issues between Russia and United Statesseemed to have been resolved when an agreement was reached through

negotiations. However the Russian Duma has refused to ratify the

agreement, casting its settlement into doubt.

161. Andrew Van Wagner, (Staff), VILLANOVA ENVIRONMENTALLAW JOURNAL, 2010, 206-207. In 2007, Russia took a preemptive strikein asserting its control over the Arctic territory, brazenly planting a titanium

flag some 14,000 feet below the North Pole. This, however, was not

Russia's first attempt in claiming the Arctic region. In 2001, Russia sought

to extend its 200 nautical mile EEZ to 350 nautical miles, the maximum

amount of sea territory allowed under UNCLOS. The territory in questionwould encompass all of the North Pole and nearly half of the Arctic Ocean,

an area consisting of approximately 1.2 million square kilometers. Thisclaim was denied by the Commission on the Limits of the Continental Shelf

(CLCS).

162. Andrew Jensen, (Editor, Alaska Journal of Commerce), THE

POLITICS OF THE OCEANS, 2011, 33. In August 2007, Russia

symbolically planted its flag more than 13,000 feet under the Arctic ice cap

claiming an area that extends more than 1,100 miles from its coast,

asserting its rights under LOST that the Lomonosov Ridge extending fromSiberia as part of its territory.

163. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 33. When Russia used a submarine to plant

a titanium flag 4 kilometres below the ice of the North Pole this was a pieceof theatre. However the act was also used to assert ownership of the ocean

floor based on the claim that the undersea Lomonosov mountain chain links

Siberia with the Arctic: 'the Lomonosov Ridge is the same nature as the

continental shelf' according to Valery Kaminsky, the Director of the

Russian Maritime Geological Research Institute.

164. Timo Koivurova, (Prof., Law, U. Lapland), THE FUTURE OF

INTERNATIONAL ENVIRONMENTAL LAW, 2010, 179. Partly as a

result of reduced sea ice, the Arctic seems to be on the verge of a new era ofdevelopment. The improved access to the region will likely result in an

expansion of oil and gas, minerals and fisheries resource extraction, as well

as an expansion of shipping and tourism. All of these commercial activitiesentail significant environmental, social and cultural issues.

165. Scott Borgerson, (Sr. Fellow, Institute for Global Marine Studies),

DEFENDING U.S. ECONOMIC INTERESTS IN THE CHANGING

ARCTIC: IS THERE A STRATEGY?, Senate Hearing, July 27, 2011, 45.

The Arctic is also home to some of the world's largest precious metalsdeposits, as well as fresh water, which is increasingly important in awarming world. Another resource is the Arctic's sea routes, which, if

realized, would be many thousands of miles shorter than traditional seaways

around the two capes or through the two canals. With massive tidal, windand geothermal capacity, the Arctic also has renewable energy potential.

166. Ariel Cohen, (Sr. Research Fellow, Heritage Foundation), HERITAGE

BACKGROUNDER NO. 2421, June 15, 2010, 11. The Arctic seabed may

also contain significant deposits of valuable metals and precious stones,

such as gold, silver, copper, iron, lead, manganese, nickel, platinum, tin,

zinc, and diamonds. Large methane hydrate formations (solid methane

trapped in ice in deep-sea sediments) are located on the deep seabed of the

Arctic Ocean.

167. Matthew Fisher, (Staff), CALGARY HERALD, Dec. 24, 2013, B4.

All of this is of intense interest not only to Canada, Denmark and Russia,

but to the U.S., which has its own claims in the Arctic, and to China, South

Korea and even India. As climate change erases the polar ice cap, there may

be a mad scramble for a share of the last untapped major oil and gas

deposits in the world.

168. John Kerry, (U.S. Senator, Mass.), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 9. The third developmentthat is now urgent is the emerging opportunities in the Arctic. As the areagets warmer, it is opening up to new activities, such as fishing, oil and gas

exploration, shipping, and tourism. This Convention provides the

international framework to deal with these new opportunities. We are theonly Arctic nation outside the Convention.

169. Jennifer McDermott, (Staff), THE DAY (NEW LONDON, CT), May21, 2013. Retrieved Apr. 9, 2014 from Nexis. Of the eight Arctic nations,

only the United States is not a party. Not being a signatory hinders the

nation's ability to resolve disputes over maritime boundaries, Papp said.

Other countries with Arctic coastlines are charting the continental shelves tomake claims under the treaty to increase their rights to the oil and gas

reserves that lie beneath the Arctic waters.

170. PETROLEUM ECONOMIST, Mar. 2014. Retrieved Apr. 19, 2014

from Nexis. For the oil and gas industry, it is one of the final frontiers,

fraught with dangers and technical problems but potentially very lucrative.

That economic potential, opening up because of the effects of global climate

change in the Arctic, has fuelled a discussion in recent years over who will

control the region. The race into the Arctic has led some analysts to recallprevious frontier races – the Wild West or the Scramble for Africa. Then,

too, explorers rushed into the frontier, chasing untold riches. Some talk of a

looming hot war in the Arctic. The region has two potent ingredients for a

good scrap: territory and resources. Wars have been fought for less.

171. Rob Huebert, (Prof., Political Science, U. Calgary), CHANGES IN

THE ARCTIC ENVIRONMENT AND THE LAW OF THE SEA. 2010,

49. The last indicator of competition is perhaps the most disturbing. These

are the signs of renewed military build-up in the Arctic region. It is

becoming clear that despite the claims of cooperation by the Arctic States,

they are beginning to take steps to re-develop their northern military

capabilities. During the 1990s most of the circumpolar States reduced thesize of their forces that were capable of operating in or near the Arcticregion. However, at the beginning of the 21st century several of these States

began to re-examine their Arctic capabilities and began a process of

rebuilding. Furthermore, many of the new weapons that are now being built

are being designed for combat purposes.

EVIDENCE BAYLOR BRIEFS 88

172. Angelle Smith, (J.D. George Washington U. Law School), GEORGEWASHINGTON INTERNATIONAL LAW REVIEW, 2010, 651. Forget

the Cold War; the really cold war is lurking. The looming debate over the

natural resources in the Arctic is primed to explode. The glacial Arcticwaters that harbored U.S. and Soviet submarines during the Cold War may

prove to be a battleground again if nothing is done to determine who has

jurisdiction over the vast mineral deposits in the Arctic. Allocation of

mineral rights in the Arctic is becoming increasingly important as globalwarming eases access to the area, the global demand for energy continues to

rise, and advances in technology make extraction of these minerals possible.

The harmonization of these three factors, coupled with competing

international claims to the Arctic's continental shelf, may yield a dispute ofepic proportions to conclusively determine which nation, or nations, has the

best claim to the untapped natural resources beneath the Arctic seabed.

173. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 17. Fourth, accessionwould ensure our ability to reap the benefits, again as the Secretary has

pointed out, of the opening of the Arctic. Joining the Convention wouldmaximize international recognition and acceptance of our substantial

Extended Continental Shelf claims in the Arctic. And, as again pointed out,

we are the only Arctic nation that is not a party to this Convention. Moreimportantly, from our navigation and military point of view, accession

would secure our freedom of navigation, our freedom of overflight rightsthroughout the Arctic. And it would strengthen the freedom of navigation

arguments with respect to the northern sea route in the Northwest Passage.

174. Lisa Murkowski, (U.S. Senator, Alaska), THE LAW OF THE SEA

CONVENTION: US ACCESSION AND GLOBALIZATION, 2012, 22.

According to the US Arctic Research Commission, if the United Stateswere to become a party to the treaty, we could lay claim to an area in the

Arctic of about 450,000 square kilometers — or approximately the size of

California.

175. James Kraska, (Prof., International Law, U.S. Naval War College),

ILSA JOURNAL OF INTERNATIONAL & COMPARATIVE LAW,

Winter 2010, 522. Russia can project great military power in the Northern

Pacific Ocean, the Baltic Sea, the Mediterranean and Black Seas, and soon

— the Arctic Ocean. Reconciling a powerful Russia into a peaceful and

liberal European order will take deft diplomacy, and some new approaches

to find common ground. Just as George Kennan predicted that a patient,

long-term containment would serve as a bulwark against an irascible Soviet

Union, persistent promotion of the rule of law in international diplomacy

can help to integrate Russia into the community of nations — and perhaps

into the community of democracies.

176. James Kraska, (Prof., International Law, U.S. Naval War College),

ILSA JOURNAL OF INTERNATIONAL & COMPARATIVE LAW,

Winter 2010, 522. Russia will not be satisfied being a junior partner. At the

same time that Russia's national power is cast into question, with adeteriorating stable of human capital, a "robber baron" feudal economy, and

an uneven military force, we are witnessing an explosion of Russiancapabilities and presence in all spheres of Arctic power. Moscow's

preponderance of Arctic power — geographic, demographic, military, and

economic — makes it more comfortable in negotiating about the Arctic than

it is about most other issues. That same power also makes it imperative forall seven other Arctic and Arctic-associated nations to work more closely

with Moscow to avoid conflict and ensure prosperity in the High North. Asa superpower and ally or friend of all of the remaining Arctic states, the

United States could play a more constructive role in integrating Russia into

a stable new political order in the Arctic Ocean.

177. Lisa Murkowski, (U.S. Senator, Alaska), CHRISTIAN SCIENCE

MONITOR, June 28, 2013. Retrieved Apr. 9, 2014 from Nexis. Parties to

the treaty can also lay claim to an extended area out to 350 nautical miles. Ifthe US Senate were to ratify the treaty – and the US is the only Arcticnation that has not ratified – America could lay claim to an area of the

Arctic twice the size of California. Ownership in the Arctic is becomingincreasingly important as more and more nations look to the region to meet

their energy and economic needs, and as a viable shipping route.

178. Sara Dresser, (J.D. Southwestern Law School), SOUTHWESTERN

JOURNAL OF INTERNATIONAL LAW, 2010, 520-521. Under Article

56, states that have ratified UNCLOS may, to the exclusion of others,

explore and exploit the natural resources located within a 200-nautical mile

exclusive economic zone (EEZ). Additionally, Article 76 grants statesexclusive jurisdiction over areas beyond their EEZ if they can prove that the

underwater continental shelf constitutes the "natural prolongation" of their

territorial landmass. Successfully establishing these underwater boundaries

means that an Arctic state would have access to an even larger area of theArctic Ocean – and all of the natural resources buried beneath the ice.

179. Leon Panetta, (U.S. Secretary of Defense), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 20. Fourth, accessionwould ensure our ability to reap the benefits of the opening of the Arctic—aregion of increasingly important maritime security and economic interest.

We already see countries testing new shipping routes and exploring for

natural resources as Arctic ice cover recedes. Joining the Convention would

maximize international recognition and acceptance of our substantial

Extended Continental Shelf claims in the Arctic. As we are the only Arcticnation that is not a party to the Convention, we are at a serious disadvantage

in this respect. Accession would also secure our navigation and overflightrights throughout the Arctic, and strengthen our arguments for freedom ofnavigation through the Northwest Passage and Northern Sea Route.

180. Daniel Chiras, (Prof., Ecology, Colorado College), NATURAL

RESOURCE CONSERVATION: MANAGEMENT FOR A

SUSTAINABLE FUTURE, 2010, 295. Even remote islands are not

immune from an accumulation of plastic and other litter. The Ducie Atoll inthe South Pacific, an uninhabited island 300 miles from the nearest

inhabited island and 3,000 miles from the nearest continent, was found

littered with human trash in 1991. In a 2.4-kilometer (1.5-mile) stretch of

beach, 950 miscellaneous pieces of trash were collected, much of it plastic.

Although seemingly harmless, such materials kill 1 million to 2 million

seabirds and more than 100,000 whales, porpoises, and seals every year,

according to Greenpeace.

181. Alex Steffen, (Journalist & Editor, Worldchanging.org),

WORLDCHANGING: A USER’S GUIDE FOR THE 21ST CENTURY,

2011, 508. The vast dead zones now spreading out from our coastlinesappear to be largely the result of the rivers of chemicals, fertilizer runoff,

and sewage we've been pouring into the sea for decades. The mountains of

more solid and buoyant waste (like household garbage) that manycommunities still dump directly into the nearest ocean are accumulating in

shocking volumes—the infamous Pacific garbage patch is now the size of

the state of Texas—and degrading with unknown results.

182. Daniel Chiras, (Prof., Ecology, Colorado College), NATURAL

RESOURCE CONSERVATION: MANAGEMENT FOR A

SUSTAINABLE FUTURE, 2010, 295. The sources of these lethal plastic

pollutants are many. Every industrialized society lives in a plastic world.

Manufacturers in the United States alone annually produce more than 6million metric tons of plastic. Some of this plastic is discarded into streamsby humans and then carried downstream to the ocean or dumped directly

into the ocean from fishing boats and other commercial or recreationalvessels or from garbage barges. The National Academy of Sciences once

reported that more than 5 million plastic containers are tossed overboard

from oceangoing vessels every day.

183. Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting),

THE ATLAS OF COASTS & OCEANS: ECOSYSTEMS, THREATENED

RESOURCES, MARINE CONSERVATION, 2011, 15. The result is a

toxic cocktail of untreated sewage and municipal wastes, chemical pollutionfrom industries and oxygen-depleting agricultural chemicals, such as

nitrogen and phosphorus pulled off farmlands and washed into coastal

waters by rivers and streams.

184. Greenpeace International, OCEANS IN THE BALANCE: THE CRISISFACING OUR WATERS, 2013, 3. Pollution is widespread throughout our

oceans. All sorts of human-generated pollutants are degrading the marine

environment, including those discharged from factories on land, pesticides and

nutrients from agriculture, sewage, plastics, toxic chemicals and oil resulting

from spills, and even radioactive discharges from nuclear power stations

situated near the coast.

185. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

18. Since the middle of the 20th century, hundreds of millions of tons ofocean wildlife have been removed from the sea, while hundreds of millions

of tons of wastes have been poured into it.

186. Daniel Chiras, (Prof., Ecology, Colorado College), NATURAL

RESOURCE CONSERVATION: MANAGEMENT FOR A

SUSTAINABLE FUTURE, 2010, 295-296. The amount of plastic floating

and bobbing on the global seas will certainly increase. After all, populationcontinues to grow, and therefore so will demand for products. Commercial

fishers lose more than 136,000 metric tons of plastic lines and nets

annually. In the North Pacific alone, fishermen set out more than 32,000

kilometers (20,000 miles) of plastic nets nightly. Within a year, more than

4,800 kilometers (3,000 miles) of netting is lost, forming a considerablethreat to marine life.

187. Philip Mladenov, (Dir., Seven Seas Consulting & Former Prof.,

Marine Sciences, U. Alago, New Zealand), MARINE BIOLOGY: A VERY

SHORT INTRODUCTION, 2013, 57. Plastic debris is thus now common

everywhere in the oceans—floating on the surface, accumulating on the

seafloor at all depths, and littering all coasts. In the oceans some plasticmaterials, such as polystyrene, are broken up by wave action into smallerfragments, and can eventually become tiny (<5 mm) 'microplastic'

fragments, sometimes called mermaid's tears, that accumulate in marine

sediments or remain suspended in seawater.

EVIDENCE BAYLOR BRIEFS 89

188. Philip Mladenov, (Dir., Seven Seas Consulting & Former Prof.,

Marine Sciences, U. Alago, New Zealand), MARINE BIOLOGY: A VERY

SHORT INTRODUCTION, 2013, 58. Levels of floating plastic debris have

been quantified using visual surveys from ships and show that floatingplastic objects are present in significant quantities in all oceans and areparticularly common in coastal waters. For example, anywhere from ten tomore than a hundred pieces of floating plastic per square kilometre have

been recorded in the English Channel. Enormous amounts of plastic are

present in the oceanic gyre systems of the Global Ocean which, on account

of their circular motion, tend to trap and accumulate floating debris.

189. Rosemary Rayfuse, (Prof., Law, U. of New South Wales), THE

FUTURE OF INTERNATIONAL ENVIRONMENTAL LAW, 2010, 203.

The LOSC, itself, imposes a number of restrictions on the exercise of high

seas freedoms, including the general conditions that they be exercised for

peaceful purposes and with due regard for the interests of other states.

However, it also imposes a number of specific restrictions including the

duties to protect and preserve the marine environment, to conserve marine

living resources, and to cooperate for these purposes.

190. Stathis Palassis, (Prof., Law, U. of Technology, Australia), CLIMATE

CHANGE AND THE OCEANS: GAUGING THE LEGAL AND POLICY

CURRENTS IN THE ASIA PACIFIC AND BEYOND, 2012, 207. The

LOSC directs States to act through the competent international

organization, or general diplomatic conference, in establishing international

rules and standards to prevent, reduce and control pollution of the marine

environment from ships.

191. Philippe Sands, (Prof., Law, University College, London),

PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW, 2012,

349-350. The 1982 UNCLOS aims to establish 'a legal order for the seas

and oceans which will facilitate international communication, and will

promote the peaceful uses of the seas and oceans, the equitable and efficient

utilization of their resources, the conservation of their living resources, and

the study, protection and preservation of the marine environment'. It is oneof the most far-reaching and influential of global environmental

agreements, and is now widely supported, with 161 parties.

192. Philippe Sands, (Prof., Law, University College, London),

PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW, 2012,

366. UNCLOS requires states to adopt laws and regulations to prevent,

reduce and control dumping, which laws may not be less effective thanglobal rules and standards, and to establish global and regional rules,

standards and recommended practices and procedures. In general, dumpingin accordance with such laws and regulations must not be carried out

without the permission of the relevant state authority, and dumping within

the territorial sea and the EEZ or on the continental shelf must not be

carried out without the express prior approval of the coastal state after due

consideration of the matter with states which may be adversely affected.

193. Philippe Sands, (Prof., Law, University College, London),

PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW, 2012,

375. The 1992 OSPAR Convention has as one of its central objectives the

prevention and elimination of pollution from land-based sources, includingaccidents. It replaces the 1974 Convention for the Prevention of Marine

Pollution from Land-Based Sources (1974 Paris Convention). The 1974

Paris Convention covered pollution caused through watercourses, from thecoast, from man-made structures and, after the 1986 amendment of the

Convention, also from emissions into the atmosphere from land or fromman-made structures.

194. Philippe Sands, (Prof., Law, University College, London),

PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW, 2012,

380. Under Article 211 of UNCLOS, states must establish international

rules and standards to prevent, reduce and control pollution of the marine

environment from vessels, and adopt routing systems to minimise the threat

of accidents that might cause such pollution. They must also adopt nationallaws for vessels flying their flag or of their registry which 'at least have thesame effect as that of generally accepted international rules and standards'.

This commits all states to ensuring that their national law complies with, ata minimum, standards generally accepted under international laws.

195. Brooke Glass-O’Shea, (Prof., Law, Haramaya U., Ethiopia), WESTNORTHWEST

JOURNAL OF ENVIRONMENTAL LAW & POLICY,

Summer 2011, 195. Thirty years in the making, the United Nations

Convention on the Law of the Sea ("UNCLOS") finally emerged in 1982

and took an additional twelve years to enter into force. Because of the

Convention's broad sweep, it has been called "a "constitution' for the

oceans" and "the overarching instrument of the oceans law pantheon."

Probably the most noteworthy result of UNCLOS is its resolution of the

age-old debate over ocean jurisdiction. Under UNCLOS, coastal states'

sovereignty extends for an area of 12 nautical miles from shore, a region

called "the territorial sea." Each coastal state also has jurisdiction over thearea from its coast to 200 nautical miles out to sea, called the Exclusive

Economic Zone ("EEZ"). The expansion of state control over the area of the

EEZ can be seen as a conservation incentive, in that states are more likely tocreate and enforce laws to protect resources that they "own."

196. Nong Hong, (Visiting Fellow, Center of Oceans Law and Policy, U.

Virginia), UNCLOS AND OCEAN DISPUTE SETTLEMENT: LAW ANDPOLITICS IN THE SOUTH CHINA SEA, 2012, 239. UNCLOS providesan integrated legal framework on which to build sound and effective

regulations for the different uses of the ocean. Whether or not we choose to

call the UNCLOS regime a constitution for the ocean, it does articulate a

system of ocean governance. It does not specify in detail when and how

fishers can harvest living resources in the EEZs of coastal states or what theterms of leases for deep seabed mining will be. What it does do, however, is

to create procedures for arriving at collective decisions about such matters.'

This is precisely what we expect a constitution or constitutive agreementabout governance to do.

197. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, June 8, 2011, 10. If the United States became an

UNCLOS member, it would effectively be agreeing to transfer to the

International Seabed Authority a considerable portion of the royalties

generated on the U.S. ECS that would otherwise be deposited in the U.S.

Treasury for the benefit of the American people. Assuming that the royalty

rate on the U.S. ECS is set at 12.5 percent, the U.S. would be required to

transfer more than half of its royalty revenue to the Authority beginning inthe twelfth year of production until production ends. Given that ECS

resources "may be worth many billions if not trillions of dollars," the U.S.

would be obligated to pay substantial international royalties to theAuthority.

198. James Carafano, (Analyst, Heritage Foundation), THE POLITICS OF

THE OCEANS, 2011, 26. Perhaps, the most serious concern is that the

president will just use LOST as another excuse to gut the armed forces.

After all, why maintain a powerful navy when we have a treaty to ensurefreedom of the seas? If START can replace America's nuclear deterrent,

why couldn't LOST substitute for carriers and submarines?

199. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 59. Without radical changes in ocean

governance international conflicts over undersea resources and cultural

heritage are likely to develop. We are only now seeing the faint beginnings.

200. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 49. Marine salvage law dates back toRoman law and encapsulates the idea that if a ship and its contents arerescued from peril by a salvor (who is not the owner) then the salvor shouldbe entitled to fair compensation. While there is broad international

agreement on this basic principle there are some variations of detail in thelaws of different nations. Disagreement exists over whether salvage laws

should apply to ancient wrecks or other items of underwater cultural

heritage.

201. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 52. Should the nation that has jurisdiction

over the sea where the wreck is found gain from the discoveries, or the

nation who originally owned the vessel? Since the Law of the Sea allows

coastal states to claim 200 nautical miles from their coast as an EEZ, it

would seem to follow that such states should have ownership rights over

cultural heritage items in those waters. The Law of the Sea is in fact

confusing and contradictory on this issue.

202. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, June 8, 2011, 1. If the U.S. becomes a member of the

United Nations Convention on the Law of the Sea, it will be required to

transfer a large portion of the royalties generated on the U.S. extended

continental shelf to the International Seabed Authority. These royalties

could likely total tens or even hundreds of billions of dollars. The Authority

may then distribute those funds to developing and landlocked nations,

including some that are corrupt, undemocratic, or even state sponsors ofterrorism. Instead of diverting U.S. revenues to such dubious purposes, the

U.S. government should retain any wealth derived from the U.S. extended

continental shelf for the benefit of the American people.

203. Steven Groves, (Fellow, Heritage Foundation), THE LAW OF THE

SEA CONVENTION: US ACCESSION AND GLOBALIZATION, 2012,

110. Specifically, Article 82 would require the United States to make

royalty payments for the exploitation of mineral resources on the ECS, up toseven percent of the value of the production of resources such as oil and

natural gas would be paid by the United States to the International SeabedAuthority, which would then redistribute the funds to other members ofUNCLOS, particularly to developing countries and landlocked nations.

204. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, Mar. 12, 2012, 1. However, if the United States

accedes to UNCLOS, thereby reversing a 30-year policy of remaining

outside of the convention, the U.S. would be exposed to climate change

lawsuits and other environmental actions brought against it by other

members of the convention. The economic and political ramifications of

such lawsuits would be dire.

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205. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, Mar. 12, 2012, 5. Acceding to UNCLOS would

expose the U.S. to lawsuits on virtually any maritime activity, such as

alleged pollution of the marine environment from a land-based source oreven through the atmosphere. Regardless of the case's merits, the U.S.

would be forced to defend itself against every such lawsuit at great expense

to U.S. taxpayers. Any judgment rendered by an UNCLOS tribunal wouldbe final, could not be appealed, and would be enforceable in U.S. territory.

206. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, Mar. 12, 2012, 1. Certain UNCLOS states parties,

with the support and encouragement of environmental activists and

international legal academics, are actively exploring the potential of using

international litigation against the United States to advance their climatechange agenda.

207. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, Mar. 12, 2012, 18. Thus far, the United States has

denied potential climate change claimants their day in international court by

withdrawing from compulsory ICJ jurisdiction and by refusing to accede to

UNCLOS. Clearly, accession to the convention would open the door tothese litigants as well as to their advocates in the international academic,

environmental, and nongovernmental organization communities.

208. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, Mar. 12, 2012, 20. In sum, by acceding to UNCLOS

the United States would unnecessarily expose itself to baseless

environmental lawsuits, including a claim that its GHG emissions have

caused harm to other nations. Because of its membership in the convention,

the U.S. could be compelled to appear before a tribunal to defend itself inany such lawsuit. International courts and tribunals, including those created

by UNCLOS, have not hesitated to assert jurisdiction and pass judgment incontroversial social, political, and environmental lawsuits. The judgment of

an UNCLOS tribunal in a climate change lawsuit would be final,

unappealable, and enforceable in the United States.

209. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, Mar. 12, 2012, 24. In addition to needlessly exposingitself to baseless environmental lawsuits, the United States would be

required to transfer billions of dollars in oil and gas royalties generated on

its continental shelf to the International Seabed Authority for redistributionto the developing world. However, the loss of those royalties pales in

comparison to the potential costs of a climate change judgment by an

UNCLOS tribunal against the United States. Some UNCLOS states parties,

particularly small island nations that view climate change as an existentialthreat, are poised to sue major greenhouse gas emitters, particularly theUnited States, in international court. A climate change lawsuit would beencouraged, promoted, and funded by willing international academics,

nongovernmental organizations, and climate activists such as Greenpeace

and the Natural Resources Defense Council.

210. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, Mar. 12, 2012, 26. The proponents of anthropogenic

climate change—including small island states, low-lying coastal nations,

environmental activists, and international legal academics—already possessthe means and motive to initiate a climate change lawsuit against the United

States but currently lack the opportunity to do so. Accession to UNCLOS

would open that door.

211. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, Mar. 12, 2012, 6. UNCLOS's provisions forprotecting the marine environment are stunning in their breadth and depth.

Its definition of "pollution of the marine environment" appears to ban any

activity that could have even a minimal environmental impact on the

world's oceans: "[P]ollution of the marine environment" means the

introduction by man, directly or indirectly, of substances or energy into the

marine environment, including estuaries, which results or is likely to result

in such deleterious effects as harm to living resources and marine life,

hazards to human health, hindrance to marine activities, including fishing

and other legitimate uses of the sea, impairment of quality for use of seawater and reduction of amenities.

212. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, June 8, 2011, 11. If the United States joined

UNCLOS, it would be one of more than 160 nations that are party to the

convention and would have limited control over the disposition of Article

82 revenue. All final decisions on the "equitable sharing of . . . payments

and contributions made pursuant to article 82" are made by the Assembly,

the "supreme organ" of the Authority. The Assembly consists of all nations

that are party to UNCLOS. The United States would have only one vote in

any Assembly decision, whether it dealt with Article 82 revenue or someother matter. (ellipsis in original)

213. Steven Groves, (Sr. Research Fellow, HERITAGE

BACKGROUNDER, June 8, 2011, 13. UNCLOS proponents are prepared

to transfer a great deal of wealth—perhaps tens or even hundreds of billionsof dollars of royalty revenue over time—to an international organization

over which the United States has only limited authority. The ultimatebeneficiaries of that wealth could easily include corrupt and despotic

regimes and state sponsors of terrorism.

214. Quirin Schiermeier, (Editor, Nature), GLOBAL CLIMATE CHANGE,

2013, 163. States have used the 1982 UN Convention on the Law of the Sea

(UNCLOS)—even though the United States never ratified it—as a legal

basis for settling maritime boundary disputes and enacting safety standardsfor commercial shipping. And in 2008, the five states with Arctic coasts—

Canada, Denmark, Norway, Russia, and the United States—issued the

Ilulissat Declaration, in which they promised to settle their overlapping

claims in an orderly manner and expressed their support for UNCLOS andthe Arctic Council, the two international institutions most relevant to the

region.

215. Quirin Schiermeier, (Editor, Nature), GLOBAL CLIMATE CHANGE,

2013, 163. While Arctic warming is a fait accompli, it should not be taken

as a license to recklessly plunder a sensitive environment. If developed

responsibly, however, the Arctic's bounty could be of enormous benefit to

the region's inhabitants and to the economies that surround it. That's why all

the Arctic countries need to continue their cooperation and get to workestablishing a shared vision of sustainable development, and why the UnitedStates in particular needs to start treating the region as an economic and

foreign policy priority, as China is. Like it or not, the Arctic is open forbusiness, and governments and investors have every reason to get in on the

ground floor.

216. Sara Dresser, (J.D. Southwestern Law School), SOUTHWESTERN

JOURNAL OF INTERNATIONAL LAW, 2010, 545. The Arctic Council

remains the only intergovernmental forum dedicated solely to Arctic issues.

As a result, many commentators believe that some of the gaps identified in

the existing regime can be addressed by strengthening the Arctic Council.

For example, in March 2009, the Russian Minister of Foreign Affairs Sergei

Lavrov reaffirmed his belief in the Arctic Council: "All problems in theArctic, including climate change and reducing ice cover, can successfully be

considered and resolved within specially created organizations such as the

Arctic Council."

217. Melissa Pegna, (Master’s Candidate, Bush School of Government,

Texas A&M U.), JOURNAL OF MARITIME LAW & COMMERCE, Apr.

2013, 173. In 1996. the Ottawa Declaration formally established the Arctic

Council as a high-level intergovernmental forum to provide a means forpromoting cooperation, coordination and interaction among the Arctic

States, with the involvement of the Arctic Indigenous communities and

other Arctic inhabitants on common Arctic issues; in particular, issues ofsustainable development and environmental protection in the Arctic. The

formal member states include the U.S., Canada, Denmark (including the

Faroe Islands and Greenland), Finland, Iceland, Norway, Sweden and the

Russian Federation.

218. Paul Berkman, (Dir., Arctic Ocean Program, Polar Research Institute,

U. Cambridge), ENVIRONMENTAL SECURITY IN THE ARCTIC

OCEAN, 2010, 110. The Arctic Ocean is surrounded by five coastal states

that have stewardship responsibilities in this globally relevant region. Thereis co-operation among diverse organisations to assess the complexities of

the natural system, human impacts and opportunities emerging from theenvironmental state-change in the Arctic Ocean. There also is commitmentto the law of the sea as the umbrella framework to address international

interactions in the Arctic Ocean.

219. Sara Dresser, (J.D. Southwestern Law School), SOUTHWESTERN

JOURNAL OF INTERNATIONAL LAW, 2010, 518. The Arctic Council

has achieved modest success since its establishment. Through its variousWorking Groups, the Arctic Council has produced an impressive body ofreports and assessments regarding various Arctic issues. Using thepersuasive weight of information, the Arctic Council has gained the

attention of key policymakers, shaped Arctic agendas, inspired additional

regional cooperation, and promoted Arctic interests during international

discussions and negotiations.

220. Timo Koivurova, (Prof., Law, U. Lapland), THE FUTURE OF

INTERNATIONAL ENVIRONMENTAL LAW, 2010, 181. After two

additional preparatory meetings — in Yellowknife, Canada, and Kiruna,

Sweden — the eight Arctic states, as well as other actors, met again in

Rovaniemi in 1991 to sign the Rovaniemi Declaration, by which they

adopted the Arctic Environmental Protection Strategy (AEPS). The AEPS

identified six priority environmental problems facing the Arctic: persistent

organic contaminants, radioactivity, heavy metals, noise, acidification andoil pollution. It also outlined the international environmental protection

treaties that apply in the region and, finally, specified actions to counter the

environmental threats.

221. Timo Koivurova, (Prof., Law, U. Lapland), THE FUTURE OF

INTERNATIONAL ENVIRONMENTAL LAW, 2010, 181. The eightArctic states established four environmental protection working groups:

Conservation of Arctic Flora and Fauna (CAFF), Protection of the Arctic

Marine Environment (PAME), Emergency Prevention, Preparedness and

Response (EPPR) and the Arctic Monitoring and Assessment Programme(AMAP). After the signing of the Rovaniemi Declaration and the AEPS,

three ministerial meetings were held in this first phase of Arcticcooperation, generally referred to as the AEPS process.

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222. Timo Koivurova, (Prof., Law, U. Lapland), THE FUTURE OF

INTERNATIONAL ENVIRONMENTAL LAW, 2010, 181. The Arctic

Council was established in September 1996 in Ottawa, Canada, where the

Arctic states signed the Declaration on the Establishment of the Arctic

Council and issued a joint communiqué to explain the newly created body.

With the founding of the Council came changes in the forms of Arctic

cooperation that had been based on the AEPS document, changes that

extended the terms of reference beyond the previous focus on

environmental protection. The Council was empowered to deal with

"common Arctic issues, in particular issues of sustainable development and

environmental protection in the Arctic". This yielded a very broad mandate,

since "common issues" can include almost any international policy issue;

however, the Declaration provides in a footnote that "the Arctic Council

should not deal with matters related to military security".

223. James Kraska, (Prof., International Law, U.S. Naval War College),

ILSA JOURNAL OF INTERNATIONAL & COMPARATIVE LAW,

Winter 2010, 526-527. In neither case, however, is it clear that U.S. allies

have a stronger legal claim than that of Russia. Washington should avoid

being drawn into the squabbles by refraining from automatically supporting

Ottawa and Oslo. It is wrong to assume that the Russian Federation is overreaching

in either case; in fact, the contrary is true, as Russia has colorableclaims to an extended continental shelf that very well may extend to theNorth Pole by way of the Lomonosov Ridge, and a purely textual analysisof the Svalbard Treaty suggests Norway is not entitled to an economic zone

or special fishing zone surrounding Spitsbergen.

224. Melissa Pegna, (Master’s Candidate, Bush School of Government,

Texas A&M U.), JOURNAL OF MARITIME LAW & COMMERCE, Apr.

2013, 179. In 2008, the Russian foreign policy stance changed from the

aggressive outlook for Arctic issues taken in 2001, to a more engaged toneas set forth in the recent "2020 Strategy and Beyond." Dr. Katarzyna Zyskfrom the Norwegian Institute for Defense Studies analyzed the recent

change in Russian Arctic strategy and policy. She remarks that the RussianFederation recognizes that the Arctic is of great importance to the economic

and national security interests of the Russian state. In an effort to win therace in Arctic claims, Russia filed its UNCLOS claim six years beforeCanada. Despite this move, UNCLOS returned the claim, stating that therewas not enough scientific proof and that the claim required revision. Russia

anticipates submitting another claim for a delineated Russian extended

continental shelf and its measurements by 2013. In addition, the 2020

strategy focuses on the increased investment and modernization of ports,

extraction development of natural resources, and the Russian claim of theNorth Sea Route.

225. Melissa Pegna, (Master’s Candidate, Bush School of Government,

Texas A&M U.), JOURNAL OF MARITIME LAW & COMMERCE, Apr.

2013, 189. As the Kremlin has begun to realize that increased investment inRussia's oil production infrastructure is sorely needed, "Exxon Mobil and

the Russian state oil company Rosneft recently signed a strategic agreement

. . . that will open American domestic oil and gas fields to Russian

investment for the first time. (ellipsis in original)

226. James Kraska, (Prof., International Law, U.S. Naval War College),

ILSA JOURNAL OF INTERNATIONAL & COMPARATIVE LAW,

Winter 2010, 531. Despite the relentless media frenzy over a privateRussian miniature submarine planting a flag on the seabed of the North

Pole, Russia is not making irresponsible claims to the seabed. Under theLaw of the Sea Convention coastal nations may claim sovereignty over the

resources of an extended continental shelf, but not the water column above

it, by submitting convincing bathymetric and geologic data to an

international commission that shows the seabed is a natural extension of the

geographic continental margin.

227. Mike Blanchfield, (Staff), PRINCE GEORGE CITIZEN, Mar. 15,

2014, A13. Prime Minister Stephen Harper and Canada's allies in the G7

and NATO may have ostracized Russia over its occupation of the Crimean

Peninsula, but at the Arctic Council, it appears to be business as usual, atleast for now. Canadian officials say Russia will be at the table later this

month when the eight-country council next meets, even as tensions in

Ukraine continue to simmer. Canada is the rotating chair of the council and

all countries appear to want to deal with the boundary, economic andresource issues that are at the heart of the alliance's work in the Far North.

228. Vesa Virtanen, (Fellow, Weatherhead Center for International Affairs,

Harvard U.), THE ARCTIC IN WORLD POLITICS, 2013, 49. Russia has

technical problems, however, standing in its way of utilizing the new oil

and gas fields. Russia has not previously extracted its huge oil and natural

gas reservoirs from tight rocks because it has other fields that are easier totap. Only two Russian companies, Gasprom and Rosneft, are allowed toutilize the off-shore resources, and these two companies alone cannot take

enough energy from the Arctic to fully realize the potential of the region.

This is why Russia needs help from foreign companies; otherwise it cannot

meet the demand it has in energy. This dilemma could make Russia's

authorities warm up to foreign investors, which could be a gateway for

cooperation internationally.

229. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 36. Leaks and spills of crude oil can occur

during offshore operations. A blowout is where the well flows

uncontrollably. It is sometimes possible to drill a relief well, but this is notso easy under the ice. In 1977 there was a blowout from the Bravo drilling

platform in the Norwegian North Sea. In this incident 12,700m3 of oil was

released into the sea.

230. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 37. Since there are problems with the

handling of drilling spills and wastes on land, how much more difficult is it

in the sea? And how much more difficult would it be under ice in the

Arctic, where there is darkness for a great deal of the year, extreme cold,

limited time for clean-up workers to operate safely, and dangerous sea

conditions? Enormous effort was put into addressing the Exxon Valdez spill

with 11,000 personnel, 1,400 vessels and 85 aircraft involved, and yet theimpacts are still being felt 20 years later.

231. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 37. The problems with pipelines breaking

down will be exacerbated by the melting of permafrost (frozen ground), one

of the consequences of climate change. At present permafrost supports the

pipelines. This breakdown in pipeline integrity is likely to lead to additionaloil spills, gas line ruptures and human exposure.

232. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 39. Animals don't need to be swimming inoil to be affected. Fur-bearing mammals such as polar bears and otters can

ingest it when grooming. Birds may inhale oil droplets or transfer oil fromthe surface to their incubating eggs. Humans may also inhale harmful gasesand oil compounds, or may be affected by skin contact and ingesting

contaminated food and water. A water reservoir was contaminated in Russia

after the large Komi pipeline leak in 1994. PAHs pose a cancer risk tohumans among a range of other health effects from minor irritations toneurological damage and death. After tanker spills PAHs are likely to

quickly enter the food chain, and may be stored in sediments where they are

slowly released into the food chain for decades.

233. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 39. I have already mentioned several

factors that show how dangerous marine oil drilling operations are in the

polar regions, but there are more. An oil spill in icy waters may becometrapped within the ice, affecting the marine organisms, birds and marine

mammals in the area. Dispersion and weathering of the oil will be slowed

down. In cold waters oil spreads more slowly than in warmer waters

resulting in lower rates of dissolution, slowing down weathering.

234. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 39. With all these dangers one would hope

that response teams are ready in case of a spill. This is not the case. I havealready mentioned Russia's lack of preparedness but the problem is broader.

The Arctic Council report notes that ‘Oil spill response in the Arctic will

always be a challenge due to its remoteness, the severe environmental

conditions, a limited logistical infrastructure and inadequate technology foreffective oil spill clean-up in Arctic conditions particularly for oil spilled inor under sea-ice.’

235. Layer Mayer, (Dir., Center for Coastal Mapping, U. New Hampshire),

THE LAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 519. One of the most effective processes in

mitigating some of the impacts of the Deepwater Horizon oil spill was the

abundance of bacteria capable of biodegradation of oil. The cold

temperatures of the Arctic, however, create an environment where spilledoil will be more viscous and where natural biodegradation processes aremost likely much slower than in the relatively warmer waters of the Gulf of

Mexico.

236. Layer Mayer, (Dir., Center for Coastal Mapping, U. New Hampshire),

THE LAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 519. In addition to the environmental factors

that would inhibit the response to an oil spill in the Arctic, the infrastructureavailable to respond to a spill in the Arctic is virtually non-existent

compared to the infrastructure that was available in the Gulf of Mexico

when the Deepwater Horizon platform exploded. The largest community in

proximity to the Chukchi Sea is Barrow, with a population of less than5,000 people and no oil response infrastructure. The nearest Coast Guard

base is about 1,000 miles from the Chukchi area and at present the U.S.

Coast Guard has only one icebreaker, operating seasonally, in the Arctic

(the USCG Cutter Healy).

EVIDENCE BAYLOR BRIEFS 92

237. Layer Mayer, (Dir., Center for Coastal Mapping, U. New Hampshire),

THE LAW OF THE SEA CONVENTION: US ACCESSION AND

GLOBALIZATION, 2012, 519. As catastrophic as the Deepwater Horizonspill was, a major spill in the Arctic has the potential to be much worse,

impacting one of the most fragile environments on the planet. In addition,

depending on where the spill occurred, the counterclockwise flow of the

Arctic Ocean Boundary Current would likely spread the spill and impact

neighboring coastal States. Given this potential for environmental disaster

on an international scale, we must ask if there is a regulatory framework

that can address these concerns (as well as those associated with the

Deepwater Horizon and other events like it).

238. Rosemary Ahtuagaruak, (Council Member, Alaska Inter-Tribal

Council), ARCTIC VOICES: RESISTANCE AT THE TIPPING POINT,

2012, 306. The ice is moving. Nine months after a spill, the oil would have

traveled three hundred to five hundred miles. A requirement for drilling in

the Arctic mandates that the US Coast Guard be responsible to oversee spill

response. But there is no Coast Guard operation in the Arctic. They don't

have any boats up here. There are 28o people living in Kaktovik. There

were 23,000 people who worked on cleaning up the Deepwater Horizon oil

spill in the Gulf of Mexico. We couldn't accommodate that many peoplehere. Shell Oil's response: The Coast Guard is not needed; they do not doclean up anyway. To have Shell Oil responsible for cleanup oversight is notacceptable. On the honor system? Not acceptable to us. Shell is a for-profitcorporation; its interests are not the same as ours.

239. Rosemary Ahtuagaruak, (Council Member, Alaska Inter-Tribal

Council), ARCTIC VOICES: RESISTANCE AT THE TIPPING POINT,

2012, 304. Oil companies do not have the technology to clean up oil in the

Arctic Ocean. We have asked very basic questions, but we, the indigenous

people, were not given the respect of having our concerns addressed. In

public meetings in Kaktovik, I have repeatedly asked the Mineral

Management Service and Shell this question: Can oil be cleaned up—fromon the ice, in the water, and under the ice in the Arctic Ocean? No one has

adequately answered this question in the affirmative. The president of ShellOil has not answered this question, our congressional delegation has not

answered this question, nor has the government of Alaska.

240. Rosemary Ahtuagaruak, (Council Member, Alaska Inter-Tribal

Council), ARCTIC VOICES: RESISTANCE AT THE TIPPING POINT,

2012, 318. The Arctic's extreme conditions and isolation make it nearlyimpossible to clean up an oil spill. All this is widely known, yet the federalgovernment is still allowing the oil industry to push forward with aggressive

drilling plans as if disasters like last year's Deepwater Horizon spill in the

Gulf of Mexico or the Exxon Valdez spill twenty-two years prior in PrinceWilliam Sound never happened. If it is allowed to happen in the Arctic, myhome, my culture, my people will be destroyed forever.

241. Bob Tkacz, (Staff, Fisherman’s News), CHANGES IN THE ARCTIC

ENVIRONMENT AND THE LAW OF THE SEA. 2010, 10. How long it

might take for oil spill clean-up equipment to arrive might not matter,

Brooks acknowledged indirectly. "We know what to do with oil on the

water. We have a lot of experience with mechanical collection and other

things on the water. There are some options for oil on ice, solid ice, getting

it, but broken ice is really, really tough," he said. Macko, the University ofVirginia scientist, was more direct. "We have no clear way of cleaning upan oil spill in the presence of large amounts of ice," he said.

242. Ed Struzik, (Researcher, Yale School of Forestry and EnvironmentalStudies), THE POLITICS OF THE OCEANS, 2011, 47. While the concept

has evolved, it has never been able to cut through the complexity of the

issues in the Arctic. The Antarctic Treaty, which went into effect in 1961,

covered an uninhabited continent (save for scientific bases) that was almost

entirely covered in ice. The Antarctic Treaty and ensuing protocols, signed

by nations representing 80 percent of the world's population, set aside the

southernmost continent as a scientific preserve. The treaty also bansmilitary activities and prohibits resource exploitation. Few international

agreements have worked as well.

243. Subhankar Banarjee, (Visiting Professor, Institute for Advanced Study,

Princeton U.), ARCTIC VOICES: RESISTANCE AT THE TIPPINGPOINT, 2012, 2-4. These days there is talk about ecological restoration,

including ecological corridors—to connect up landscapes that we

fragmented all through the nineteenth and twentieth centuries—fromYellowstone to Yukon; from Baja to Bering. In the Arctic, however, we are

going in reverse—severely fragmenting the ecocultural space with great

speed. There are resource wars—for oil, gas, coal, and minerals—

everywhere in the Arctic—from Alaska to Siberia, with Nunavut and

Greenland along the way. In Arctic Alaska, these wars have intensifiedsince I first arrived there more than a decade ago. I'd also note here that

Arctic Alaska resides in the most biologically diverse quadrant of the

circumpolar north.

244. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 37. Problems in transportation arise when

oil and gas are conveyed in tankers or over large land areas in the Arctic.

The Trans Alaska Pipeline System built in the 1970s moves oil north to

south over 1,300 kilometres. Corroded pipes have led to spills. However the

largest pipeline spill in Alaska occurred in 2006 from a corroded in-fieldpipeline when 760m3 of oil was released.

245. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 37. In Russia, the spillages from pipelines

are chronic: 'According to different sources the annual number of oil leaks

and spills from oil pipelines is of the order of several tens of thousands.'

This should be a cause of great concern given the projected future

expansion of Russian mining.

246. Fiona Harvey, (Staff), THE GUARDIAN, Nov. 19, 2013. Retrieved

Apr. 9, 2014 from Nexis. A serious oil spill in the Arctic is a "dead cert" if

drilling goes ahead, with potentially devastating consequences for the

pristine region, according to a leading marine scientist who played a key

role in analysis of BP's Deepwater Horizon oil spill. The warning came as

Russia filed court orders this week to have Greenpeace activists and

journalists kept in prison for a further three months in prison before theirtrial over a protest at Arctic oil drilling.

247. Fiona Harvey, (Staff), THE GUARDIAN, Nov. 19, 2013. Retrieved

Apr. 9, 2014 from Nexis. Simon Boxall, an oil spill expert from the

University of Southampton, told the Guardian exploring the region wasinherently dangerous: "It is inevitable you will get a spill – a dead cert. I

would expect to see a major spill in the not too distant future. I would be

astonished if you did not see a major spill from this." The conditions in the

Arctic would vastly compound the problem, he said. "It's a completely

different environment. In temperate climes, oil disperses quickly. Bacteria

help [to digest the oil]. In the Arctic the oil does not break down in this way

– it can take decades before it breaks down. Nature will not help us."

248. Sara Dresser, (J.D. Southwestern Law School), SOUTHWESTERN

JOURNAL OF INTERNATIONAL LAW, 2010, 510. The so-called "Race

to the Arctic" is resource rather than environmentally driven. Indeed, a 2008

report published by the U.S. Council on Foreign Affairs confirms that

additional oil drilling is inevitable: "It is no longer a matter of if, but when,

the Arctic Ocean will open to regular marine transportation and exploration

of its lucrative natural-resource deposits." However, regular shipment of oil

through the Arctic poses potentially disastrous consequences for the marine

environment. The Arctic's unique environmental conditions, such as the

presence of ice, low temperatures, and long periods of darkness, make

navigation especially difficult and dangerous. Those same factors also limit

the effectiveness of clean-up measures. And because the Arctic is

particularly vulnerable to pollution, the consequences of an accidental oilspill would be catastrophic and long-lasting.

249. Mark Lynas, (British Environmentalist), THE GOD SPECIES:

SAVING THE PLANET IN THE AGE OF HUMANS, 2011, 55. The

hottest year on record, according to NASA, is now tied between 2010 and

2005, with 2007 and 2009 statistically tied for second and third hottest.

Whatever the individual temperature records, the climatic baseline is visibly

shifting: Every year in the 1990s was warmer than the average of the 1980s,

every year of the 2000s warmer than the 1990s average.

250. David Blockstein, (Sr. Scientist, National Council for Science and the

Environment), CLIMATE SOLUTIONS CONSENSUS, 2010, 2. The starkevidence shows dramatic warming at the Earth's formerly ice-bound polarregions: disappearing glaciers in Greenland, dramatically shrinking ice in

the Arctic, melting permafrost, disintegrating ice sheets in the Antarctic,

shrinking habitat for penguins. The climate disruption signs are everywherefrom the tropics to the middle latitudes. Coral reefs are dying. Rain forests

are drying. Heat waves are more common. And rising sea levels threaten

island nations and shorelines everywhere.

251. Peter Kareiva, (Chief Scientist, Nature Conservancy),

CONSERVATION SCIENCE: BALANCING THE NEEDS OF PEOPLE

AND NATURE, 2011, 436-438. Climate records for the last 150 years

unambiguously reveal profound climate change. Over the course of the

twentieth century, mean global temperature rose approximately 0.74°C.

This rapid rate of climate warming appears to be unprecedented in the last22,000 years. The warming trend has caused sea level to rise by 1-2 cm per

decade over the past century because of both ice melt and the expansion of

water as it warms. Snow cover is also shrinking, and permafrost is meltingin northern regions. The number of days that northern lakes remain frozen isdeclining.

252. Robert Henson, (Analyst, National Center for Atmospheric Research),

THE ROUGH GUIDE TO CLIMATE CHANGE, 2011, 5. There is plenty

of uncertainty about details in the global-warming picture: exactly howmuch it will warm, the locations where rainfall will increase or decrease,

and so forth. Some of this uncertainty is due to the complexity of the

processes involved, and some of it is simply because we don't know howindividuals, corporations and governments will change their greenhouseemissions over time. But there's near-unanimous agreement that global

climate is already changing and that fossil fuels are at least partly to blame.

253. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 150. Such a dire outlook is difficult to accept, and somehave accused the IPCC reports of being overly “alarmist.” One way to

assess this is by checking whether earlier IPCC projections turned out to becorrect. With most projections starting in 1990, there is now a period of 18

years for which we can compare the model projections to what actually

happened. Carbon dioxide concentrations have increased very closely to

what was expected. Global temperatures have risen close to what was

projected in the second and third reports, well within the given uncertainty.

EVIDENCE BAYLOR BRIEFS 93

254. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 41. The decade 1996-2005 was 0.6 °C warmer than 19461955.

The overall rise since 1900 is 0.7 °C when expressed as a linear trend,

which understates somewhat the actual, non-linear increase. This warming

trend is greater than any experienced since at least the Middle Ages (the

eleventh century). Table 3.1 shows how the warming trend has acceleratedover time, from 0.05 °C per decade for the past 150 years to 0.18 °C perdecade over the past 25 years.

255. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 43. At the time of writing, the latest data show that 2007

and 2008 also ranked amongst the top 10 warmest years on record. Januaryand February 2008 turned out to be relatively cool (causing a flurry ofmisguided newspaper reports calling off global warming) due to

exceptionally widespread snow cover in parts of Asia and cool ocean

temperatures in the tropical Pacific (La Nina conditions). This brief coldsnap was one of those "random jitters" mentioned above. It was gone again

by March 2008, which ranked the second or third warmest March,

depending on the data set used. Above the global land masses, it even was

the warmest March since records began in the nineteenth century.

256. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 45. We've so far talked about surface measurements taken

at weather stations near the ground. But temperatures are also measured

higher up in the troposphere (the lowest 10-15 km of the atmosphere), byweather balloons and satellites. For years and until quite recently, "climateskeptics" claimed on their websites that there is no global warming, as the

satellites don't show any. This claim was wrong, but it was based on a realdiscrepancy between the surface measurements and those from satellites.

257. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 67. Measurements unequivocally show that we are in the

midst of an accelerating global warming: temperatures have increased on

global average by 0.8 °C since the late nineteenth century, and by 0.6 °Csince the 1970s. Almost all regions of the planet have warmed over the past

century. Both ocean and land areas have warmed, although since the 1970s

the land areas have been warming faster. The incidence of extremely hot

days is rising, while the number of extremely cold days is declining.

258. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 48-49. Temperatures are rising much faster in the Arctic

than elsewhere. Winter temperatures in the Arctic, including Alaska,

western Canada, and eastern Russia, have climbed by 4-7 degrees

Fahrenheit over the last half-century. This record rise in temperature in theArctic region could lead to changes in climate patterns that will affect the

entire planet.

259. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 46. As atmospheric carbon dioxide levels rise, we can

expect even higher temperatures in the future. The earth's averagetemperature has risen in each of the last four decades, with the increase in

the last decade being the largest. As a general matter, temperature rise is

projected to be greater in the higher latitudes than in equatorial regions,

greater over land than over the oceans, and greater in the interior of

continents than in coastal regions.

260. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 4-5. Global warmingskeptics still exist in large numbers, but the majority of people, perhaps

observing the increasingly obvious evidence from the natural world, accept

that rapid and unpredictable climate variations are happening around them.

Forests are more vulnerable to fire, storms are increasing in intensity, icepacks and tundra are melting, and drought is causing starvation in water-

stressed countries.

261. Peter Garretson, (Fellow, Council on Foreign Relations), SKY’S NOLIMIT: SPACE-BASED SOLAR POWER, 2010, 47-48. The Panel [IPCC]

has concluded that the fact of global warming is unequivocal and there is

enough evidence to indicate this is due to anthropogenic reasons. Although

some of these conclusions have been disputed, the assessment of the IPCC

represents a broad and growing consensus in the scientific community

worldwide. The current level of atmospheric CO2 is estimated as 379 parts

per million (ppm) compared with the preindustrial level of only 280 ppm….

climate change is noted in the IPCC assessment reports include recession of

glaciers, filed for permafrost, lengthening of mid-to high latitude growing

seasons, pull word and attitudinal shifts of plant and animal ranges, declinein some plants and animal populations, early flowering of trees, andchanges in insect populations and egg laying in birds… changes in the

severity and frequency of extreme heat and cold, and floods and droughts,

and local air pollution and aero allergens may result in changes in infectious

disease occurrence, and local food production and also cause under-

nutrition, leading to impaired shall development. There will also be health

consequences of population displacement and economic disruption. ForIndia, the risks of malaria in heat stress related mortality have beenprojected by IPCC. Increase in flooding and droughts are associated with

increased risk of drowning, diarrheal and respiratory diseases, and hunger

and malnutrition…”

262. Rick Bass, (Journalist), THE HEART OF THE MONSTER: WHY

THE PACIFIC NORTHWEST & NORTHERN ROCKIES MUST NOT

BECOME AN EXXONMOBIL CONDUIT TO THE ALBERTA TAR

SANDS, 2010, 25. The summer of 2010 was the hottest on record in some

parts of the world and the wettest in others. A tornado struck Brooklyn and

Queens, a flood in Pakistan killed 2000, deadly dispersants joined the rainson the Gulf Coast. And Governor Schweitzer's new friend, ExxonMobil,

while committing acts of climate warfare globally, has paid millions on

junk science and billions on lobbyists and campaign contributions, causing

U.S. lawmakers to lag a half century or so behind the rest of the world in

response to global warming.

263. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 46. Within the United States, numerous cities on the

East Coast suffered through the hottest June to August on record, including

New York, Philadelphia, and Washington. After a relatively cool summer in

Los Angeles, the temperature there on September 27th reached an all-timehigh of 113 degrees before the official thermometer broke. At a nearby site,

however, the thermometer survived to register 119 degrees, a record for the

region. What U.S. climate data show us is that as the earth has warmed,

record highs are now twice as likely as record lows.

264. Clive Hamilton, (Prof., Public Ethics, Center for Applied Philosophy,

Australian National U.), REQUIEM FOR A SPECIES: WHY WE RESISTTHE TRUTH ABOUT CLIMATE CHANGE, 2010, 190. What can we

expect, and when are we likely to feel the impacts of a changing climate?

Of course, the effects are already manifesting the world over. Droughts in

Africa and Australia, shifting seasons in England, heatwaves in France,

hurricanes in the Caribbean and sinking Pacific atolls have all been linked

to global warming.

265. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 46. The pattern of more-intense heat waves, more-

powerful storms, and more-destructive flooding is consistent with what

climate models project will happen as the earth's temperature rises. The

worst heat wave in Russian history and the worst flooding in Pakistan's

history are the kind of extreme events we can expect to see more of if we

continue with business as usual. James Hansen, the U.S. government'sleading climate scientist, asks, "Would these events have occurred if

atmospheric carbon dioxide had remained at its pre-industrial level of 280

ppm [parts per million]?" The answer, he says, is "almost certainly not."

266. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 5. On May 26, 2010, the official temperature in

Mohenjo-daro in south-central Pakistan reached 128 degrees Fahrenheit, a

record for Asia. Snow and glaciers in the western Himalayas, where thetributaries of the Indus River originate, were melting fast. As Pakistani

glaciologist M. Iqbal Khan noted, the glacial melt was already swelling the

flow of the Indus even before the rains came.

267. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 46. The number of record highs was itself a record,

topping the previous total of 15 set in 2007. When a site in south central

Pakistan hit 128 degrees Fahrenheit on May 26th, it set not only a new

national record, but also a new all-time high for Asia.

EVIDENCE BAYLOR BRIEFS 94

268. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 3-4. The average July temperature in Moscow was a

scarcely believable 14 degrees Fahrenheit above the norm. Twice during the

heat wave, the Moscow temperature exceeded 100 degrees Fahrenheit, alevel Muscovites had never before experienced. Watching the heat wave

play out over a seven-week period on the TV evening news, with the

thousands of fires and the smoke everywhere, was like watching a horrorfilm that had no end. Russia's 140 million people were in shock,

traumatized by what was happening to them and their country. The mostintense heat in Russia's 130 years of record-keeping was taking a heavy

economic toll. The loss of standing forests and the projected cost of their

restoration totaled some $300 billion. Thousands of farmers faced

bankruptcy. Russia's grain harvest shrank from nearly 100 million tons toscarcely 60 million tons as crops withered. Recently the world's number

three wheat exporter, Russia banned grain exports in a desperate move to

rein in soaring domestic food prices. Between mid-June and mid-August,

the world price of wheat climbed 60 percent. Prolonged drought and the

worst heat wave in Russian history were boosting food prices worldwide.

269. Timothy Kusky, (Prof., Natural Science, St. Louis U.),

ENCYCLOPEDIA OF EARTH AND SPACE SCIENCE, 2010, 337.

Eleven of the 12 years between 1996 and 2006 were the warmest on recordsince weather-recording instruments were widely used starting in 1850. The

temperature rate increase seems to be increasing, with polar areas affected

more than equatorial regions.

270. Daniel Perlmutter, (Prof., Chemical Engineering, U. Penn.), THE

CHALLENGE OF CLIMATE CHANGE, 2011, 64. Clear trends show up

when the data are averaged over 5-10-year periods. An assessment of

surface temperature measurements released by NASA (NationalAeronautics and Space Administration),' for example, reported that the

decade from 2000 to 2009 was the warmest on record. Their data covering

the past 30 years showed a trend in temperature rise of 0.2°C (0.4°F) perdecade.

271. Ian Sample, (Staff), THE GUARDIAN, Feb. 28, 2011, 10. There are

already three heavyweight groups that could be considered the official

keepers of the world's climate data. Each publishes its own figures that feed

into the UN's Intergovernmental Panel on Climate Change. Nasa's GoddardInstitute for Space Studies in New York City produces a rolling estimate of

the world's warming. A separate assessment comes from another US

agency, the National Oceanic and Atmospheric Administration (Noaa). The

third group is based in the UK and led by the Met Office. They all take

readings from instruments around the world to come up with a rollingrecord of the Earth's mean surface temperature. The numbers differ because

each group uses its own dataset and does its own analysis, but they show a

similar trend. Since pre-industrial times, all point to a warming of around0.75C.

272. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 45-46. In August 2010, Richard Bates, a member of a British-led

expedition monitoring the Greenland ice sheet, said, "This year marks yetanother record-breaking melt year in Greenland; temperatures and melt

across the entire ice sheet have exceeded those . . . of historical records."

Greenland was not alone in experiencing extremes in 2010. New high-

temperature records were set in 18 countries. The number of record highswas itself a record, topping the previous total of 15 set in 2007. When a sitein south central Pakistan hit 128 degrees Fahrenheit on May 26th, it set not

only a new national record, but also a new all-time high for Asia. (ellipsis in

original)

273. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 46. Within the United States, numerous cities on the East Coast

suffered through the hottest June to August on record, including New York,

Philadelphia, and Washington. After a relatively cool summer in Los

Angeles, the temperature there on September 27th reached an all-time high

of 113 degrees before the official thermometer broke. At a nearby site,

however, the thermometer survived to register 119 degrees, a record for the

region. What U.S. climate data show us is that as the earth has warmed,

record highs are now twice as likely as record lows.

274. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 23. The concentration of CO2 in the atmosphere has been

systematically measured since the middle 1950s. In 1996 the concentrationwas 361 ppm and it rose to 379 ppm by 2006. The rate of atmospheric CO2

rise is accelerating, growing 20% faster in the period 2000-2004 than the

growth rate was in the 1990s. Carbon dioxide exerts a stronger radiative

forcing than any other human-released greenhouse gas, and the largestchange in radiative forcing from any greenhouse gas since the Third

Assessment Report.

275. Mohamed Nasheed, (President, The Maldives), OCEANS: THE

THREATS TO OUR SEAS, 2010, 68. In January 2008, James Hansen, one

of the world's leading climatologists, published a series of papers showing

that the safe limit for carbon dioxide in the atmosphere was at most 350parts per million (ppm). Anything higher than that limit, warns Hansen,

could seed "irreversible, catastrophic effects" on a global scale. At the

moment, the amount of carbon dioxide in the atmosphere is 387 ppm and

rising. Reducing the amount of carbon in the atmosphere to 350 is our best

chance of preventing global temperatures from rising even further.

276. Fortunat Joos, (Prof., Climate & Environmental Physics, U. of Bern,

Switzerland), OCEAN ACIDIFICATION, 2011, 272. Carbon emissions

from human activities force the atmospheric composition, climate, and the

geochemical state of the ocean towards conditions that are unique for at

least the last million years. The current atmospheric CO2 concentration of

390 ppmv is well above the natural range of 172 to 300 ppmv of the past

800 000 years.

277. Tapio Schneider, (Prof., Environmental Science, California Institute of

Technology), GLOBAL CLIMATE CHANGE, 2013, 182. Ice core records

currently go back 650,000 years; over this period we know that carbondioxide concentrations have never been higher than they are now. Beforethe industrial revolution, they were about 280 ppm, and they have variednaturally between about 180 ppm during ice ages and 300 ppm during warmperiods.

278. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

163. The recent rise in Earth's surface temperature is closely coupled withthe correspondingly recent increase in carbon dioxide. Data gathered fromthousands of locations across the planet, land and sea, show an increase of0.74°C (1.3°F) in the past century, with the greatest increase occurring in

the past 30 years. A report of findings of hundreds of the world's leading

Earth scientists, the 2007 Intergovernmental Panel on Climate Change

(IPCC), not only confirmed the warming trend but also unequivocally

linked the warming to human activities.

279. Peter Ward, (Prof., Biology, U. Washington), THE FLOODED

EARTH: OUR FUTURE IN A WORLD WITHOUT ICE CAPS, 2010, 58.

The present-day rise in CO2 seems to eclipse any other past rate of rise. This

rapid rise outstrips nature's buffering systems, resulting in ocean

acidification. Past atmospheric concentrations probably would not have ledto a significantly lower pH in the oceans. The fastest natural changes we aresure about are those occurring at the ends of the recent ice ages, when CO2

rose about 80 ppm in the space of 6,000 years. That rate is about one-

hundredth of the changes we are witnessing now.

280. William Chameides, (Prof., Environmental Science, Duke U.),

POLICY RELEVANT CLIMATE ISSUES IN CONTEXT, House Hearing,

Apr. 25, 2013, 38. Carbon dioxide concentrations are higher today than they

have been for at least the past 800,000 and we know from isotopic data that

most of the increase over the past century has come from burning fossil

fuels. A dubious milestone was reached in April 2012, when the firstmeasurement of carbon dioxide concentrations in excess of 400 ppm was

recorded at a remote site.

281. Daniel Perlmutter, (Prof., Chemical Engineering, U. Penn.), THE

CHALLENGE OF CLIMATE CHANGE, 2011, 63. Given all these

considerations, CO2 still remains the focus of attention, and because CO2 is

the prime player in global warming, it is vital to examine the record to see ifits concentration in the atmosphere has changed in recent years. Reliabledata are available going back to 1958. In graphed form it is sometimesreferred to as the Keeling curves in honor of the chemist who developed the

measuring techniques. As is evident in Figure 4.3, the concentration has

increased by about 20% over the last half century, reaching a level of 379

ppm in the year 2005, and continuing to rise at a rate of about 2 ppm each

year. The periodic fluctuations in the concentrations are caused by the

seasonal Changes during each year, as plants absorbs CO2 during their

growth period and as winter furnaces burn more fuel to support their longer

periods of heating use.

282. Timo Koivurova, (Prof., Law, U. Lapland), THE FUTURE OF

INTERNATIONAL ENVIRONMENTAL LAW, 2010, 179. Nearly half ofthe Arctic Ocean is currently covered by a permanent ice cap that grows and

shrinks seasonally, with maximum cover in March and minimum, cover inSeptember. The extent of summer sea ice has been declining over the pastfifty years by an average of 8 per cent a decade, and on 15 September 2007the ice cap was 22 per cent smaller than it was in 2005, the previous recordyear. The 2007 record went beyond the computer model predictions used to

prepare the Fourth Assessment Report of the Intergovernmental Panel on

Climate Change in 2007.

283. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

166. At the other end of the planet, huge ice shelves surrounding theAntarctic continent have thinned and broken away in the past several

decades. Satellite images of the Larsen B shelf in western Antarctica fromJanuary 2002 to March 2002 show the swift change from what appeared to

be a solid mass marked with puddles and streaks of surface melt to the

complete disintegration of an area the size of Rhode Island. According to a2008 National Snow and Ice Data Center study of the 2002 collapse, rifts in

the ice sheet had been growing for about two decades, the ice thinning and

under pressure as glacier flow began to increase.

284. Michael Byers, (Prof., International Law, University of British

Columbia), WHO OWNS THE ARCTIC?: UNDERSTANDING

SOVEREIGNTY DISPUTES IN THE NORTH, 2010, 8-9. Climate change

is altering the North at astonishing speed. When I visited Auyuittuq

National Park in August 2007, park manager David Argument pointed torapidly retreating glaciers, melting permafrost and strikingly green tundra.

EVIDENCE BAYLOR BRIEFS 95

285. Timo Koivurova, (Prof., Law, U. Lapland), THE FUTURE OF

INTERNATIONAL ENVIRONMENTAL LAW, 2010, 194. Indeed, while

recent scientific assessments pointed to the possibility of ice-free summersin the Arctic before the end of the century, the latest scientific assessments

currently highlight the alarming fact that such a situation could occur asearly as 2030. In addition, there is also a significant range of uncertainty

concerning the quantities of natural resources located in the region and thescale of economic opportunities generated by environmental changes.

286. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 69. We are concerned about the fate of the great ice sheetsfor the reason of sea level rise. The ice sheets have the potential to raise sealevel by about 70 meters, enough to completely and catastrophically changethe map of the Earth.

287. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 73. The Greenland ice sheet contains enough water toraise sea level by about 7 meters if it were to melt entirely. The ice mass onGreenland is close to the melting point at low elevation, and meltwater

ponds and streams are seen at the surface of the ice sheet, and flowing into

channels in the interior of the ice, called moulins.

288. Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting),

THE ATLAS OF COASTS & OCEANS: ECOSYSTEMS, THREATENED

RESOURCES, MARINE CONSERVATION, 2011, 75. An even more

worrying scenario derives from new analysis of the geological sea level

record, carried out by scientists at Princeton and Harvard universities,

revealing that the planet's polar ice sheets are more vulnerable to large-scale

melting under moderate global warming scenarios than previously thought.

The melting of the Greenland and Antarctic ice sheets would add

significantly to the ocean's volume, leading to a large and relatively rapidrise in global sea level, far exceeding any of the IPCC's forecasts. The

study's authors suggest that the historical record supports a possible sea

level rise of six to nine meters (20 to 30 feet) as a result of a 2°C

temperature increase. Such a catastrophic rise would inundate low-lying

coastal areas where hundreds of millions of people now reside. It would

permanently submerge New Orleans and much of southern Louisiana, alongwith most of southern Florida (including the Everglades) and other parts ofthe US East Coast, including New York City. Close to half of Bangladeshwould be under water, along with most of the Netherlands, unless

unprecedented and expensive coastal protection measures were taken.

289. Nancy Lord, (Prof., English, Kenai Peninsula College), EARLY

WARMING: CRISIS AND RESPONSE IN THE CLIMATE-CHANGED

NORTH, 2011, 2. Just in the last fifty years, Alaska temperatures averagedacross the state and through the year have risen by 3.4 degrees Fahrenheit.

Winter temperatures have risen more sharply, by an average of 6.3 degrees.

290. Nancy Lord, (Prof., English, Kenai Peninsula College), EARLY

WARMING: CRISIS AND RESPONSE IN THE CLIMATE-CHANGED

NORTH, 2011, 2. The Intergovernmental Panel on Climate Change (IPCC)

expects that climate change in the Arctic will be among the largest and most

rapid on earth, with wide-ranging physical, ecological, sociological, and

economic effects. Its fourth assessment, in 2007, noted that the polar

regions are "extremely vulnerable to current and projected climate change,"

of considerable geopolitical and economic importance, and are "the regions

with the greatest potential to affect global climate and thus human

populations and biodiversity."

291. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 6. The earth's rising temperature is also melting polar ice sheets andmountain glaciers. If the Greenland ice sheet, which is melting at anaccelerating rate, were to melt entirely, it would inundate the rice-growing

river deltas of Asia and many of the world's coastal cities. It is the ice meltfrom the mountain glaciers in the Himalayas and on the Tibetan Plateau that

helps sustain the dry-season flow of the major rivers in India and China —

the Ganges, Yangtze, and Yellow Rivers — and the irrigation systems that

depend on them.

292. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 48. Rising temperatures are already melting ice caps and glaciersaround the globe. The massive West Antarctic and Greenland ice sheets are

both melting. The Greenland ice cap is melting so fast in places that it is

triggering minor earthquakes as huge chunks of ice weighing millions of

tons break off and slide into the sea.

293. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 48. The breakup of ice in West Antarctica is also gaining momentum.

One of the first signals that this ice sheet was breaking up came in 1995

when Larsen A — a huge shelf on the Antarctic Peninsula — collapsed.

Then in March 2002 the Larsen B ice shelf collapsed into the sea. At about

the same time, over 2,000 square miles of ice broke off the Thwaites

Glacier. And in January 2010 an area larger than Rhode Island broke off the

nearby Ronne-Filchner ice shelf. If the West Antarctic ice sheet were tomelt entirely, sea level would rise by 16 feet.

294. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 48. Temperatures are rising much faster in the Arctic than elsewhere.

Winter temperatures in the Arctic, including Alaska, western Canada, andeastern Russia, have climbed by 4-7 degrees Fahrenheit over the last half-

century. This record rise in temperature in the Arctic region could lead tochanges in climate patterns that will affect the entire planet.

295. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 49. Sea ice in the Arctic Ocean has been shrinking for the last few

decades. Some scientists now think the Arctic Ocean could be free of ice

during the summer by 2015 — less than five years from now This worries

climate scientists because of the albedo effect. When incoming sunlightstrikes the ice in the Arctic Ocean, up to 70 percent is reflected back into

space and as little as 30 percent is absorbed as heat. As the Arctic sea ice

melts, however, and the incoming sunlight hits the much darker open water,

only 6 percent is reflected back into space and 94 percent is converted intoheat. This creates a positive feedback — a situation where a trend, onceunder way, feeds on itself.

296. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 45. In August 2010, Richard Bates, a member of a

British-led expedition monitoring the Greenland ice sheet, said, "This yearmarks yet another record-breaking melt year in Greenland; temperaturesand melt across the entire ice sheet have exceeded those . . . of historical

records." (ellipsis in original)

297. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 17-18. Recent temperature increaseshave had a demonstrable and alarming effect on melting sea ice. Arctic

temperatures have increased at a rate almost double that of the global

average over the last century. In recent years, that warming has substantially

reduced both the ice extent (total area covered by some ice) and the ice

thickness in the Arctic. Each year, sometime in mid-September, the Arctic

Sea ice extent reaches its annual low. Since satellite records became

available in 1979, the summer extent has progressively trended downward,

leading scientists to conclude that the Arctic Sea might become ice-free by

the mid-twenty-first century. Then, in 2007, something extraordinary

occurred. On September 16, 2007, the ice extent fell to 4.13 million square

kilometers — 25 percent less than any other measured year. This abrupt

decline has led to numerous predictions of a seasonal ice-free Arcticbetween 2012 and 2020.

298. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 19. In addition to melting sea ice,

the Earth's land surface ice — in the form of glaciers and ice sheets — hasalso contracted. Because glaciers are many magnitudes smaller than icesheets, and because they are dispersed throughout the world (on every

continent except Australia), glaciers are seen as an important barometer ofclimate change. According to the World Glacier Monitoring Program,

which has measured glaciers around the world since 1980, more glacier ice

has been lost than gained in every year since 1989 — with the rate of loss

more than doubling since the 1990s.

299. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 45. On August 5th, 2010, the Petermann Glacier on the northwest

coast of Greenland gave birth to an iceberg that covered 97 square miles.

Four times the size of Manhattan, in late 2010 this "ice island" is floating

between Greenland and Canada, drifting slowly southward with the

prevailing currents. Since it is up to half the height of the Empire State

Building in thickness, it could take years for it to melt, break up, and

eventually disappear. News of this massive ice break focused attention on

the Greenland ice sheet once more. Scientists have been reporting for someyears that it was melting at an accelerating rate. In 2007, Robert Corell,

chairman of the Arctic Climate Impact Assessment, reported fromGreenland that "we have seen a massive acceleration of the speed with

which these glaciers are moving into the sea." He noted that ice was moving

at over 6 feet an hour on a front 3 miles long and 1 mile deep.

300. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 6. The earth's rising temperature is also melting polar

ice sheets and mountain glaciers. If the Greenland ice sheet, which is

melting at an accelerating rate, were to melt entirely, it would inundate therice-growing river deltas of Asia and many of the world's coastal cities. It isthe ice melt from the mountain glaciers in the Himalayas and on the TibetanPlateau that helps sustain the dry-season flow of the major rivers in India

and China—the Ganges, Yangtze, and Yellow Rivers—and the irrigation

systems that depend on them.

301. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 48. The breakup of ice in West Antarctica is also

gaining momentum. One of the first signals that this ice sheet was breaking

up came in 1995 when Larsen A—a huge shelf on the Antarctic

Peninsula—collapsed. Then in March 2002 the Larsen B ice shelf collapsed

into the sea. At about the same time, over 2,000 square miles of ice brokeoff the Thwaites Glacier. And in January 2010 an area larger than Rhode

Island broke off the nearby Ronne-Filchner ice shelf. If the West Antarctic

ice sheet were to melt entirely, sea level would rise by 16 feet.

EVIDENCE BAYLOR BRIEFS 96

302. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 49. Sea ice in the Arctic Ocean has been shrinking for

the last few decades. Some scientists now think the Arctic Ocean could be

free of ice during the summer by 2015—less than five years from now. Thisworries climate scientists because of the albedo effect. When incoming

sunlight strikes the ice in the Arctic Ocean, up to 70 percent is reflectedback into space and as little as 30 percent is absorbed as heat. As the Arcticsea ice melts, however, and the incoming sunlight hits the much darkeropen water, only 6 percent is reflected back into space and 94 percent is

converted into heat. This creates a positive feedback—a situation where atrend, once under way, feeds on itself.

303. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 49. If ice disappears entirely in summer and is reduced

in winter, the Arctic region will heat up even more, ensuring that theGreenland ice sheet will melt even faster. Recent studies indicate that a

combination of melting ice sheets and glaciers, plus the thermal expansion

of the ocean as it warms, could raise sea level by up to 6 feet during this

century, up from a 6-inch rise during the last century.

304. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 50. While the ice sheets are melting, so too are

mountain glaciers—nature's freshwater reservoirs. The snow and ice masses

in the world's mountain ranges and the water they store are taken forgranted simply because they have been there since before agriculture began.

Now that is changing. If we continue raising the earth's temperature, we risklosing the "reservoirs in the sky" on which so many farmers and citiesdepend.

305. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 50. Americans need not go far from home to see

massive glacier melting. In 1910, when Glacier National Park in westernMontana was created, it had some 150 glaciers. In recent decades, these

glaciers have been disappearing. By the end of 2009, only 27 were left. InApril 2010 park officials announced that 2 more had melted, leaving only

25. It appears to be only a matter of time until all the park's glaciers are

gone.

306. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 50-51. The World Glacier Monitoring Service hasreported the nineteenth consecutive year of shrinking mountain glaciers.

Glaciers are melting in all of the world's major mountain ranges, including

the Andes, the Rockies, the Alps, the Himalayas, and the Tibetan Plateau.

Ice melt from mountain glaciers in the Himalayas and on the Tibetan

Plateau helps sustain the major rivers of Asia during the dry season, when

irrigation water needs are greatest. In the Indus, Ganges, Yellow, andYangtze River basins, where irrigated agriculture depends heavily on the

rivers, the loss of any dry-season flow is bad news for farmers. These

melting glaciers coupled with the depletion of aquifers present the most

massive threat to food security the world has ever faced. China is the

world's leading producer of wheat. India is number two. (The United Statesis number three.) With rice, China and India totally dominate the worldharvest.

307. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 51. Yao Tandong, a leading Chinese glaciologist,

reports that glaciers on the Tibetan Plateau in western China are nowmelting at an accelerating rate. Many smaller glaciers have already

disappeared. Yao believes that two thirds of these glaciers could be gone by

2060. If this melting of glaciers continues, Yao says it "will eventually lead

to an ecological catastrophe."

308. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 75. If the Greenland ice sheet, which is well over a mile

thick in places, were to melt completely, sea level would rise 23 feet. And if

the West Antarctic ice sheet were to break up entirely, sea level would rise16 feet. Together, the melting of these two ice sheets, which scientists

believe to be the most vulnerable, would raise sea level 39 feet. And this

does not include thermal expansion as ocean water warms, an important

contributor to sea level rise.

309. Timothy Kusky, (Prof., Natural Science, St. Louis U.),

ENCYCLOPEDIA OF EARTH AND SPACE SCIENCE, 2010, 673. The

Greenland ice sheet is thinning rapidly along its edges, losing an average of

15-20 feet (4.5-6 m) in the past decade. In addition, tidewater glaciers and

the small ice shelves in Greenland are melting an order of magnitude faster

than the Antarctic ice sheets, with rates of melting between 25-65 feet (720m) per year, a rate that is apparently increasing. About half of the ice lostfrom Greenland is through surface melting that runs off into the sea. The

other half of ice loss is through calving of outlet glaciers and melting along

the tidewater glaciers and ice shelf bases.

310. Mary Ann Whitley, (Staff, Cleveland Plain Dealer), OCEANS:

OPPOSING VIEWPOINTS, 2011, 12. The average water temperature

worldwide was 62.6 degrees, according to the National Climatic DataCenter, the branch of the U.S. government that keeps world weather

records. That was 1.1 degree higher than the 20th century average, and beatthe previous high set in 1998 by a couple hundredths of a degree. The

coolest recorded ocean temperature was 59.3 degrees in December 1909.

311. Mary Ann Whitley, (Staff, Cleveland Plain Dealer), OCEANS:

OPPOSING VIEWPOINTS, 2011, 12. The Gulf of Mexico, where warm

water fuels hurricanes, has temperatures dancing around 90. Most of the

water in the Northern Hemisphere has been considerably warmer than

normal. The Mediterranean is about three degrees warmer than normal.

Higher temperatures rule in the Pacific and Indian Oceans.

312. Paul Edwards, (Prof., Technology & Society Program, U. of

Michigan), A VAST MACHINE: COMPUTER MODELS, CLIMATE

DATA, AND THE POLITICS OF GLOBAL WARMING, 2010, 439.

Climateprediction.net has run thousands of "perturbed physics" simulations,

varying model parameters to find the full range of possible climate futures

that models predict. From the results of these large ensembles, leaders ofthat project have concluded that the actual climate sensitivity might beconsiderably higher than IPCC estimates — perhaps greater than 6°C. And

that's just for starters, since the planet will almost certainly overshoot CO2

doubling.

313. Patrick Parenteau, (Prof., Law, U. Vermont Law School), VERMONTLAW REVIEW, Summer 2010, 957. Global climate change is not only

"unequivocal" as the IPCC Fourth Assessment proclaimed, it is happening

now, it is accelerating, and no one knows for sure what lies ahead as the

nations of the world struggle in a race against time to achieve an

unprecedented level of cooperation on greenhouse gas limits before it is,

literally, too late to save humanity. The polar ice caps, the Arctic, and

massive glaciers in the Himalayas and Andes are melting faster than

predicted; sea levels are rising faster than predicted; the ocean is slowly

turning acidic; tropical storms are intensifying; saltwater is contaminating

coastal aquifers and degrading estuaries; lake levels are dropping; runoff isincreasing; flood peaks are growing; droughts are intensifying; wildfires are

spreading; pests and invasive species are expanding; diseases are moving

into population centers; ecosystems are shifting poleward and upward;

migratory species patterns are changing; coldwater habitat is shrinking; andmore deadly heatwaves are expected. And none of that takes into account

the potential for abrupt climate change which could unleash trulycatastrophic, Hollywood disaster movie scenarios.

314. James Lovelock, (Prof., Chemistry, Oxford U.), THE VANISHING

FACE OF GAIA: A FINAL WARNING, 2010, 7. I have little confidence in

the smooth, rising curve of temperature that modelers predict for the next

ninety years. The Earth's history and simple climate models based on the

notion of a live and responsive Earth suggest that sudden change and

surprise are more likely. My pessimism is shared by other scientists and

openly by the distinguished climate scientist James Hansen, who finds as I

do that the evidence now coming from the Earth, together with theknowledge of its history, is gravely disturbing.

315. Clive Hamilton, (Prof., Public Ethics, Center for Applied Philosophy,

Australian National U.), REQUIEM FOR A SPECIES: WHY WE RESISTTHE TRUTH ABOUT CLIMATE CHANGE, 2010, 2. The paleoclimate

record shows the Earth's climate often changing abruptly, flipping from one

state to another, sometimes within a few years. It now seems almost certain

that, if it has not occurred already, within the next several years enoughwarming will be locked in to the system to set in train feedback processes

that will overwhelm any attempts we make to cut back on our carbon

emissions.

316. Peter Ward, (Prof., Biology, U. Washington), THE FLOODED

EARTH: OUR FUTURE IN A WORLD WITHOUT ICE CAPS, 2010, 51.

Climatologists now believe that a doubling of CO2 would warm the earth 3

to 8 degrees Fahrenheit, which could leave our planet warmer than it has

been during the past 2 million years or more. Moreover, other human-

produced gases entering the atmosphere also combine to increase thegreenhouse effect, including methane, chlorofluorocarbons, nitrous oxide,

and sulfur dioxide.

317. Scott Mandia, (Prof., Physical Science, Suffolk Co., Community

College), RISING SEA LEVELS: AN INTRODUCTION TO CAUSEAND IMPACT, 2012, 15. Although water vapor is such a powerful

greenhouse gas, it has only a short atmospheric lifetime. Water vapor in the

atmosphere is part of an active climate system, and any excess will rain out

in days. On the other hand, the lifetime of an excess carbon dioxide

concentration in equilibrium in the atmosphere runs into decades, so it has apersistent forcing on climate.

EVIDENCE

318. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 22-23. Carbon dioxide is the dominant greenhouse gasresponsible for our concern about global warming. It has a longer lifetime in

the atmosphere than many of the other human-released greenhouse gases.

The actual strongest greenhouse gas in the atmosphere is water vapor, but

the concentration of water vapor is controlled by the fact that, if the air gets

too humid, it rains. The response is part of the water vapor feedback, whichamplifies the climate change caused by other climate forcings, and which istherefore treated as a climate response rather than an initial forcing. Thebottom line is that avoiding climate change means limiting the emission ofCO2.

319. William Chameides, (Prof., Environmental Science, Duke U.),

POLICY RELEVANT CLIMATE ISSUES IN CONTEXT, House Hearing,

Apr. 25, 2013, 38. Most of the recent decadal-scale warming can beattributed to fossil fuel burning and other human activities that release

carbon dioxide and other heat-trapping greenhouse gases into the

atmosphere. Changes in solar radiation and volcanic activity can alsoinfluence climate, but observations show that they cannot explain the recent

warming trend.

320. William Chameides, (Prof., Environmental Science, Duke U.),

POLICY RELEVANT CLIMATE ISSUES IN CONTEXT, House Hearing,

Apr. 25, 2013, 37. Climate change is occurring. The preponderance ofscientific evidence suggests that the emissions of greenhouse gases fromhuman activities are the primary cause of global warming over the past 50

years. Climate change poses significant risks for a range of human and

natural systems. Greenhouse gas emissions are continuing to increase,

which will result in further change and greater risks.

321. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 14. The climate forcing from the sun, measured in watts

per square meter (W/m2) and called its radiative forcing, is somewhatwarmer now than it was in 1750, but greenhouse gases have increased their

radiative forcing by 30 times as much. There has been no increase in solar

intensity in the "global warming decades" from the 1970s to the present.

322. Adam Voiland, (Staff, NASA Magazine), GLOBAL CLIMATE

CHANGE, 2013, 11. A deep solar minimum has made sunspots a rarity inthe last few years. Such lulls in solar activity, which can cause the total

amount of energy given off by the sun to decrease by about a tenth of a

percent, typically spur surface temperature to dip slightly. Overall, solarminimums and maximums are thought to produce no more than 0.1°C

(0.2°F) of cooling or warming. As Hansen explained, "In 2009, it was clear

that even the deepest solar minimum in the period of satellite data hasn'tstopped global warming from continuing."

323. Carol Turley, (Researcher, Plymouth Marine Laboratory), OCEAN

ACIDIFICATION, 2011, 250. Ocean acidification is caused by uptake ofanthropogenic CO2 by the ocean; it is a global phenomenon and is

happening now, it is measurable, and it will continue as more CO2 is

emitted. Already ocean acidity has increased by 30%, and by 2100, if wecontinue emitting CO2 at the same rate, ocean acidity will have increased by

150% during this century. Such a substantial alteration in basic ocean

chemistry is likely to have wide implications for life in the ocean, especiallyfor those food webs and ecosystems vulnerable to future levels of ocean

acidification. Tropical coral reef ecosystems, for example, may be

irreparably damaged.

324. Robert Henson, (Analyst, National Center for Atmospheric Research),

THE ROUGH GUIDE TO CLIMATE CHANGE, 2011, 136. Looming over

this entire scene is the gargantuan threat posed by ocean acidification,

perhaps the most underappreciated risk posed by our longtime love affair

with fossil fuels. This transformation is a direct result of the enormous

amounts of carbon dioxide being soaked up by Earth's oceans. Each year anet influx of roughly seven gigatonnes of CO2 — which includes close to

25% of all the carbon dioxide produced by human activity — goes into the

sea.

325. Eugene Buck, (Specialist in Natural Resources Policy, Congressional

Research Service), POISONING AND ACIDIFICATION OF THE

EARTH'S OCEANS, 2010, 27. When more CO2 is added to the

atmosphere, more carbonic acid forms in the ocean. Over the past severaldecades, about half of the CO2 released by human activities has remained in

the atmosphere; of the remainder, about 30% has entered the oceans. As a

result, the additional carbonic acid has increased average ocean acidity byapproximately 0.1 pH unit (i.e., an increase of 20% in hydrogen ion

concentration).

326. Sylvia Earle, (National Geographic Explorer in Residence), OCEANS:

THE THREATS TO OUR SEAS, 2010, 13. A growing trend towardacidification of the planet's blue heart is the "terrible twin" of CO2-induced

global warming with consequences that will ultimately affect all life on

Earth.

BAYLOR BRIEFS 97

327. Paul Snelgrove, (Prof., Oceanography, Memorial U., Newfoundland),

DISCOVERIES OF THE CENSUS OF MARINE LIFE: MAKING

OCEAN LIFE COUNT, 2010, x. Absorbing millions of tons of CO2 every

year — roughly one-third of total annual emissions — the ocean has alreadyspared us from catastrophic climate change. But in doing so, its own

intrinsic balances are altered: the ocean is becoming more acidic and has

taken the largest fraction of the additional heat generated by anthropogenic

greenhouse gases, something that might eventually alter the normal patternsof ocean circulation essential for keeping the absorbed CO2 from reuniting

with the atmosphere for long periods, buying us time for finding solutionsto climate change.

328. Lisa Suatoni, (Sr. Scientist, Natural Resources Defense Council),

OCEANS: THE THREATS TO OUR SEAS, 2010, 103-104. Coral reefs, as

we know them today, have existed for 65 million years. Why then are their

calcium carbonate skeletons suddenly at risk? The answer is clear: The

oceans are rapidly becoming more acidic. Ocean acidification, or the

declining pH of the world's ocean waters, is the second and less known

impact of rising atmospheric carbon dioxide concentrations (the first, ofcourse, is global warming).

329. Ryan Kelly, (Fellow, Center for Ocean Solutions, Stanford U.),

HARVARD ENVIRONMENTAL LAW REVIEW, 2013, 59. Ocean

acidification is a large-scale environmental problem that arises from a

classic externality problem: Rising atmospheric CO2 concentrations cause

wholesale changes to ocean chemistry worldwide, but larger CO2-emittersdo not experience greater harm than do lesser emitters. Worse, the problemhas been invisible until very recently. Although it has long been known thatthe ocean absorbs large volumes of atmospheric CO2, only in the lastfifteen years has the resulting change in acidity received significant

scientific attention. The past ten years have seen an explosion of primary

scientific literature, but little legal analysis or commentary on ocean

acidification. As a result, the legal and policy options lag behind the science

even as improved understanding of the phenomenon opens up new policy

avenues to combat the global change.

330. Lisa Suatoni, (Sr. Scientist, Natural Resources Defense Council),

OCEANS: THE THREATS TO OUR SEAS, 2010, 106. Although the scale

of ocean acidification may appear overwhelming, there are solutions. And

there are actions we can take. The only way to stop ocean acidification is tostabilize our carbon dioxide emissions. (In other words, there is not enoughAlka-Seltzer in the world to neutralize this problem.) We need to power ourlives without emitting huge quantities of CO2. Each of us can make choices

in our own lives that will help, but we can bring about a clean energy future

only through national policy that caps carbon emissions and createspermanent incentives for renewable energy and efficiency.

331. Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting),

THE ATLAS OF COASTS & OCEANS: ECOSYSTEMS, THREATENED

RESOURCES, MARINE CONSERVATION, 2011, 80. The oceans are a

critical part of the planet's carbon cycle, recycling carbon dioxide between

the atmosphere and the ocean. Some two billion tons of carbon have been

captured this way over the past several decades. Excess carbon dioxide

reacts with salt water to create carbonic acid. Over the past 250 years, the

oceans have processed around 530 billion tons of CO2, increasing oceanacidity by an average of 30 percent. Cold waters absorb more CO2 than

warmer ones, so the poles are particularly badly affected by acidification,

showing a greater increase in acidity than warmer waters.

332. Robert Henson, (Analyst, National Center for Atmospheric Research),

THE ROUGH GUIDE TO CLIMATE CHANGE, 2011, 136. A 2010 report

by the US National Research Council notes that average pH values at the

ocean surface have dropped from around 8.2 in pre-industrial times to

around 8.1 today. That change may seem small, but in fact it's on the order

of a hundred times faster than anything the world's oceans have seen in the

last few million years.

333. Richard Feeley, (Oceanographer, Pacific Marine Environmental

Laboratory, NOAA), POISONING AND ACIDIFICATION OF THE

EARTH'S OCEANS, 2010, 2-3. Estimates of future atmospheric and

oceanic carbon dioxide concentrations, based on the Intergovernmental

Panel on Climate Change (IPCC) CO2 emission scenarios and general

circulation models, indicate that by the middle of this century atmospheric

carbon dioxide levels could reach more than 500 parts per million (ppm),

and near the end of the century they could be over 800 ppm. This would

result in a surface water pH decrease of approximately 0.4 pH units as the

ocean becomes more acidic, and the carbonate ion concentration would

decrease almost 50 percent by the end of the century. To put this in

historical perspective, this surface ocean pH decrease would result in a pH

that is lower than it has been for more than 20 million years.

EVIDENCE BAYLOR BRIEFS 98

334. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 106. The

oceans have absorbed around 30 percent of the carbon dioxide released byhuman activity since preindustrial times from, primarily, burning fossil

fuels, converting forests and swamps into cities and agriculture, and cement

production. Over that period the pH of seawater, a measure of its acidity,

has fallen by 0.1 units. Most of this drop has taken place in the last fewdecades. Since pH is measured on a logarithmic scale in which one unitequals a tenfold change in acidity/alkalinity, this means the acidity has risen

by 30 percent. If carbon dioxide emissions are not curtailed, acidity is

expected to rise 150 percent by 2050, the fastest rate of increase at any timein at least the last twenty million years, and probably as long as sixty-five

million years, which takes us back to the age of dinosaurs. As Carol Turley,

an expert on ocean acidification from the Plymouth Marine Laboratory putit to me, "The present increase in ocean acidity is not just unprecedented inour lifetimes, it is a rare event in the history of the planet."

335. Antonia Sohns, (Project Fellow, Worldwatch Institute), STATE OF

THE WORLD 2013: IS SUSTAINABILITY STILL POSSIBLE?, 2013, 66.

Between 1992 and 2007, the ocean's pH declined from 8.11 to 8.01. This

rate of acidification may be faster than at any time within the last 300

million years.

336. Lisa Suatoni, (Sr. Scientist, Natural Resources Defense Council),

OCEANS: THE THREATS TO OUR SEAS, 2010, 106. What is clear is

that tropical reef-building corals are especially vulnerable and may well be

the oceanic "canaries in the coal mine" of a high-CO2 world. Numerous

studies on a variety of corals show a common response of decreasingcalcification rates with rising acidity, eventually leading to erosion. Whathappens to a "homeless" coral, or a "reef-less" coral community, is notentirely clear; extinction of coral species is a real possibility.

337. Lisa Suatoni, (Sr. Scientist, Natural Resources Defense Council),

OCEANS: THE THREATS TO OUR SEAS, 2010, 104. The phenomenonis simple chemistry. As we generate excess carbon dioxide by burning fossil

fuels, much of it accumulates in the atmosphere, where it causes climatechange. However, about a quarter of that CO2 ultimately ends up in the sea.

And when carbon dioxide dissolves in seawater, it becomes an acid. The

massive influx of CO2 into the sea is difficult to comprehend, currently

proceeding at approximately 1 million tons per hour. In terms of mass, that's

like dumping 24 million Volkswagen Beetles into the sea each day. Since

the start of the Industrial Revolution, the seas have absorbed 500 billion

tons of CO2, increasing the average acidity by 30 percent.

338. Lisa Suatoni, (Sr. Scientist, Natural Resources Defense Council),

OCEANS: THE THREATS TO OUR SEAS, 2010, 104. If carbon

emissions continue to rise unabated, the result will be global osteoporosis,

harming not only commercially important shellfish such as lobster, crabs,

and mussels but also key species in marine food webs. Marine ecologists

are especially worried that disappearances of important species such as

plankton at the base of the food chain could trigger ripple effects up the

food chain, compromising the stability and productivity of the very foodwebs on which we depend.

339. Richard Feeley, (Oceanographer, Pacific Marine Environmental

Laboratory, NOAA), POISONING AND ACIDIFICATION OF THE

EARTH'S OCEANS, 2010, 2. The oceans have absorbed approximately525 billion tons of carbon dioxide from the atmosphere, or about one thirdof the anthropogenic carbon emissions released during this period. This

natural process of absorption has benefited humankind by significantly

reducing the greenhouse gas levels in the atmosphere and minimizing someof the impacts of global warming. However, the ocean's daily uptake of 22

million tons of carbon dioxide is starting to have a significant impact on thechemistry and biology of the oceans.

340. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 43. The oceans are becoming acidified

from the rising levels of CO2 in the atmosphere. The carbon dioxide is taken

up by the oceans and because of its acidic nature it dissolves or weakens the

calcium carbonate in the shells, bones and skeletons of most marine

organisms including plankton. The carbon dioxide in the water attacks the

limestone formations of the hard corals and stops growth. The plankton areparticularly important as they are the basis of the food web for a great deal

of sea life including various fish populations and krill which are the main

food sources for several whale species.

341. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 44. A recent UN report states that

"Business-as-usual climate change in the twenty-first century could makethe oceans more acidic over the next few centuries than they have been at

any time for 300 million years, with one exception: a single catastrophic

episode that occurred 55 million years ago." That episode of oceanacidification caused mass extinction of sea creatures and the acidity levelsdidn't recover for 100,000 years.

342. Lisa Suatoni, (Sr. Scientist, Natural Resources Defense Council),

OCEANS: THE THREATS TO OUR SEAS, 2010, 106. The potential loss

of coral reefs illustrates how ocean acidification, like global warming, can

be not only an environmental issue but an economic, security, and ethical

one as well. Currently, coral reefs generate billions of dollars annually intourism, provide shoreline protection from storms and flooding, and supplyfood for tens of millions of people worldwide. The impending

socioeconomic impacts loom large.

343. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

25. Most worrisome of all is the double whammy of excess carbon dioxide

from human activities as the principal driver underlying accelerated globalwarming and climate change, coupled with the transformation of excess

carbon dioxide in the ocean to carbonic acid, now causing acidification ofthe sea on a grand scale. Perversely, the natural living systems that over

billions of years have generated and shaped planetary chemistry in waysthat make Earth hospitable for humankind are being destroyed at

breathtaking speed.

344. Donald Rothwell, (Prof., International Law, Australian National U.),

THE INTERNATIONAL LAW OF THE SEA, 2010, 341. One of the

largest sources of atmospheric pollution of the marine environment is now

carbon dioxide released from human activities including the burning offossil fuels, industrial processes (such as the manufacture of cement), andland use change (such as deforestation). The oceans absorb around one-thirdof the carbon dioxide produced by human activities, and this gives rise to

the chemical process known as ocean acidification. Alongside the direct

effects of climate change such as rising sea levels and warmer water

temperatures which affects ocean circulation and generates ocean deadzones, ocean acidification poses one of the most serious threats to the health

of the marine environment.

345. Eugene Buck, (Specialist in Natural Resources Policy, Congressional

Research Service), POISONING AND ACIDIFICATION OF THE

EARTH'S OCEANS, 2010, 31. In October 2008, NOAA and the National

Science Foundation commissioned an 18-month comprehensive national

study by the National Research Council of the National Academy ofSciences of how CO2 emissions absorbed into the oceans may be altering

fisheries, marine mammals, coral reefs, and other natural resources.

346. Curt Stager, (Prof., Natural Science, College of the Adironbacks),

DEEP FUTURE: THE NEXT 100,000 YEARS OF LIFE ON EARTH,

2011, 10. There's much more to CO2 pollution than climate change, though.

Carbon dioxide will gradually acidify much or all of the oceans as theyabsorb tons of fossil fuel emissions from the air. That chemical disturbance

threatens to weaken or even dissolve the shells of countless corals,

mollusks, crustaceans, and many microorganisms, and their loss, in turn,

will threaten other life-forms that interact with them.

347. Eugene Buck, (Specialist in Natural Resources Policy, Congressional

Research Service), POISONING AND ACIDIFICATION OF THE

EARTH'S OCEANS, 2010, 28. In response to ocean acidification, scientists

have projected that mussel and oyster calcification, and thus shell strength,

could decrease by 25% and 10%, respectively, by the end of the 21stcentury, according to the Intergovernmental Panel on Climate Change'sIS92a scenario. There is also the concern that increased acidification may

cause marine calcium carbonate sediments to dissolve with potentialdetrimental effects on species and communities residing in and on these

sediments. Since many of these organisms provide food or modify habitat

for other organisms, the well-being of these carbonate-dependent specieswill affect other species.

348. National Science and Technology Council, SCIENCE FOR AN

OCEAN NATION: UPDATE OF THE OCEAN RESEARCH PRIORITIES

PLAN, 2013, 9. Increasing carbon dioxide (CO2) in the atmosphere results

in increased CO2 in the ocean, where it lowers pH and changes fundamentalocean chemistry. Organisms that build their shells and skeletons from

calcium carbonate are particularly affected. Resulting impacts include

increased stress on coral reefs, changes in food chains for commercialfisheries, and disruption of the natural processes that transport and store

carbon in the deep ocean. An even more acidic ocean of the future will havea profound impact on marine biodiversity, species viability and distribution,

and food webs, but understanding the form those changes will take or their

net effect on marine ecosystems is a considerable challenge for adaptation

and mitigation.

349. Kirstin Dow, (Prof., Geology, U. of South Carolina), THE ATLAS OF

CLIMATE CHANGE: MAPPING THE WORLD'S GREATEST

CHALLENGE, 2011, 28. Increased acidity is expected to affect the variety

of marine organisms with shells of calcium or aragonite, decrease oxygen

metabolism of animals, and alter nutrient availability. The expectedconsequences of this change are already being observed in marine life.

Scientists have measured decreases in the weight of the shells of small

marine snails (pteropods) as well as decreases in the calcification of corals

in the Great Barrier Reef. Impacts on these small organisms, which are the

base of the food chain and therefore the foundation of productive habitats,

could ripple up to affect fisheries and therefore protein and food security formillions of poor people.

EVIDENCE

350. Kirstin Dow, (Prof., Geology, U. of South Carolina), THE ATLAS OF

CLIMATE CHANGE: MAPPING THE WORLD'S GREATEST

CHALLENGE, 2011, 28. An initial calculation of possible economic lossesassociated with a 10 to 25 percent decline in mollusk catches in the USA

alone estimates losses for the year 2060 at between $324 million and $5.1billion at current values. Under scenarios of increasing emissions of carbon

dioxide, surface ocean pH is projected to decrease further, by 0.4 ± 0.1 pHunits, becoming increasingly acidic by 2100 relative to pre-industrialconditions.

351. Severin Carrell, (Staff, The Guardian), WATER: OPPOSING

VIEWPOINTS, 2012, 35. A report by more than 100 of Europe's leadingmarine scientists, released at the climate talks this morning, states that theseas are absorbing dangerous levels of carbon dioxide as a direct result ofhuman activity. This is already affecting marine species, for example byinterfering with whale navigation and depleting planktonic species at the

base of the food chain.

352. Orrin Pilkey, (Prof., Ocean Sciences, Florida State U.), GLOBALCLIMATE CHANGE: A PRIMER, 2011, 101. The increased carbon in the

atmosphere is causing ocean acidification, which is probably weakening

coral skeletons and making calcification difficult for juvenile corals. If

temperatures rise too quickly, the result can be bleaching caused by the lossof oxygen-producing zooxanthellae algae, and death for many corals and

their associated organisms.

353. Ramez Naam, (Fellow, Institute for Ethics and EmergingTechnologies), THE INFINITE RESOURCE: THE POWER OF IDEAS

ON A FINITE PLANET, 2013, 79. Corals, meanwhile, are the rainforests

of the sea. More than 25 percent of the biodiversity of the oceans is found

around coral reefs. In tropical seas in particular, the warm temperature of

the surface waters prevents minerals and other nutrients from rising up from

the depths. Coral reefs host algae, which photosynthesize light, providingnutrients for the rest of the food chain. They serve as nurseries to newly

hatched fish of staggering varieties, giving them someplace safe to grow

before venturing into dangerous open waters. Large parts of the ocean food

web depend upon them. And they are already under massive pressure.

Worldwide, more than 20 percent of coral reefs are dead, and another 50

percent are in serious danger from warming seas and human activity.

354. Ramez Naam, (Fellow, Institute for Ethics and EmergingTechnologies), THE INFINITE RESOURCE: THE POWER OF IDEAS

ON A FINITE PLANET, 2013, 79. Ocean acidification places coral reefsunder greater pressure and threatens the phytoplankton that the entireocean's food web depends upon. Dozens of studies looking at differentspecies of calcifiers have found thinner shells, reduced growth, smaller size,

or lower survival at higher acidities that model those the oceans will reach

in coming decades.

355. Paul Snelgrove, (Prof., Oceanography, Memorial U., Newfoundland),

DISCOVERIES OF THE CENSUS OF MARINE LIFE: MAKING

OCEAN LIFE COUNT, 2010, 194. The global ocean paid a price for takingup almost a third of the additional CO2 that humans added to the

atmosphere during the twentieth century. Dissolved CO2 increased ocean

acidity measurably and acidity dissolves calcium carbonate, the stuff ofcoral skeletons, among others. In the North Pacific, coral distributions are

already changing. Echinoderms, mollusks, foraminiferans, and corals are

candidates to suffer this century if acidification worsens, with cascading

effects on other species. Low oxygen waters in OMZs are already more

acidic than elsewhere and as they expand will amplify acidification effects.

356. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

178-179. Some think first of the consequences to coral reefs, where

increasing acidity can interfere with the ability of corals to build and

maintain their stony skeletons; past a certain level, they dissolve. The

structure of coral reefs also depends on red and green species of coralline

algae that may make up as much as 90 percent of the mass of a coral reef.

They, too, dissolve when the surrounding water becomes too acidic.

Everything with a calcium carbonate shell is vulnerable—oysters, clams,

snails, pteropods (planktonic swimming mollusks), many sponges, sea stars,

sea cucumbers, sea urchins—the list is long.

357. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

179. A change in acidification can cause trouble for everything fromdeveloping fish to jellyfish. Alter the chemistry of the ocean, and the entire

system shifts. Some natural changes we can predict, but it is impossible to

anticipate how fast, or how much will occur as a consequence of tipping the

ocean's chemistry onto a different course.

BAYLOR BRIEFS 99

358. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

179. Most worrisome is the effect rising acidification is having on the verysmall photosynthetic organisms that generate much of the oxygen in the

atmosphere. Trees, grasses, and other land plants are critically important interms of maintaining the atmospheric gases in just the right proportion

suitable for present life on Earth, including us, but photosynthetic

organisms in the sea do most of the heavy lifting when it comes to

generating oxygen and otherwise holding planetary chemistry on a steady

course. As acidification increases, acid-tolerant organisms will prosper, and

some now present in small numbers are likely to increase. Those thatrequire the alkaline environment that has characterized the chemistry of the

ocean for millions of years will fade.

359. Carol Turley, (Researcher, Plymouth Marine Laboratory), OCEAN

ACIDIFICATION, 2011, 252-255. The oceans are an enormous store of

carbon, substantially greater than storage on land or in the atmosphere, and

hence they play a key role in the global carbon cycle, especially the

regulation of the amount of CO2 in the atmosphere. The oceans havealready taken up around 28 to 34% of the CO2 produced by humankindsince the beginning of the Industrial Revolution. This has reduced the extent

of global warming but has come at the price of the substantial change to

ocean chemistry under consideration here.

360. Richard Feeley, (Oceanographer, Pacific Marine Environmental

Laboratory, NOAA), POISONING AND ACIDIFICATION OF THE

EARTH'S OCEANS, 2010, 3. Many marine organisms that produce

calcium carbonate shells studied thus far have shown detrimental effects

due to increasing carbon dioxide levels in seawater and the resulting declinein pH. For example, increasing ocean acidification has been shown tosignificantly reduce the ability of reef-building corals to produce their

skeletons, affecting growth of individual corals and making the reef morevulnerable to erosion. Some estimates indicate that, by the end of this

century, coral reefs may erode faster than they can be rebuilt. This could

compromise the long-term viability of these ecosystems and perhaps impactthe thousands of species that depend on the reef habitat.

361. Ryan Kelly, (Fellow, Center for Ocean Solutions, Stanford U.),

HARVARD ENVIRONMENTAL LAW REVIEW, 2013, 58. Ocean

acidification is known as "the other CO2 problem," because it has received

less attention than climate change but is similarly caused by rising levels ofatmospheric carbon dioxide ("CO2"). Because the ocean absorbs roughly

one-third of the CO2 that humans release into the atmosphere annually, it is

significantly more acidic than it was during the preindustrial era. This moreacidic ocean has begun to dissolve the shells and other hard parts of marine

organisms and threatens to change fundamentally the marine ecosystems on

which a large fraction of the world depends for sustenance, recreation, and a

host of other services.

362. Mark Lynas, (British Environmentalist), THE GOD SPECIES:

SAVING THE PLANET IN THE AGE OF HUMANS, 2011, 200-201.

Already today there is evidence that acidification is beginning to have aneffect on corals, even in protected areas like Australia's Great Barrier Reef.

In January 2009 Australian marine biologists reported a 14 percent decline

in calcification rates measured over 69 different locations up and down the

Barrier Reef over the 15 years between 1990 and 2005.

363. Mark Lynas, (British Environmentalist), THE GOD SPECIES:

SAVING THE PLANET IN THE AGE OF HUMANS, 2011, 201. The

entire marine ecosystem is at risk from acidification, from the tropics to the

poles. In the Arctic, bottom-dwelling organisms like mussels and clams—

vital food for diving seabirds, bearded seals, gray whales, and walrus—may

already be suffering the impacts of rising acidity. The acidification hot spot

on the western U.S. continental shelf could put at risk the giant kelp foreststhat are important centers of marine biodiversity, and affect lobsters, sea

urchins, snails, mussels, and hundreds of other ocean-dwelling animals andplants.

364. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 110. All

tropical coral reefs inhabit waters that are less than three hundred feet deep,

so they will quickly come under the influence of ocean acidification. Ifcarbon dioxide in the atmosphere doubles from its current level, all of the

world's coral reefs will shift from a state of construction to erosion. They

will literally begin to crumble and dissolve, as erosion and dissolution of

carbonates outpaces deposition.

365. David Blockstein, (Sr. Scientist, National Council for Science and the

Environment), CLIMATE SOLUTIONS CONSENSUS, 2010, 79. We have

already lowered the pH level of the ocean by about 0.1 unit. Lower pH

slows coral growth, which compounds the problems brought on bybleaching and disease. Slow growth for coral means that coral loses its

ability to compete with other species such as sponges and seaweeds and to

keep up with sea level rise. As the concentration of atmospheric carbon

dioxide increases, ocean warming and acidification will accelerate. Even

conservative forecasts suggest the planet could lose coral reef systems on a

large scale by 2100.

EVIDENCE BAYLOR BRIEFS 100

366. Fortunat Joos, (Prof., Climate & Environmental Physics, U. of Bern,

Switzerland), OCEAN ACIDIFICATION, 2011, 272. Ocean acidification

caused by the uptake of carbon dioxide (CO2) by the ocean is an important

global change problem. Ongoing ocean acidification is closely linked toglobal warming, as acidification and warming are primarily caused by

continued anthropogenic emissions of CO2 from fossil fuel burning, landuse, and land-use change. Future ocean acidification will be determined by

past and future emissions of CO2 and their redistribution within the earth

system and the ocean.

367. Carol Turley, (Researcher, Plymouth Marine Laboratory), OCEAN

ACIDIFICATION, 2011, 251. Polar, subpolar, and deep-sea ecosystems are

also at risk as ocean acidification will be most severe there and organisms

playing important roles in those ecosystems are particularly vulnerable, for

example the mollusc Limacina helicina, a key link in the polar and subpolar

food chain, or the deep-water coral Lophelia pertusa, which is key in

creating important deep-sea ecosystems.

368. John Roff, (Prof., Environmental Science, Acadia U.), MARINE

CONSERVATION ECOLOGY, 2011, 3. Tens of thousands of kilometres

of coral reefs have bleached in recent years as a result of increased ocean

temperatures, which may be aggravated by the addition of greenhouse

gasses from the combustion of fossil fuels. Important breeding, feeding,

mating and resting areas for migratory species have been affected by humanactivities.

369. Orrin Pilkey, (Prof., Ocean Sciences, Florida State U.), GLOBALCLIMATE CHANGE: A PRIMER, 2011, 102. The loss of reefs will

represent a loss of an important carbon sink, leading to increasing carbonconcentration of the atmosphere. The loss of the reef fauna and flora will be

a loss to the fishing economy of many local communities and the economyof numerous tourist villages. Most important will be the loss of a huge

number of reef-dependent species of marine organisms.

370. Bruce Wright, (Member, Pew Oceans Commission), CHANGINGCONDITIONS IN THE ARCTIC, Jan. 24, 2011. Retrieved Mar. 10, 2014

from

http://www.whitehouse.gov/sites/default/files/microsites/ceq/arctic\_comments\_1.24.11-4.29.11.pdf. As the oceans become more acidic they are lessreliable as a sink for CO2; they are becoming saturated with CO2. The

Southern Ocean has been absorbing less CO2 from the atmosphere since

1981 even though CO2 levels have increased 40% due to burning of fossil

fuels. Oceans once absorbed half of all human carbon emissions, but the

Southern Ocean is taking up less and less and is reaching its saturation

point. This is evidence of a positive feedback that could rapidly acceleratethe rate of climate change. Climate models predict that this kind of feedbackwill continue and intensify; as the oceans reach their saturation point moreCO2 will stay in our atmosphere.

371. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 3-4. The most intense heat in Russia's 130 years of record-keeping

was taking a heavy economic toll. The loss of standing forests and theprojected cost of their restoration totaled some $300 billion. Thousands offarmers faced bankruptcy. Russia's grain harvest shrank from nearly 100

million tons to scarcely 60 million tons as crops withered. Recently the

world's number three wheat exporter, Russia banned grain exports in a

desperate move to rein in soaring domestic food prices. Between mid-June

and mid-August, the world price of wheat climbed 60 percent. Prolonged

drought and the worst heat wave in Russian history were boosting foodprices worldwide.

372. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, x. My sense is that the "perfect storm" or the "ultimate recession"

could come at any time. It will likely be triggered by an unprecedentedharvest shortfall, one caused by a combination of crop-withering heat waves

and emerging water shortages as aquifers are depleted. Such a grain

shortfall could drive food prices off the top of the chart, leading exportingcountries to restrict or ban exports — as several countries did when pricesrose in 2007-08 and as Russia did again in response to the heat wave of2010. This in turn would undermine confidence in the market economy as a

reliable source of grain. And in a world where each country would be

narrowly focused on meeting its own needs, the confidence that is the

foundation of the international economic and financial systems would begin

to erode.

373. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 11. On the social front, the most disturbing trend is spreading hunger.

For the last century's closing decades, the number of chronically hungry andmalnourished people worldwide was shrinking, dropping to a low of 788

million by 1996. Then it began to rise — slowly at first, and then more

rapidly — as the massive diversion of grain to produce fuel for cars doubledthe annual growth in grain consumption. In 2008, it passed 900 million. By2009, there were more than a billion hungry and malnourished people. The

U.N. Food and Agriculture Organization anticipated a decline in the number

of hungry people in 2010, but the Russian heat wave and the subsequent

climb in grain prices may have ended that hope.

374. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 13-14. Food price stability now depends on a record or near-recordworld grain harvest every year. And climate change is not the only threat tofood security. Spreading water shortages are also a huge, and perhaps evenmore imminent, threat to food security and political stability. Water-based"food bubbles" that artificially inflate grain production by depleting aquifersare starting to burst, and as they do, irrigation-based harvests are shrinking.

The first food bubble to burst is in Saudi Arabia, where the depletion of its

fossil aquifer is virtually eliminating its 3million-ton wheat harvest. And

there are at least another 17 countries with food bubbles based on

overpumping.

375. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 47. The effects of high temperatures on food security are scary.

Agriculture as it exists today has evolved over 11,000 years of ratherremarkable climate stability. As a result, world agriculture has evolved to

maximize productivity within this climatic regime. With the earth's climate

changing, agriculture will increasingly be out of sync with the climatesystem that shaped it. When temperatures soar during the growing season,

grain yields fall. Crop ecologists use a rule of thumb that for each 1-degree-

Celsius rise in temperature above the optimum during the growing season,

we can expect a 10-percent decline in grain yields.

376. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 47. Among other things, temperature affects photosynthesis. In a

study of local ecosystem sustainability, Mohan Wali and his colleagues atOhio State University noted that as temperature rises, photosynthetic

activity in plants increases until the temperature reaches 68 degrees

Fahrenheit. The rate of photosynthesis then plateaus until the temperature

hits 95 degrees, whereupon it begins to decline. At 104 degrees,

photosynthesis ceases entirely.

377. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 47-48. The most vulnerable part of a plant's life cycle is the

pollination period. Of the world's three food staples — rice, wheat, and corn

— corn is particularly vulnerable to heat stress. In order for corn to

reproduce, pollen must fall from the tassel to the strands of silk that emerge

from the end of each ear of corn. Each of these silk strands is attached to a

kernel site on the cob. If the kernel is to develop, a grain of pollen must fall

on the silk strand and then journey to the kernel site. When temperatures are

uncommonly high, the silk strands quickly dry out and turn brown, unable

to play their role in the fertilization process.

378. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 48. The effects of temperature on rice pollination have been studied

in detail in the Philippines. Scientists there report that the pollination of rice

falls from 100 percent at 93 degrees Fahrenheit to nearly zero at 104degrees Fahrenheit, leading to crop failure.

379. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 48. Heat waves clearly can decimate harvests. Other effects of higher

temperatures on our food supply are less obvious but no less serious.

380. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 47. The effects of high temperatures on food security

are scary. Agriculture as it exists today has evolved over 11,000 years ofrather remarkable climate stability. As a result, world agriculture hasevolved to maximize productivity within this climatic regime. With the

earth's climate changing, agriculture will increasingly be out of sync withthe climate system that shaped it. When temperatures soar during the

growing season, grain yields fall. Crop ecologists use a rule of thumb that

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growing season, we can expect a 10-percent decline in grain yields.

381. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

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photosynthesis. In a study of local ecosystem sustainability, Mohan Waliand his colleagues at Ohio State University noted that as temperature rises,

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temperature hits 95 degrees, whereupon it begins to decline. At 104

degrees, photosynthesis ceases entirely.

382. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 48. In order for corn to reproduce, pollen must fall fromthe tassel to the strands of silk that emerge from the end of each ear of corn.

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is to develop, a grain of pollen must fall on the silk strand and then journey

to the kernel site. When temperatures are uncommonly high, the silk strands

quickly dry out and turn brown, unable to play their role in the fertilization

process.

383. CHARLESTON GAZETTE, Aug. 18, 2012, 4A. More violent stormsinflict billions in damage. Rising sea levels menace coastal zones. Tropical

diseases spread northward, hurting people, livestock, forests and crops. Theexpense of global warming is colossal. Practical common sense requires

steps to reduce this loss.

EVIDENCE BAYLOR BRIEFS 101

384. Daniel Perlmutter, (Prof., Chemical Engineering, U. Pennsylvania),

THE CHALLENGE OF CLIMATE CHANGE, 2011, 6. There is a broad

consensus in both the scientific and policy communities that something

needs to be done — and soon — about the world-wide energy utilizationthat is bringing about continuing global changes leading to seriousenvironmental deterioration. An uncontrolled global warming would createcatastrophic consequences for the earth and its various political, economic,

and social subsystems.

385. Clive Hamilton, (Prof., Public Ethics, Center for Applied Philosophy,

Australian National U.), REQUIEM FOR A SPECIES: WHY WE RESISTTHE TRUTH ABOUT CLIMATE CHANGE, 2010, 10-11. Overall, the

effectiveness of natural sinks at removing carbon dioxide from the

atmosphere has declined by 5 per cent over the last 50 years, and the decline

will continue. Unless offset by some other process, warming amplified bypositive-feedback effects will, over centuries and perhaps much sooner,

melt all of the ice on Earth, causing the seas to rise by some 70 metres.

386. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, xi. The threats to our future now are not armed aggression but ratherclimate change, population growth, water shortages, poverty, rising foodprices, and failing states.

387. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 3. The average July temperature in Moscow was a scarcely believable14 degrees Fahrenheit above the norm. Twice during the heat wave, the

Moscow temperature exceeded 100 degrees Fahrenheit, a level Muscoviteshad never before experienced. Watching the heat wave play out over a

seven-week period on the TV evening news, with the thousands of fires andthe smoke everywhere, was like watching a horror film that had no end.

Russia's 140 million people were in shock, traumatized by what was

happening to them and their country.

388. Elizabeth Black, (Attorney, Environmental Practice & Litigation

Department, Carter Ledyard & Milburn, LLP), GEORGETOWN

INTERNATIONAL ENVIRONMENTAL LAW REVIEW, 2010, 359. The

possible weather-related effects of climate change include increased

frequency and intensity of droughts, severe storms, flooding, heat waves,

and rising sea levels. In turn, the natural and weather-related consequencesof climate change are, likely to spur more serious social and economic

consequences, including food and water shortages, mass migration, and

conflicts over resources. In addition, there exists a geographic and temporal

disconnect between the causes and effects of climate change.

389. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 46. The pattern of more-intense heat waves, more-powerful storms,

and more-destructive flooding is consistent with what climate models

project will happen as the earth's temperature rises. The worst heat wave in

Russian history and the worst flooding in Pakistan's history are the kind ofextreme events we can expect to see more of if we continue with business

as usual. James Hansen, the U.S. government's leading climate scientist,

asks, "Would these events have occurred if atmospheric carbon dioxide had

remained at its pre-industrial level of 280 ppm [parts per million]?" The

answer, he says, is "almost certainly not."

390. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 6. Meanwhile, with our massive burning of fossil fuels, we are

overloading the atmosphere with carbon dioxide (CO2), pushing the earth's

temperature ever higher. This in turn generates more frequent and moreextreme climatic events, including crop-withering heat waves, more intensedroughts, more severe floods, and more destructive storms.

391. Clive Hamilton, (Prof., Public Ethics, Center for Applied Philosophy,

Australian National U.), REQUIEM FOR A SPECIES: WHY WE RESISTTHE TRUTH ABOUT CLIMATE CHANGE, 2010, 9-10. Warming isexpected to cause more deforestation through droughts, fires and hightemperatures inhibiting plant growth. A recent study concluded that a 4°Crise in the Earth's average temperature would kill off 85 per cent of the

Amazon rainforest, and that even a 2°C rise, now seen as unavoidable, will

see 20-40 per cent of it die off.

392. Clive Hamilton, (Prof., Public Ethics, Center for Applied Philosophy,

Australian National U.), REQUIEM FOR A SPECIES: WHY WE RESISTTHE TRUTH ABOUT CLIMATE CHANGE, 2010, 12. Most leading

climate scientists now believe that 2°C of warming would pose a substantial

risk both because of its direct impacts on climatically sensitive Earthsystems and because of the potential to trigger irreversible changes in thosesystems. The latter include the disappearance of Arctic summer sea-ice andmelting of much of the Greenland and West Antarctic icesheets.

393. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 48. It is almost inevitable that

substantial changes to ecosystems and corresponding changes in access to

scarce natural resources will spur conflict. Securing access to vital resources

is among the oldest and most common causes of human warfare.

394. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 49. If the IPCC's most recent

projections on climate change are accurate, the world will soon experience

increased regional famine, water shortages, and associated mass migration.

As one public research institute recently summarized, these changes will

"seriously exacerbate already marginal living standards in many Asian,

African, and Middle Eastern nations, causing widespread politicalinstability and the likelihood of failed states. . . . The chaos that results can

be an incubator of civil strife, genocide, and the growth of terrorism."

(ellipsis in original)

395. Robert Henson, (Analyst, National Center for Atmospheric Research),

THE ROUGH GUIDE TO CLIMATE CHANGE, 2011, 14. Quantifyingthe human cost of climate change is exceedingly difficult. The World

Health Organization has estimated that in 2000 alone, more than 150,000people died as a result of direct and indirect climate-change impacts. A

more comprehensive study, released in 2009 by the Global Humanitarian

Forum (a think tank headed by former UN chief Kofi Annan) found thatdisasters related to climate change kill some 300,000 people each year. The

medical journal Lancet, building on IPCC findings, warned in a 2009 reportthat "climate change is potentially the biggest global health threat in the

twenty-first century".

396. David Blockstein, (Sr. Scientist, National Council for Science and the

Environment), CLIMATE SOLUTIONS CONSENSUS, 2010, 23. The

World Health Organization estimates that climate change caused the loss of

150,000 lives in the year 2000 alone and that weather-related natural

disasters killed approximately 600,000 people worldwide during the 1990s.

Disproportionate numbers of these deaths are among the poor, the sick, the

young, and the elderly, especially in the developing world.

397. Andrew Appleby, (J.D. Candidate), CUMBERLAND LAW REVIEW,

2009/2010, 16-17. There are several reasons why climate change "poses a

serious threat to America's national security." In many of the world's mostvolatile regions, climate change will exacerbate political instability.

Admiral T. Joseph Lopez asserts that "[c]limate change will provide the

conditions that will extend the war on terror . . . ." Additionally, climate

change can "create sustained natural and humanitarian disasters on a scale

far beyond those we see today." The effects of climate change have real

costs to the United States. The United States will likely be called upon to

stabilize these regions with military and humanitarian assistance. Developed

countries such as the United States and European nations will likely see a

massive influx of immigration as well. The world's poorest nations are most

vulnerable to the effects of climate change. Poor nations depend heavily onagriculture and natural resources, and they do not have the means to adapt

to radical changes in the climate. The poorest people in the world havemeager access to food and medical care, which is compounded because they

tend to live in areas that are most prone to natural disasters, drought, anddisease. Climate change has economic costs as well. Paul Volcker, formerFederal Reserve chairman, predicts "that the economy will go down the

drain in the next 30 years" if the United States does not take immediate

measures to reduce global warming. (ellipsis in original)

398. Andrew Appleby, (J.D. Candidate), CUMBERLAND LAW REVIEW,

2009/2010, 16. The potential impact of climate change on national securityis another key reason why the United States must eliminate oil use. In arecent study, a distinguished Military Advisory Board recognized that"[c]limate change, national security, and energy dependence are a related

set of global challenges." The Board recommended that the United States

fully integrate the national security consequences of climate change intonational security and national defense strategies. Furthermore, "[t]ime is ofthe essence because deferring action will only limit our options in thefuture." Climate scientists now suggest that we have less than eight years tostart making a significant reduction of greenhouse gases. If the UnitedStates does not act now, our only choice will be to "quickly fashion radicalnew approaches that will come too late to avoid massive disruptions."

399. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 15. Among other things, the situation in which we find ourselvespushes us to redefine security in twenty-first century terms. The time whenmilitary forces were the prime threat to security has faded into the past. Thethreats now are climate volatility, spreading water shortages, continuing

population growth, spreading hunger, and failing states. The challenge is todevise new fiscal priorities that match these new security threats.

400. David Blockstein, (Sr. Scientist, National Council for Science and the

Environment), CLIMATE SOLUTIONS CONSENSUS, 2010, 78. In

addition to temperature changes, climate disruption is already starting to

alter precipitation and wind patterns, all of which are driven by the vast

oceans as heat sinks. The world's oceans, which will warm less quickly thanland, are undergoing both warming and acidification. These impacts are

already being seen on coral reefs, which are the ocean's most biodiverse

type of ecosystem.

EVIDENCE BAYLOR BRIEFS 102

401. David Blockstein, (Sr. Scientist, National Council for Science and the

Environment), CLIMATE SOLUTIONS CONSENSUS, 2010, 78-79. At

least three different but compounding mechanisms brought on by climate

change kill living corals and threaten coral populations: (1) Temperaturerise forces coral bleaching, which is the expulsion of tiny plantlikeorganisms (zooxanthellae) that live within the coral tissue and provide the

host with food and oxygen; (2) warming temperatures magnify the effect of

infectious diseases on coral, leading to more coral loss; (3) acidification of

ocean water makes it more difficult and more costly in terms of energy for

corals to secrete their calcium carbonate skeleton.

402. Mark Hertsgaard, (Journalist), HOT: LIVING THROUGH THE

NEXT FIFTY YEARS ON EARTH, 2011, 59. Coral reefs are also a keyfoundation of the marine food chain, nurturing the fisheries that provide i

billion people on earth with their primary source of protein. But coral reefs

are effectively doomed by the inertia of the climate system. Highertemperatures serve to bleach and kill coral; some scientists expect 98percent of the world's coral to be gone by 2050.

403. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 50. While the ice sheets are melting, so too are mountain glaciers —

nature's freshwater reservoirs. The snow and ice masses in the world's

mountain ranges and the water they store are taken for granted simply

because they have been there since before agriculture began. Now that ischanging. If we continue raising the earth's temperature, we risk losing the

"reservoirs in the sky" on which so many farmers and cities depend.

404. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 50. Americans need not go far from home to see massive glacier

melting. In 1910, when Glacier National Park in western Montana was

created, it had some 150 glaciers. In recent decades, these glaciers have

been disappearing.• By the end of 2009, only 27 were left. In April 2010park officials announced that 2 more had melted, leaving only 25. It appears

to be only a matter of time until all the park's glaciers are gone.

405. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 50. Other landmarks, such as the glaciers on Mount Kilimanjaro inEast Africa, are also melting quickly. Between 1912 and 2007,

Kilimanjaro's glaciers shrank 85 percent. It is too late to save this landmark.

Like the glaciers in Glacier National Park, those on Kilimanjaro may soon

be relegated to photographs in museums. The World Glacier MonitoringService has reported the nineteenth consecutive year of shrinking mountainglaciers. Glaciers are melting in all of the world's major mountain ranges,

including the Andes, the Rockies, the Alps, the Himalayas, and the Tibetan

Plateau.

406. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 50-51. Ice melt from mountain glaciers in the Himalayas and on the

Tibetan Plateau helps sustain the major rivers of Asia during the dry season,

when irrigation water needs are greatest. In the Indus, Ganges, Yellow, and

Yangtze River basins, where irrigated agriculture depends heavily on the

rivers, the loss of any dry-season flow is bad news for farmers. These

melting glaciers coupled with the depletion of aquifers present the most

massive threat to food security the world has ever faced. China is the

world's leading producer of wheat. India is number two. (The United Statesis number three.) With rice, China and India totally dominate the worldharvest.

407. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 51. In India, the giant Gangotri Glacier, which helps keep the GangesRiver flowing during the dry season, is retreating. The Ganges River is notonly by far the largest source of surface water irrigation in India, it is also a

source of water for the 407 million people living in the Gangetic basin. YaoTandong, a leading Chinese glaciologist, reports that glaciers on the Tibetan

Plateau in western China are now melting at an accelerating rate. Many

smaller glaciers have already disappeared. Yao believes that two thirds ofthese glaciers could be gone by 2060. If this melting of glaciers continues,

Yao says it "will eventually lead to an ecological catastrophe." The Yellow

River basin is home to 147 million people; their fate is closely tied to the

river because of low rainfall in the northern half of China. The Yangtze is

by far the country's largest river, helping to produce half or more of its 130million-

ton rice harvest. The Yangtze basin is home to 369 million people

— more than the entire population of the United States. Thus the number ofpeople affected by the melting and eventual disappearance of glaciers will

be huge.

408. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 67. Over

120,000 years of climate records held in annual layers of snow cored fromwithin the Greenland ice sheet suggest that this part of the global oceanconveyor has stopped many times in the past. It seems that a breakdown can

occur rapidly, in as little as a few decades. The trigger for these stoppagesin the past was a sudden drop in the salinity of Arctic seas. The periodcovered by the Greenland ice cores lies within the last glaciation, from

110,000 years to 10,000 years ago, when much of North America and

Europe were ice-bound. The ice sheets grew in thickness as snowfall

accumulated over thousands of years. Eventually it grew top-heavy andbecame unstable. Ice surged through the Hudson Strait into the North

Atlantic, where it melted, freshened the sea, and switched off deep bottomwater formation at the northern extremity of the global ocean conveyor

current.

409. Mark Lynas, (British Environmentalist), THE GOD SPECIES:

SAVING THE PLANET IN THE AGE OF HUMANS, 2011, 205. Fiftymillion years earlier, at the end of the Permian period, the biggest mass

extinction of all time wiped out as many as 95 percent of species—and once

again volcanic CO2, followed by a massive oceanic methane hydrate

release, has been fingered as the main cause.

410. Subhankar Banarjee, (Visiting Professor, Institute for Advanced Study,

Princeton U.), ARCTIC VOICES: RESISTANCE AT THE TIPPINGPOINT, 2012, 85. Both the Beaufort and Chukchi seas have large but

unknown quantities of methane underneath their sea floors. Already largequantities of methane have been escaping rapidly in the East Siberian ArcticShelf due to warming of subsea permafrost there. Also know that methane

is twenty times more potent as a greenhouse gas than CO2. Scientists are

very worried about a potentially massive amount of methane escaping fromboth terrestrial and subsea permafrost due to Arctic warming. If that

happens it'd be catastrophic for the planet.

411. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 94-95.

Another positive proof of global warming is newly emerging in the Arctic

Ocean. The seabed has begun to spew forth bubbles of the greenhouse gas

methane on a colossal scale as permafrost melts at the bottom of the ocean

where ice sheets are in retreat. Russian scientists announced the findings at

a San Francisco conference in December 2011 where the leader of the team,

Professor Igor Semiletov, described fountains of methane more than half amile wide. He said they saw hundreds of such fountains but estimated there

could be thousands more. So methane emissions from the seabed are now

adding to those from melting permafrost on land to accelerate global

warming.

412. Orrin Pilkey, (Prof., Ocean Sciences, Florida State U.), GLOBALCLIMATE CHANGE: A PRIMER, 2011, 9. The sudden release of massive

amounts of methane from marine methane ice is the suspected cause of twoof the Earth's major extinction events. The Paleocene-Eocene Thermal

Maximum of 55 million years ago led to the extinction of numerous marineand land-based organisms. In this instance the collapse of methane ice

deposits seems highly probable as the cause of the occurrence of spectacularatmospheric warming, which took perhaps 100,000 years to recover from.

413. Albert Nerenberg, (Staff), MONTREAL GAZETTE, Mar. 11, 2011,

A2. In fact, weird winter weather is exactly in line with many

climatechange predictions. Counterintuitive though it may be, "heavy

snowstorms are not inconsistent with a warming planet," Jeff Masters,

director of meteorology for the Weather Underground, the private weather

monitoring agency, stated in a press release from the aptly named Union ofConcerned Scientists. "In fact, as the Earth gets warmer and more moisturegets absorbed into the atmosphere," he said. "We are steadily loading the

dice in favour of more extreme storms in all seasons, capable of causing

greater impacts on society."

414. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 92-93. So

far only the upper layers of the sea have begun to warm up. As heat

penetrates deeper, the sea will expand, and sea levels will continue to rise.

In 2007 the Intergovernmental Panel on Climate Change (IPCC) predicted

that sea levels could rise by another seven to twenty-four inches by 2100,

depending on how fast we gain control over the drivers of climate change.

Their forecasts combine thermal expansion of seawater with ice loss from

mountain glaciers and the Greenland and Antarctic ice sheets. But their

figures seem increasingly at odds with the recent acceleration: Sea levels

have risen faster than the most rapid rate of change they predicted a decade

ago.

415. Mark Kurlansky, (Journalist), WORLD WITHOUT FISH, 2011, xx.

One place where we are losing species at an enormous rate is in the oceans.

Throughout the world, coral reefs, complex ecosystems that house a widevariety of plants and animals, are losing species that haven't even been

discovered or identified.

416. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 41-42. Over the last 130 years, sealevels have risen about 8 inches (200 mm) as a result of increased

temperatures. On average, oceans rose .062 inches (1.6 mm) per year. While

that increase alone is not insignificant, the much greater concern is that the

rate of ocean expansion seems to be accelerating.

417. Timothy Kusky, (Prof., Natural Science, St. Louis U.),

ENCYCLOPEDIA OF EARTH AND SPACE SCIENCE, 2010, 669. The

rate of sea-level rise seems to be accelerating, and may presently be as

much as an inch (2.5 cm) every eight to 10 years. If all of the ice on boththe Antarctic and Greenland ice sheets were to melt, global sea levels would

rise by 230 feet (70 m), inundating most of the world's major cities and

submerging large parts of the continents under shallow seas.

418. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 75. How far might the sea level rise? Rob Young and Orrin Pilkey

note in The Rising Sea that planning panels in Rhode Island and Miami

assume a minimum rise of 3.5 feet by 2100. A California planning study

uses a 4.6-foot rise by century's end. The Dutch, for their coastal planningpurposes, are assuming a 2.5-foot rise for 2050.

EVIDENCE BAYLOR BRIEFS 103

419. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 75.If the Greenland ice sheet, which is well over a mile thick in

places, were to melt completely, sea level would rise 23 feet. And if theWest Antarctic ice sheet were to break up entirely, sea level would rise 16

feet. Together, the melting of these two ice sheets, which scientists believeto be the most vulnerable, would raise sea level 39 feet. And this does not

include thermal expansion as ocean water warms, an important contributorto sea level.

420. Timothy Kusky, (Prof., Natural Science, St. Louis U.),

ENCYCLOPEDIA OF EARTH AND SPACE SCIENCE, 2010, 337. Sea

levels are also rising at an increasing rate. Between 1961 and 1993 global

sea level was rising at a rate of 0.05-0.09 inches per year (0.130.23 cm/yr),

and since 1993 they have been rising at 0.09-0.11 inches per year (0.24-0.28

mm/yr). Some of the sea level rise is due to melting glaciers, ice caps, and

snow, and some is from thermal expansion of ocean water as the water

warms. Glaciers are shrinking in both the northern and southern

hemispheres, and the ice caps on the Arctic Ocean and over parts of

Antarctica are shrinking rapidly.

421. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 19. Another measurable impact of

the Earth's warming climate is its rising seas. Ocean levels have risen about

8 inches (20 cm) in the last 130 years as a result of increased global

temperatures, and the expansion of the seas is accelerating.

422. Sid Maher, (Staff), THE AUSTRALIAN, Mar. 11, 2011, 1. Sea-levelrises caused by global warming may be worse than predicted and the world

may have to find deeper cuts to greenhouse gas emissions than currently

targeted to manage the risks of climate change. Ross Garnaut, Julia Gillard's

climate change adviser, yesterday issued a gloomy review of the latestscience on global warming, finding the “awful reality” is that previous

research may have underestimated the impact of increasing levels of carbon

dioxide in the atmosphere. “I would now be tempted to say that views thattemperatures and damage from a specified level of emissions over time willbe larger than is suggested by the mainstream science are much more likelyto be proven correct than those that embody the opposite expectations,” he

said.

423. Sid Maher, (Staff), THE AUSTRALIAN, Mar. 11, 2011, 1. “There is

increasing discussion in the legitimate scientific literature of the possibility

that large damage will occur at smaller increases in global temperatures,”

Professor Garnaut writes. He says the latest science shows “the statistically

significant warming trend had been confirmed by observations over recent

years”. While global temperatures continue to rise around the midpoints ofthe UN Intergovernmental Panel on Climate Change range of projections,

he says “the rate of sea-level rise has accelerated and is tracking above therange suggested by the IPCC”. Higher sea-level rises will “continue toincrease the frequency and intensity of coastal flooding events during the

21st century”. “Observations indicate that there has been a significant

increase in the frequency of extreme high sea levels within Australia,” he

says.

424. Brian Fagan, (Prof., Anthropology, U. California, Santa Barbara), THE

ATTACKING OCEAN: THE PAST, PRESENT, AND FUTURE OF

RISING SEA LEVELS, 2013, 228. Global warming has raised sea levels

about 20 centimeters since 1880 and the rate of rise is accelerating. Manyscientists expect a rise of 20 to 203 centimeters this century, depending onthe release of greenhouse gases and other pollutants into the atmosphere.

More specifically, the Arizona study projects a 2.5- to 20-centimeter climbby 2030 and a 10- to 49-centimeter rise by 2050, the amount varyingconsiderably from one location to another.

425. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 92. Sea

levels rose by approximately eight inches between 1870 and 2000. Weknow this from thousands of tide gauges across the world. Since 1993 thoserecordings have been supplemented by satellite observations that measuresea-level fluctuations with great accuracy. Averaged over 130 years, the risecomes to one fifteenth of an inch per year, but in the last twenty years the

rate has accelerated, and it now tops an eighth of an inch per year. Three

quarters of the rise in sea levels since 1900 has been caused by global

warming from carbon dioxide emissions.

426. Mohamed Nasheed, (President, The Maldives), OCEANS: THE

THREATS TO OUR SEAS, 2010, 65. Climate change is not a distant orabstract phenomenon in the Maldives. The effects of climate change are

being felt today. One third of inhabited islands in the Maldives are suffering

from coastal erosion, which is exacerbated by climate change. Fishermen

are complaining that weather patterns have become unpredictable, and

warmer and more acidic seas threaten our coral reefs. If the world fails to

curb carbon dioxide emissions, and global temperatures continue to soar,

these problems will worsen over the coming decades.

427. Mohamed Nasheed, (President, The Maldives), OCEANS: THE

THREATS TO OUR SEAS, 2010, 65-66. The Environment Ministry

calculates that sea levels in the Maldives are rising by 0.7 mm per year,

which is around the global average. The big fear, however, is that this risein sea level accelerates as climate change starts to accelerate even more

toward the end of this century. This is a concern not just to the Maldives but

to all low-lying areas around the world.

428. Mohamed Nasheed, (President, The Maldives), OCEANS: THE

THREATS TO OUR SEAS, 2010, 66. A one-meter rise in sea levels, which

some climate scientists warn will happen if nothing is done to reducecarbon pollution, would be devastating for the Maldives. Such a rise would

also inundate other low-lying countries such as Bangladesh and the

Netherlands and seriously threaten many of the world's coastal cities. Wemust not allow this to happen.

429. Mohamed Nasheed, (President, The Maldives), OCEANS: THE

THREATS TO OUR SEAS, 2010, 66. Nobody in the Maldives wants toleave home. The government is doing everything we possibly can to remain

here. We are improving sea defenses, such as seawalls, revetments, and

embankments. We are working to improve the coral reefs and coastal

vegetation, which are our islands' natural defense mechanisms. And we are

exploring new building designs, such as building houses on stilts so they

withstand storm surges and floods.

430. Rob Young, (Dir., Program for the Study of Developed Shorelines,

Western Carolina U.), OCEANS: OPPOSING VIEWPOINTS, 2011, 23.

The message for the world's leaders and decision makers is that sea level

rise is real and is only going to get worse. Indeed, we make the case in our

recent book, The Rising Sea, that governments and coastal managers should

assume the inevitability of a seven-foot rise in sea level.

431. Orrin Pilkey, (Prof., Ocean Sciences, Florida State U.), GLOBALCLIMATE CHANGE: A PRIMER, 2011, 72-73. Hal Wanless, a geologistat the University of Miami, believes that the most likely sea level rise will

be 1.5 to 1.8 meters (5 to 6 feet) in the next hundred years. His number

comes from an analysis of permafrost and sea ice changes, accelerating ice

sheet melting, and increased thermal expansion. A rise of two meters (sevenfeet) is not out of the question, and prudent planners should assume the

higher figure.

432. Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting),

THE ATLAS OF COASTS & OCEANS: ECOSYSTEMS, THREATENED

RESOURCES, MARINE CONSERVATION, 2011, 74. The warming trend

is also causing the oceans to expand (warmer waters undergo thermalexpansion, and take up more room, resulting in rising seas). During the

twentieth century mean sea level rose by 15 to 20 centimeters (6 to 8

inches). If current emissions trends continue, the Intergovernmental Panel

on Climate Change (IPCC) forecasts that by 2100 the seas could rise bybetween 20 and 90 centimeters (8 to 35 inches). A one meter (three feet)

rise would inundate 15 percent of Egypt's arable land and 20 percent of

Bangladesh's. The Maldives, an island chain off the southern coast of India,

would disappear, as would a number of other low-lying islands in the Indian

and Pacific Oceans.

433. Kathleen Richardson, (Prof., Biological Oceanography, U.

Copenhagen), CLIMATE CHANGE: GLOBAL RISKS, CHALLENGESAND DECISIONS, 2011, 50. Observations of sea level from 1870 to 2001

show an increase of about 20 cm over the period. An extension of the recordwith more recent data shows that the rate of sea-level rise has increased

within the past two decades, from 1.6 mm yr-1 in the 1961-2003 period to

3.1 mm yr-1 in the 1993-2003 period. As shown in Figure 3.2, from 1990 to

2008, the period for which model-based projections of sea-level rise are

available, the observed increase in sea level has tracked at or near the upper

limit of the envelope of IPCC projections.

434. Peter Ward, (Prof., Biology, U. Washington), THE FLOODED

EARTH: OUR FUTURE IN A WORLD WITHOUT ICE CAPS, 2010, 38.

The results are not encouraging for anyone wanting the world's oceans tostay right where they are. Employing the known data from the twentieth

century Rahmstorf established that the sea rose 3.1 mm for every degree oftemperature rise in excess of prehistorical values. By using the estimated

temperature rise assumed for the next century, he came up with an estimateof sea level rise from 1990 to 2100 to be a minimum of 2 feet to a

maximum of almost 5 feet.

435. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 139. Sea levels will rise as a result of global warming,

both because the existing ocean water expands as it heats up, and becauseadditional water will flow into the ocean as mountain glaciers and ice sheets

melt. That much is entirely uncontroversial. Equally uncontroversial is the

fact that this is already happening: global sea level is already rising, as the

ocean warms and ice melts.

436. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 139. Greenland contains enough ice to raise the seasglobally by 7 meters, and Antarctica 57 meters! Thus, melting just a small

fraction of this ice could raise the seas worldwide by several meters.

437. Robert Henson, (Analyst, National Center for Atmospheric Research),

THE ROUGH GUIDE TO CLIMATE CHANGE, 2011, 127. James Hansen

(NASA) is one of a handful of scientists cautioning that MSL rises of the

order of metres are possible not only in the distant future but within thiscentury. Hansen speculates that a 3°C (5°F) warming — near the IPCC's

mid-range estimate of global temperature rise over the next hundred years

— would eventually melt enough of the Greenland and Antarctic ice sheetsto produce a spectacular sea-level rise of 25m (80ft). On top of that, the

simple warming and expansion of ocean water could eventually add severalmore metres to sea level.

EVIDENCE BAYLOR BRIEFS 104

438. Scott Mandia, (Prof., Physical Science, Suffolk Co., Community

College), RISING SEA LEVELS: AN INTRODUCTION TO CAUSEAND IMPACT, 2012, 120. Indeed, the threat of rising sea levels is

arguably—after the endemic poverty of the region—the most insoluble

challenge its people will have to face in the years ahead. This rise will be

caused both by local subsidence and by global climate change. It is thoughtthat a rise of only 1.6 feet (0.5 meters) might result in 6 million peoplelosing their homes.

439. Orrin Pilkey, (Prof., Ocean Sciences, Florida State U.), GLOBALCLIMATE CHANGE: A PRIMER, 2011, ix. Over the next fifty to a

hundred years, global change has to be the greatest economic andenvironmental threat facing the planet. For example, if glaciologists areeven partly right, many of the world's coastal cities will be in trouble

because of sea level rise caused by melting ice sheets and the warming

ocean, and millions of people will be environmental refugees, displaced

from the deltas of the world's major rivers.

440. Brian Fagan, (Prof., Anthropology, U. California, Santa Barbara), THE

ATTACKING OCEAN: THE PAST, PRESENT, AND FUTURE OF

RISING SEA LEVELS, 2013, 230. History tells us that even modest sea

level climbs increase such storm-related flooding dramatically. Even many

centuries ago with many fewer people around, these events led to thousandsof casualties, famine, and even the collapse of royal dynasties. The threat is

infinitely higher and more urgent today, not only because of storms and

warming, but also because of a second reality: the enormous numbers ofpeople at risk along the world's coasts—at least two hundred million of usand climbing.

441. Brian Fagan, (Prof., Anthropology, U. California, Santa Barbara), THE

ATTACKING OCEAN: THE PAST, PRESENT, AND FUTURE OF

RISING SEA LEVELS, 2013, 234. Some of the country's most urgent

needs are fairly immediate—we need to improve satellite coverage for

weather forecasting; we need to make massive long-term investments insmart grid technology, especially important for a nation with an outdatedinfrastructure that is heavily dependent on electrical power; and we need tomaintain a strong federal presence in emergency response, a lesson that

came through strongly after Sandy, an enormous storm whose effects

extended far beyond the boundaries of a single state. Above all,

governments have to assume that warmer oceans will breed stronger stormsand plan accordingly. While we cut carbon emissions as the only long-termpalliative strategy, we will have to use both resilience strategies and

massive infrastructure improvements to live in what is becoming an

increasingly hot and more crowded world.

442. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 101.

There is little doubt that sea-level rises will provoke mass migration in the

coming century as tens of thousands of square miles of delta lands are at

risk of flooding and submergence. Relative sea-level rise, accelerated by

subsidence, could displace tens of millions of people from these lands and

would cut off agricultural production from some of the world's most fertile

soils just at a time when we will have the greatest need for it because of

population growth.

443. Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting),

THE ATLAS OF COASTS & OCEANS: ECOSYSTEMS, THREATENED

RESOURCES, MARINE CONSERVATION, 2011, 76. The Small Island

Developing States (SIDS) that are located in the Pacific and Indian Oceans

include some of the smallest and most remote countries on earth. Although

these countries are among the least responsible for climate change, due to acombination of physical characteristics, remoteness, and poor infrastructurethey are likely to suffer most from its effects.

444. Brian Fagan, (Prof., Anthropology, U. California, Santa Barbara), THE

ATTACKING OCEAN: THE PAST, PRESENT, AND FUTURE OF

RISING SEA LEVELS, 2013, 228. If current rates of greenhouse gas

emissions continue, global temperatures will rise to an average of thirteen

degrees Celsius warmer than today by 2100. According to Jeremy Weiss of

the University of Arizona, this would lock us into at least 4 to 6 meters of

sea level rise in subsequent centuries, as parts of the Greenland and

Antarctic ice sheets dissolve. With an almost 3-meter rise, nine large cities,

including Boston and New York, will have lost 10 percent of their current

land areas. With a near 6-meter rise, about a third of the land area within US

coastal cities will have vanished.

445. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 42. Worldwide, approximately 150

million people live at an altitude less than three feet above high tide. For

island nations sitting on coral atolls just feet above the ocean, such as

Tuvalu (in the Pacific Ocean) and Maldives (in the Indian Ocean), rising sea

levels present a realistic threat to their very existence.

446. Rick Bass, (Journalist), THE HEART OF THE MONSTER: WHY

THE PACIFIC NORTHWEST & NORTHERN ROCKIES MUST NOT

BECOME AN EXXONMOBIL CONDUIT TO THE ALBERTA TAR

SANDS, 2010, 53. The coastline of Bangladesh is moving inland,

threatening to make refugees of tens of millions of people. At least 1.3

billion people are threatened by loss of the glaciers that, each summer,

provide all of the water for their crops.

447. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 49. If ice disappears entirely in summer and is reduced in winter, theArctic region will heat up even more, ensuring that the Greenland ice sheet

will melt even faster. Recent studies indicate that a combination of melting

ice sheets and glaciers, plus the thermal expansion of the ocean as it warms,

could raise sea level by up to 6 feet during this century, up from a 6-inch

rise during the last century.

448. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 49. Even a 3-foot rise in sea level would sharply reduce the rice

harvest in Asia, home to over half of the world's people. It would inundate

half the riceland in Bangladesh, a country of 164 million people, and would

submerge part of the Mekong Delta, a region that produces half of Viet

Nam's rice. Viet Nam, second only to Thailand as a rice exporter, could lose

its exportable surplus of rice. This would leave the 20 or so countries that

import rice from Viet Nam looking elsewhere.

449. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 49-50. In addition to the Gangetic Delta in Bangladesh and the

Mekong Delta in Viet Nam, numerous other rice-growing river deltas in

Asia would be submerged in varying degrees by a 3-foot rise in sea level. Itis not intuitively obvious that ice melting on a large island in the far NorthAtlantic could shrink the rice harvest in Asia, a region that grows 90 percent

of the world's rice.

450. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 49. Even a 3-foot rise in sea level would sharply reduce

the rice harvest in Asia, home to over half of the world's people. It would

inundate half the riceland in Bangladesh, a country of 164 million people,

and would submerge part of the Mekong Delta, a region that produces halfof Viet Nam's rice. Viet Nam, second only to Thailand as a rice exporter,

could lose its exportable surplus of rice. This would leave the 20 or so

countries that import rice from Viet Nam looking elsewhere.

451. Lester Brown, (Pres., Earth Policy Institute), WORLD ON THE

EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC

COLLAPSE, 2011, 75. A study published by the International Institute for

Environment and Development has analyzed the effect of a 10-meter (33foot)

rise in sea level. The study begins by noting that 634 million peoplecurrently live along coasts at 10 meters or less above sea level, in what they

call the Low Elevation Coastal Zone.

452. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 71. Over the longer term, rising-sea refugees will likely dominate the

flow of environmental refugees. The prospect for this century is a rise in sea

level of up to 6 feet. Even a 3-foot rise would inundate parts of many low-

lying cities, major river deltas, and low-lying island countries. Among the

early refugees will be millions of rice-farming families from Asia's low-

lying river deltas, those who will watch their fields sink below the rising

sea.

453. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 71. The flow of rising-sea refugees will come primarily from coastal

cities. Among those most immediately affected are London, New York,

Washington, Miami, Shanghai, Kolkata (Calcutta), Cairo, and Tokyo. If the

rise in sea level cannot be checked, cities soon will have to start either

planning for relocation or building barriers that will block the rising seas.

454. Timothy Kusky, (Prof., Natural Science, St. Louis U.),

ENCYCLOPEDIA OF EARTH AND SPACE SCIENCE, 2010, 669. The

coastal regions of the world are densely populated and are experiencingrapid population growth. Approximately 100 million people presently livewithin three feet (1 m) above the present-day sea level. If sea level were to

rise rapidly and significantly the world would experience an economic and

social disaster of a magnitude not yet experienced by civilization.

455. Kathleen Richardson, (Prof., Biological Oceanography, U.

Copenhagen), CLIMATE CHANGE: GLOBAL RISKS, CHALLENGESAND DECISIONS, 2011, 117. Intense storms alone, or in combination with

increased sea level, threaten not only the physical security of individuals,

but also infrastructure (buildings, power supply system, access to clean

water, etc.). The prediction that an increase in climate-related natural

disasters should occur in response to change in the climate system is now

well established. Indeed, there are now enough observations around the

world of increases in extreme events to lend credence to this prediction.

456. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 60-61. To establish whether any long-term changes intropical storm activity are occurring, we need to analyze comprehensive

data sets about these storms. This has been done in a number of studies bydifferent research groups, which are reviewed and summarized in the IPCCreport. In short, the report finds trends since the 1970s towards more intense

and longer-lasting tropical cyclones, but no trend in the total number that

occur each year. It states: Globally, estimates of the potentialdestructiveness of hurricanes show a substantial upward trend since the

mid-1970s, with a trend towards longer storm duration and greater stormintensity, and the activity is strongly correlated with tropical sea surface

temperature.

EVIDENCE

457. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 61. The number of category 4 and 5 hurricanes increased

by about 75% since 1970. The largest increases were in the North Pacific,

Indian and Southwest Pacific Oceans. However, numbers of hurricanes in

the North Atlantic have also been above normal in 9 of the last 11 years,

culminating in the record-breaking 2005 season.

458. David Archer, (Prof., Geophysical Science, U. Chicago), THE

CLIMATE CRISIS: AN INTRODUCTORY GUIDE TO CLIMATE

CHANGE, 2010, 61. Given that warm ocean water is their energy source, itis physically plausible that a strong link between hurricane intensity and

tropical sea surface temperatures is observed, especially in the longer term.

The rise in North Atlantic hurricane activity over the past 25 years occurred

while tropical sea surface temperatures there rose to a record high — to alarge part associated with global warming.

459. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 68. A

change between states occurs when a critical threshold has been exceeded,

and the system flips into a different regime that itself might remain stable

for hundreds or thousands of years before it flips into a different state again.

According to this way of thinking a small change in some driver, like

carbon dioxide or methane concentration, could cause a large change to the

entire climate system because of its sensitivity to jumps between different

states.

460. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 86. The

Galapagos Islands offer a harsh warning of what could be ahead. In late

1982 a powerful weather phenomenon called El Niño triggered a sharp risein water temperatures that lasted five months. By the end, Galapagos reefswere all but dead. Thirty years later they still haven't recovered, and

structures built over thousands of years have now crumbled to rubble and

dust. A few years ago I swam through the remains of what had once been a

glorious reef there. It was a scene of devastation. The seabed was strewn

with chalky fragments, like a field of bones in the aftermath of massacre.

Here and there a mound rose above the wreckage where once some mightycoral had stood. It had survived centuries of lesser temperature spikes, only

to die in this one. A few young corals struggled to gain a foothold but werequickly overcome by black-spined sea urchins that swarmed over them like

ants on a carcass. What that experience and others like it tell us is that

today's bleaching events are unprecedented on millennial timescales.

461. William Chameides, (Prof., Environmental Science, Duke U.),

POLICY RELEVANT CLIMATE ISSUES IN CONTEXT, House Hearing,

Apr. 25, 2013, 40. In order to minimize the risks of climate change and its

most adverse impacts, the nation will need to reduce greenhouse gas

emissions substantially over the coming decades. The exact magnitude andspeed of emissions reduction depends on societal judgments about how

much risk is acceptable and at what cost. However, given the long lifetimeassociated with infrastructure for energy production and use (among other

factors), the most effective strategy is to begin ramping down emissions as

soon as possible.

462. William Chameides, (Prof., Environmental Science, Duke U.),

POLICY RELEVANT CLIMATE ISSUES IN CONTEXT, House Hearing,

Apr. 25, 2013, 37. The environmental, economic, and humanitarian risks ofclimate change and its impacts indicate a pressing need for substantial

action to limit the magnitude and rate of climate change and to prepare to

adapt to its impacts.

463. Daniel Perlmutter, (Prof., Chemical Engineering, U. Pennsylvania),

THE CHALLENGE OF CLIMATE CHANGE, 2011, 1-2. This is a book

that seeks to navigate between extremes. We believe that global warming is

occurring and that human actions are a major factor in that warming, but we

are not persuaded that all will be lost if massive policy changes and massivechanges in lifestyles are not implemented immediately and everywhere. Wehave by our reckoning a 10-20-year "window of opportunity" to developpolicies that will be effective in facilitating adaptation to existing levels of

global warming and mitigating the worst effects of a longterm and very

dangerous increase in global temperatures.

464. Daniel Perlmutter, (Prof., Chemical Engineering, U. Pennsylvania),

THE CHALLENGE OF CLIMATE CHANGE, 2011, 151. While the time

span to act has narrowed, it has not disappeared, and we may have some 1020

years to put in place policies that can slow the rate of decline, stabilizethe rise in global temperatures reasonably close to 2°C (3.6°F), and begin to

establish the basis of a lower carbon energy economy.

465. Vikram Janardhan, (CEO, Insera Energy, LLC), ENERGY

EXPLAINED, Vol. 1, 2011, 77. Today, OPEC countries produce around 40percent of the global annual total and they still hold two-thirds of global

proven reserves, despite the rise of other producers like Nigeria.

BAYLOR BRIEFS 105

466. Andrew Appleby, (J.D. Candidate), CUMBERLAND LAW REVIEW,

2010, 14-15. Oil consumption also forces the United States, and many othercountries, to over-leverage. The United States borrows over $ 300 billionper year just to import oil. In addition to sending almost $1 billion per day

to hostile regimes, oil borrowing composes the majority of the United

States' burgeoning trade deficit. Furthermore, the worldwide petroleuminfrastructure is a very attractive target for terrorist attacks. United States

refineries are especially vulnerable because they are concentrated in a fewareas, namely the Gulf Coast.

467. Andrew Appleby, (J.D. Candidate), CUMBERLAND LAW REVIEW,

2010, 15. If the United States eliminated its foreign oil consumption, we

could save hundreds of billions of dollars annually just in economic nationalsecurity costs. Improvements in national security will reduce exorbitant

direct defense costs as well as indirect international business costs. More

importantly, the United States would be free to engage in alternative foreign

policy decisions, many of which could avoid the economic, political, and

human toll incurred with war. Finally, terrorists around the world would bedeprived of funding. The United States could win the "War on Terror"

without ever firing a shot, saving trillions of dollars in the process.

468. Anthony Perl, (Prof., Urban Studies, Simon Fraser U.), TRANSPORTREVOLUTIONS: MOVING PEOPLE AND FREIGHT WITHOUT OIL,

2010, 116. The most important fact about oil availability is that the peak of

discovery of previously undetected oil is long past and the rate of

worldwide consumption is now three or more times the rate of discovery.

This is shown in Figure 3.5. The worldwide rate of consumption has beenclose to 30 bb/y, and the rate of discovery has been below 10 bb/y. A

discovery of oil is any new quantity of underground oil identified through

drilling or in other ways.

469. Steve Hallett, (Prof., Botany, Purdue U.), LIFE WITHOUT OIL:

WHY WE MUST SHIFT TO A NEW ENERGY FUTURE, 2011, 125. The

members of the Organization of Petroleum Exporting Countries (OPEC)

have been tempted to overestimate their reserves since the countries withlarger reserves are allocated a larger share of exports. Nearly all the OPECcountries suddenly "discovered" a whole bunch of oil in the 1980s without

any increased exploration. We can only conclude that they simply fudgedthe numbers.

470. Vikram Janardhan, (CEO, Insera Energy, LLC), ENERGY

EXPLAINED, Vol. 1, 2011, 57. One thing that is not debatable is the fact

that oil is running out. Even large oil companies openly acknowledge that it

is a finite resource. One recent oil company advertisement said, "It took us125 years to use the first trillion barrels of oil. We'll use the next trillion in30."

471. Ron Rhodes, (Prof., Dallas Theological Seminary), THE COMING

OIL STORM, 2010, 17. Some experts who have assessed the declining oil

in the world are now warning humankind that "the party is over." KjellAleklett, president of the Association for the Study of Peak Oil (ASPO) and

a physics professor at Uppsala University in Sweden, warns that "we haveall been enjoying the greatest party the world has ever seen: the great oil

party. . . . After the climax comes the decline, when we have to sober up

and face the fact that the party is coming to an end." Not only could the end

of the party severely damage the global economy, he warns, but it could

also lead to social and political unrest as various countries try to keep theparty going even as the oil disappears. (ellipsis in original)

472. Scott L. Montgomery, (Prof., Geology, U. Washington), THE

POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST

CENTURY AND BEYOND, 2010, 8. Here are a few facts to contemplate.

Between 2000 and 2009, car ownership in China grew by 400% and oildemand by more than 55%, making the country second only to the U.S. in

total volume imported. By 2008, a thousand new cars were hitting the

streets of Beijing every day, and a year later China exceeded the U.S. in

new car sales (a historical first for any nation) with the country planning tobuild over 60,000 miles of new highways. Oil shock or no, the Chinese automarket has been the fastest growing in the world.

473. Scott L. Montgomery, (Prof., Geology, U. Washington), THE

POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST

CENTURY AND BEYOND, 2010, 9. Fossil fuel use will not merelyexpand. It will continue moving its center to the developing world. These

nations, with 75% of humanity, are only at the threshold of major petroleumdemand.

474. Steve Hallett, (Prof., Botany, Purdue U.), LIFE WITHOUT OIL:

WHY WE MUST SHIFT TO A NEW ENERGY FUTURE, 2011, 124.

Worldwide, oil is being consumed four times more rapidly than it is being

discovered.

475. Anthony Perl, (Prof., Urban Studies, Simon Fraser U.), TRANSPORTREVOLUTIONS: MOVING PEOPLE AND FREIGHT WITHOUT OIL,

2010, 120. The proposition that there will be a peak in oil production ismostly not controversial. Oil is a finite resource, and extraction of it cannotcontinue indefinitely. Usually, only the date of peak production is in

question and, on occasion, the reason for the peak.

EVIDENCE BAYLOR BRIEFS 106

476. Paul Mees, (Prof., Transportation Planning, Melbourne Institute ofTechnology), TRANSPORT FOR SUBURBIA: BEYOND THE

AUTOMOBILE AGE, 2010, 40. The peak oil debate has not been helped

by extravagant predictions that civilization is in imminent danger of

collapse. These have something of the quality of the 1990s hysteria over theY2K millennium bug, which in the end did little more than give bustravellers in Adelaide and Hobart unscheduled free rides on New Year's

Day 2000. Peak oil does not mean that there will be no oil left; rather, if

true, it means the end of cheap oil.

477. Steve Hallett, (Prof., Botany, Purdue U.), LIFE WITHOUT OIL:

WHY WE MUST SHIFT TO A NEW ENERGY FUTURE, 2011, 127. The

calculations of the pessimists are truly compelling and the actions of the oil

companies are revealing. I am extremely concerned that the world ispumping at peak capacity already. Declining oil production over the next

few years seems likely, and it will cause economies to stagnate. Rising oil

prices will have an inflationary impact. We have already seen someeconomic stagnation and oil price volatility, and this is only the beginning.

478. Daniel Botkin, (Prof., Emeritus, Ecology, U. California at Santa

Barbara), POWERING THE FUTURE: A SCIENTISTS GUIDE TO

ENERGY INDEPENDENCE, 2010, 220. Fossil fuels have been wonderful

sources of energy, and what is left of them should be saved for the

applications in which they are most useful—for making plastics and otherorganic compounds, and for situations where oil and gas are especially well

suited to provide energy.

479. Steve Hallett, (Prof., Botany, Purdue U.), LIFE WITHOUT OIL:

WHY WE MUST SHIFT TO A NEW ENERGY FUTURE, 2011, 177. We

are at the peak of the petroleum interval, and, a century from now, the

petroleum interval will be over. As we pass the peak, we will attempt tosave our economies in the face of soaring oil prices and declining oilsupplies. How we handle the coming energy transition is one of the great

questions of our time.

480. Anthony Perl, (Prof., Urban Studies, Simon Fraser U.), TRANSPORTREVOLUTIONS: MOVING PEOPLE AND FREIGHT WITHOUT OIL,

2010, 111. Today's extensive oil use is a recent phenomenon. Figure 3.1shows that more than 50 percent of the oil ever used has been consumedsince 1986 and more than 95 percent of the world's total oil consumption

has occurred since the beginning of the Second World War. The cumulative

total consumption of 1.16 trillion (1012) barrels at the end of 2008 appears

to be approaching about half the oil that could ever be extracted. We believe

this milestone heralds the beginning of an essentially unavoidable decline inthe amount that can be produced—and thus consumed—in any year.

481. Ron Rhodes, (Prof., Dallas Theological Seminary), THE COMING

OIL STORM, 2010, 12. Current growth rates indicate that by the year 2035humanity will need about 140 million barrels of oil a day, week after week,

month after month, year after year. Anything less than that and people are

going to be deprived. Because the age of "easy oil" is over, meeting thisneed for oil — if it's even possible — will involve a staggeringly high cost.

482. Ron Rhodes, (Prof., Dallas Theological Seminary), THE COMING

OIL STORM, 2010, 19. Even our federal government has signaled that

things are not going well. The federal Energy Information Administration

(EIA) now concedes that "all or nearly all of the largest oil fields have

already been discovered and are being produced. Production is, indeed,

clearly past its peak in some of the most prolific basins."

483. Ron Rhodes, (Prof., Dallas Theological Seminary), THE COMING

OIL STORM, 2010, 37. Even in the best-case scenario — even if by somestrange fluke a forty-year supply of oil is left in the ground — the factremains that oil is a finite resource that is running out, and the United Statesis increasingly dependent on hostile and potentially unstable nations to meet

its needs. Moreover, we are presently spending billions of dollars on oil

purchased from Middle Eastern countries who then use some of that samemoney to finance terrorism against us.

484. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 14. Fatih Birol, chief economist with the International Energy

Agency, has said, "We should leave oil before it leaves us." I agree. If we

can phase out the use of oil quickly enough to stabilize climate, it will alsofacilitate an orderly, managed transition to a carbon-free renewable energyeconomy. Otherwise we face intensifying competition among countries for

dwindling oil supplies and continued vulnerability to soaring oil prices. And

with our recently developed capacity, to convert grain into oil (that is,

ethanol), the price of grain is now tied to that of oil. Rising oil prices meanrising food prices.

485. Ron Rhodes, (Prof., Dallas Theological Seminary), THE COMING

OIL STORM, 2010, 20. A 2004 publication produced by the Department ofEnergy affirms that world discoveries of oil peaked before the 1970s. The

document concedes that no new major field discoveries have been made in

decades. As well, "presently, world oil reserves are being depleted three

times as fast as they are being discovered." The document affirms that "the

disparity between increasing production and declining reserves can have

only one outcome: a practical supply limit will be reached and future supply

to meet conventional oil demand will not be available."

486. Ron Rhodes, (Prof., Dallas Theological Seminary), THE COMING

OIL STORM, 2010, 10. No one is precisely sure when peak oil will intrudeupon us. However, innumerable experts have affirmed that peak oil willcome, whether five years from now or thirty. One day we will reach a peak

in the supply of cheap oil, after which we will have a dwindling supply ofincreasingly expensive oil.

487. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 96-97. In 1956, a geologist named

M. King Hubbert introduced a model that accurately predicted that U.S. oilproduction would peak around 1970 and decline shortly thereafter.

Hubbert's premise was that the production of oil (and other fossil fuels) in a

particular region would follow a bell-shaped curve. After a period of

discovery, oil production rates would grow exponentially until half of itsreserves were exhausted. At that halfway point, production would peak,

plateau, and then decline. The basic premise of Hubbert's theory is now

widely accepted, and its bell-shaped curve projection has been used

successfully to predict the production peaks and declines of regional fuel

and global mineral supplies.

488. Ron Rhodes, (Prof., Dallas Theological Seminary), THE COMING

OIL STORM, 2010, 12. Paul Roberts, in his sobering book The End of Oil,

put it this way: Simply building that much new production capacity (to saynothing of maintaining it or defending it) will mean spending perhaps a

trillion dollars in additional capital and will require oil companies to venture

into places, like the Arctic, that are extremely expensive to exploit. Repeatthe exercise for gas and coal, and you begin to understand why even

optimistic energy experts go gray in the face when you ask them what wewill use to fill up our tanks thirty years from now.

489. Ron Rhodes, (Prof., Dallas Theological Seminary), THE COMING

OIL STORM, 2010, 9. Consider that in 1985, the United States importedless than 30 percent of its oil. Just five years later, in 1990, the United

States was importing almost 50 percent of its needed oil. James Woolsey,

foreign policy specialist and former director of the Central Intelligence

Agency (CIA), says that at present "the United States gives about $4 billion

a week to the outside world in order to finance its oil product consumption,"

and that "we import now about 60 percent of our oil." If the current (2010)

rate of growth continues, by 2015 America will be importing up to 75percent — maybe even 80 percent — of its oil. Again, though, the problemis that oil is becoming harder to find — and thus more expensive to find.

We have a steadily increasing appetite for increasingly expensive, finiteresources. Economically, this spells D-A-N-G-E-R.

490. Andrew Morriss, (Prof., Business, U. Alabama), THE FALSE

PROMISE OF GREEN ENERGY, 2011, 10. Ethanol and biodiesel, both

inferior fuels in many respects, have only a tiny fraction of the

transportation fuel market, despite being heavily subsidized. In part, this

reflects two important facts about the transportation sector. First, the United

States has a massive investment in the use of gasoline and diesel fuel that

cannot be readily transformed to shift consumption to ethanol, biodiesel, orother fuels. There are 160,000 miles of gasoline pipelines, 380,000 gasoline

storage tanks, and 120,000 service stations in the United States. This

infrastructure ensures there is fuel ready when motorists and truckers pull

their vehicles into a service station. Almost none of it can be readily used

for ethanol or biodiesel; costly conversion is required.

491. Andrew Morriss, (Prof., Business, U. Alabama), THE FALSE

PROMISE OF GREEN ENERGY, 2011, 65. Even if biofuels produce net

usable energy, it does not follow that their use would necessarily reduce

GHG emissions. First, nitrogenous fertilizers, which are used as inputs to

grow energy crops, are a primary source of nitrous oxides, a GHG that ispound-for-pound 300 times more damaging as a GHG than is carbon

dioxide. Second, cultivation of any crop generally involves disturbing thesoil. Globally, there is more carbon stored in the soil than in the

atmosphere. Disturbing the soil leads to decomposition or oxidation of the

stored carbon. That results in carbon dioxide emissions to the atmosphere.

492. Nicola Armaroli, (Sr. Research Scientist, Italian National Research

Council), ENERGY FOR A SUSTAINABLE WORLD: FROM THE OILAGE TO A SUN-POWERED FUTURE, 2011, 241. It has been estimated

that wind turbines in the US currently kill about 10.000-40,000 birdsannually. For comparison, 5-50 million birds are killed every year by thethousands of communication towers and hundreds of millions by collisionwith windows and moving vehicles.

493. Andrew Morriss, (Prof., Business, U. Alabama), THE FALSE

PROMISE OF GREEN ENERGY, 2011, 69-70. Many have argued that theproblems associated with using crops and cropland for producing biofuels

can be avoided by using cellulose as feedstock. However, tilting the field to

help cellulosic ethanol, whether directly through subsidies or indirectly

through mandates, will inevitably make it more attractive for farmers todivert land and water to grow fuel rather than food. As a result, someportion of the resources that would otherwise be used for food production

would go toward fuel production.

EVIDENCE BAYLOR BRIEFS 107

494. Leonardo Maugeri, (Sr. Fellow, Harvard University’s Belfer Center forScience & International Affairs), BEYOND THE AGE OF OIL: THE

MYTHS, REALITIES, AND FUTURE OF FOSSIL FUELS AND THEIR

ALTERNATIVES, 2010, 137. One solution may be near at hand: using

woody-cellulosic materials to produce second-generation biofuels.

Unfortunately, the technology still has a long way to go to prove itself

reliable and profitable on a large scale. Both the biochemical and

thermochemical processes have reached the demonstration stage, but thereare significant technical barriers yet to be overcome.

495. Leonardo Maugeri, (Sr. Fellow, Harvard University’s Belfer Center forScience & International Affairs), BEYOND THE AGE OF OIL: THE

MYTHS, REALITIES, AND FUTURE OF FOSSIL FUELS AND THEIR

ALTERNATIVES, 2010, 136-137. The problem of food displacement forthe production of biofuels hangs in the background like menacing clouds

that could suddenly become a tornado. In fact, with an oil price higher than

$70 per barrel, most farmers have an extraordinary incentive to produce

biofuels instead of food. Both the Food and Agricultural Organization of the

United Nations (FAO) and the OECD have warned about the danger of thiscloud. A rapid increase in the biofuel sector could lead to an increase in the

price of food between 20 and 50 percent in the coming decade.

496. Leonardo Maugeri, (Sr. Fellow, Harvard University’s Belfer Center forScience & International Affairs), BEYOND THE AGE OF OIL: THE

MYTHS, REALITIES, AND FUTURE OF FOSSIL FUELS AND THEIR

ALTERNATIVES, 2010, 135. Without a doubt, the extensive diversion of

agricultural crops intended today for human or animal nourishment intobiofuels would drastically raise the price of many basic foods for human

beings. This would hit the poorest populations especially hard. Similarly, an

increase in the cost of feedstock for animals would increase the cost of

many of the meats and animal-based products (milk, cheese, eggs, leather,

wool, etc.) to which we have become accustomed.

497. Daniel Perlmutter, (Prof., Chemical Engineering, U. Pennsylvania),

THE CHALLENGE OF CLIMATE CHANGE, 2011, 87. Searchiger has

calculated that burning corn ethanol as fuel produces twice the GHGemissions as gasoline that is alcohol free, if the emissions from land

conversion are included in the count. He argues that there is no benefit tothe use of biofuels when the full cost to the environment is included in the

accounting. This position has been accepted by the California Air Resources

Board (CARB), which is charged with putting into practice California's fuel

standard, which requires a 10% reduction in GHG emissions from

transportation fuel by the year 2020.

498. Andrew Morriss, (Prof., Business, U. Alabama), THE FALSE

PROMISE OF GREEN ENERGY, 2011, 69. Increased demand for corn for

ethanol has additional "multiplier" effects on other food and feed

commodities by increasing the price of all corn-based products, including

feed for animals and many foods consumed by human beings. Ethanol-

related demand for corn has been linked to increases in the price of eggs,

milk, meat, cereal, candy bars, and any product containing corn-based

sugars or starches to name a few.

499. Daniel Botkin, (Prof., Emeritus, Ecology, U. California at Santa

Barbara), POWERING THE FUTURE: A SCIENTISTS GUIDE TO

ENERGY INDEPENDENCE, 2010, 181. According to David Pimentel,

one of the world's experts on the ecology of agriculture and on biofuels, ifthe total U.S. production of corn were used to produce biofuels rather thanfood, the ethanol produced would provide only 5% of today's total oil

consumption—2% of the total energy used—by the nation. Because corn

doesn't produce ethanol directly, as any home distiller can tell you, the corn

has to be fermented and distilled, which requires considerable energy. Ascurrently carried out, producing ethanol from corn takes 46% more energythan is contained in the resulting fuel. In other words, making fuel fromcorn takes energy; it's not a source of energy.

500. Andrew Morriss, (Prof., Business, U. Alabama), THE FALSE

PROMISE OF GREEN ENERGY, 2011, 11. Wallace concluded, "Not one

mechanic I've spoken with said they would be comfortable with a 15%

blend of ethanol in their personal car. However, most suggest that if the

government moves the ethanol mandate to 15%, it will be the dawn of anew golden age for auto mechanics' income. In addition, ethanol's affinityfor water makes it impossible to ship in existing pipelines or store with

gasoline. Separate tanks and pipes must be built, raising costly, complex

problems.

501. Andrew Morriss, (Prof., Business, U. Alabama), THE FALSE

PROMISE OF GREEN ENERGY, 2011, 53. Introducing ethanol as a majortransportation fuel is not just a matter of mixing it-with existing petroleum-

based fuels. Leaving aside issues about ethanol's environmental impact andenergy content for now, there are significant problems caused by ethanol's

propensity to attract water, which gasoline does not share. That means that

ethanol storage and transportation networks must be more resistant to water

intrusion than our existing gasoline networks.

502. Steve Hallett, (Prof., Botany, Purdue U.), LIFE WITHOUT OIL:

WHY WE MUST SHIFT TO A NEW ENERGY FUTURE, 2011, 160. The

destruction of the Amazon rain forest for sugarcane is matched on the other

side of the world by the destruction of Indonesian rain forests for palmtrees. As well, the push for biofuels is a major contributor to increased foodprices and is contributing to hunger around the world.

503. Daniel Botkin, (Prof., Emeritus, Ecology, U. California at Santa

Barbara), POWERING THE FUTURE: A SCIENTISTS GUIDE TO

ENERGY INDEPENDENCE, 2010, 189. Sugarcane is notorious the world

over for being one of the crops most destructive to soil and water, especially

polluting water runoff with soil particles, nitrates, and phosphorus, causing

many problems downstream. Farming sugarcane erodes soil at more than

five times the rate at which soil is being formed naturally in Brazil. It also

takes huge amounts of water, especially to wash away soil that clings to thesugarcane. Washing each ton of sugarcane takes 1,900-9,500 gallons of

water. Each acre of sugarcane also uses 59 pounds of nitrogen, 47 pounds ofphosphorus, half a pound of insecticides, and 2.7 pounds of herbicides.

504. Steve Hallett, (Prof., Botany, Purdue U.), LIFE WITHOUT OIL:

WHY WE MUST SHIFT TO A NEW ENERGY FUTURE, 2011, 160.

Brazilian sugarcane, however, has its own serious problems. The desire to

increase agricultural production in Brazil, including sugarcane for ethanol,

results in the clearing of forested land. In Brazil, of course, some of thisforested land is the fabled Amazon rain forest. The result is that our desire

for an eco-friendly fuel promotes the destruction of rain forests and

threatens to turn the Amazon rain forest into the Amazon ranch. It's hard to

imagine anything more horribly backward.

505. Gwynne Dyer, (Journalist), CLIMATE WARS: THE FIGHT FOR

SURVIVAL AS THE WORLD OVERHEATS, 2010, 106. If the subsidies

are not cut back and the farmland restored to food production, there almost

certainly will be an absolute shortage of food in the world in only a very

few years. In that case, the poor will be starving so that the rich can drive

their automobiles on what they imagine is a more eco-friendly fuel. One

cannot imagine a political environment less conducive to global cooperation

on climate-change issues.

506. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 54. Biofuel is perhaps the biggest energy scam, ever. People hate tohear statistics like this, but biofuels present what energy insiders call a

negative net energy balance. That means they require more energy to

produce than is contained in the final product. But even ignoring thisscience, if we were to use all of the corn grown in the US to produce motorvehicle fuel, without regard to what that would do to food prices, it would

still be less than 20 percent of the gasoline demand — and a lot of the world

would go hungry.

507. Ron Rhodes, (Prof., Dallas Theological Seminary), THE COMING

OIL STORM, 2010, 45. The very process of producing fuel from America's

crops expends more energy than it produces. We do not receive a good

energy return on investment. Ultimately it is self-defeating.

508. Daniel Perlmutter, (Prof., Chemical Engineering, U. Penn.), THE

CHALLENGE OF CLIMATE CHANGE, 2011, 87. The major criticisms of

this commitment to ethanol have been two-fold. The first is that the large-

scale use of corn to make fuel has caused the price of corn to risedramatically, thereby hurting all consumers but especially the poor in other

parts of the world who depend on US food exports. The second complaint is

an outgrowth of the price rise, that it leads farmers throughout the world to

convert grasslands and forests into crops. These land clearing practicesintroduce significant amounts of greenhouse gases into the air, and the

changes in landscape remove some of the very active sinks for CO2 that the

world depends on each growing season. One estimate' is that the carbon

emissions that result from the clearing of tropical forests in places like

Brazil, Indonesia, and the Congo now accounts for 17% of all globalemissions contributing to climate change.

509. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 158. Can we grow our way out of an energy

deficit? Federal legislation with such titles as the Renewable Fuels Act

(2005) and the Biofuels Security Act (2006) are both misleading with

regard to ethanol, the primary biofuel. First, it really isn't renewable whenyou consider that nearly as much fossil fuel-generated energy is required to

produce it as it actually yields. Alternatively, if all the energy used to plant,

fertilize, harvest, and process the biofuel came from the ethanol produced, it

would displace a gasoline consumption equivalent to only about 3.5

percent. This is about the same amount that the Natural Resources Defense

Council (NRDC) estimates might be saved by inflating tires properly.

510. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 159. But if we were to produce enough ethanol

to replace gasoline altogether, it would require that about 71 percent of allUS farmland be dedicated for energy crops.8 By way of illustration, let'sjust think about distilling all of our present US corn production into that180-proof grain alcohol—ethanol. That would only displace, at most, about

14 percent of the gasoline we currently guzzle. In 2007, ethanol consumedapproximately one-fourth of all US corn production. In 2008, that amount

grew to about one-third, and the percent will continue to rise. The 2007amount was estimated to have offset US gasoline consumption by 3.5

percent while corn costs had doubled over a 2-year period.

EVIDENCE BAYLOR BRIEFS 108

511. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 159. Assuming that it is possible for the United

States to produce a mandated 36 billion gallons of ethanol by 2022, it won't

really make a big difference. That would replace only about 1.5 billionbarrels per day (bbl/d) of oil, amounting to only about 7 percent of ourneeds; that is, providing we hold consumption to current levels.

512. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 159. Because US farmland is scarce and

expensive, each additional acre of corn used to produce ethanol is one less

that is available for other crops such as soybeans and wheat, which have

seen price increases of more than 240 percent since 2006. This, in turn,

produces a ripple effect that raises the costs of meat, milk, eggs, and other

foods with international export consequences. Since US farmers provide

about 70 percent of all global corn exports, even small diversions for

ethanol production have produced high inflation levels in America and food

riots abroad.

513. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 159. Two professors at the University ofMinnesota's Center for International Food and Agricultural Policy, C. FordRunge and Benjamin Senauer, estimate that filling a 25-gallon tank of an

SUV with pure ethanol requires more than 450 pounds of corn. That would

be enough calories to feed one person for a year.

514. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 159-160. Ethanol also competes with people

and livestock for water—lots and lots of water. It requires about 4 gallons

of water to produce 1 gallon of the alcohol fuel, in addition to other water

that production plants typically recycle. Many Corn Belt regions where the

production facilities are sited, particularly in the Midwest and the GreatPlains, are beginning to experience significant water supply problems. Beef

and dairy cattle feed lots located near the plants to take advantage of the co-

product distillers' grain for livestock feed, add to local water demands, as doagricultural irrigation and urban expansion.

515. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 161. Yet there is growing evidence that biofuels

may actually release more CO2 emissions than conventional petroleum-

based gasoline does. As reported in the journal Science, "Corn-based

ethanol . . . instead of producing a 20 percent savings, nearly doubles

greenhouse emissions over 30 years . . . Biofuels from switch-grass, ifgrown on US corn lands, increase emissions by 50 percent." This is because

biofuel markets encourage farmers to level forests and convert wilderness

areas into farmland, which would otherwise serve as CO2 sinks. (ellipsis in

original)

516. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 161. Still another problem with ethanol is that it

isn't very efficient as an energy source as compared with petroleum. For onething, since its energy density is about one-third less than that of gasoline,

more must be burned to produce the same amount of power. It is also moreenergy intensive to produce. On average, an oil company burns energyequivalent to about 1 gallon of oil to process 20 gallons of gasoline, whileethanol yields versus energy requirements are only slightly positive atbest)It takes burning almost a gallon of ethanol to produce 1 gallon ofethanol

517. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 160. Then there is the issue of emissions. Even

though ethanol fuel may produce marginally less CO, than does gasoline, it

nevertheless releases large quantities of nitrogen oxide (smog) that causesrespiratory disease. This can add to an already large problem in many urban

areas, such as Los Angeles and throughout the Northeast.

518. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 162. So just how green is ethanol? Its

production requires tremendous amounts of fossils, water, and agricultural

land that would be more productive if used to grow food crops. At best,

ethanol could replace but a small percentage of fossil-fuel demands, and

then it could only be cost competitive through high tax—supported

subsidies.

519. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 179. It also seems

highly likely that biofuels exacerbate the problem of deforestation. Perhaps

a fifth of human-made greenhouse gas emissions come from the clearing offorests. When a forest is destroyed, much of the carbon stored in its trees

and soils becomes carbon dioxide in the atmosphere.

520. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 179-180. As larger

fractions of food-producing land are given over to ethanol and biodiesel, the

pressure to cut down forests to replace the lost cropland increases. This

factor is particularly important in the tropics. Old forests are being

destroyed in order to plant oil palms for biodiesel in Asia. Even in Brazil,

the loss of the rainforest appears to be exacerbated by ethanol production

from sugarcane.

521. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 176. Unsurprisingly,

turning huge quantities of corn into fuel has tightened the world market for

foods. Prices rose dramatically in 2007-2008 and at the time of writing are

still well above levels of five years ago. One International Monetary Fund

survey indicated that the use of corn for biofuels was responsible for about

70 percent of the increase in the world price for corn between 2004 and

2008.

522. William Tucker, (Journalist), NUCLEAR POWER, 2010, 38. In

February [2008], Science published an article by a team headed by JosephFargione of the Nature Conservancy showing that converting virgin landinto ethanol cultivation multiplies carbon emissions by a factor of 93. "So

for the next 93 years, you're making climate change worse," said Fargione.

523. Ron Rhodes, (Prof., Dallas Theological Seminary), THE COMING

OIL STORM, 2010, 45. John F. Walvoord and Mark Hitchcock note that

America in 2006 utilized 14 percent of the country's corn production to

produce ethanol, and even then it made little difference regarding our

dependence on fossil fuels. That figure rose to 20 percent in 2007, with little

contribution to meeting the staggering need. To use any more of the

country's food supply to produce ethanol could create food shortages

worldwide — and the supply would still not meet the demand.

524. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 179. Although ethanol

made from crops may help reduce dependence on imported oil, it probably

does very little to reduce the emissions of greenhouse gases. Growing wheatin Europe or corn in the American Midwest requires large inputs of fossil

fuel energy to produce the fertilizer, look after the growing crop, andprocess the grain into sugars and then ethanol. Moreover, when it breaks

down chemically in the soil, artificial fertilizer produces a small amount of

nitrous oxide, a greenhouse gas over three hundred times as damaging as

carbon dioxide.

525. Daniel Perlmutter, (Prof., Chemical Engineering, U. Penn.), THE

CHALLENGE OF CLIMATE CHANGE, 2011, 87. Searchiger hascalculated' that burning corn ethanol as fuel produces twice the GHG

emissions as gasoline that is alcohol free, if the emissions from land

conversion are included in the count. He argues that there is no benefit tothe use of biofuels when the full cost to the environment is included in the

accounting. This position has been accepted by the California Air Resources

Board {CARE)," which is charged with putting into practice California'sfuel standard, which requires a 10% reduction in GHG emissions fromtransportation fuel by the year 2020. The federal government is also likely

to be drawn into this controversy, since a 2007 law requires the

Environmental Protection Agency (EPA) to calculate "life cycle greenhouse

gas emissions" for renewable fuels.

526. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 193-194. The scale of

the task is enormous. To meet current U.S. gasoline demand, the amount ofbiomass needed will almost certainly require about 200 million acres, an

area larger than the farmland devoted to crops today and about the samespace as occupied by U.S. national forests, or the whole of Texas. Ifcellulosic ethanol is used to power fuel cells providing homes and offices

with electricity and heat, even more land would be needed.

527. Leonardo Maugeri, (Sr. Fellow, Harvard University’s Belfer Center forScience & International Affairs), BEYOND THE AGE OF OIL: THE

MYTHS, REALITIES, AND FUTURE OF FOSSIL FUELS AND THEIR

ALTERNATIVES, 2010, 174. Exploiting geothermal sources causes

perturbations in the subsurface thermal profile, especially if a sizableamount of energy is extracted. Repeated extraction over time can modify

thermal conditions at depth, making the source less productive unless the

withdrawals are slowed dramatically.

528. Gwynne Dyer, (Journalist), CLIMATE WARS: THE FIGHT FOR

SURVIVAL AS THE WORLD OVERHEATS, 2010, 127. 'Deep'geothermal power, exploiting hot rock several kilometers below the surface

to generate steam for power, is also moving from theory to practice,

although not without some difficulties. An early experiment in the Swiss

city of Basel had to be shut down in 2006 when it triggered an earthquake

that measured 3.4 on the Richter scale, enough to break crockery and

severely frighten the burghers of Basel. Several thousand minor quakes, but

including three that exceeded magnitude 3, continued for about a yearafterwards, and the citizens of Basel want nothing more to do with

geothermal power.

EVIDENCE

529. Daniel Perlmutter, (Prof., Chemical Engineering, U. Penn.), THE

CHALLENGE OF CLIMATE CHANGE, 2011, 97-98. In one variation of

this approach, pressurized water is injected deep in the ground with the

object of cracking the rock that is trapping underground heat; however this

process has been associated with local earthquakes. A 2006 project in

Switzerland had to be stopped when many thousands of seismic events wererecorded and felt during 6 days of water injection, and the project was shutdown permanently in 2009 in response to the determinations in a Swiss

government study.' A similar 2009 project in California has raisedearthquake fears among residents because it is designed to drill over 2 miles

(3.2km) below the surface. Elsewhere, in New Zealand and Germany,

geothermal projects have caused subsidence of the bordering lands.

530. Steve Hallett, (Prof., Botany, Purdue U.), LIFE WITHOUT OIL:

WHY WE MUST SHIFT TO A NEW ENERGY FUTURE, 2011, 165. The

mining and enrichment of uranium and the disposal of nuclear wastes both

present huge problems, and when we add them into the mix the nuclear

equation looks quite different. Ignoring the mining, purification, processing,

and waste disposal costs, the electricity generated by nuclear power plants

can be delivered for as little as one or two cents per kilowatt hour. Fullycosted, however, it is by far the most expensive source of electricity that wehave.

531. Leonardo Maugeri, (Sr. Fellow, Harvard University’s Belfer Center forScience & International Affairs), BEYOND THE AGE OF OIL: THE

MYTHS, REALITIES, AND FUTURE OF FOSSIL FUELS AND THEIR

ALTERNATIVES, 2010, 109. Then there is the issue of the safety of the

power plants themselves. Passive safety designs can even eliminate the risksfrom a failure of the reactor core, where the nuclear reaction takes place.

Passive safety means that, in the event of an accident, the plant goes into afail-safe state because its design relies on physics, not on intervention

systems that require sensors, motors, or human operators. For example,

should the pressure vessel of a small EPR reactor break, the core would

melt at a temperature of about 2,000°C and be recovered, confined, and

cooled at the base of the building. The melted material would spread bygravity over an inclined floor of refractory material, thinning out. At the

same time, water from a nearby pool would cool it so that it would

gradually solidify. Nothing dangerous should escape. Unfortunately,

although they have already been built on paper, passive security plants haveyet to prove their effectiveness in any industrial application in the world.

This does not play in favor of a new impulse for nuclear power.

532. Steve Hallett, (Prof., Botany, Purdue U.), LIFE WITHOUT OIL:

WHY WE MUST SHIFT TO A NEW ENERGY FUTURE, 2011, 169.

Political difficulties, unresolved problems of waste disposal, and the very

long lead times before plants go into production have relegated the nuclear

industry well down on the list as a financial investment over the last twenty-

five years. Investors have learned to view the nuclear industry to be about

as attractive as, well, radiation poisoning. The nuclear industry is notoriousfor paying back late, generally underperforming, and proving more

dangerous than promised—and it has developed a lousy credit rating as a

result.

533. Daniel Botkin, (Prof., Emeritus, Ecology, U. California at Santa

Barbara), POWERING THE FUTURE: A SCIENTISTS GUIDE TO

ENERGY INDEPENDENCE, 2010, 98-99. There are 441 nuclear power

plant reactors in the world. A recent conference about them held in South

Africa reported 220,000 tons of spent fuel—nuclear waste—worldwide

since nuclear power production began in the 1950s. The International

Atomic Energy Agency puts it at about 300,000 tons. A 2006 international

conference on nuclear waste, held by the Organization for Economic Cooperation

and Development's Nuclear Energy Agency, put the figure much

higher, at more than 2.2 million tons. This last number works out to three-

quarters of a pound of radioactive waste for every man, woman, and child in

the world, whether or not they had access to electricity generated by nuclear

power.

534. Steve Hallett, (Prof., Botany, Purdue U.), LIFE WITHOUT OIL:

WHY WE MUST SHIFT TO A NEW ENERGY FUTURE, 2011, 165. The

uranium has to be mined, and this is an environmental nightmare. Uraniummining in the American Southwest is a persistent pollution disaster and an

unforgettable nightmare in the recent history of the Diné who lost numerous

tribal members to accidents and illness, including various cancers, in the

uranium mines.

535. Steve Hallett, (Prof., Botany, Purdue U.), LIFE WITHOUT OIL:

WHY WE MUST SHIFT TO A NEW ENERGY FUTURE, 2011, 165-166.

The second major issue with uranium is the problem of nuclear waste

disposal, and this has become a game of "pass the radioactive parcel." Nogovernment wants to be left holding this particular political hot potato whenthe music stops.

BAYLOR BRIEFS 109

536. Leonardo Maugeri, (Sr. Fellow, Harvard University’s Belfer Center forScience & International Affairs), BEYOND THE AGE OF OIL: THE

MYTHS, REALITIES, AND FUTURE OF FOSSIL FUELS AND THEIR

ALTERNATIVES, 2010, 103. Highly radioactive waste represents only

one-twentieth as much by volume, but its radioactivity persists for

thousands of years. For this reason, after a few decades of cooling in surfacedeposits, they must be inserted into a deep underground deposit in special

formations (clay, salt, granite) that will trap them for geological periods.

Today there are no sites of this type for civilian use in the world. There is

one American site for military use, called the Waste Isolation Pilot Plant

(WIPP), located in New Mexico and operational since 1999, but it does not

handle high-level radioactivity waste.

537. Doug Saunders, (Staff), GLOBE AND MAIL, Mar. 19, 2011, F1.

Though governments have famously failed to agree on a comprehensive

plan to get carbon emissions under control, great strides were being made inmany countries, most notably among the emerging powers of Asia. Andthose plans relied heavily on building scores of nuclear-power plants to

displace coal, in order to fuel the next wave of growth in ways that wouldn't

clog the upper atmosphere. A few days of Japanese television has shifted

the world's balance of fear: Suddenly, we are living in terror not of nature'scaprices but of our own inventions. Days after the earthquake, a cascade of

nations announced plans to suspend or drop nuclear-power projects. Most

visible were the European Union nations, whose climate-change

commitments will make large nuclear-construction programs vital.

Remember that wind-power projects, such as Germany's, rely on nuclearreactors to provide power when the wind is down. But more alarming wasthe sudden shift in the industrializing nations of the developing world.

China suspended all current construction of nuclear reactors — at least 25

major projects. In India, environment minister Jairam Ramesh planned to

review and possibly scrap all nuclear projects along the west coast,

including a vital facility planned at Ratnagiri, south of Mumbai.

538. Sherwood Ross, (Journalist), NUCLEAR POWER, 2010, 18. In

reality, not only are vast amounts of fossil fuels burned to mine and refinethe uranium for nuclear power reactors, polluting the atmosphere, but those

plants are allowed "to emit hundreds of curies of radioactive gases and other

radioactive elements into the environment every year," Dr. Helen Caldicott,

the antinuclear authority, points out in her book Nuclear Power Is Not the

Answer.

539. Sherwood Ross, (Journalist), NUCLEAR POWER, 2010, 18-20. The

thousands of tons of solid radioactive waste accumulating in the coolingpools next to those plants contain "extremely toxic elements that will

inevitably pollute the environment and human food chains, a legacy that

will lead to epidemics of cancer, leukemia, and genetic disease in

populations living near nuclear power plants or radioactive waste facilities

for many generations to come."

540. Sherwood Ross, (Journalist), NUCLEAR POWER, 2010, 20-21. "The

magnitude of the radiation generated in a nuclear power plant is almost

beyond belief," Caldicott writes. "The original uranium fuel that is subject

to the fission process becomes 1 billion times more radioactive in the

reactor core. A thousand megawatt nuclear power plant contains as much

long-lived radiation as that produced by the explosion of 1,000 Hiroshima-

sized bombs."

541. Sherwood Ross, (Journalist), NUCLEAR POWER, 2010, 20. DavidLochbaum, of the Union of Concerned Scientists, believes nuclear plantsafety standards are lacking and predicted another nuclear catastrophe in the

near future, stating, "It's not if but when." Not only are such plants unsafebut the spent fuel is often hauled long distances through cities to waste

storage facilities where it will have to be guarded for an estimated 240,000

years.

542. Harvey Wasserman, (Sr. Adviser to Greenpeace USA), NUCLEARPOWER, 2010, 56. The commercial fuel cycle does emit global warming inthe uranium enrichment process. Uranium mining kills miners. Milling

leaves billions of tons of tailings [radioactive sand] that emit immeasurablequantities of radioactive radon. Regular reactor operations spew direct heat

in to the air and water. They also pump fallout into the increasinglypopulated surroundings, with impacts on the infant death rate that havealready been measured and proven. And, of course, there is no solution forthe management of high-level waste, a problem the industry promised

would be solved a half-century ago.

543. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 288. Recent years

have seen relatively few new nuclear power stations. The nine built in Asia

in the last fifteen years have cost an average of almost $3,000 per kilowatt-

hour of capacity, if the cost is inflated to today's price level. This figure isfar higher than the proponents of nuclear energy claim in their promotional

materials. For example, the World Nuclear Association says the figurecould be $1,500 a kilowatt-hour but provides no evidence to support thisclaim.

EVIDENCE

544. Benjamin Hatch, (J.D. Candidate), EMORY INTERNATIONAL

LAW REVIEW, 2010, 232-233. There are, however, concerns about the

safety and long-term viability of fission reactors. After fission reactions

split heavy-element atoms, the fission products remain (atomic nucleicreated through the fission process, along with other metals), as well as the

non-fissured Uranium and Plutonium. These products are now nuclearwaste and remain highly radioactive. Unfortunately, there is no safe way todispose of nuclear waste, which has resulted in steel-lined underground

repositories, where the waste elements can undergo radioactive decay awayfrom populations and water supplies.

545. Judah Freed, (Journalist), NUCLEAR POWER, 2010, 72. Another

major legal challenge involves the Yucca Mountain storage facility beingover a fault line. In the event of earthquakes, what would stop radioactive

wastes from contaminating the underlying aquifer that supplies water for

agriculture and urban populations throughout the West? Again, millions of

lives are at risk, and this does not begin to count the peril to the NativeAmericans living nearby.

546. Clive Hamilton, (Prof., Public Ethics, Center for Applied Philosophy,

Australian National U.), REQUIEM FOR A SPECIES: WHY WE RESISTTHE TRUTH ABOUT CLIMATE CHANGE, 2010, 172. In countries that

already have experience with nuclear power, including well-establishedregulatory and waste-disposal regimes, it takes at least a decade for a new

nuclear power plant to be planned, approved, built and commissioned.

Construction time alone now averages six years. The International EnergyAgency envisages a four-fold increase in the amount of electricity generated

by nuclear power by 2050. This would require the construction of 32

nuclear power plants every year until then, a huge expenditure that would

reduce carbon dioxide emissions from the energy sector by only 6 per cent.

547. Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting),

THE ATLAS OF COASTS & OCEANS: ECOSYSTEMS, THREATENED

RESOURCES, MARINE CONSERVATION, 2011, 60. Given its enormous

energy potential, scientists have estimated that, with current technologiesunder development or being tested, the oceans could produce between 8,000

and 80,000 TWh of electricity a year from wave energy, 2,200 TWh fromtidal currents and 10,000 TWh from ocean thermal (temperature) gradients.

At the beginning of 2009, some 24 countries were deploying, developing,

and testing a variety of ocean renewable technologies.

548. Mark Scott, (Staff, Business Week), WATER: OPPOSING

VIEWPOINTS, 2012, 172. It's no surprise utilities are keen to harness

marine power. According to Britain's Carbon Trust, a government-fundedresearch and advisory group, the world's oceans have the capacity toproduce as much as 4,000 terawatt hours per year of electricity—enough to

power Britain 10 times over.

549. Chris Goodall, (Staff, The Guardian), TEN TECHNOLOGIES TOSAVE THE PLANET, 2010, 88. Despite all the challenges, it seems

entirely plausible that a small number of successful marine-energy

companies will each be able to install thousands of robust turbines. In acountry with long coastlines, such as Canada or the U.K., these turbines

should be able to provide 20 or 30 percent of its electricity within twenty

years.

550. Subramaniam Neelamani, (Coastal Management Program, Kuwait

Institute for Scientific Research), ON A SUSTAINABLE FUTURE OFEARTH’S NATURAL RESOURCES, 2013, 308. Energy resources play an

important role in the economic development of any country. During the

present days of energy crisis, the need for energy conversion as well as the

urgency to locate sources for renewable energy is obvious. Solar radiationwhich sustains life on the Earth is continuous and inexhaustible. It has been

estimated that about 1016 W of solar energy reaches the Earth. The ocean,

which covers about 71% of the Earth's surface acts as a natural collector of

much of this energy. Thus, the ocean has an enormous potential to supply

energy in many different ways. The major advantages of ocean energy are

that it is renewable, continuous throughout the year and pollution free.

551. Matt MacDonald, (Consultant, International Energy Agency),

OFFSHORE RENEWABLE ENERGY: ACCELERATING THE

DEPLOYMENT OF OFFSHORE WIND, TIDAL, AND WAVE

TECHNOLOGIES, 2012, 196. The world theoretical resource from

offshore renewables (wind, wave and tidal) is estimated to be between

260,000 and 330,000TWh/year, illustrating the potential significance of the

available resource. The opportunity to harvest this vast resource has beenidentified by governments and academia, together with commercial project

and technology developers, who aim to capitalize in a rapidly expandingmarket.

552. Roger Pielke, Jr., (Prof., Environmental Studies, U. Colorado), THE

CLIMATE FIX: WHAT SCIENTISTS AND POLITICIANS WON'T TELL

YOU ABOUT GLOBAL WARMING, 2010, 200. Efforts to use fear and

alarm to motivate action are counterproductive to efforts to enact climate

policies. Ted Nordhaus and Michael Shellenberger suggest that such effortsreinforce the partisan nature of the climate debate: "The louder and more

alarmed climate advocates become in these efforts, the more they polarizethe issue, driving away a conservative or moderate for every liberal theyrecruit to the cause." As the issue becomes polarized in partisan terms, itshould come as no surprise that public opinion on the issue comes to

resemble public opinion on most highly partisan issues.

BAYLOR BRIEFS 110

553. Roger Pielke, Jr., (Prof., Environmental Studies, U. Colorado), THE

CLIMATE FIX: WHAT SCIENTISTS AND POLITICIANS WON'T TELL

YOU ABOUT GLOBAL WARMING, 2010, 201. Employing the fear

factor seems to have already backfired. The data show that increasing

numbers of the public have become more skeptical of the claims of climate

scientists, believing that the science has been exaggerated. Nevertheless,

support for action remains strong. Taken together, these data suggest that

invoking fear and alarm serves most to undermine perceptions of science

and offers precious little benefit to motivating action.

554. Wong Yat-Hei, (Staff), SOUTH MORNING POST, Mar. 1, 2011, 6.

There is a general agreement that global climate warmed between 1880 and

1940, but temperature observation since 1979 has been disputed. According

to the IPCC's fourth Assessment Report in 2007, global surface temperatureincreased by 0.74 degrees Celsius (with an error of plus or minus 0.18

degrees Celsius) during the 20th century. Climate models predict earth's

temperature is likely to rise a further 1.1 degrees to 6.4 degrees Celsiusduring the 21st century. On the other hand, satellite data shows no warming

trend between 1979 and 1997 and indicate a slight cooling. Direct

temperature measurement on the Greenland ice core shows a cooling trend

between 1940 and 1995. Surface temperatures taken by observers withthermometers show a rise of about 0.1 degrees Celsius per decade since

1979, but there are concerns over urban heat-island effects influencing the

recording rather than greenhouse gases.

555. Wong Yat-Hei, (Staff), SOUTH MORNING POST, Mar. 1, 2011, 6.

Recent temperature extremes recorded around the world also do not align

with global warming predictions. In April 2009, Australia logged its lowest-

ever temperature recorded for that month, minus 13 degrees Celsius, at

Charlotte Pass in the Snowy Mountains. At the same time in the United

States, there was unusual snow in cities such as New Orleans and a heavy

snowfall paralysed Washington. Other evidence suggests the Arctic sea-ice

is melting and the Antarctic ice is thickening. As research shows, there is nocredible way to trace climate change spanning the earth's 46-billion-yearhistory. Hence, it may be premature to conclude that global warming is

causing a serious threat to our planet, or that human activity is responsiblefor global warming.

556. Stanton Friedman & Kathleen Marden, (Nuclear Physicist &

International Dir., Mutual UFO Network), SCIENCE WAS WRONG, 2010,

156. A turning point may have occurred when BBC News published anarticle by Paul Hudson in October 2009 entitled "What Happened to Global

Warming?" The BBC had previously been fully behind the "Kill CO2"

movement, but now Hudson noted that for the last 11 years we have not

observed any increase in global temperatures (and that the global climate

models did not forecast it), even though man-made carbon dioxide, the gasthought to be responsible for warming our planet, has continued to rise.

Note that, simply put, the temperature of the world has not risen for 11

years.

557. Craig Idso, (Analyst, Heartland Institute), CLIMATE CHANGE

RECONSIDERED: 2011 INTERIM REPORT, 2011, vi. Climategate wasfollowed by a series of revelations that many of the key "findings" of theFourth Assessment Report of the IPCC relied on non-peer-reviewed

sources, sometimes little more than the newsletters of environmental

advocacy groups. As a result, IPCC had to retract claims about Amazon rainforests, African crop harvests, Himalayan glaciers, trends in disaster losses,

flooding in Bangladesh, and more.

558. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 8-9. Yet consider the implications of the

suppressed EPA "Internal Study on Climate" report that was kept under

wraps, its author silenced, due to pressure to support the agency's agenda to

regulate CO2. Alan Carlin, a senior research analyst at the EPA's NationalCenter for Environmental Economics (NCEE), had stated in that report that

after examining numerous global warming studies, his research showed the

available observable data to invalidate the hypothesis that humans cause

dangerous global warming. He concluded, "Given the downward trend in

temperatures since 1998 (which some think will continue until at least

2030), there is no particular reason to rush into decisions based upon a

scientific hypothesis that does not appear to explain most of the available

data."

559. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 98. The reality is that CO2 emissions are continuing to rise around the

world while the global mean temperature has remained static for over a

decade, and may even have fallen.

560. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 2. Cyclical, abrupt, and dramatic global andregional temperature fluctuations have occurred over millions of years, longbefore humans invented agriculture, industries, automobiles, and carbon-

trading schemes. Many natural factors are known to contribute to these

changes, although even our most sophisticated climate models have failed

to predict the timing, scale (either up or down), impacts, or humaninfluences. While theories abound, there is no consensus, as claimed, that

"science is settled" on any of those theories—much less is there consensus

about the human influences upon or threat implications of climate change.

EVIDENCE BAYLOR BRIEFS 111

561. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 24. Widely circulated statements that scientistsunanimously agree about global warming and human contributions to it orthe importance and consequences of it are patently false. The apparent

purpose of such claims is to discredit those with opposing viewpoints,

deriding them with contempt previously reserved for those who deny the

Holocaust, the dangers of tobacco, and the achievements of NASA's Apollo

program.

562. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 25. In May 2007, a survey of 530 climate

scientists by the Heartland Institute revealed that only about one-half agreed

that "climate change is mostly the result of anthropogenic causes and only

one-third of those agreed that "climate models can accurately predict

conditions in the future."

563. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 26. In 2008, a US Senate minority report issuedby Senator James Inhofe (R-OK) presents the testimony of 650 climate-

related scientists from around the world who strongly challenge global

warming crisis claims. They include a Nobel laureate and former IPCCstudy participants.

564. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 96. Back in 2008, Dr Arthur Robinson of the Oregon Institute ofScience and Medicine (OISM) picked up exactly this point when speaking

to a packed National Press Club in Washington DC. In his address he

announced that more than 31,000 scientists had at that point signed the

Oregon Petition rejecting the IPCC line on man-made emissions and

climate change. Acutely aware that claims of a "phoney list" would

immediately be leveled, Dr. Robinson pointed out that the list had beencarefully vetted to confirm that over 9,000 of those who signed held PhDs.

565. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 96. In March 2008, over 500 individuals, including leading climate

scientists, economists, policymakers, engineers, and other professionals,

endorsed the Manhattan Declaration on Climate Change. Sponsored byclimate scientists of the International Climate Science Coalition (ICSC), it

states: "There is no convincing evidence that CO2, emissions from modern

industrial activity have in the past, are now, or will in the future cause

catastrophic climate change."

566. Paul Knappenberger, (Analyst at the Center for the Study of Science).

GLOBAL SCIENCE REPORT, Dec. 13, 2013. Retrieved Jan. 15, 2014

from http://www.cato.org/blog/tags/global-science-report. Last year, theannual average temperature in the contiguous United States was the higheston record (since 1895) according the data compiled by the NationalClimatic Data Center (NCDC). This year, the temperature took a nosedive

from the lofty heights of 2012.

567. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, xi. The March 2006 Time magazine cover story

"Global Warming: Be Worried, Be Very Worried" warned of impending

climate doom that would result in melting polar caps, rising oceans, and

other catastrophes. If any worry is warranted, think about the next overdue

Ice Age that scientific "experts" predicted only a few decades earlier. Thenhope that the cooling period we are currently experiencing will only be

brief. Understand that the real impetus behind the cooked numbers anddoomspeak of the global warmers has little to do with the state of theenvironment and much to do with shackling capitalism and transforming the

American way of life in the interests of global wealth redistribution ("social

justice").

568. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 5. It is apparent that our planet is once again

experiencing a global cooling trend, just as it did quite recently between

1940 and 1975, when warnings of a coming new ice age received front-page

coverage in the New York Times and other major publications. NASA

satellite measurements of the lower atmosphere, where warming greenhouse

models predicted effects would be greatest, stopped rising as a decadal

trend after 1998 despite increased levels of CO, . Measurements recordedby four major temperature-tracking outlets showed that world temperatures

plummeted by more than 1 degree Fahrenheit (1°F) during 2007. Thiscooling approached the total of all the warming that had occurred over that

past 100 years.

569. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 5. 2008 was significantly colder than 2007 hadbeen. Although models predicted that the year 2008 would be one of the

warmest on record, it actually ranked fourteenth coldest since satelliterecords commenced in 1979, and the coldest since 2000.

570. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 5-6. If ordinary citizens don't receive or heedscientific reports, many may legitimately question global warming

assertions from direct experience. Take the year 2007, for example. North

America had the most snow it's recorded in the past 50 years. A Boston

storm in December dumped 10 inches of snow, more than the city typically

receives in that entire month, and Madison, Wisconsin, had the highestseasonal snowfall since record keeping began.' Record cold temperatures

were recorded in Minnesota, Texas, Florida, and Mexico.

571. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 6. During October 2008, Oregon temperaturesmid-month dipped to record lows, and Boise, Idaho, received its earliest-

ever recorded snowfall. December 2008 witnessed 3.6 inches of snow in the

Las Vegas Valley, the most to have fallen at that time of year since 1938,

when record keeping began. Houston witnessed its earliest-ever recorded

snowfall on December 4, 2009.

572. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 6. A blizzard on February 20, 2010, broke a

Washington, DC, 110-year-old annual snowfall record of 55 inches as well

as seasonal records in Baltimore and Philadelphia.' Then, on February 26and 27, another storm that pummeled New York City for 2 days broke a

monthly snowfall record (37 inches) in Central Park that had stood for 114

years; the previous record for February was 28 inches in 1934, and thelargest for any month was 30.5 inches in March 1896.

573. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 6. Going back to 2007, Baghdad saw its first

snowfall ever recorded, and China experienced its coldest winter in 100

years. Record cold temperatures were also recorded in Argentina, Chile, and

yes, even Greenland. The end of 2007 set a record for the largest SouthernHemisphere sea ice expanse since satellite altimeter monitoring began in

1979, it was about 1 million square kilometers more than the previous 28year

average. In 2008, Durban, South Africa, had its coldest September

night in history, and parts of that country experienced an unusual late-

winter snow. A month earlier, New Zealand officials at Mount Ruapehureported the largest snow accumulation ever.

574. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 10. Extravagantly funded media campaigns

continue to advertise a "climate change crisis," despite obvious evidencethat the Earth began cooling once more at least a decade ago.

575. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 53. Based upon current solar data, the Russian

Pulkovo Observatory space research laboratory concludes that Earth haspassed its latest warming cycle, and staff there predict that a fairly cold

period will set in by 2012. Temperatures may drop much lower by 2041 and

remain very cold for 50 to 60 years, or longer."

576. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 53. Kenneth Tapping at Canada's National

Research Council thinks we may be in for an even longer cold spell. He

predicts that the Sun's unusually quiet current 11-year cycle might signal the

beginning of a new Maunder Minimum cold period, which occurs everycouple of centuries and can last a century or more."

577. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 53. Solar activity peaked at the end of the

1990s, broke with a brief blip in 2002, and then slumped to almost none.

This coincides with observed cooling, since 1999, which may well be

continuing. There were only six sunspots during the entire year of 2008, the

lowest number in 95 years. Yet as recently as 2006, NASA predicted that

the upcoming solar cycle would be "a biggie."

578. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 98. As early as 2008, a peer-reviewed research paper even suggested

a cooling cycle may take over for the next 20 years. Dyed-in-the-wool

AGW advocates like the BBCs meteorologist John Kettley have been

forced to concede that globally speaking warming "appears to have stalled."

579. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 106. Joseph D'Aleo, an acclaimed meteorologist, is executive director

of Icecap (International Climate and Environmental Change AssessmentProject). In his article, "Facts About Global Climate Change That YouWon't Read in the Popular Press," he sums up, as succinctly as we have

seen anywhere, the key elements and real science. Temperatures have been

cooling since 2002, even as carbon dioxide has continued to rise.

EVIDENCE BAYLOR BRIEFS 112

580. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 33. With the publication of two

groundbreaking articles in 2001 and 2002, however, the radical notion —

that the amount of sunlight reaching the Earth's surface has been steadily

decreasing since 1950 — has rocketed from the scientific fringes into the

mainstream.

581. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 57. Claims that the Earth is now warmer than at

any other time in the past 1,000 years are readily disputable. A National

Academy of Sciences review panel addressed this issue in 2006. It

concluded that all that we can really be certain about is that the Earth was

then warmer than it had been over the last 400 years. Considering that theLIA [Little Ice Age] accounted for 250 of those years, that shouldn't be

unduly alarming. History has demonstrated that a return to prolonged

cooling would be a much more legitimate worry.

582. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 98. At the end of the first decade of the twenty-first century, however,

one consensus is today factually indisputable: there has been no median

global warming since the mid-1990s, and since 2002 the global mean

temperature appears to have declined slightly.

583. Stanton Friedman & Kathleen Marden, (Nuclear Physicist &

International Dir., Mutual UFO Network), SCIENCE WAS WRONG, 2010,

157. The most important cycle is the Pacific Decadal Oscillation (PDO).

This was in a positive cycle (warmer than usual) for much of the 1980s and

1990s, and global temperatures were warmer too. In the past, the cycles

have lasted for about 30 years, with the period from 1945 to 1977

coinciding with one of the cool Pacific cycles. Now it is again in a cooling

mode. In September 2009, Dr. Mojib Latif, a prize-winning Germanmeteorologist and oceanographer, and a member of the Intergovernmental

Panel on Climate Change, wrote that we may indeed be in a period ofcooling that could last another 10 to 20 years.

584. Alastair Sweeney, (Dir., The Civics Channel, Canada), BLACK

BONANZA: ALBERTA’S OIL SANDS AND THE RACE TO SECURE

NORTH AMERICA’S ENERGY FUTURE, 2010, 15. All of this is

happening while the emerging problem may, in fact, be global cooling.

Ecologist Peter Taylor has shown that the jet stream shifts south as the

magnetic field of the sun falls, and this was characteristic of the Little Ice

Age. In 2007, the sun's magnetic field fell to an all-time low and this

repeated through 2008 and 2009.

585. Alastair Sweeney, (Dir., The Civics Channel, Canada), BLACK

BONANZA: ALBERTA’S OIL SANDS AND THE RACE TO SECURE

NORTH AMERICA’S ENERGY FUTURE, 2010, 167. The real travesty is

that these researchers largely succeeded in stifling transparent science and

open debate over the past ten years and continued to maintain the position

that the sky was falling when clearly it was not. In fact, NASA satellite dataclearly puts us into a cooling trend for the next few decades.

586. Paul Knappenberger, (Analyst at the Center for the Study of Science).

GLOBAL SCIENCE REPORT, Dec. 13, 2013. Retrieved Jan. 15, 2014

from http://www.cato.org/blog/tags/global-science-report. But even if the

rest of the month is not quite cold enough to push the entire year into

negative territory, the 2013 annual temperate will still be markedly colder

than last year’s record high, and will be the largest year-over-year decreasein the annual temperature on record, underscoring the “outlier” nature of the2012 temperatures.

587. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 111. Even a dyed-in-the-wool AGW [anthropocentric global

warming] alarmist like the UK's George Monbiot was forced to admit tohaving been badly shaken by the CRU revelations. Monbiot says the

scientific data does now need "reanalyzing." He laments, "There's no use

pretending this isn't a major blow. There appears to be evidence here ofattempts to prevent scientific data from being released, and even to destroy

material that was subject to a Freedom of Information request."

588. Roger Pielke, Jr., (Prof., Environmental Studies, U. Colorado), THE

CLIMATE FIX: WHAT SCIENTISTS AND POLITICIANS WON'T TELL

YOU ABOUT GLOBAL WARMING, 2010, x. In November 2009

someone stole or released more than a thousand e-mails from a server at the

University of East Anglia in the United Kingdom that showed private

discussions among climate scientists going back more than a decade. Some

of these discussions showed scientists in a rather poor light. Soon thereafter,

the Intergovernmental Panel on Climate Change (IPCC) faced criticismafter an obvious error was identified in its 2007 report. It didn't help that itsinitial reaction was to stonewall and deny. A series of further revelations

showed a series of errors in the report and breakdowns in its review process.

Its chairman was accused of having conflicts of interest.

589. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 109-110. In one email the CRU's director (and key IPCC author), Phil

Jones, writing to Michael Mann, discusses two scientific papers that denythe link between human activity and global warming. He wants them kept

out of an upcoming IPCC report. "Kevin and I will keep them out somehow

— even if we have to re-define what the peer-review literature is!" The

context of the discussions here is Michael Mann and CRU director Phil

Jones discussing putting pressure on the editors of academic journals who

might see fit to publish dissenting scientific opinion. Heaven forbid! Mannwrites, "Perhaps we should encourage our colleagues in the climate research

community to no longer submit to, or cite papers in, this journal?" Jonesresponds, "I will be emailing the journal to tell them I'm having nothingmore to do with it until they rid themselves of this troublesome editor."

590. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 108-109. In November 2009, a climate "missile" struck when 1079

emails and 72 other documents from the University of East Anglia's ClimateResearch Unit's (CRU) computers were released onto the Net. As usual themainstream media was asleep, which was surprising since the contents

proved explosive, auguring a major climate science scandal. But the furoracross the Internet could not be ignored. A scandal that writer Andrew Bolt

rightly termed "Climategate," was not just any scandal, it amounted to the

"greatest in modern science." What was particularly explosive was the

insight it gave us into the science "mafia" running IPCC and in the AGW"show." Reading the emails is a chilling experience, especially when onerealizes that some of the authors were also authors of the "definitive" UN

IPCC reports, and those who have persistently declared the science to be"settled."

591. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 109. Quite a few emails were also taken up with the "embarrassment"

caused by the Medieval Warming Period, one even suggesting "it would benice to try to 'contain' the putative 'MWP.'" Here we have scientists actually

discussing "dumping" a fact of history, one that embarrasses their theory.

Next, we have enlightening discussions about how best to squeeze

dissenting scientists out of the peer-review science process entirely.

592. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 2-3. Public exposure of hacked e-mail filesretrieved from the Climate Research Unit (CRU) at Britain's University of

East Anglia revealed scandalous communications among researchers whohave fomented global warming hysteria. Their exchanges confirm longstanding

and broadly suspected manipulations of climate data. Included are

conspiracies to falsify and withhold information, to suppress contraryfindings in scholarly publications, and to exaggerate the existence andthreats of man-made global warming. Many of these individuals have had

major influence over summary report findings issued by the United Nations'

IPCC. This organization has been recognized as the world authority on such

matters, and it shares a Nobel Prize with Al Gore for advancing climatechange awareness.

593. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 3. Among the more than three thousand

purloined CRU documents is an e-mail from its director, Philip Jones,

regarding a way to fudge the data to hide evidence of temperature declines:

"I've just completed Mike's Nature [journal] trick of adding the real

temperatures to each series for the past 20 years [i.e., from 1981 onward]

and from 1961 for Keith's to hide the decline [emphasis miner "Mike in thisinstance, refers to climatologist Michael Mann, who created the now

infamous "hockey stick" chart that has repeatedly appeared in IPCC reports,

as well as in Al Gore promotions, to portray accelerated global warming

beginning with the Industrial Revolution—hence, caused by humans.

594. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 3-4. Another e-mail to Michael Mann (whichJames Hansen at NASA was copied on), sent by Kevin Trenberth, head of

the Climate Analysis Section of the US National Center for Atmospheric

Research, reflected exasperation concerning a lack of global warming

evidence: "Well, I have my own article on where the heck is globalwarming. We are asking here in Boulder where we have broken records the

past two days for the coldest days on record. We had four inches of snow"

He continued, "The fact is that we can't account for the lack of warming at

the moment, and it is a travesty that we can't . . . the data is surely wrong.

Our observing system is inadequate." (ellipsis in original)

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595. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 5. Two things are clear from the CRU emails:

(1) Perpetrators of climate science fraud have routinely conspired to

exaggerate temperature increases since the Industrial Revolution, and (2)

these same perpetrators virtually ignored comparable and even warmertimes that preceded this period, as well as prolonged temperature declines

since this period, that contradict greenhouse theory and model predictions.

Other explanations that conform much more closely to observed

fluctuations have been dismissed or aggressively attacked. These practices

have produced unsupportable alarmist statements trumpeted in the worldpress that continue to influence multitrillion-dollar US and international

policy decisions—decisions based upon a contrived crisis of hysteria . . . a

climate of corruption. (ellipsis in original)

596. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 138. During October and November 2008 the extent of Arctic ice was

28.7 percent greater than during the same period in 2007. According to data

published by the International Arctic Research Center (IARC/ JAXA)

October 2008 saw "the fastest ever growth" of Arctic Sea ice since records

began.

597. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 139. The media has also made much of the potential opening of the

Northwest Passage. What it leaves out is that similar weather patterns

prevailed in the 1930s when two boats, the Nascopie and Aklavik, famously

met up in the Passage in 1937. In October 2008, a study by Ohio Universityconfirmed that current Arctic warming patterns mimic those in the 192040s.

By July 2008, the Arctic ice had increased by nearly half a million

square miles over the same first half year period in 2007. A NASA study

published in the peer-reviewed Geophysical Research Letters in October

2007 had already noted that thinning Arctic ice was more likely the result of"unusual winds" that had blown "older thicker" ice into warmer southern

waters. In other words, the Arctic warming experienced more recently may

well be the result of the unusual strength of winds, not man-made warming.

598. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 139. According to the National Snow and Ice Data Center's own

figures, world sea ice in April 2008 reached "unprecedented" levels for the

month of April. The World Meteorological Organization (WMO) went on

to declare 2008 the coolest since 2000. Moreover, the WMO reports that the

fall in the global mean temperature since 1998 is not just affecting the polar

ice caps either, it is also affecting glaciers elsewhere.

599. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 139. In October 2008, after a particularly bitterly cold Alaskansummer, glaciologists began reporting that Alaskan glaciers, particularlythose at Glacier Bay where the shrinkage had mainly been, began advancing

for the first time in years. Glaciologist Bruce Molnia of the US Geological

Survey said, "In mid-June, I was surprised to see snow still at sea level inPrince William Sound." He added, "On the Juneau Icefield, there was still

20 feet of new snow on the surface in late July. At Bering Glacier, a

landslide I am studying did not become snow free until early August." In

short, 2008 was the first time since records began that Alaskan glaciers did

not shrink during the summer months.

600. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 65-66. Even though Greenland has been

experiencing a slight warming trend, satellite measurements show that theice cap is accumulating snow growth at a rate of about 2.1 inches per year.

Also consider that Greenland's temperatures over the past

601. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 67. In February 2009, it was discovered that

scientists have been underestimating the regrowth of Arctic sea ice by anarea larger than the state of California (twice as large as New Zealand). Theerrors are attributed to faulty sensors on the ice.23 And although the Arctic

ice expanse was still slightly smaller in 2008 as compared with 1979, theAntarctic expanse was larger. The University of Illinois Arctic ClimateResearch Center posted an analysis in January 2009 concluding that global

sea ice coverage in 2008 was nearly the same as satellites revealed in 1979.

602. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 2. The continent-wide

snow and ice melting trend in Antarctica since 1979, when routine

measurement of the phenomenon via space-borne passive microwave

radiometers first began, has been negligible. New research also shows the

West Antarctic Ice Sheet (WAIS) is more stable than previously thought.

603. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 2. After doublingduring the early 2000s, annual ice discharge from the Greenland Ice Sheet

slowed dramatically beginning in 2006, the result of negative feedback that

mitigates against fast loss of ice in a warming climate. Scientists have

concluded present-day melting rates "are not exceptional within the last 140

years" and "are not necessarily the result of anthropogenic-related

warming."

604. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 64. According to a recent study conducted byUS and Dutch scientists that appeared in the journal Nature Geoscience,

previous estimates of ice melt rate losses in Greenland and West Antarctica

may have been exaggerated as double the actual rate.

605. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 65. Much of the specter of global warmingalarm centers upon Greenland and upon concerns that glaciers will cause

disastrous sea level rise. A December 2005 BBC feature reported that two

massive glaciers in eastern Greenland, Kangderlugssuaq and Helheim, were

melting, with water "racing to the sea." It was predicted that continuedrecession of more than 2 miles per year would be catastrophic. That

prognosis proved premature, however. Only 18 months later, and despite

slightly warmer temperatures, the melting rate of both glaciers not only

slowed down and stopped but also had actually reversed, and the glaciersbegan expanding in size. Landsat images revealed that by August 30, 2006,

Helheim had advanced beyond its 1933 boundary.

606. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 108. Warmer ocean cycles are periods with diminished Arctic ice

cover. When the oceans were warm in the 1930s to the 1950s, Arctic ice

diminished and Greenland warmed. The recent ocean warming, especiallyin the 1980s to the early 2000s, is similar to what took place 70 years ago

and the Arctic ice has reacted much the same way, with diminished summerice extent.

607. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 139. The Arctic has indeed undergone some warming in some areas,

especially Greenland, a warming that culminated in a summer temperaturehigh of 5°C in 2007. The gradual melt has opened up the prospect ofnavigable seaways and a rush for the Arctic's energy-rich deepwater

reserves. The reality is, however, warming periods are nothing new to the

Arctic. When the Vikings settled Greenland they grew crops intemperatures higher than those of today.

608. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 98. Today, we are in the bizarre position that we cannot predict with

any degree of certainty weather patterns for next week, yet someclimatologists are trying to tell us that they can predict with certainty

climate patterns a hundred years from now.

609. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 107. Greenhouse models show the warming should be greatest at midto high atmosphere levels in the tropics. But balloon and satellite

observations show cooling there. The greenhouse signature or DNA does

not match reality, and the greenhouse models thus must greatly overstate

the warming — and in a court of law would have to be acquitted of any role

in global warming.

610. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 109. Elsewhere we learn about the apparently regular manipulation ofdata evidence: "I've just completed Mike's [Mann] trick of adding in the real

temps to each series for the last 20 years (i.e. from 1981 onwards) and from1961 for Keith's to hide the decline." Hide what decline, we might ask?

Well the context is a discussion of the scientific fact that globaltemperatures have not warmed for a decade, indeed they have "declined."

The decline they wanted to hide was the one in global temperatures.

611. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 109. Surely, for a scientist, facts are facts? Why hide facts? Then we

learn of the private doubts of another researcher: "The fact is that we can'taccount for the lack of warming at the moment and it is a travesty that we

can't. The CERES data published in the August BAMS 09 supplement in

2008 shows there should be even more warming: but the data is surely

wrong." It seems if the evidence does not fit the theory, the evidence must

be changed or suppressed.

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612. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, vi. We find evidence

that the models over-estimate the amount of warming that occurred during

the twentieth century, fail to incorporate chemical and biological processes

that may be as important as the physical processes employed in the models.

The models often diverge so greatly in their assumptions and findings thatthey cannot be said to validate each other, nor can such discordant

projections be combined to produce meaningful averages.

613. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 2. Climate models fail

to correctly simulate future precipitation due to inadequate model resolution

on both vertical and horizontal spatial scales, a limitation that forces climate

modelers to parameterize the large-scale effects of processes that occur on

smaller scales than their models are capable of simulating. This is

particularly true of physical processes such as cloud formation and cloud-

radiation interactions.

614. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 2. The internal

variability component of climate change is strong enough to overwhelm any

anthropogenic temperature signal and generate global cooling periods(between 1946 and 1977) and global warming periods (between 1977 and2008), yet models typically underestimate or leave out entirely this

component, leading to unrealistic values of climate sensitivity.

615. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 2. Climate models fail

to predict changes in sea surface temperature and El Nino/SouthernOscillation (ENSO) events, two major drivers of the global climate. Therehas been little or no improvement to the models in this regard since the late1990s.

616. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 107. Most of the warming in the climate models comes from the

assumption that water vapor and precipitation increase as temperatures

warm, a strong positive feedback. Water vapor is a far more important

greenhouse gas than CO2. However, that assumption has been shown inobservations and peer-reviewed research to be wrong, and in fact water

vapor and precipitation act as a negative feedback that reduces any small

greenhouse warming from carbon dioxide.

617. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 2. The big lie is that we are living in a knownclimate change crisis. Climate warming and cooling have occurred

throughout the ages. Is the Earth warming right now? Probably not, butwhat if it is? It might be cooling next year. The models that predict a crisisare speculative at best, and two recent events have cast even more doubt on

their accuracy. One relates to undisputable evidence that influentialmembers of the climate science community have cooked the books toadvance their theories and marginalize contrary findings. The other problemis evidence provided directly by Mother Nature herself that the globalclimate appears to have entered a new cooling cycle.

618. Roger Pielke, Jr., (Prof., Environmental Studies, U. Colorado), THE

CLIMATE FIX: WHAT SCIENTISTS AND POLITICIANS WON'T TELL

YOU ABOUT GLOBAL WARMING, 2010, 207. Consider what happened

in early 2010 when it was widely recognized that the IPCC had made a

series of egregious errors in its 2007 report on the melting of Himalayan

glaciers. The report claimed that the glaciers could be fully gone by 2035,

which when published led to headlines around the world. It turns out that

the basis for the claim was an offhand comment made by an Indian scientist

to a reporter in 1999 with no basis in the peer-reviewed literature.

619. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 39. A common misconception is that all or most

CO2 emissions from human activities accumulate steadily in the

atmosphere with a proportional greenhouse effect. Yet, on average, the

surface environment absorbs about half of those CO2 emissions. In

addition, each unit of CO2 increase generally produces half the warmingeffect of the preceding one, and the atmosphere can become saturated tostop further effects.

620. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 106-107. Carbon dioxide is a trace gas and by itself will produce little

warming. Also, as CO2 increases, the incremental warming is less, as the

effect is logarithmic so the more CO2, the less warming it produces.

621. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 34. Based upon a variety of proxy indicators,

such as ice core samples, atmospheric CO2 levels have remained relatively

low over the past 650,000 years, even during the six previous interglacial

periods when global temperatures were as much as 9°F warmer than the

temperatures we currently enjoy. If this is true, might we legitimately

wonder what accounted for those nonhuman greenhouse influences? Itwould seem to suggest that anthropogenic CO2 contributions may have nodiscernible influence upon climate, or that proxy data is often inaccurate—

or both.

622. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 107. CO2 has been totally uncorrelated with temperature over the last

decade, and has proved significantly negative in effect since 2002.

623. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 2. Among these hypotheses, man-made global

warming caused by burning fossils has been trumpeted as an epic crisis.

CO2, a "greenhouse gas," has been identified as a primary culprit and

branded as an endangering "pollutant." This, despite the fact that throughoutEarth's history the increases in the atmospheric CO, level have tended tofollow, not lead, rising temperatures. It should also be understood that CO2

accounts for only 0.04 of 1 percent of the atmosphere, and about 97 percent

of that tiny trace amount comes from naturally occurring sources that

humans haven't influenced.

624. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 35. About 438 million years ago, atmosphericCO2 dropped from 4,500 ppm to 3,000 ppm, yet according to fossil records,

world temperatures shot rapidly back up to an average 72°F. So, regardlessof whether the CO2 levels were 7,000 ppm or 3,000 ppm, temperatures rose

and fell independently.

625. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 35. Looking back over several million years in

Earth's history, it is challenging to imagine that major global temperatureswings can be attributed to man-made CO2, or any CO2 for that matter. It is

apparent that past CO2 levels have been high at times when globaltemperatures were low, and vice versa. During the eras when dinosaurs

thrived, global temperatures ranged between 72°F and 77°F, a blistering 20degrees higher than today's average between 54°F and 57°F.

626. Joseph Bast, (Pres., Heartland Institute), SEVEN THEORIES OFCLIMATE CHANGE, 2010, 7. Increased carbon sequestration by plants isperhaps the best-known consequence of the rise in atmospheric CO2. The

productivity of most plants is enhanced because CO2 is the primary rawmaterial utilized by plants to construct their tissues. The more CO2 there isin the air, the better plants grow and the more CO2 they remove from the airand store in their leaves, branches, trunks, and roots, as well as in the soil

beneath the plants — a suite of processes called "sequestration." Highertemperatures also tend to increase carbon sequestration rates.

627. Joseph Bast, (Pres., Heartland Institute), SEVEN THEORIES OFCLIMATE CHANGE, 2010, 7. The latest research, by Wolfgang Knorr ofthe Department of Earth Sciences at Bristol University in England, indicatesthat sinks are growing in pace with man-made emissions, "having risen

from about 2 billion tons a year in 1850 to 35 billion tons a year now,"

contradicting the assumptions made by the computer models used byadvocates of the AGW theory. In addition, all carbon sinks have yet to be

identified and new ones are being discovered every few years.

628. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 32. A peer-reviewed climate study that appearedin the July 23, 2009, edition of Geophysical Research is critical of IPCC

modeling tendencies to fudge climate projections by exaggerating CO2influences and underestimating the importance of shifts in ocean conditions.

The research indicated that influences of solar changes and intermittent

volcanic activity have accounted for at least 80 percent of observed climate

variation over the past half century.

629. Anna Lappé, (Founder, Small Planet Institute), DIET FOR A HOT

PLANET, 2010, 7-8. One reason these other greenhouse gases are so

worrying is their effectiveness in trapping heat—just what we don't want

them to do. To help simplify the climate-change conversation, these

warming influences are expressed in carbon dioxide equivalence (or CO2eq)

based on the global warming potential (GWP) of each gas over a one-

hundred-year period. Methane, for instance, has a GWP of 23, meaning ittraps heat twenty-three times more effectively than carbon dioxide over the

course of a century. Nitrous oxide has a global warming potential of 296.

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630. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 744. Section 6.3

addresses the threat of so-called “ocean acidification.” The phrase is animproper choice because natural seawater is basic (alkaline), with anaverage pH level typically around 8.1, and the oceans will never becomeacidic (below 7.0) due to IPCC’s worst-case scenarios of future

anthropogenic CO2 emissions. The prospect of oceans and lakes becoming

“acidic” is frightening to the general public, and rightly so. While many

scientists conducting research in this area use the term, perhaps to attractpublic attention to their work, more accurate and less judgmental phrases

are “lower oceanic pH,” “lower seawater pH levels,” and “ocean pHreduction.”

631. Matt Ridley, (Staff, London Times), WATER: OPPOSING

VIEWPOINTS, 2012, 41. Try chemistry. The scary reasoning rests on the

argument that lower pH will mean less dissolved carbonate in the water. But

a new paper from North Carolina proves what some scientists have long

suspected, namely that corals and other species do not use carbonate as raw

material to make their shells; they use bicarbonate. And dissolving carbon

dioxide in water actually increases bicarbonate concentrations.

632. Matt Ridley, (Staff, London Times), WATER: OPPOSING

VIEWPOINTS, 2012, 41-42. Study after study keeps finding that, far fromdepressing growth rates of marine organisms, higher but realistic levels of

carbon dioxide either do not affect them or increase their growth rate. By farthe most numerous calcifiers in the oceans are plankton called

coccolithophores. There is now strong evidence that coccolithophores aregrowing faster and larger as a result of human carbon dioxide emissions.

Stands to reason if they use bicarbonate.

633. Matt Ridley, (Staff, London Times), WATER: OPPOSING

VIEWPOINTS, 2012, 42. Iris Hendriks and Carlos Duarte, of the Spanish

Council for Scientific Research, found that in 372 studies of 44 different

marine species "there was no significant mean effect" from lower pH. Theyconcluded that marine life is "more resistant to ocean acidification than

suggested by pessimistic predictions" and that it "may not be the

widespread problem conjured into the 21st century".

634. Matt Ridley, (Staff, London Times), WATER: OPPOSING

VIEWPOINTS, 2012, 42. Make no mistake: There are lots of threats to the

ecosystems of the ocean, from overfishing to nutrient runoff, but

acidification is way down the list. The attention deflects funds and action

from greater threats. It is time that scientists had the courage to admit this.

635. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 885. Some

scientists have predicted rates of coral calcification and the photosynthetic

rates of their symbiotic algae will decline dramatically in response to lower

ocean pH levels as the atmosphere’s CO2 concentration continues to rise.

As research evidence accumulates, however, the true story appears to be

just the opposite.

636. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 885. Theoretical

calculations suggest rising atmospheric CO2 over the past century should

have led to a 6–14% decline in coral calcification via lower ocean pHlevels, yet several studies show coral calcification rates have remained

stable or increased.

637. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 885. Field studies

hold an advantage over laboratory-based studies in more aptly representingconditions in the real world, as many of those conditions are impossible or

impractical to recreate in a laboratory setting. The findings produced in field

studies tend to hold more weight and establish greater clarity on a scientifictopic or question under investigation than findings produced in a laboratorysetting. Such is the case with lower ocean pH levels. Whereas positive,

negative, and neutral effects from this phenomenon have been observed oncorals in laboratories, field-based studies in the ocean reveal the situation is

much less dire than IPCC predicts. Many studies suggest a modest decline

in oceanic pH may actually favor coral calcification and growth.

638. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 4. "The IPCC' s

failure to report the beneficial effects of rising CO2 concentrations is

surprising when literally thousands of peer-reviewed journal articles exist

on the subject. It is also a major defect of the IPCC report and one reasonwhy it is not a reliable summary of the science of climate change."

639. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 4. Extensive research

shows plants sequester greater amounts of carbon in woody biomass,

including roots, as CO2 concentrations rise. For most species studied and in

most conditions, this sequestration does not slow or stop with the passage of

time. Old-growth forests, for example, can sequester carbon for multiplecenturies.

640. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 4-5. Higher

atmospheric CO2 concentrations benefit plant growth-promotingmicroorganisms that help land plants overcome drought conditions, a

potentially negative aspect of future climate change. Continued atmospheric

CO2 enrichment should prove to be a huge benefit to plants by directly

enhancing their growth rates and water use efficiencies.

641. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 5. Rising

temperatures and atmospheric CO2 concentrations, by increasing crop

yields, will play a major role in averting hunger without the taking of new

land and water from nature. For a nominal doubling of the air's CO2

concentration, for example, the productivity of Earth's herbaceous plants

rises by 30 to 50 percent and the productivity of its woody plants rises by 50to 80 percent or more. In addition, atmospheric CO2 enrichment typicallyincreases plant nutrient and water use efficiency.

642. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 1. While rising levels

of atmospheric carbon dioxide (CO2) would increase global temperatures

through its thermal radiative properties, all else being equal, all else is not

equal. More CO2 promotes more plant growth both on land and throughout

the surface waters of the world's oceans, and this vast assemblage of plant

life has the ability to affect Earth's climate in several ways, almost all of

them tending to counteract the heating effects of CO2' s thermal radiative

forcing.

643. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 2. CO2 promotes

plant growth both on land and throughout the surface waters of the world'soceans, and this vast assemblage of plant life has the ability to affect Earth's

climate in several ways, almost all of them tending to counteract the heatingor cooling effects of CO2' s thermal radiative forcing.

644. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 107. CO2 is not a pollutant, but a naturally occurring gas. Together

with chlorophyll and sunlight, it is an essential ingredient in photosynthesis

and is, accordingly, plant food.

645. Stanton Friedman & Kathleen Marden, (Nuclear Physicist &

International Dir., Mutual UFO Network), SCIENCE WAS WRONG, 2010,

159. Not surprisingly, one doesn't hear much about the benefits of higherCO2 levels, such as increased plant growth and crop yields which has beendemonstrated in controlled experiments. Also, many countries, such as

Russia, would prefer to have a warmer climate.

646. Melanie Lenart, (Research Associate, Institute of the Environment),

LIFE IN THE HOTHOUSE: HOW A LIVING PLANET SURVIVES

CLIMATE CHANGE, 2010, 97. As individuals, plants are merelyresponding to extra resources within their reach when they grow fasterunder higher carbon dioxide levels. Agricultural scientists taking the plants'

point of view have dubbed the effect carbon dioxide fertilization. From theplanetary perspective, though, this growth response helps keep levels of this

greenhouse gas in check.

647. Melanie Lenart, (Research Associate, Institute of the Environment),

LIFE IN THE HOTHOUSE: HOW A LIVING PLANET SURVIVES

CLIMATE CHANGE, 2010, 105. Even mature tropical rain forests seem tobe growing better. By the mid-1990s, on-the-ground tallies began to show

that the Amazon's tropical rain forests that had escaped destruction weregrowing unexpectedly fast. Measurements of tree growth from more than a

hundred plots in the Amazon's lowlands suggested that mature forests inthis region alone could be pulling down about 10 percent of the carbondioxide emitted from fossil fuels in the 1980s and 1990s, a 1998 Science

article by Oliver Phillips and others suggested. Other on-the-ground studies,

such as one led by John Grace, similarly concluded that Amazon forests,

even old growth, were taking up carbon.

648. Melanie Lenart, (Research Associate, Institute of the Environment),

LIFE IN THE HOTHOUSE: HOW A LIVING PLANET SURVIVES

CLIMATE CHANGE, 2010, 115-116. Elevated carbon dioxide levels may

have accounted for about a third of the increase in global productivity, the

analysis by Beerling and his colleagues suggested. Their model indicated

that the elevated carbon dioxide level had the biggest impact near the

equator. They attribute this to the plants' ability to use less water. Asmentioned earlier, high carbon dioxide levels allow plants to keep their

stomata closed more often, thus giving their internal water fewer

opportunities to escape. This provides the biggest advantage where

temperatures run high.

649. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 798. Most coral

reefs are known to have responded successfully to the sea-level rises thatoccurred between 14,000 and 6,000 years ago, which were more than twice

as rapid as what is being predicted for the coming century.

EVIDENCE

650. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 745. Goes et al.

analyzed seven years (1997-2004) of satellite-derived ocean surface

phytoplankton productivity data, as well as associated sea surface

temperatures (SSTs) and winds in the Arabian Sea. They report for the

region located between 52 to 57°E and 5 to 10°N, “the most conspicuous

observation was the consistent year-by-year increase in phytoplanktonbiomass over the 7- year period.” This change was so significant that by the

summer of 2003, they write, “chlorophyll a concentrations were >350%

higher than those observed in the summer of 1997.”

651. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 746. Boyd et al.

reported somewhat analogous findings in their review of iron enrichment

experiments conducted between 1993 and 2005. These experimentsconclusively demonstrate, they write, “phytoplankton grow faster in warmer

open-ocean waters, as predicted by algal physiological relation- ships.”

These findings indicate total ocean productivity should have benefited

immensely from twentieth century global warming and likely will continue

to benefit from continued global warming.

652. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 750. Based on the

first part of their analysis, the three researchers from the Monterey Bay

Aquarium Research Institute of Moss Landing, California (USA) write,

“general conclusions from the satellite and in situ time-series presented hereare that PP [primary production] is increasing globally,” and they note

global marine PP appears to have risen over the past several decades inassociation with multidecadal variations in climate.

653. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 750. The

researchers [Chavez et al.] conclude, “in coastal environments, PP [primaryproduction], diatoms and fish and their associated predators are predicted todecrease and the microbial food web to increase under global warmingscenarios,” citing Ito et al. However, they write, “present-day trends and thesedimentary record seem to indicate that the opposite might occur.”

654. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 805. Primary

production increases expected to result from future greenhouse gas

emissions and their IPCC-projected impacts on climate “will provideopportunities to recover overfished fisheries, increase profitability of

fisheries and conserve threatened biodiversity” around Australia.

655. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 855. Egge et al.

state their results “demonstrate a small, but statistically significant effect of

elevated CO2 on daily primary production” that is “consistent with theover-consumption of dissolved inorganic carbon at elevated CO2 reported

by Riebesell et al. (2007) and Bellerby et al. (2008).” These observationsonce again suggest the planet’s rising atmospheric CO2 concentration may

stimulate oceanic primary production and thereby enable the sustaining of a

greater population of higher-trophic-level marine organisms.

656. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED II: BIOLOGICAL IMPACTS, 2014, 710. Althoughthere is some disagreement about the onset of this species, it is clear that

because the oldest polar bear fossil is at least 110,000–130,000 years old,

polar bears have survived at least one glacial- interglacial cycle and perhaps

as many as 10 or more. Focusing on the last major interglacial, there not

only appears to have been less winter Arctic ice than today (including no ice

in the Bering Sea), but late summer ice was reduced to a remnant off

northern Greenland and Ellesmere Island. During the current interglacial, orHolocene, there were at least two warm periods (the Early Holocene

Climatic Optimum and the Medieval Warm Period) when sea ice was less

extensive than it is now.

657. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 9. But are polar bear populations really

declining, as tragically depicted in Al Gore's film, An Inconvenient Truth?

Apparently not, according to Mitchell Taylor, manager of Wildlife Research

for the Government of the Canadian Territory of Nunavut, which monitorsthese conditions: "Of the thirteen populations of polar bears in Canada,

eleven are stable or increasing in number. They are not going extinct [nor

do they] even appear to be affected at present. . . . [It is] silly to present the

demise of polar bears based on media-assisted hysteria." (ellipsis and

bracket insertion in original)

BAYLOR BRIEFS 116

658. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 69. Dr. Mitchell Taylor, manager of wildlife

research for the Government of the Canadian Territory of Nunavut, agreed

with the US Geological Survey's 2002 assessment and recently reported that

his organization's research shows that the Canadian polar bear population

has increased about 25 percent during the past decade (from about twelve

thousand to fifteen thousand).

659. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 2. Mean sea level has

risen at a constant rate over the past 114 years, even though the air's CO2

concentration rose about 3.8 times faster over the second half of that periodas during the first half The aerial fertilization effect of CO2 stimulatesbiogenic contributions to marsh elevation, counterbalancing sea-level rise.

Other studies find "no evidence of large-scale reductions in island area" and

"reef islands are geomorphically resilient landforms that thus far have

predominantly remained stable or grown in area over the last 20-60 years."

660. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 65. Dr. Morner observes that of the twenty-two

IPCC authors, none was a sea level specialist. He later said, "So all this talk

that sea level is rising, this comes from the computer modeling, not fromobservations. . . . The new level, which has been stable, has not changed inthe last 35 years. . . . But they [IPCC] need a rise, because if there is no rise,

there is no death threat . . . If you want a grant for a research project inclimatology, it is written into the document that there 'must' be a focus on

global warming . . . That is really bad, because then you start asking for theanswer you want to get. (ellipses in original)

661. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 65. According to studies by the INQUA

commission, ocean levels have even fallen in recent decades. The Indian

Ocean, for example, was higher between 1900 and 1970 than it has been

since.'2 The real sea change, it appears, has been in the way climatologists

have predicted sea levels.

662. James Houston & Robert Dean, (Dir., Emeritus, Research &

Development Center, U.S. Corps of Engineers/Prof., Emeritus, Coastal

Engineering, U. Florida), JOURNAL OF COASTAL RESEARCH, Feb. 23,

2011. Retrieved Apr. 6, 2014 from

http://www.jcronline.org/doi/pdf/10.2112/JCOASTRES-D-10-00157.1. Our

analyses do not indicate acceleration in sea level in U.S. tide gauge recordsduring the 20th century. Instead, for each time period we consider, the

records show small decelerations that are consistent with a number of

earlier studies of worldwide-gauge records.

663. James Houston & Robert Dean, (Dir., Emeritus, Research &

Development Center, U.S. Corps of Engineers/Prof., Emeritus, Coastal

Engineering, U. Florida), JOURNAL OF COASTAL RESEARCH, Feb. 23,

2011. Retrieved Apr. 6, 2014 from

http://www.jcronline.org/doi/pdf/10.2112/JCOASTRES-D-10-00157.1. It is

essential that investigations continue to address why this worldwide-

temperature increase has not produced acceleration of global sea level over

the past 100 years, and indeed why global sea level has possibly deceleratedfor at least the last 80 years.

664. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 65. Nils-Axel Morner is head of the

Paleogeophysics and Geodynamics department at Stockholm University inSweden; past president of the INQUA Commission on Sea Level Changesand Coastal Evolution; leader of the Maldives Sea Level Project; and one of

the UN's "expert reviewers" of the IPCC's 2001 and 2007 reports. He agreesthat concerns about rising sea levels are totally unfounded. His research inthis area has taken him around the world, from Greenland to Antarctica and

to most coastal regions.

665. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 4. Empirical data onamphibians, birds, butterflies, other insects, lizards, mammals, and evenworms find global warming and its myriad ecological effects more often

expand than contract animal habitats, ranges, and populations. Many

species thrive with warmer temperatures, and while southern borders ofranges may remain stable, northern borders move poleward into previously

uninhabitable regions.

666. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 1. The IPCC assumes

temperatures will rise so rapidly that many animal species will not be able

to migrate poleward in latitude or upward in elevation rapidly enough toavoid extinction. New research and observational data contradict this

assumption, finding instead that amphibians, birds, butterflies, other insects,

lizards, mammals, and even worms benefit from global warming and itsmyriad ecological effects.

EVIDENCE

667. Roger Pielke, Jr., (Prof., Environmental Studies, U. Colorado), THE

CLIMATE FIX: WHAT SCIENTISTS AND POLITICIANS WON'T TELL

YOU ABOUT GLOBAL WARMING, 2010, 167. The primary driver of

increasing disaster losses around the world is not climate change, human

caused or otherwise. It is development, which has led to more people and

wealth in locations exposed to extreme events — not an increase in the

frequency of extreme events themselves.

668. Craig Idso & S. Fred Singer, (Analyst, Heartland Institute/Prof.,

Emeritus, Environmental Science, U. Virginia), CLIMATE CHANGERECONSIDERED: 2011 INTERIM REPORT, 2011, 2. Hurricane

frequency does not fluctuate linearly with global temperatures. Researchersfind "no significant [tropical cyclone] trend remains using either an 1878 ora 1900 starting point." Hurricane frequency during the Medieval WarmPeriod was equivalent to or even greater than that of the recent past.

669. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 53. The biggest blow to the theory

that warmer waters will result in greater hurricane activity was delivered

from an unlikely source. In March 2008, one of the titans of hurricane

research, Kerry Emanuel of MIT, concluded that (according to a new

modeling technique) global warming should reduce the frequency of

worldwide typhoons and hurricanes. This revelation is particularly

remarkable because Emanuel had theretofore been a highly visible

proponent of the view that warmer oceans could fuel an explosion of

powerful storms.

670. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 41. According to controversialenvironmental writer Bjorn Lomborg, "By 2050, there will be almost

400,000 more heat-related deaths a year, and almost 1.8 million fewer cold-

related deaths. Warmer temperatures will save 1.4 million lives each year."

671. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 40-41. As scary as "lethal heat" and

"extreme spikes in temperature" sound, it is likely that warmer temperatureswould result in a net savings of lives. Cold-related deaths are far morenumerous than heat-related fatalities in every area of the world except the

tropics. Because more frequent heat waves would also be accompanied by adecrease in bitter cold spells, no analysis of one set of effects is complete

without consideration of the other.

672. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 94. Historically, man has always been far more concerned aboutcooling climates. But, Danish climate scientist Henrik Svensmark and

science writer Nigel Calder point out, "Among the thousands of human

generations, ours may be the first that was ever frightened by a warming."

Indeed, it is hard to credit why less than a single degree of warming (which

is what we are talking about) between the 1850s and the mid 1990s shouldregister as a blip on the news-of-interest screen, much less set in transit a

whole global multi-billion dollar industry.

673. William Stewart, (Attorney & Journalist), CLIMATE OF

UNCERTAINTY: A BALANCED LOOK AT GLOBAL WARMING

AND RENEWABLE ENERGY, 2010, 66-67. The advantages of a warmer,

wetter world would be wide-ranging. As a result of increased arable land,

more CO2, and longer growing seasons, there would likely be an increase inglobal agricultural yields. Melting ice would open up the historically

treacherous Northwest Passage sea route that runs through the Canadian

archipelago connecting the Atlantic and Pacific Oceans. On balance,

warmer weather would reduce heating costs more than it would increase airconditioning costs.

674. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 74. In The Color of Oil, Michael Economides and his co-author

predicted that the world would not run out of oil for at least the next threecenturies. For natural gas, which is rapidly becoming the fuel of choice, the

scenario is even more optimistic. Even without taking into account the

enormous volume of gas hydrates, the world's natural gas supply will last

for at least several centuries more.

675. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 86. According to Growth in the Canadian Oil Sands: Finding a New

Balance, a report published in May 2009 by IHS CERA, technological

advances in extraction from Canadian oil sands have made Canada the

world's second largest holder of recoverable oil reserves, after Saudi Arabia.

The Canadian oil sands have long been recognized as an immense resource

containing between 170-200 billion barrels. With production doubling from600,000 barrels a day in 2000 to 1.3 million barrels a day in 2009, Canadahas already become the number one foreign supplier of oil to the US.

BAYLOR BRIEFS 117

676. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 85-86. One estimate suggests that with current US demand at around20 million barrels of oil per day, if the Green River Formation were gearedto producing just a quarter of US demand the play would last around 400years. And the even better news for Americans is that more than 70 percent

of the Formation lies on land already controlled by the federal government.

But while the black gold of the Green River Formation dominates the oil

shale landscape, even it, on the North American continent, is not the whole

"good news" story.

677. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 82. The USGS estimates that the area north of the Arctic Circle alone

may have reserves of 1.7 trillion cubic feet of natural gas and 90 billion

barrels of oil or around 22 percent of the world's undiscovered energy

resources. It also estimates that just one offshore basin east of Greenland

could contain over 110 billion of barrels of oil — about 42 percent of Saudi

Arabia's current proven reserves.

678. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 85. There are around 600 known oil shale/sand deposits around the

world. Together they are estimated to hold between 2.8 and 3.3 trillion

barrels of oil. One of the world's largest deposits, however, is found in the

Green River Formation in the US. The Green River alone, which covers

parts of Colorado, Utah and Wyoming, is estimated to contain a staggering1.2-1.8 trillion barrels of oil — over half of the world's entire oil shale

resource and, again, more oil than the world has used since drilling firstbegan. While not all resources are recoverable, even a moderate estimate of800 billion barrels would be three times greater than Saudi Arabia's proven

oil reserves.

679. Phil O’Keefe, (Prof., Economic Development & Environmental

Management, Northumbria U.), THE FUTURE OF ENERGY USE, 2010,

117. In 2000 the US Geological Survey estimated oil reserves at some 3trillion barrels of oil, which includes unconventional resources. This

includes a reserve value of 1.3 trillion barrels of conventional reserves.

Other authors have suggested that total reserves could be as high as 5

trillion barrels. These differences are important as it influences the debateover Peak Oil, a debate that reflects concern that at some time oil and gas

will run out as they are non-renewable resources. The Peak Oil concept wasfirst advanced by Marion King Hubbert. Hubbert argued, based on an

analysis of production and consumption figures in the US, that consumptionwould exceed production at around 1970 and the world production wouldpeak around 2000.

680. Jason Schwarz, (Strategist, Lone Peak Asset Management), OIL, 2010,

125. An offshore find by Brazilian state oil company Petro-bras inpartnership with BG Group and Repsol-YPF may be the world's biggestdiscovery in 30 years, the head of the National Petroleum Agency said. Adeepwater exploration area could contain as much as 33 billion barrels of

oil, an amount that would nearly triple Brazil's reserves and make the

offshore bloc the world's third-largest known oil reserve. "This would lay torest some of the peak oil pronouncements that we were out of oil, that we

weren't going to find any more and that we have to change our way of life,"

said Roger Read, an energy analyst and managing director at New York-

based investment bank Natixis Bleichroeder Inc.

681. Jason Schwarz, (Strategist, Lone Peak Asset Management), OIL, 2010,

125. A trio of oil companies led by Chevron Corp. has tapped a petroleumpool deep beneath the Gulf of Mexico that could boost U.S. reserves by

more than 50 percent. A test well indicates it could be the biggest new

domestic oil discovery since Alaska's Prudhoe Bay a generation ago.

Chevron estimated the 300-square-mile region where its test well sits could

hold up to 15 billion barrels of oil and natural gas.

682. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 211. Just how big is that US oil shale reserve?

It's really, really big. Estimates range from an equivalent of 800 billion

barrels of crude up to possibly 2 trillion barrels. The 800 billion estimate

equals about three times the amount of all Saudi Arabia's oil—in fact, morethan Saudi Arabia, Iran, Russia, Venezuela, Iraq, and Mexico oil reservescombined. One trillion barrels of crude equals all the oil the world has usedsince it was first discovered in Titusville, Pennsylvania, in 1859. When

developed, the Green River Formation would provide oil shale comparable

to the extent of the energy potential of Alberta's tar sands reserves.

Together, the US and Canada would have the world's largest oil supply.

683. Vaclav Smil, (Prof., Environment, U. of Manitoba), ENERGY

MYTHS AND REALITIES: BRINGING SCIENCE TO THE ENERGY

POLICY DEBATE, 2010, 68. An assessment by Cambridge EnergyResearch Associates put the global oil resource base of conventional andnonconventional resources, including the historical cumulative production

of 1.08 trillion barrels, at 4.82 trillion barrels and likely to grow. This means

that 3.74 trillion barrels remain to be extracted, and that the future of globaloil production is best imagined as an undulating plateau rather than a steep

decline mirroring the historical incline.

EVIDENCE BAYLOR BRIEFS 118

684. Peter Glover & Michael Economides, (Journalist & Prof., Cullen

College of Engineering, U. Houston), ENERGY AND CLIMATE WARS,

2010, 70-71. In confronting the peak oil issue, there is one indisputable factthat should tell the reader much: no peak oil alarmist prediction has to date

proven remotely accurate. You might think that a 100 percent failure ratewould lead peak oil alarmists to show a little more humility.

685. Alastair Sweeney, (Dir., The Civics Channel, Canada), BLACK

BONANZA: ALBERTA’S OIL SANDS AND THE RACE TO SECURE

NORTH AMERICA’S ENERGY FUTURE, 2010, 18. Now, many peopleattracted to the peak oil crusade are lowering their placards and going home.

The apocalypse has been put off for at least another century. Energyeconomists have suddenly discovered that Hubbert's Peak is just a ragged

plateau — that scary-looking downward roller-coaster slope of Hubbert's

bell curve has significantly flattened out.

686. Brian Dunning, (Computer scientist & Founder of Skeptoid), OIL,

2010, 137. Generally, what tends to happen in any industry, is that by thetime an existing resource runs out, inventive scientists have already comeup with something better. When a production peak looms (be it oil,

phosphorus, silicon, or anything), this provides a kick in the pants to

accelerate development.

687. Alastair Sweeney, (Dir., The Civics Channel, Canada), BLACK

BONANZA: ALBERTA’S OIL SANDS AND THE RACE TO SECURE

NORTH AMERICA’S ENERGY FUTURE, 2010, 5. Our way of life

requires fossil fuel and we will need it for at least another half century, or

until we develop alternative sources for powering our lifestyle. The Sands

are bountiful. They offer a stable and secure supply for North America that

no other country in the world can match. After fifty years of tinkering and

innovation, operators can produce synthetic crude out of the Sands at a price

that is getting comparable to conventional crude and less than offshore oil.

688. Alastair Sweeney, (Dir., The Civics Channel, Canada), BLACK

BONANZA: ALBERTA’S OIL SANDS AND THE RACE TO SECURE

NORTH AMERICA’S ENERGY FUTURE, 2010, 5. The U.S., in

particular, needs this oil — imports from Canada have doubled over the past

decade. Canada now fills about a quarter of the U.S. oil needs, exportingover 80 million barrels a month, almost as much as Saudi Arabia,

Venezuela, and Nigeria combined.

689. Alastair Sweeney, (Dir., The Civics Channel, Canada), BLACK

BONANZA: ALBERTA’S OIL SANDS AND THE RACE TO SECURE

NORTH AMERICA’S ENERGY FUTURE, 2010, 18. Even most oil

analysts still maintain the strange fiction that the Athabasca Sands are

second only to Saudi Arabia in recoverable oil reserves. This fiction persists

in the face of growing evidence that the Athabasca Sands are far larger. A

trillion barrels of synthetic crude is four times greater than Saudi Arabia's

250 billion-odd barrels of conventional oil, and the 175 billion barrels that

the International Energy Agency estimates for Canada as a whole.

690. Alastair Sweeney, (Dir., The Civics Channel, Canada), BLACK

BONANZA: ALBERTA’S OIL SANDS AND THE RACE TO SECURE

NORTH AMERICA’S ENERGY FUTURE, 2010, 218. Perhaps trumpingall other factors against the peak oil argument is the very real security that astable supply of Athabasca oil gives to North America and the world.

Having a trillion barrels of supply in a friendly location and available at $60a barrel and up, means that no dictatorial regime will be able to hold the

world to ransom.

691. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 129. If the four most populous countries located on the Pacific Ringof Fire — the United States, Japan, China, and Indonesia — were to

seriously invest in developing their geothermal resources, it is easy to

envisage a world with thousands of geothermal power plants generating

some 200,000 megawatts of electricity, the Plan B goal, by 2020.

692. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 128. An interdisciplinary team of 13 scientists and engineers

assembled by the Massachusetts Institute of Technology in 2006 assessed

U.S. geothermal electrical generating potential. Drawing on the latest

technologies, including those used by oil and gas companies in drilling and

in enhanced oil recovery, the team estimated that enhanced geothermal

systems could help the United States meet its energy needs 2,000 times

over.

693. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 127. The geothermal potential to provide electricity, to heat homes,

and to supply process heat for industry is vast. Among the geothermally rich

countries are those bordering the Pacific in the so-called Ring of Fire,

including Chile, Peru, Colombia, Mexico, the United States, Canada,

Russia, China, Japan, the Philippines, Indonesia, and Australia. Other well-

endowed countries include those along the Great Rift Valley of Africa,

including Ethiopia, Kenya, Tanzania, and Uganda, and those around the

Eastern Mediterranean. As of 2010, there are some 70 countries with

projects under development or active consideration, up from 46 in 2007.

694. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 127-128. Beyond geothermal electrical generation, up to 100,000thermal megawatts of geothermal energy are used directly — without

conversion into electricity — to heat homes and greenhouses and to provide

process heat to industry. For example, 90 percent of the homes in Iceland

are heated with geothermal energy.

695. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 128. Even before this exciting new technology is widely deployed,

investors are moving ahead with existing technologies. For many years,

U.S. geothermal energy was confined largely to the Geysers project north of

San Francisco, easily the world's largest geothermal generating complex,

with 850 megawatts of generating capacity. Now the United States has

more than 3,000 megawatts of existing geothermal electrical capacity andprojects under development in 13 states. With California, Nevada, Oregon,

Idaho, and Utah leading the way, and with many new companies in the

field, the stage is set for a geothermal renaissance.

696. Patrick Moore, (Co-Founder of Greenpeace), NUCLEAR POWER,

2010, 14. What about nuclear waste? The notion is misleading. This used

fuel is not waste. After its first cycle, spent fuel still contains 95 percent of

its energy. Future generations will be able to put this valuable resource to

work, powering the country.

697. Alex Flint, (Sr. Vice President, Nuclear Energy Institute), NUCLEAR

POWER, 2010, 28. The environmental benefit of this nuclear generation is

substantial. Nuclear power plants generate over 70 percent of all carbon-

free electricity in the United States. By using nuclear power instead of fossil

fuel — based plants, the U.S. nuclear energy industry prevented 681 million

metric tons of carbon dioxide emissions in 2006. For perspective, the

volume of greenhouse gas emissions prevented at the nation's 104 nuclear

power plants is equivalent to taking 96 percent of all passenger cars offAmerica's roadways.

698. Larry Bell, (Prof., Space Architecture, U. Houston), CLIMATE OFCORRUPTION: POLITICS AND POWER BEHIND THE GLOBAL

WARMING HOAX, 2011, 179. Nuclear power plants are environmentally

benign and reliable. They occupy very little land area, produce only water

vapor emissions, and require no major transportation infrastructure. They

are extremely safe, presenting no explosion or radiation contamination

risks, which tend to worry many people most. And in stark contrast to so-

called renewable or sustainable options, as well as fossil-fuel sources,

nuclear power expansion and longevity capacities are vast.

699. Patrick Moore, (Co-Founder of Greenpeace), NUCLEAR POWER,

2010, 12. Climate change is now high on the global agenda, and I believe

nuclear energy holds the greatest potential to arrest the dangers we face

from global warming. It is the only non-greenhouse-gas-emitting power

source capable of effectively replacing fossil fuels and satisfying growing

demand.

700. Scott L. Montgomery, (Prof., Geology, U. Washington), THE

POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST

CENTURY AND BEYOND, 2010, 134. Thorium reactors, in fact, may

offer a vital new possibility for the future industry. Natural thorium is atleast six times as abundant as uranium—largest reserves are in Australia,

the U.S., and India—and requires no enrichment, but is nonfissionable andmust be "primed" by slow neutrons within a reactor into fissionable U2". Ifpriming is halted, fission stops, preventing a runaway chain reaction.

701. Scott L. Montgomery, (Prof., Geology, U. Washington), THE

POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST

CENTURY AND BEYOND, 2010, 136-137. Extracting uranium is no safer

than mining other metals on a very large scale. Yet coal mining in the U.S.

alone has destroyed over 120,000 lives in the past 100 years, and caused

many cases of black lung disease and other respiratory ailments, with

related social impacts on towns and families. In China today, thousands of

people die each year in coal mines. By comparison, not one person has lost

their life in a U.S. civilian nuclear accident.

702. Scott L. Montgomery, (Prof., Geology, U. Washington), THE

POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST

CENTURY AND BEYOND, 2010, 135. While there is much concern over

civilian fuel as a source for weapons, the reverse process is having greatsuccess. In 2009, old Soviet warheads were providing the U.S. with over40% of its commercial fuel, due to a program launched in 1995 called

Megatons to Megawatts. No fewer than 14,000 warheads have been

dismantled, with an ultimate goal to eliminate as many as 20,000 or more

by the year 2013. Civilian nuclear power today allows us, in other words, toturn bombs into electricity.

703. Scott L. Montgomery, (Prof., Geology, U. Washington), THE

POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST

CENTURY AND BEYOND, 2010, 127. In 2009, the U.S. had 104

operating reactors, producing 20% of its total electricity and roughly 2,000

tons of radioactive waste, mainly in solid form. Two thousand tons soundslike a lot, if you're putting toxic material in your garage. Yet in the same

year, some 500 U.S. coal-fired power plants donated to posterity 115

million tons of ash, sludge, and airborne effluents from sea to shining sea,

much of it bearing the noxious tidings of mercury, cadmium, lead, arsenic,

and even radiation.

704. Scott L. Montgomery, (Prof., Geology, U. Washington), THE

POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST

CENTURY AND BEYOND, 2010, 129. Between 1992 and 2008, no fewer

than 45 new reactors were built. By 2009, there were another 45 in

construction, 131 more on order or planned, and over 280 plantsproposed—more than a few in nations that do not yet have any, like

Bangladesh, Vietnam, Egypt, Indonesia, Thailand, and Turkey. This hardly

sounds like the fading cry of a dying industry.

EVIDENCE

705. U.S. Department of Energy, U.S. CRUDE OIL, NATURAL GAS,

AND NATURAL GAS LIQUIDS PROVED RESERVES, Nov. 3, 2010.

Retrieved Apr. 7, 2014 from

http://www.eia.gov/naturalgas/crudeoilreserves/index.cfm. Total U.S.

proved reserves of wet natural gas rose by 28.8 trillion cubic feet from 2008

to 2009, to 284 trillion cubic feet. That increase reflects the strongest netproved reserve additions of wet natural gas in the United States in recent

years. Wet natural gas proved reserves are now at the highest level since

1971. U.S. proved reserves of natural gas have increased in every year since1999.

706. U.S. Department of Energy, U.S. CRUDE OIL, NATURAL GAS,

AND NATURAL GAS LIQUIDS PROVED RESERVES, Nov. 3, 2010.

Retrieved Apr. 7, 2014 from

http://www.eia.gov/naturalgas/crudeoilreserves/index.cfm. The onshore

Lower 48 States drove the overall increase in proved reserves. Technologiesused to increase shale gas production have also boosted oil reserves,

especially from the Bakken Formation in North Dakota and Montana. North

Dakota recorded especially significant gains, up 83 percent over 2008, and

now ranks behind only Texas, Alaska, California, and the Gulf of Mexico in

proved reserves. Higher prices and drilling activity in the deepwater areas of

the Gulf of Mexico Federal Offshore drove that region's second consecutive

increase in oil reserves after 4 consecutive years of decline, and contributed

about 13 percent of the overall national increase in 2009.

707. Scott L. Montgomery, (Prof., Geology, U. Washington), THE

POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST

CENTURY AND BEYOND, 2010, 83. Gas is less polluting than oil or coal

by a wide margin. It burns more completely, yields almost no sulfur dioxide

or particulates, a mere fifth the nitrous oxides, and 30% less CO2 than oil

and, as already noted, 50% less than coal.

708. Leonardo Maugeri, (Sr. Fellow, Harvard University’s Belfer Center forScience & International Affairs), BEYOND THE AGE OF OIL: THE

MYTHS, REALITIES, AND FUTURE OF FOSSIL FUELS AND THEIR

ALTERNATIVES, 2010, 206. The impressive rate of growth in the world

energy share of natural gas is expected to continue over time, thanks to itsvast reserves and its attractiveness as the fossil fuel that has the least impact

on the environment and the highest efficiency in generating electricity.

These features will probably vault natural gas into first place among theworld's primary energy sources during the twenty-first century.

709. Vikram Janardhan, (CEO, Insera Energy, LLC), ENERGY

EXPLAINED, Vol. 1, 2011, 109-110. Production from unconventional gas

sources has been on a tear in recent years. In 2007, unconventional gassupplied 44 percent of U.S. production of natural gas and, according to the

Energy Information Administration, by 2030 roughly half of our domestic

natural gas will come from unconventional sources.

710. Bill Clinton, (Former President), BACK TO WORK: WHY WENEED SMART GOVERNMENT FOR A STRONG ECONOMY, 2011,

157. As we develop other sources of clean power, we should use natural gasas a bridge fuel. It's the cleanest fossil fuel, more than 50 percent cleaner

than coal in terms of greenhouse-gas emissions, 25 percent cleaner than oil

when used in transportation, and only one-fourth as expensive. And new

discoveries in the United States have given us a huge supply, enough forninety years.

711. Scott L. Montgomery, (Prof., Geology, U. Washington), THE

POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST

CENTURY AND BEYOND, 2010, 88. It's evident to everyone that

resources are abundant. Indeed, they are likely to be even more abundantthan currently thought—given the mentioned resources in unconventional

gas, which remain unexplored in most of the globe. From any viewpoint,

the world's "got gas." Those in the U.S. energy industry know this is a

stunning turnaround from a generation ago.

712. Scott L. Montgomery, (Prof., Geology, U. Washington), THE

POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST

CENTURY AND BEYOND, 2010, 82. Gas is the least carbon-rich of all

fossil fuels, but it is still a hydrocarbon, a source of greenhouse gases. It can

buy the world good time to develop noncarbon sources or carbon capturetechnology—for every power plant that burns gas instead of coal for anequivalent amount of electricity, carbon emissions are 60% lower.

713. Steve Hallett, (Prof., Botany, Purdue U.), LIFE WITHOUT OIL:

WHY WE MUST SHIFT TO A NEW ENERGY FUTURE, 2011, 135.

Natural gas is widely recognized as one of the cleanest sources of energy. Itreleases roughly half the carbon dioxide per unit of energy than coal and

much smaller amounts of other forms of pollution, especially particulates.

Natural gas consumption has increased dramatically in the last decade or so

with an increasing number of new power plants using this cleaner fuel.

714. Leonardo Maugeri, (Sr. Fellow, Harvard University’s Belfer Center forScience & International Affairs), BEYOND THE AGE OF OIL: THE

MYTHS, REALITIES, AND FUTURE OF FOSSIL FUELS AND THEIR

ALTERNATIVES, 2010, 80. There are several advantages to using natural

gas as a transportation fuel. It is cleaner than most alternative fuels. It isalso much safer than other fuels in the event of a spill, because natural gas

is lighter than air and disperses quickly when released.

BAYLOR BRIEFS 119

715. Scott L. Montgomery, (Prof., Geology, U. Washington), THE

POWERS THAT BE: GLOBAL ENERGY FOR THE TWENTY-FIRST

CENTURY AND BEYOND, 2010, 92-93. Natural gas is the most energy-

efficient and least polluting of the fossil fuels. This, along with abundance

and versatility, gives it advantages that cannot be underestimated or

ignored. Over time, gas has become the friendlier face of fossil energy,

often invoked as an overpass to a new energy era.

716. Vikram Janardhan, (CEO, Insera Energy, LLC), ENERGY

EXPLAINED, Vol. 1, 2011, 111. As conventional sources of natural gasdwindle and we begin to shift away from more carbon-intensive fuels like

coal and oil, unconventional gas is likely to play an increasing role in ourenergy future. The economics point toward further development of these

resources, especially if we put a price on carbon emissions as now seems

likely. Add to that the fact that the U.S. has ample domestic supplies and

unconventional gas begins to look very attractive indeed.

717. Clifford Krauss, (Staff), NEW YORK TIMES, March 31, 2011, F1.

But a shift in the last couple of years has received little attention. Oilimports have edged lower and domestic output has increased, enough so

that the United States is no longer importing 60 percent of its oil, as it was

the last time oil prices were spiking four years ago. ''We're 80 percent

energy-independent to begin with, so we're pretty far along,'' said Daniel

Yergin, the oil historian. ''Our oil imports are down to 50 percent, and there

has been a rebalancing of where we import oil from.'' Since 2007, theUnited States has decreased its oil imports from nations of the Organization

of the Petroleum Exporting Countries by more than a million barrels a day

(including 400,000 barrels less from Saudi Arabia and 300,000 less fromVenezuela), while decreasing its imports from non-OPEC countries by half

that much, according to the Energy Department. During the 1970s, syntheticfuel from oil sands was little more than an experiment. Now more than 20

percent of United States oil imports come from Canada, and half of that

from oil sands.

718. Clifford Krauss, (Staff), NEW YORK TIMES, March 31, 2011, F1. In2009, the United States produced more oil than the year before for the first

since 1985 because of the combined increase in production from deepwater

Gulf of Mexico production and drilling in a giant shale field in North

Dakota. Domestic production again rose in 2010, by 3 percent, while

imports have fallen slowly but steadily since 2006. Edward Westlake, a

Credit Suisse managing director for energy research, calculates that the

United States will be producing an additional 2.4 million barrels of oil and

other liquid fuels by 2016, on top of the 8.6 million barrels a day produced

in 2010, even with a natural decline in existing domestic oil fields.

719. Clifford Krauss, (Staff), NEW YORK TIMES, March 31, 2011,

F1.Production from the Bakken field in North Dakota alone has risen to

more than 350,000 barrels a day this year, and experts expect that will reach

800,000 barrels a day in five to seven years. Shale fields in Texas,

Colorado, Wyoming and California, barely explored, have vast potential.

Pete Stark, vice president for industry relations at IHS Cera, estimates that

as much as 1.5 million barrels a day may be produced by 2020 from the

shale fields, which have in excess 20 billion barrels of recoverable oil —

decades of productive capacity. ''That's a million barrels of oil a day that

nobody has had in their forecasts,'' Mr. Stark said. ''This could be theleading edge of a game changer that will provide a cushion for energysecurity at a time when traditional OPEC supplies are at risk.''

720. PHILADELPHIA DAILY NEWS, April 4, 2011, 19. Ever since

technological developments allowed drillers to access the vast deposits ofnatural gas that lie in underground shale formations in the U.S. — with the

second-largest in the world practically under our feet — fortune has smiled

on the natural gas industry. Just last week, President Obama singled out

natural gas as a way to reduce our dependence on foreign oil.

721. Rod Walton, (Staff), TULSA WORLD, March 23, 2011, E1. Natural

gas advocates have pointed out that horizontal drilling in shale plays has

made natural gas more abundant than ever. U.S. net proved natural gasreserves rose 11 percent to 28.8 trillion cubic feet last year, according to the

federal Energy Information Administration.

722. Ronald Bailey, (Analyst, Reason Foundation), NATURAL GAS

SUPPLIES COULD LAST 250 YEARS, Jan. 20, 2011. Retrieved Apr. 7,

2014 from http://reason.com/blog/2011/01/20/what-energy-crisis-naturalgas.

In its Annual Energy Outlook report for 2011, the U.S. EnergyInformation Agency concluded that the United States possesses 2,552trillion cubic feet (Tcf) of potential natural gas resources. Natural gas fromshale resources, considered uneconomical just a few years ago, accounts for827 Tcf of this resource estimate, more than double the estimate publishedlast year. At the 2009 rate of U.S. consumption (about 22.8 Tcf per year),

2,552 Tcf of natural gas is enough to supply approximately 110 years ofuse. Now UPI is reporting that the International Energy Agency's analysis

finds that the world has enough natural gas to last 250 years:

723. Ronald Bailey, (Analyst, Reason Foundation), NATURAL GAS

SUPPLIES COULD LAST 250 YEARS, Jan. 20, 2011. Retrieved Apr. 7,

2014 from http://reason.com/blog/2011/01/20/what-energy-crisis-naturalgas.

Global supplies of natural gas could last for another 130 years at

current consumption rates. That time frame could double with

unconventional gas, the IEA said.

EVIDENCE BAYLOR BRIEFS 120

724. Ronald Bailey, (Analyst, Reason Foundation), NATURAL GAS

SUPPLIES COULD LAST 250 YEARS, Jan. 20, 2011. Retrieved Apr. 7,

2014 from http://reason.com/blog/2011/01/20/what-energy-crisis-naturalgas.

Since burning natural gas releases about half the carbon dioxide that

burning coal does, increasing its use could go a long way toward reducingthe greenhouse gas emissions that are thought to be warming the planet. Inaddition, natural gas could be substituted for oil as a transport fuel reducing

concerns about dependence on oil imports. However, abundant and cheap

natural gas will undercut the rationales for investing in and deploying more

expensive renewable energy technologies, e.g., solar and wind.

725. U.S. Department of Energy, U.S. CRUDE OIL, NATURAL GAS,

AND NATURAL GAS LIQUIDS PROVED RESERVES, Nov. 3, 2010.

Retrieved Apr. 7, 2014 from

http://www.eia.gov/naturalgas/crudeoilreserves/index.cfm. Domestic

proved reserves of oil and natural gas increased significantly in 2009. U.S.

natural gas proved reserves – estimated as "wet" gas which includes natural

gas plant liquids – increased by 11 percent in 2009 to 284 trillion cubic feet(Tcf). This is their highest level since 1971

726. We have enough natural gas available to last for hundreds of yearsPeter Glover & Michael Economides, (Journalist & Prof., Cullen College ofEngineering, U. Houston), ENERGY AND CLIMATE WARS, 2010, 84. InNovember 2009, our colleague Robert Bryce highlighted a key finding inthe latest IEA report on world energy reserves that the media largely

ignored. The IEA's executive summary concluded that, "The long-termglobal recoverable gas resource base is estimated at more than 850 trillioncubic meters." As Bryce points out, "That translates to just over 30,000trillion cubic feet of gas. That's more than double the 2008 estimate putforward by the IEA." Bryce adds, "At current levels of gas production, the

available gas resources could last for 280 years."

727. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 67-68. Given the slow

pace of progress in P V over the past half century, why should anyone be

even this optimistic? First, nano-technology really does make a difference.

Now that companies can make specialized materials whose atoms are very

precisely arranged, we are seeing rapid advances in the ability to capture theenergy of the photons hitting the panel. Second, the impact of the Germanfeed-in tariff has been to vastly increase the total number of panels being

made around the world. The effect on manufacturing costs, ignoring thetemporarily very high price of silicon, has been dramatic. The world iscurrently only making a few gigawatts of P V panels each year, but we are

doubling the accumulated manufacturing volumes every couple of years.

The cost reductions achieved so far from moving down the learning curve

give us good reason to believe that as volumes continue to increase, we willsee continued very sharp declines in cost.

728. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 73. Solar concentrators

also have the enormous advantage of being relatively simple and reliable.

The first can plants were built in California about twenty years ago and

have worked well since then. The total output of these remarkable powerstations in the Mojave Desert is six or seven times higher than that ofNevada Solar One or Andasol. They have a good record of reliability and

are expected to last at least another fifteen years.

729. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 58-59. As the solar

panel industry grew, encouraged by enormous subsidies in Germany and

other countries, the supply of pure silicon did not keep pace. Significant

shortages in 2008 pushed the price of solar panels up. But the price rise was

followed by a sharp decline as large numbers of new factories in China and

elsewhere began producing unprecedented volumes of silicon in 2009, andsome of the major markets, such as Spain, saw sharp reductions in the

financial incentives to install P V systems. By the last quarter of 2009, the

prices of P V modules were more than 20 percent below the levels of mid2008.

730. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 59. As solar panels

decline in price, which should happen quickly over the next ten years, we

can expect to see them installed in larger and larger groups, with total

power output close to that of conventional power stations.

731. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 68. PV [photovoltaics]

will almost certainly be the technology of choice for small-scale and

localized electricity generation in sunny countries: With luck, low-cost solarpanels will be available to meet the needs of remote communities in Africaand Latin America well away from the electricity grid. In other words, theseplaces may never need to install fossil fuel power stations.

732. Clive Hamilton, (Prof., Public Ethics, Center for Applied Philosophy,

Australian National U.), REQUIEM FOR A SPECIES: WHY WE RESISTTHE TRUTH ABOUT CLIMATE CHANGE, 2010, 170. The baseload

power myth is also used to attack solar electricity which, of course, can only

be generated during daylight hours. Solar thermal electricity produces steamto drive a turbine and generator. But the heat can be stored in fluids andused at night to generate power. A vast solar thermal array is planned forthe Sahara desert and may eventually generate a sixth of Europe's energy

supply.

733. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 55. The sunlighthitting the earth's surface every day contains around seven thousand timesthe energy in the fossil fuels that humanity consumes.

734. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 55. Even with today's

technologies, solar collectors on less than 1 percent of the world's unusedland could comfortably match all fossil fuels in the energy they provide.

735. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 55-56. The potential ishuge, and solar technologies have many advantages. Not only are they

climate friendly, but they're also non-polluting and almost noiseless, and

they require little maintenance. In addition, unlike biomass energy, theymake use of non-productive space — be it deserts or urban rooftops — and

therefore don't put pressure on food production.

736. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 68. The German

company SunTechnics is supplying panels to Namibia, where many of the

people live far from a reliable electricity supply. The electricity users do not

buy the solar panels and other electronics but simply prepay for the

electricity that they use. The utility company that operates this service is, in

effect, renting the solar kit to the household or business and can move it

elsewhere if the customer no longer wants the power or turns out to be a badcredit risk.

737. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 68-69. The

environmental consequences of photovoltaics are limited, and objections to

the appearance of panels on the roofs of buildings or in large farms are few.

The cadmium telluride used in First Solar's and some other manufacturers'

panels is toxic but presents few dangers when in use in solar installations.

738. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 56. There are three

main ways to capture the sun's energy. The first is to put long tubescontaining liquids in direct sunlight. The liquid in the tubes gets hot and,

with a heat exchanger, can be used to heat water for showers or for washingclothes. The second way is to use panels of photovoltaic (P V) cells to turnthe photons of light directly into electricity. Finally, there are solar

concentrators, which use mirrors to focus large amounts of sunlight onto a

small area, intensively heating fluids and using their energy to drive a

turbine or a Stirling engine to generate electricity.

739. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 125. The pace of solar energy development is accelerating as the

installation of rooftop solar water heaters — the other use of solar collectors

— takes off. China, for example, now has an estimated 1.9 billion squarefeet of rooftop solar thermal collectors installed, enough to supply 120

million Chinese households with hot water. With some 5,000 Chinese

companies manufacturing these devices, this relatively simple low-cost

technology has leapfrogged into villages that do not yet have electricity. For

as little as $200, villagers can install a rooftop solar collector and take their

first hot shower. This technology is sweeping China like wildfire, alreadyapproaching market saturation in some communities.

740. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 123. Solar-rich Saudi Arabia recently announced that it plans to shift

from oil to solar energy to power new desalination plants that supply thecountry's residential water. It currently uses 1.5 million barrels of oil per

day to operate some 30 desalting plants.

741. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 122. The growth in solar cell production can only be described as

explosive. It climbed from an annual expansion of 38 percent in 2006 to anoff-the-chart 89 percent in 2008, before settling back to 51 percent in 2009.

At the end of 2009, there were 23,000 megawatts of PV installationsworldwide, which when operating at peak power could match the output of23 nuclear power plants.

742. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 123. With installations of solar PV climbing, with costs continuing to

fall, and with concerns about climate change escalating, cumulative PV

installations could reach 1.5 million megawatts (1,500 gigawatts) in 2020.

Although this estimate may seem overly ambitious, it could in fact beconservative, because if most of the 1.5 billion people who lack electricitytoday get it by 2020, it will likely be because they have installed home solar

systems. In many cases, it is cheaper to install solar cells for individualhomes than it is to build a grid and a central power plant.

743. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 122. Germany, with an installed PV power generating capacity ofalmost 10,000 megawatts, is far and away the world leader in installations.

Spain is second with 3,400 megawatts, followed by Japan, the United

States, and Italy. Ironically, China, the world's largest manufacturer of solarcells, has an installed capacity of only 305 megawatts, but this is likely tochange quickly as PV costs fall.

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744. Alastair Sweeney, (Dir., The Civics Channel, Canada), BLACK

BONANZA: ALBERTA’S OIL SANDS AND THE RACE TO SECURE

NORTH AMERICA’S ENERGY FUTURE, 2010, 228-229. Kurzweil is

now working with Google co-founder, Larry Page, to make that a reality,

and he thinks the tipping point is near — when solar energy will be moreeffective and less expensive than the alternatives. The ascending curve

suggests we will start to see real results in about 2015. "Even people whodon't care about the environment will adopt it," he says, simply because it

will be cheaper. "Solar energy has the added benefits that it's renewable, it's

friendly to the environment, and we have plenty of it. We have 10,000 times

more sunlight than we need to meet all of our energy needs."

745. Alastair Sweeney, (Dir., The Civics Channel, Canada), BLACK

BONANZA: ALBERTA’S OIL SANDS AND THE RACE TO SECURE

NORTH AMERICA’S ENERGY FUTURE, 2010, 229. Using older silicon

panels, the energy per watt is three or four times more expensive than fossil

fuels. The tipping point where solar energy will be cheaper than fossil fuels

is definitely within five years, maybe sooner, Kurzweil predicts.

746. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 124. Although solar thermal power has been slow to get under way,

utility-scale plants are being built rapidly now. The two leaders in this fieldare the United States and Spain. The United States has more than 40 solar

thermal power plants operating, under construction, and under development

that range from 10 to 1,200 megawatts each. Spain has 60 power plants in

these same stages of development, most of which are 50 megawatts each.

747. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 125. The American Solar Energy Society notes that solar thermal

resources in the U.S. Southwest can satisfy current U.S. electricity needs

nearly four times over. At the global level, Greenpeace, the European SolarThermal Electricity Association, and the International Energy Agency'sSolarPACES program have outlined a plan to develop 1.5 million

megawatts of solar thermal power plant capacity by 2050. For Plan B we

suggest a more immediate world goal of 200,000 megawatts by 2020, a goal

that may well be exceeded as the economic potential becomes clearer.

748. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 119. Impressive though U.S. wind energy growth is, the expansionnow under way in China is even more so. China has enough onshore

harnessable wind energy to raise its current electricity consumption 16-fold.

Today, most of China's 26,000 megawatts of wind generating capacity

come from 50- to 100-megawatt wind farms. Beyond the many other wind

farms of that size that are on the way, China's new Wind Base program iscreating seven wind mega-complexes of 10 to 38 gigawatts each in six

provinces (1 gigawatt equals 1,000 megawatts). When completed, these

complexes will have a generating capacity of more than 130 gigawatts. This

is equivalent to building one new coal plant per week for two and a half

years.

749. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 51. Another frequentlyrepeated criticism of wind power is the suggestion that the energyembedded in the manufacture and installation of a turbine is so great that it

counterbalances the greenhouse gas reductions from several years ofoperation. This is simply not true. Research invariably suggests that wind

turbines pay back the energy invested in them within a few months.

750. Erica Shroeder, (J.D., U. California, Berkeley School of Law),

CALIFORNIA LAW REVIEW, Oct. 2010, 1631-1632. The federal

government appears to recognize the opportunities and benefits that wind

power offers. In February 2009, Congress positioned wind power

generation to continue its rapid growth by renewing production tax credits

for wind power projects through 2012. Congress also gave the windindustry options for investment tax credits or U.S. Treasury Department

grants for certain wind power projects placed in service by 2012. In

addition, in July 2009, DOE announced up to $ 30 billion in loan guaranteesfor renewable energy projects, including wind power. President Obama

continues to promote renewable energy, including wind energy, as well. For

example, in his 2010 State of the Union, the President spoke repeatedly

about the need for renewable energy investment. DOE predicts that by 2030the United States could get as much as 20 percent of its electricity fromwind, if the nation is able to overcome certain challenges to wind power

progress today.

751. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 30. By 2015, China

may have 50 gigawatts of wind capacity, or about half today's global total.

In developing countries without a national electricity grid, wind power

combined with large batteries will often represent the cheapest reasonably

reliable way of generating power for small communities.

752. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 133. The proposed segments of what could eventually become a

national U.S. grid are beginning to fall into place. Texas is planning up to2,900 miles of new transmission lines to link the wind-rich regions of west

Texas and the Texas panhandle to consumption centers such as Dallas-FortWorth and San Antonio. Two high-voltage direct current (HVDC) lines willlink the rich wind resources of Wyoming and Montana to California's huge

market. Other proposed lines will link wind in the northern Great Plains

with the industrial Midwest.

753. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 133. In late 2009 Tres Amigas, a transmission company, announced

its plans to build a "SuperStation" in Clovis, New Mexico, that would linkthe country's three major grids — the Western grid, the Eastern grid, and theTexas grid — for the first time. This would effectively create the country's

first national grid. Scheduled to start construction in 2012 and to be

completed in 2014, the Super-Station will allow electricity, much of it from

renewable sources, to flow through the country's power transmission

infrastructure.

754. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 117-118. Instead, wind is the centerpiece of the Plan B energyeconomy. It is abundant, low cost, and widely distributed; it scales up easily

and can be developed quickly. A 2009 survey of world wind resourcespublished by the U.S. National Academy of Sciences reports a wind-

generating potential on land that is 40 times the current world consumptionof electricity from all sources.

755. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 118-119. Since wind turbines occupy only 1 percent of the landcovered by a wind farm, farmers and ranchers can continue to grow grainand graze cattle on land devoted to wind farms. In effect, they double-croptheir land, simultaneously harvesting electricity and wheat, corn, or cattle.

With no investment on their part, farmers and ranchers typically receive

$3,000-10,000 a year in royalties for each wind turbine on their land. For

thousands of ranchers in the U.S. Great Plains, wind royalties will dwarftheir net earnings from cattle sales.

756. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 116.-117. While U.S. coal use was falling, some 300 wind farms with

a generating capacity of 21,000 megawatts came online. Geothermalgenerating capacity, which had been stagnant for 20 years, came alive. Inmid-2010, the U.S.- based Geothermal Energy Association announced that

152 new geothermal power plants were being developed, enough to triple

U.S. geothermal generating capacity. On the solar front, solar cell

installations are doubling every two years. The dozens of U.S. solar thermalpower plants in the works could collectively add some 9,900 megawatts ofgenerating capacity.

757. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 118. The United States, with 35,000 megawatts of wind generatingcapacity, leads the world in harnessing wind, followed by China andGermany with 26,000 megawatts each. Texas, long the leading U.S. oil-

producing state, is now also the nation's leading generator of electricity

from wind. It has 9,700 megawatts of wind generating capacity online, 370

megawatts more under construction, and a huge amount under development.

If all of the wind farms projected for 2025 are completed, Texas will have38,000 megawatts of wind generating capacity — the equivalent of 38 coal-

fired power plants. This would satisfy roughly 90 percent of the current

residential electricity needs of the state's 25 million people.

758. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 118. In July 2010, ground was broken for the Alta Wind EnergyCenter (AWEC) in the Tehachapi Pass, some 75 miles north of Los

Angeles, California. At 1,550 megawatts, it will be the largest U.S. wind

farm. The AWEC is part of what will eventually be 4,500 megawatts of

renewable power generation, enough to supply electricity to some 3 million

homes.

759. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 121. At $3 million per installed turbine, the 2 million turbines wouldmean spending $600 billion per year world-wide between now and 2020.

This compares with world oil and gas capital expenditures that are projected

to double from $800 billion in 2010 to $1.6 trillion in 2015.

760. Erica Shroeder, (J.D., U. California, Berkeley School of Law),

CALIFORNIA LAW REVIEW, Oct. 2010, 1639. Once a wind project is

built, it involves only minimal environmental impacts compared to

traditional electricity generation. Wind power emits negligible amounts oftraditional air pollutants, such as sulfur dioxide and particulate matter, as

well as carbon dioxide and other greenhouse gases. Lower emissions oftraditional air pollutants means fewer air quality-related illnesses locally

and regionally. Lower greenhouse gas emissions will help to combat

climate change, effects of which will be felt locally and around the world.

761. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 33. One of wind's

primary but often underestimated virtues is that it delivers electricity

without such financial volatility. The output of a wind farm may beuncertain, but the cost is not. And, of course, wind power is independent ofpolitical intervention — countries that invest in wind are less reliant on the

two or three countries that provide much of the world's natural gas.

762. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 133-134. A strong, efficient national grid will reduce generating

capacity needs, lower consumer costs, and cut carbon emissions. Since no

two wind farms have identical wind profiles, each one added to the grid

makes wind a more stable source of electricity. With the prospect of thou-

sands of wind farms spread from coast to coast and a national grid, wind

becomes a stable source of energy, part of baseload power.

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763. Lester Brown, (Dir., Earth Policy Institute), WORLD ON THE EDGE,

2011, 119. In considering the energy productivity of land, wind turbines are

in a class by themselves. For example, an acre of land in northern Iowa

planted in corn can yield $1,000 worth of ethanol per year. That same acreused to site a wind turbine can produce $300,000 worth of electricity peryear. This helps explain why investors find wind farms so attractive.

764. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 31. Wind provides a

little less than 4 percent of the European Union's electricity today, fourtimes the average for the world as a whole. The trade body for European

wind thinks that this figure will rise to about 13 percent in 2020 and

continue to increase rapidly thereafter. This increase would mean installing

around 10 gigawatts of wind capacity each year over the next decade or so,

which equates to thousands of new turbines annually, but since the new

capacity installed in 2008 alone was almost 9 gigawatts, the target seems tobe well within reach.

765. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 51. The opponents ofwind energy focus not only on the perceived ugliness of turbines and the

unreliability of the power, they also direct criticism at the potential impacton wildlife. Many of these concerns are unwarranted, and others can be

exaggerated. Most land animals get used to turbines very quickly. Horses

and cows, for example, ignore the rotating blades very soon after they are

installed.

766. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 41-42. Despite what

anti-wind power campaigners sometimes claim, the people who run our

electricity systems do not need to keep an equal amount of coal-fired power

generation ticking just in case the wind suddenly drops. They need a small

reserve (perhaps 15 percent of the total wind-generating capacity) available

at short notice, but this is little more than they have now anyway. Any

national electricity distribution system already has to have power stations

ready to start generating electricity at very short notice in case a large powerstation suddenly fails.

767. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 30. There's no

shortage of windy sites left to exploit. One study put the average power in

the global winds at any one moment as about 72 terawatts — around thirtytimes the world's electricity requirements, or ten thousand times the wind

power we currently generate.

768. Arjun Makhijani, (Pres., Institute for Energy and Environment

Research), NUCLEAR POWER, 2010, 45. The wind energy potential ofMidwestern and Rocky Mountain states is 2½ times the entire electricity

production of the United States. Utah's neighbor, Wyoming, has almost as

much wind energy potential as all 104 U.S. nuclear power plants combined.

769. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 40. Large onshore and

offshore wind farms are going to provide increasing amounts of power overthe next decades. Wind may eventually provide 20 or 25 percent of the total

electricity requirements of many large countries.

770. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 23. Wind turbines are

now almost a routine sight in some parts of the world. On hills in western

Spain, on Danish islands, on New Zealand's moorlands, and in the Atlantic

provinces of Canada, hundreds of thousands of turbines now provide power

to national electricity grids. The U.S. and China were relative latecomers to

the wind business, but much of the growth in wind-generated electricitynow comes from these countries.

771. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 42. As the total

number of wind turbines increases, short-term variability actually becomeseasier to handle. Typically, the turbines will be spread over a wider area —

perhaps the whole country — and when the wind is quiet in one place, it is

likely to be blowing strongly in another. The total electricity output from athousand turbines varies far less than the power generation from ten.

772. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 31. Once the

infrastructure is contructed, wind energy is close to free — the cost of

annual maintenance is usually a small percentage of the value of the

electricity generated.

773. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 32. Low and

predictable running costs also help wind compare well with fossil fuels.

Once the turbine is placed on top of its tower, virtually free electricity willbe generated for the next twenty-five years or so.

774. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 32. Wind has an

additional advantage, too. Because its fuel is free, the turbine owners willgenerally always be able to sell their electricity at a profit. By contrast, themain fuels for power stations — gas and coal — can swiftly vary in price inrelation to each other.

775. Erica Shroeder, (J.D., U. California, Berkeley School of Law),

CALIFORNIA LAW REVIEW, Oct. 2010, 1631. The drastic growth inelectricity produced by wind in the United States indicates that wind poweris poised to become a significant component of the United States' energy

portfolio. Installed wind capacity has grown from about 1,000 megawatts(MW) in 1985 to nearly 35,000 MW by the end of 2009, enough to power

roughly 9.7 million homes. As of September 2008, the United States led the

world in energy produced by wind turbines. According to the U.S.

Department of Energy (DOE), currently installed wind power capacity in

the United States will avoid an estimated sixty-two million tons of carbon

dioxide annually, or the equivalent to taking 10.5 million cars off the road.

776. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 41. Year after year,

wind turbines will produce approximately the same amount of electricity

over a twelve-month period. We have good years and bad years for wind,

but annual electricity output from a turbine will stay within well-understoodbounds. In that respect, wind turbines are at least as reliable as an old coal-

fired or nuclear station, where output can vary enormously because ofmaintenance needs or equipment failure.

777. Erica Shroeder, (J.D., U. California, Berkeley School of Law),

CALIFORNIA LAW REVIEW, Oct. 2010, 1639. According to the

International Panel on Climate Change (IPCC), the effects of climate

change will include melting snow, ice, and permafrost; significant effects

on terrestrial, marine, and freshwater plant and animal species; forced

changes to agricultural and forestry management; and adverse human healthimpacts, including increased heat-related mortality and infectious diseases.

The U.S. Energy Information Administration estimates that the United

States emits 6 billion metric tons of greenhouse gases annually, and it

expects emissions to increase to 7.9 billion metric tons by 2030, with 40percent of emissions coming from the electric power sector. Thus, if the

United States can get more of its electricity from wind power, it will

contribute less to climate change, and help to mitigate its negative impacts.

Furthermore, wind power does not involve any of the additional

environmental costs associated with nuclear power or fuel extraction for

traditional electricity generation, such as coal mining and natural gas

extraction. Wind power generation also does not require the water necessaryto cool traditional coal, gas, and nuclear generation units.

778. Chris Goodall, (Chair, Dynmark International Limited), TEN

TECHNOLOGIES TO SAVE THE PLANET, 2010, 53. One final concern

critics occasionally raise about wind power is that erecting thousands of

turbines might radically change local or global weather patterns by slowingdown the speed of the air. This worry might be valid if turbines captured

more than an infinitesimal share of the total energy in the wind moving

around the world. Any significant change in global weather patterns wouldprobably only occur if a measurable fraction of the world's surface weredevoted to wind farms. Today, the reduction of wind speeds as a result of

new turbine construction is almost certainly less than the increase in windlevels caused by the world's loss of forested area. Trees slow down the

wind, too.

779. Todd Griset, (Attorney, Preti Flaherty Energy and Telecommunication

Group), OCEAN AND COASTAL LAW JOURNAL, 2011, 405. In theory,

OTEC has great potential to produce power. Some estimates suggest that

the total resource within 200 miles of the United States' coasts could

provide a large portion of the nation's electricity demands. However, OTECsystems rely upon large temperature differentials to operate, needing a

temperature differential of approximately 20 [degrees] C for efficientoperation. In practice, this restricts the geographic scope of potential sites to

tropical waters.

780. Subramaniam Neelamani, (Coastal Management Program, Kuwait

Institute for Scientific Research), ON A SUSTAINABLE FUTURE OFEARTH’S NATURAL RESOURCES, 2013, 317. As with all renewable

energy technologies, wave energy has its share of challenges. Initial

attempts at using wave technology often failed because ocean environments

are inherently changeable. Storms can quickly cause waves to go from a

couple of feet to 40 or 50 ft in a matter of hours. Consequently any wave

energy device must be made incredibly durable in order to survive harsh

ocean conditions. Another major drawback of wave energy systems is that

they are either in the ocean or offshore which means that any electricity

which is generated must be transferred, usually via undersea cable back to

land where it can be used. The laying and maintenance of the electric cables

can add significantly to both initial costs and maintenance costs.

781. Martin LaMonica, (Sr. Writer, CNet.com), WAVE AND TIDALPOWER, 2010, 25. New York City's East River, meanwhile, is the test site

for another tidal power installation being led by Verdant Power, which

makes underwater turbines that get energy from changing currents. In the

space of three weeks, all six turbines being tested failed the same way—a

mechanical problem in the connections point between the blade and hubs,

said Ronald Smith, Verdant Power's CEO.

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782. Christopher Gillis, (Editor, American Shipper Magazine), OFFSHORE

WINDPOWER, 2011, 83. Once an offshore wind farm is operational, it

requires continuous monitoring and maintenance. Due to location and

potential for inhospitable weather, this type of wind farm is difficult to

service. Simon-Philippe Breton and Geir Moe wrote in a 2009 Renewable

Energy article about the heavy costs and logistics challenges associated

with providing timely maintenance to offshore wind farms: "Repairs are an

estimated 5-10 times more expensive to perform offshore than onshore,

mainly due to the need for expensive crane vessels, and waiting periods forsuitable weather conditions can be extremely costly. In some cases, even for

a turbine located only I km (or about a half mile) offshore, a period as longas two weeks can pass without access to the site for repair being possible."

783. Michelle Ma, (Staff, Seattle Times), WAVE AND TIDAL POWER,

2010, 50. Even if environmental concerns are checked, costs to extract the

power remain high. Wave energy costs at least 20 cents per kilowatt hour togenerate, compared with 4 cents per kilowatt hour for wind power, said

Annette von Jouanne, leader of OSU's wave-energy program. Wind energyused to be much more expensive 20 years ago.

784. David Helvarg, (Exec. Dir., Blue Frontier), SAVED BY THE SEA: A

LOVE STORY WITH FISH, 2010, 5. To date we've mapped less than 10percent of the ocean, but we've mapped 100 percent of the Moon and Mars.

The funny thing is that when we send probes to Mars, other parts of the

solar system, and beyond, what's the first thing we look for as a sign of life?

Water! And here we have a whole blue swimming pool of a planet that we

hardly connect with even though we all evolved on both an individual andevolutionary basis from salt water.

785. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

200-201. With detailed maps of the moon, Mars, and Jupiter in hand, it

seems reasonable that the surface of Earth would be known with

comparable precision. Not so! Most of Earth's surface is under the sea, ofcourse, and therefore impossible to photograph and map using traditionalcartographic techniques. Given the difficulties, it is amazing that it is nowpossible to envision Earth's major mountain formations—64,000 kilometers(40,000 miles) of mountain ranges running down the length of the majorocean basins like giant back-bones—even though few of them have been

seen directly.

786. Michael Conathan, (Dir., Ocean Policy, Center for American

Progress), SPACE EXPLORATION DOLLARS DWARF OCEAN

SPENDING, June 18, 2013. Retrieved Apr. 2, 2014 from

http://www.americanprogress.org/issues/

green/news/2013/06/18/66956/rockets-top-submarines-space-explorationdollars-

dwarf-ocean-spending/. Only the lucky few can gaze out at the

ocean from their doorstep, and even those who do cannot see all that lies

beneath the waves. As a result, the facts about ocean exploration are pretty

bleak. Humans have laid eyes on less than 5 percent of the ocean, and wehave better maps of the surface of Mars than we do of America’s exclusiveeconomic zone—the undersea territory reaching out 200 miles from ourshores.

787. Kim Martini, (Prof., Oceanography, U. Alaska at Fairbanks), DEEPSEA NEWS, Oct. 16, 2012. Retrieved Apr. 2, 2014 from

http://deepseanews.com/ 2012/10/we-need-an-ocean-nasa-now-pt-2/. As

example, NOAA shifted funding away from NURP [National UnderseaResearch Program] and basic science and exploration but greatly increased

funding to research on applied climate change research. Increased funding

for climate change research is a necessity as we face this very real and

immediate threat to our environment and economy. Yet, did this choice, andothers like it, need to come at the reduction of our country’s capability to

conduct basic ocean exploration and science and which climate change

work relies upon?

788. Kim Martini, (Prof., Oceanography, U. Alaska at Fairbanks), DEEPSEA NEWS, Oct. 16, 2012. Retrieved Apr. 2, 2014 from

http://deepseanews. com/2012/10/we-need-an-ocean-nasa-now-pt-1/. Our

nation faces a pivotal moment in exploration of the oceans. The most

remote regions of the deep oceans should be more accessible now than ever

due to engineering and technological advances. What limits our exploration

of the oceans is not imagination or technology but funding.

789. National Science and Technology Council, SCIENCE FOR AN

OCEAN NATION: UPDATE OF THE OCEAN RESEARCH PRIORITIES

PLAN, 2013, 23. Right-sizing and improving the capabilities of the U.S.

domestic fleet, including opportunities for covering all regions, would

improve our ability to provide important information on the status of

managed populations and the ecosystem effects of human activities.

Additionally, improved in situ and remote-sensing tools would obtain

necessary biological (e.g., species composition, abundance, and

movements) and physical (e.g., current direction, wave height) parameters;

track living marine resources throughout their ranges; detect changes in

ocean character and biodiversity; and survey deep waters, particularly asenergy exploration moves to the edges of the OCS and into previously

inaccessible regions of the Arctic.

790. Jim Borg, (Staff), HONOLULU STAR-ADVERTISER, Mar. 12,

2012. Retrieved Apr. 16, 2014 from Nexis. The cuts proposed by theObama administration include $1 million for maintaining a system of 39

buoys used to track the progress of seismic sea waves generated by an

earthquake. The maintenance budget is now about $11 million.

791. Paul Rogers, (Staff), CONTRA COSTA TIMES, Mar. 13, 2012.

Retrieved Apr. 16, 2014 from Nexis. Alarmed at the Obama

administration's proposed cuts to America's tsunami warning and

preparedness programs, six U.S. senators from California, Oregon,

Washington and Hawaii on Tuesday demanded the money be put back in

the budget. In a letter to Senate Appropriations Committee Chairman Daniel

Inouye, D-Hawaii, the six, including California Sens. Dianne Feinstein andBarbara Boxer, said the proposed cuts "jeopardize the safety and economic

stability of communities in our states." In its proposed 2013 budget for theNational Oceanic and Atmospheric Administration, the Obama

administration is seeking to save $4.6 million through two cuts to the

tsunami program. The first would be a $1 million reduction in the roughly

$11 million annual budget that funds operations and maintenance for anetwork of 39 high-tech buoys spread out across the Pacific and Atlantic

oceans. The buoys are tethered to the bottom of the ocean and measure

pressure changes, sending data to satellites that tell tsunami warning centers

in Alaska and Hawaii whether a tsunami is headed for the United States,

along with details about its size and direction.

792. Paul Rogers, (Staff), CONTRA COSTA TIMES, Mar. 13, 2012.

Retrieved Apr. 16, 2014 from Nexis. After news reports showed that the

countries that were devastated in the 2004 tsunami had no warning system,

Congress passed a law in 2006 to increase funding for tsunami buoys,

research and preparedness. But that funding, $40 million a year for seven

years, runs out Oct. 1. The Obama administration's proposal to let many of

those programs diminish ran into significant criticism from independenttsunami scientists and emergency response officials in West Coast states,

including Rep. Zoe Lofgren, D-San Jose, who sharply questioned NOAAadministrator Jane Lubchenco about them during a congressional hearing

earlier this month. They proposed cuts come at a politically awkward time –

right near the anniversary of the March 11, 2011, earthquake and tsunamithat killed 19,000 people in Japan and caused a nuclear meltdown at the

Fukushima reactor.

793. National Science and Technology Council, SCIENCE FOR AN

OCEAN NATION: UPDATE OF THE OCEAN RESEARCH PRIORITIES

PLAN, 2013, 44. A continuing challenge for U.S. climate-related ocean

research is the lack of a robust, integrated system of global and coastalocean observation, including in situ and space-based sensors, that issustainable and connected with international observing efforts. Particularemphasis should go to establishing the validity of remote sensing methodsin coastal regions and other areas of high complexity and gradients.

794. National Science and Technology Council, SCIENCE FOR AN

OCEAN NATION: UPDATE OF THE OCEAN RESEARCH PRIORITIES

PLAN, 2013, 48. Climate change and its many ramifications, such as ocean

acidification and sea-level rise, can potentially have extreme, abrupt, and/orirreversible impacts on ecosystems. In general, ecosystem degradationhappens slowly and somewhat predictably, resulting in a gradual loss of

services rather than rapid, and therefore more noticeable, changes inecosystem structure and function. However, it is possible that ecosystems

may degrade slowly through a number of mechanisms but then reach a

tipping point at which a sudden change occurs, moving the ecosystem into a

different, semi-permanent state. Though our capability to predict change is

improving, predicting the thresholds at which cascade effects can occur isstill very difficult.

795. Gunnar Kullenberg, (Former Exec. Secretary, Intergovernmental

Oceanic Commission), TROUBLED WATERS: OCEAN SCIENCE AND

GOVERNANCE, 2010, 91-92. Our increased knowledge and understandingof the ocean and its processes is not only vital to the solution of

environmental and climate related issues, but it also raises new concerns.

For example, the ability of the ocean to absorb carbon dioxide is an

essential feature of the climate considerations; however, the acidification of

the ocean from this process, and its impact on marine ecosystems, is now

also recognized as an issue. In addition commercial interests are interestedin the economics of using the ocean for carbon dioxide sequestration, againwith concerns from the scientific community about the impact of suchactivity on marine life.

796. Paul DiGiacomo, (Scientist, National Oceanic and Atmospheric

Administration), STAR LOOKS AT THE EARTH: SATELLITE

MEASUREMENTS OF THE ATMOSPHERE, OCEANS, AND LAND,

2012, 84. Using satellites to observe water quality in coastal regions hasadvantages over physical sampling and traditional monitoring techniques.

Shipboard measurements are accurate and can provide observations at depth

but are expensive and not continuous over space and time. Buoys provide

good temporal coverage at one location but are isolated in space. Satellites

expand the observations spatially for near-simultaneous measurements overa large area. An integrated sampling approach is best for monitoring water

quality in coastal regions.

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797. David Pugh, (Founding Chair, Global Sea Level Commission),

TROUBLED WATERS: OCEAN SCIENCE AND GOVERNANCE, 2010,

213. Despite the effective technical capabilities of regional and global

coordination, the responses from governments are still piecemeal and

partial. While the Indian Ocean now has a tsunami warning system, similar

systems in the Atlantic Ocean are slow to develop. Inevitably politicians,

while responding immediately after major disasters, soon find competingclaims on their attention and resources. In order to show their electorate that

they are effective and in control, politicians favour funding national systems

rather than support the establishment of global networks. The situation has

improved over the past 50 years, but much remains to be done, and global

systems remain critically under funded.

798. John Roff, (Prof., Environmental Science, Acadia U.), MARINE

CONSERVATION ECOLOGY, 2011, 252. The coastal zone is the regionof greatest variety of components of biodiversity. It is also the region where

humans interact most strongly with the marine environment, and where they

have the greatest impact upon it. Consequently this should be the region

where we pay closest attention to the oceans, and pay the greatest attention

to environmental management.

799. National Science and Technology Council, SCIENCE FOR AN

OCEAN NATION: UPDATE OF THE OCEAN RESEARCH PRIORITIES

PLAN, 2013, 58. The intricacies and diversity of ocean ecosystems provideunparalleled opportunities for discovery and development of useful

products and technologies. The discovery and development of new

pharmaceutical and other beneficial products have great potential.

Collaborative research efforts that incorporate multiple disciplines (e.g.,

evolution, ecology, pharmacology) should focus on expanded assessments(e.g., functional genomics, advanced non-culture-based methods), and

development (e.g., biosynthesis) of ocean bioproducts (e.g.,

pharmaceuticals, nutrients, diagnostic tools, reagents, enzymes). Researchefforts should also include developing the capability to use marine speciesas models for the study of diseases, toxicology, and biochemical processesrelevant to human health; and identifying and using appropriate sentinel

species (e.g., aquatic, avian, mammalian) and habitats that may serve togive early warning of potential ocean risks to humans.

800. National Science and Technology Council, SCIENCE FOR AN

OCEAN NATION: UPDATE OF THE OCEAN RESEARCH PRIORITIES

PLAN, 2013, 18. Evaluating and addressing the environmental

consequences of resource use and extraction, combined with increased

understanding of the social and economic value of natural and cultural

resources and the factors that influence ecosystem and cultural resilience

and health, can help balance the pressures being placed on coastal

ecosystems, enable restoration of degraded habitats, and, ultimately, support

robust, coordinated ecosystem-based management and governance

strategies for sustainable resource use.

801. Gunnar Kullenberg, (Former Exec. Secretary, Intergovernmental

Oceanic Commission), TROUBLED WATERS: OCEAN SCIENCE AND

GOVERNANCE, 2010, 89. The growing recognition of the importance of

the oceans and marine science was evident at the UN with the creation of

the UN Informal Consultative Process on Ocean Affairs and the Law of the

Sea in 1999, a high-level mechanism reporting directly to the General

Assembly. A Sub-committee for Oceans and Coastal Areas for the

implementation of Chapter 17 of Agenda 21 facilitated co-sponsorship and

joint implementation of many programmes, pooling resources and knowhow

from different sectors.

802. National Research Council, OCEAN ACIDIFICATION: A

NATIONAL STRATEGY TO MEET THE CHALLENGES OF A

CHANGING OCEAN, 2010, 19. In the Magnuson-Stevens Fishery

Conservation and Management Reauthorization Act of 2006 (P.L. 109-479,

sec. 701), Congress called on "the Secretary of Commerce [to] request the

National Research Council to conduct a study of the acidification of theoceans and how this process affects the United States." This request was

reiterated in the Consolidated Appropriations Act of 2008 (P.L. 110-161).

Based on these requests, the National Oceanic and AtmosphericAdministration (NOAA) approached the Ocean Studies Board (OSB) todevelop a study.

803. John Roff, (Prof., Environmental Science, Acadia U.), MARINE

CONSERVATION ECOLOGY, 2011, 18. Fortunately, several recentinitiatives, including the Census of Marine Life (CoML) are now seeking to

improve our knowledge of biodiversity in the oceans, and thus provide the

basis for understanding the causes and consequences of changes in thediversity of life in marine waters.

804. Jay Timmons, (CEO, National Association of Manufacturers), THE

LAW OF THE SEA CONVENTION, Senate Hearing, June 28, 2012, 277.

Manufacturers in the United States require access to basic inputs for the

production process in order to become and remain competitive in the global

economy. As manufacturing grows more high tech, "rare earth" minerals are

becoming increasingly important to manufacturers and their supply chains.

Rare earth minerals consist of 17 elements that are important for numerousmanufacturing applications, including in the production of chemicals,

defense products, consumer electronics, wind turbines, hybrid car batteries

and other renewable energy products. They are also used as catalysts forpetroleum refining.

805. Andrew Eichner, (J.D., U. Texas School of Law), UNIVERSITY OF

ILLINOIS JOURNAL OF LAW, TECHNOLOGY & POLICY, Fall 2012,

257. As the United States and the rest of the global community continue

their movement into an era of green technology and towards a cleanerenvironment, the biggest threat to face is not a lack of renewable energy

resources, hesitancy of countries to take steps towards adopting or

promoting green technology, or an inability to maintain a functional cleanenergy infrastructure. Instead, one of the primary concerns facing the green

technology movement is the potential scarcity of specific key resourcesnecessary to bring about the type of global changes in energy infrastructure

that environmental scholars aspire to.

806. Ambrose Evans-Pritchard, (Staff), THE DAILY TELEGRAPH, Mar.

25, 2013, 4. Washington was caught off guard when China started

restricting supplies. The US defense and energy departments have nowmade it an urgent priority to find other sources, but warn it may take up to a

decade to rebuild the supply-chain. The US Magnetic Materials Association

said America had drifted into a "silent crisis".

807. Catherine Ngai, (Staff, Medill News Service), REPLACING OILADDICTION WITH METALS DEPENDENCE, Oct. 1, 2010. Retrieved

Apr. 5, 2014 from

http://news.nationalgeographic.com/news/2010/10/101001-energy-rareearth-

metals/. “Just as we’ve seen with our reliance on foreign oil, the

United States’ total reliance on foreign sources of rare earths puts us in a

perilous situation,” said Republican Senator Lisa Murkowski of Alaska, in a

prepared statement accompanying legislation she introduced to create a U.S.

strategic stockpile of rare-earth minerals and to provide federal loan

guarantees to assist the domestic mining industry. “Some have comparedChina to a one-nation OPEC for rare earths— and China’s recent actions

signal that they are well aware of their immense power over the supply ofthis sought-after commodity.”

808. Cecilia Jasasmie, (Editor, Mining.com), U.S. DEFENSE

DEPARTMENT UNDERVALUING IMPORTANCE OF RARE EARTHS

FOR NATIONAL SECURITY, Apr. 16, 2012. Retrieved Apr. 4, 2014 from

http://www.mining.com/u-s-defense-department-undervaluing-importanceof-

rare-earths-for-national-security-report/. The U.S. Defense Departmentneeds to realize the dangerous consequences a potential lack of domesticrare earths may have on the U.S. weapon industry, suggests a latest study by

the Congress released last week. The document, titled Rare Earth Elements

in National Defense: Background, Oversight Issues, and Options for

Congress, adds the country’s manufacturing supply chain is even morevulnerable to disruptions caused by from a lack of domestic sources of rare

earth metals.

809. Michael Robinson, (Staff, Defense Media Network), RARE EARTHS

PROVIDE CRITICAL WEAPONS SUPPORT, Apr. 6, 2011. Retrieved

Apr. 5, 2014 from http://www.defensemedianetwork.com/stories/rareearths-

provide-critical-weapons-support/. In addition to strategic nuclearapplications, rare earths are critical for several missile classes that include

cruise, anti-ship (ASM), and surface-to-air (SAM). They also are employedin bunker busters PGMs.

810. Emily Coppel, (Research Assistant, American Security Project),

RARE EARTH METALS AND U.S. NATIONAL SECURITY, Feb. 1,

2011, 2. The United States’ reliance on technology, particularly for militaryapplications, is the biggest cause for concern. Although the Pentagon claimsthat the U.S. only uses 5% of the world’s supply of rare earth metals fordefense purposes, the fact is that the U.S. is completely reliant on China for

the production of some of its most powerful weapons.

811. Alesandro Bruno, (Staff, InvestorIntel), SUSTAINABLE ACCESS TORARE EARTHS IS CRITICAL TO NATIONAL SECURITY, Apr. 11,

2013. Retrieved Apr. 4, 2014 from http://investorintel.com/rare-earthintel/

tms-2013/#sthash.02Atnmtm.dpuf. Shortages of rare earth elements

limit the United States’ ability to produce the defense systems of the future.

China does not have a geological monopoly on rare earths but it has been

allowed to develop a production monopoly while the developed (and allied)

nations gradually gave up rare earth mining in the late 1980’s and 1990’s.

812. DOMINION POST, July 6, 2011, 8. China produces about 90 per cent

of the world's 17 rare earth minerals, which include thulium, holmium,

lanthanum, praseodymium, gadolinium, lutetium, terbium and dysprosiumand the metal yttrium.

813. Gary Simms, (Sr. Project Manager, Lockheed Martin Corp.), THELAW OF THE SEA CONVENTION, Senate Hearing, June 28, 2012, 232233.

As has been widely reported, China already holds a monopoly onavailable land-based rare earth metals, and now holds one of the four deep

seabed exploration licenses issued over the past year. Countries have alsoasked the ISA to begin development of rules for harvesting ocean minerals.

Unfortunately, without ratifying the LOS, the United States cannot sponsorclaims with, or shape the deep seabed rules of, the [SA. Yet, that is thecritical path forward if the United States intends to expand and ensureaccess — for both U.S. commercial and government interests — to newsources of strategic mineral resources.

EVIDENCE

814. Gal Luft, (Dir., Institute for the Analysis of Global Security),

WASHINGTON TIMES, Oct. 21, 2010, 4. Earlier this year, China

announced a 72 percent reduction in the export quotas for rare-earth metals

for the second half of 2010, sending tremors across America's industrial

complex. Rare earths are a group of 17 metals vital to the production ofprecision-guided munitions, cruise missiles, radar and other defense

systems as well as consumer electronics and renewable-energy technologies

such as wind turbines, solar panels and hybrid vehicles. Such metals are

often compared to the yeast in bread – small in proportion but huge in

contribution.

815. Leslie Hook, (Staff), FINANCIAL TIMES, Oct. 20, 2010, 2. China

could cut rare earth exports by up to 30 per cent next year, state media said

on Tuesday, in a move that will heighten global concerns about the

country's monopoly over the critical minerals. China produces 97 per cent

of the world's rare earths – 17 elements vital to technological products as

diverse as wind turbines, car batteries and sophisticated radar systems – a

dominance that has become increasingly controversial as the governmenthas steadily reduced export quotas for the minerals.

816. Anthony Rowley, (Staff), BUSINESS TIMES SINGAPORE, July 5,

2011. Retrieved Apr. 4, 2014 from Nexis. High concentrations of rare earths

were discovered in an 8.8 million square kilometre area encompassing

Hawaii Island and another 2.4 million sq km area around Tahiti, according

to the report.

817. Anthony Rowley, (Staff), BUSINESS TIMES SINGAPORE, July 5,

2011. Retrieved Apr. 4, 2014 from Nexis. At one site in the central northPacific, an area of just one square kilometre could meet a fifth of the world'sannual consumption of rare metals and yttrium, the Japanese research paper

said. Laboratory tests show the deposits can be simply removed by rinsing

the mud with diluted acids – a process that takes only a couple of hours andthat, the authors say, would not have any environmental impact so long as

the acids are not dumped in the ocean.

818. NEW ZEALAND HERALD, May 17, 2013. Retrieved Apr. 4, 2014

from Nexis. Writing in the journal Nature Geoscience, the scientists, backed

by the Japan Agency for Marine-Earth Science and Technology, said rareearth minerals had been found in mud on the ocean floor. Between 80 and

100 billion tonnes of rare earths – used in magnets, batteries and electroniccomponents for smartphones, wind turbines, fuel cells, hybrid cars, catalytic

converters and other high-tech gadgetry – were found at depths of 3500m to

6000m, east and west of Hawaii and east of Tahiti. "The deposits have aheavy concentration of rare earths," team leader Yasuhiro Kato told

Reuters. "Just one square kilometre of deposits will be able to provide one-

fifth of the current global annual consumption."

819. Hillary Clinton, (U.S. Secretary of State), THE LAW OF THE SEA

CONVENTION, Senate Hearing, June 28, 2012, 15. The second economic

benefit I would like to highlight relates to mining in the deep seabed areasbeyond any country's jurisdiction. Only as a party to the Convention could

the United States sponsor U.S. companies like Lockheed Martin to mine the

deep seabed for valuable metals and rare earth elements. These rare earthelements—essential for cell phones, flat-screen televisions, electric carbatteries, and other high-tech products—are currently in tight supply and

produced almost exclusively by China. While we challenge China's export

restrictions, we must also make it possible for U.S. companies to develop

other sources of these critical materials. They can only do this if they can

obtain secure rights to deep seabed mine sites and indisputable title to

minerals recovered. While we sit on the sidelines, companies in China,

India, Russia, and elsewhere are securing their rights, moving ahead with

deep seabed resource exploration, and taking the lead in this emergingmarket.

820. Emily Coppel, (Research Assistant, American Security Project),

RARE EARTH METALS AND U.S. NATIONAL SECURITY, Feb. 1,

2011, 2. The United States has the world’s second-biggest deposit of rareearth metals. According to the U.S. Geological Survey, the U.S. has

“approximately 13 million metric tons of rare earth elements,” mainlylocated in western states such as California, Alaska, and Wyoming. Until

the 1980s, the U.S. was the chief supplier of rare earth metals to the rest of

the world, when production and mining facilities began to move to China.

Today, the U.S. no longer produces any rare earth metals, having sold off its

last domestic producer of rare earth magnets (used in smart bombs) in 2003.

The last U.S. rare earth mine, located at Mountain Pass, California, closed

in 2002. Before it closed, Mountain Pass was one of the world’s largest rareearth mines.

821. Steven Groves, (Sr. Research Fellow, Heritage Foundation),

HERITAGE BACKGROUNDER, Dec. 4, 2012, 2. No legal barriersprohibit U.S. access, exploration, or exploitation of the resources of thedeep seabed. Deep seabed mining is a “high seas freedom” that all nations

may engage in regardless of their membership or non-membership in

UNCLOS or any other treaty. Like other high seas freedoms, the right toengage in deep seabed mining is inherent to all sovereign nations undercustomary international law. Rather, it is the convention that attempts torestrict access to the deep seabed and infringe on the intrinsic rights of the

United States and other nations that have chosen to remain non-parties.

BAYLOR BRIEFS 125

822. Joe Courtney, (U.S. Representative, Connecticut), LEGISLATIVE

HEARING ON H.R. 104, THE REALIZE AMERICA'S MARITIME

PROMISE (RAMP) ACT, House Hearing, July 8, 2011, 31. The propermaintenance of our ports, harbors and channels is absolutely critical to thehealth and future of our maritime commerce and our nation's economy.

Without additional resources to achieve this important goal, our maritimeindustry will continue to struggle to meet the needs of our water-bornecommerce and economic recovery. At a time when U.S. ports are poised togain from a dramatic expansion in maritime traffic due to the expansion ofthe Panama Canal that is estimated to double cargo volume in the next 15years, we are in a unique position today to ensure that our ports are readyfor the opportunities for tomorrow.

823. Bob Gibbs, (Chair, U.S. House Committee on Transportation and

Infrastructure), LEGISLATIVE HEARING ON H.R. 104, THE REALIZEAMERICA'S MARITIME PROMISE (RAMP) ACT, House Hearing, July

8, 2011, 1. In May 2010, the President proposed an export initiative that

aims to double the Nation's exports over the next 5 years. However, with theCorps of Engineers navigation budget slashed by 22 percent over the

previous 5 years, and the President only requesting $691 million from theHarbor Maintenance Trust Fund, the export initiative will not be a success.

Only if our ports and waterways are at their authorized depths and widths

will products be able to move to their overseas destinations in an efficient

and economical manner.

824. Michael Charles, (Sr. Manager, American Society of Civil Engineers),

LEGISLATIVE HEARING ON H.R. 104, THE REALIZE AMERICA'S

MARITIME PROMISE (RAMP) ACT, House Hearing, July 8, 2011,

Despite this large and growing surplus in the trust fund, the busiest U.S.

harbors are presently under maintained. As the House ApproriationsCommittee noted, the Corps of Engineers estimates that full channel

dimensions at the nation's busiest 59 ports are available less than 35 percent

of the time. This situation can increase the cost of shipping as vessels carryless cargo in order to reduce their draft or wait for high tide beforetransiting a harbor. It could also increase the risk of a ship grounding orcollision.

825. Kurt Nagle, (CEO, American Association of Port Authorities),

LEGISLATIVE HEARING ON H.R. 104, THE REALIZE AMERICA'S

MARITIME PROMISE (RAMP) ACT, House Hearing, July 8, 2011, 23.

Modern navigable seaports are vital to international trade and our nation's

economic prosperity, however, the full authorized depths and widths ofAmerica's navigation channels are available only 35 percent of the time.

This means channels may be restricted to one lane of travel, and the shipsthat are moving may not be able to carry full loads of cargo because of

depth restrictions.

826. Tracy Wilkinson, (Staff), LOS ANGELES TIMES, Feb. 7, 2014, A3.

The Panama Canal handles up to 6% of world commerce. Expansion iscrucial for attracting and accommodating the supertankers and ever larger

cargo ships plying the world's trade routes.

827. Christi Parsons, (Staff), LOS ANGELES TIMES, Nov. 29, 2013, B1.

The arrival of so-called Post-Panamax vessels into U.S. trade lanes is

expected to have "substantial implications" for the nation's shippers, harborsand so-called surface freight corridors, said a Department of Transportationstudy released this week on the Panama Canal expansion and its effects.

The more economical service of the bigger vessels, for example, could

improve the ability of U.S. exports such as grain, coal and petroleum tocompete in global markets, the study found.

828. Michael Dehart, (J.D. Candidate),TULANE MARITIME LAW

JOURNAL, Winter 2013, 207. Representative Boustany also used his own

congressional district as an example of the underuse of HMTF collections.

He noted that from fiscal years 2003 to 2011, only half of the requisite

amount needed to fund fully the maintenance of the Calcasieu River wasapportioned from the HMTF. As a result of this chronic underfunding,

significant economic harm resulting from problems such as light loading ofships may have occurred at a port that created over 31,000 jobs andcontributed $ 765 million to the Treasury during the 2006 fiscal year.

829. Andrew Cairns, (Staff, American Society of Civil Engineers), THE

HARBOR MAINTENANCE TRUST FUND AND THE NEED TO

INVEST IN THE NATION’S PORTS, Senate Hearing, Jan. 31, 2013.

Retrieved Apr. 16, 2014 from

http://www.epw.senate.gov/public/index.cfm?FuseAction=Hearings.

Hearing&Hearing\_ID=6ee9cb8c-ee2f-dfef-8a23-9ed8b4d25710. For Fiscal

Year 2013 the administration had requested $839 million to be appropriatedfrom the HMTF—only 50 percent of total estimated revenues. Total

revenues are currently estimated at $1.659 billion in the Trust Fund for FY

2013. However, the FY 2013 budget request does not come close to meeting

the requirements of the nation’s ports and harbors, which have an annualneed for maintenance dredging between $1.3 billion and $1.6 billion,

according to the Army Corps of Engineers. This trend toward reduced

investments in our ports and harbors has led to ever greater balances in the

HMTF, and the unexpended balance in the Trust Fund is growing with a

bookkeeping balance of more than $6 billion by September 30, 2013, theOffice of Management and Budget reports.

EVIDENCE BAYLOR BRIEFS 126

830. Michael Dehart, (J.D. Candidate),TULANE MARITIME LAW

JOURNAL, Winter 2013, 194. The HMT was born as part of the WaterResources Development Act of 1986 (WRDA). Until the creation of the

HMT, all harbor maintenance was funded directly by the United StatesTreasury. In response to increased dredging costs and a general budget

deficit, the United States Congress enacted the HMT to create a source offunds to be used solely for harbor maintenance dredging projects. Asoriginally drafted, the HMT was assessed at 0.04% on the value of all

imports or exports that passed through specified U.S. harbors. Currently, the

HMT rate is 0.125% of the value of all goods imported into the United

States. While the original HMT was intended to fund only 40% of all harbormaintenance costs, the modern day HMT is intended to fund 100% of all

harbor maintenance costs.

831. Janice Hahn, (U.S. Representative, California), THE HILL, Sept. 17,2013. Retrieved Apr. 16, 2014 from http://thehill.com/opinion/oped/

322873-use-the-harbor-maintenance-fund-to-maintain-harbors-. Our

seaports are more than just gateways to the world — they are at the heart ofthe commerce that powers the U.S. economy. When that heart is strong,

American consumers and businesses from the coasts to the cornfields thrive.

When that heart grows clogged, however, the health of the whole economyis put at risk. It is time to give 100 percent to unclogging our ports.

832. David Farrell, (Secretary, Maritime Law Association), UNIVERSITY

OF SAN FRANCISCO MARITIME LAW JOURNAL, 2013, 183-184. In

2014 a $ 5.25 billion widening and deepening of the Panama Canal will be

completed, doubling its cargo capacity to 600 million tons per year. This

translates into almost three times as many containers per ship. It also means

perhaps as much as twenty-five percent of current West Coast containertraffic from Asia will redirect to the four deep water ports in primary

contention as East Coast destinations: New York/New Jersey; Norfolk,

Virginia; Charleston, South Carolina; and Savannah, Georgia.

833. Dan Chapman, (Staff), THE ATLANTA JOURNALCONSTITUTION,

Jan. 26, 2014, 1D. "Anybody who talks with any

certainty about the future of ports and cargo is potentially a liar or has a

very vested interest," said Jean-Paul Rodrigue, a global trade expert at

Hofstra University. "There are unrealistic expectations that the PanamaCanal expansion is some sort of magic beans and business will materializeout of thin air. But there's not that much room for growth as far as the East

Coast is concerned."

834. Heather Tausig, (Pres. for Conservation, New England Aquarium),

UNDERWATER EDEN: SAVING THE LAST CORAL WILDERNESS

ON EARTH, 2013, 132-133. Many wild-captured fish originate in

developing countries where too many collectors still use destructive

techniques like cyanide to collect them. These techniques can lead to high

mortality before the fish reach the home hobbyist. Fortunately, lessdestructive ways of collecting fish are being adopted. In the Rio Negro

Basin of the Amazon in Brazil, members of Project Piaba are working to

create a sustainable fishery around the cardinal tetra. Local people harvest

the bright blue-and-red fish, earning enough to provide an incentive not tocut down the surrounding forest. In the Philippines the International

Marinelife Alliance is working with Filipino officials to end the practice of

fishing with cyanide, encouraging collectors to use fine nets to collect fish.

835. Joy Blackburn, (Staff), VIRGIN ISLANDS DAILY NEWS, Jan. 9,2013. Retrieved Apr. 16, 2014 from Nexis. "The coral reefs of Puerto Ricoand the U.S. Virgin Islands are renowned for their beauty, and their

ecological and economic value," EPA Region 2 Administrator Judith Encksaid in the release. "Unfortunately, these treasures are being destroyed.

836. Jonathan Hoekstra, (Chief Scientist, World Wildlife Fund), THE

ATLAS OF GLOBAL CONSERVATION, 2010, 38. Coral reefs have longbeen famous for the diversity of life that they support, vying even with

tropical rain forests in that regard. Yet even reef experts were surprised afterone marine biologist identified 284 different fish species during a single

dive along the reefs of the Raja Ampat Islands, Indonesia. In subsequent

expeditions, scientists have tallied a total of 1,149 different fish, 537

different coral species, and more than 70o mollusks from these islands,

which lie in the Coral Triangle, home to the richest variety of all marine

life.

837. Carol Turley, (Researcher, Plymouth Marine Laboratory), OCEAN

ACIDIFICATION, 2011, 256. Globally, tourism is estimated to provide

US$9.6 billion in annual net benefits and a multiple of this amount in

tourism spending. Coral reef biodiversity also has a high research and

conservation value, as well as a nonuse value (the value of an ecosystem to

humans, irrespective of whether it is used or not) estimated together atUS$5.5 billion annually. Loss of coral reefs and their biodiversity would

have an impact on tourism in these areas.

838. Nikola Berger, (City U. of New York), INNOVATIVE METHODS

OF MARINE ECOSYSTEM RESTORATION, 2013, 152. The result of

eliminating the water filtration by oysters has rippled throughout the

ecosystem. When oysters were abundant, the water was clear, light reachedthe bottom, and algae grew there, providing the basis of the food chain thatled to abundant blue crabs, which were also a major traditional fishery in

Chesapeake Bay. With the loss of filtration and increased eutrophicationfrom sewage from humans, cattle, pigs, and chickens, as well as agricultural

fertilizer runoff, the waters are now turbid and so little light reaches thebottom that the benthic algae have disappeared, causing near total collapseof the crab fishery.

839. Nikola Berger, (City U. of New York), INNOVATIVE METHODS

OF MARINE ECOSYSTEM RESTORATION, 2013, 152. Largepopulations of oysters and other suspension-feeding bivalves filter planktonout of the water so efficiently that they control blooms of phytoplanktonand prevent symptoms of eutrophication.

840. Natalie Harrison, (Editor), UNIVERSITY OF MIAMI LAW

REVIEW, Fall 2013, 191. Corals are unique in the marine environment, andthus a commons that is uniquely difficult to protect. As organisms whose

skeletal structure serves as the basis for the ecosystem they support, corals

cannot simply be protected as individual organisms. Effective protection ofcorals requires a more holistic approach to avert the tragedy of the

commons. Existing laws in the United States are therefore ill-equipped toaddress coral management.

841. Jamaludin Jompa, (Prof., Hasamuddin U., Indonesia), INNOVATIVE

METHODS OF MARINE ECOSYSTEM RESTORATION, 2013, 57. The

consistent results of all these different experiments conducted at different

places and times under different conditions with different species stronglyindicated that coral growth or coral skeleton deposition was significantlystimulated by low-voltage electricity using the Biorock method. These

support the arguments and results previously described by Goreau andHilbertz 1998. They suggested that increased pH around electrified cathodic

frameworks resulting from electrolysis of seawater caused faster

calcification and skeleton growth of electrically stimulated corals.

842. Lalu Bakti, (Prof., Mataram U., Indonesia), INNOVATIVE

METHODS OF MARINE ECOSYSTEM RESTORATION, 2013, 62.

Biorock structures are made with metal bars, charged by a low-voltage

current above 1.25 V. These structures are installed on the ocean floor, and

pieces of corals are attached to them. These corals come from reefs in the

neighborhood that had been naturally broken by various causes (unaware

divers, strong waves, anchor damage, etc.). The electric current, which istotally harmless for any organism, leads to electrolysis, causing a calcareousprecipitation on the whole structure. This will not only prevent appearance

of rust, which would weaken the structure, but since coral skeleton is made

of limestone, the structure will, thanks to this reaction, become the best

place for coral to grow. Thus Biorock technology relies on a very simpleprinciple: enhancement by electrolysis of the natural reactions occurringamong coral, seawater, sun, and dissolved minerals.

843. Thomas Goreau, (Global Coral Reef Alliance, Cambridge Mass.),

INNOVATIVE METHODS OF MARINE ECOSYSTEM

RESTORATION, 2013, 270. Freshly broken branching coral tips that are

transplanted onto Biorock have been observed to heal over very rapidly andrelease no mucus, which is the typical general sign of coral stress. In

contrast, identical controls transplanted to non-Biorock substrates at thesame time continued to release mucus for two weeks afterward.

844. Nikola Berger, (City U. of New York), INNOVATIVE METHODS

OF MARINE ECOSYSTEM RESTORATION, 2013, 159. Estuary sitesthat have been polluted by runoff and sewer drainage present ideal locationsfor future Biorock projects, particularly if these locations once flourished

with oyster and other benthic populations. The benefits of these artificial

oyster nurseries would be to create a habitat for oyster growth where they

otherwise would not be able to survive in natural conditions. Increasing the

oyster population in heavily polluted estuaries would create a natural filter

and improve water quality in these areas.

845. Lalu Bakti, (Prof., Mataram U., Indonesia), INNOVATIVE

METHODS OF MARINE ECOSYSTEM RESTORATION, 2013, 60. The

Biorock coral rehabilitation method can increase the growth rates of coral.

Robbe et al. report the Biorock reef restoration project on the Gili Islandshas been regenerating coral reefs for seven years. They add that measurablesuccess can be clearly seen with regard to fish populations, coral growth

and survival rates, ecotourism, education, and the halting of beach erosion.

846. Neviaty Zamani (Prof., Bogor Agricultural U., Indonesia),

INNOVATIVE METHODS OF MARINE ECOSYSTEM

RESTORATION, 2013, 82. The Biorock method, invented, developed, andpatented by the late Prof. Wolf Hilbertz and Dr. Thomas J. Goreau, uses

low-voltage direct current (between 1.2 and 12 V) to grow solid limestone

minerals on conductive substrates. The minerals grown are naturally presentin large amounts in seawater but do not crystallize by themselves. These

current are safe to humans and all marine organisms. There is no limit in

principle to the size and shape of Biorock structures.

847. Lalu Bakti, (Prof., Mataram U., Indonesia), INNOVATIVE

METHODS OF MARINE ECOSYSTEM RESTORATION, 2013, 62.

Biorock technology acts to catalyze the natural reaction and enables coral

growth two to six times faster than in usual conditions. Normally coral

grows only around centimeters per year, so faster growth is a highly

efficient way to restore damaged reefs. Moreover, corals on Biorock

structures are more resistant to hazards they face.

EVIDENCE BAYLOR BRIEFS 127

848. Nikola Berger, (City U. of New York), INNOVATIVE METHODS

OF MARINE ECOSYSTEM RESTORATION, 2013, 153. Restoring oysterbeds or reefs is important to protect shorelines from erosion, restore water

quality, and supply the human demand for harvest. The first stage of

restoring oyster reefs is to supply a hard layer where the oyster larvae can

attach (SCORE). A unique strategy to do so is to grow limestone mineralsfrom seawater, the natural material that makes up oyster shell and thepreferred substrate for larvae to settle and become spat. The Biorockprocess does this precisely by utilizing low-voltage electrical currents.

849. Thomas Goreau, (Global Coral Reef Alliance, Cambridge Mass.),

INNOVATIVE METHODS OF MARINE ECOSYSTEM

RESTORATION, 2013, 267. The Biorock electrical fields apparently cause

larvae of many species to move toward the negatively charged Biorock reef,

greatly accelerating recruitment rates. Biorock reefs therefore quickly

become oases of biodiversity that stand out from their surroundings.

850. Steve Kolian, (Dir., EcoRigs Non-Profit Corporation), ECOSYSTEMBASED

MANAGEMENT, Apr. 29, 2011. Retrieved Mar. 10, 2014 from

http://www.whitehouse.gov/sites/default/files/microsites/ceq/ecosystem\_based\_management\_comments\_1.24.11-4.29.11.pdf. The Louisiana continental

shelf is home to 3,600 oil and gas platforms in a region known as the

“fertile crescent”. The populations of fish are up to two orders of magnitudegreater in number per unit area offshore of Louisiana than off of our

neighboring states. Because of this disparity in populations and thus

potential yield, it is very difficult to construct and calibrate a single fisheriesmodel to manage Florida and Louisiana. Louisiana’s soils, nutrient levels,

highly angular coastline, extensive deltaic coastal wetlands and fresh water

discharge to the Gulf of Mexico create vastly different ecological conditionsto those associated with other Gulf states.

851. Heartland Institute, U.S. OFFICIAL NEWS, Jan. 23, 2014. Retrieved

Apr. 16, 2014 from Nexis. In a stunning example of the natural world's

remarkable ability to bounce back from ecological decline, the coral reefssurrounding Little Cayman Island in the Caribbean Sea — all but writtenoff as dead by some marine scientists a decade ago — are rapidly regaining

their health. Bleaching, blamed by global warming activists on warmerocean water, and the spread of infectious disease, took a heavy toll on the

reefs around the turn of the century. From 1999 to 2004, live coral cover

declined by more than 40 percent. But a 13-year study conducted by theUniversity of Florida and Caribbean researchers and released in November2013 found the amount of live coral on the reefs, the density of young

colonies critical to the reefs' future health, and the overall size of corals

have returned to 1999 levels.

852. Peter Kareiva, (Chief Scientist, Nature Conservancy),

CONSERVATION SCIENCE: BALANCING THE NEEDS OF PEOPLE

AND NATURE, 2011, 236. The second ray of hope is that reefs can berestored. In fact, corals sometimes recover on their own if left undisturbed

for long enough. Divers recently documented the dramatic recovery of coral

reefs around the Bikini Atoll—an area that was obliterated by the testing of

a 15-megaton hydrogen bomb in 1954.

853. Daniel Chiras, (Prof., Ecology, Colorado College), NATURAL

RESOURCE CONSERVATION: MANAGEMENT FOR A

SUSTAINABLE FUTURE, 2010, 331. In 2004, the oceans providedapproximately 104 million metric tons of food — mostly fish such as tuna,

shellfish such as clams, and aquaculture — out of a total of 140.5 million

metric tons for marine and freshwater fisheries, according to the FAO

Fisheries and Aquaculture Department. China remains by far the largest

producer, with reported fisheries production of 47.5 million metric tons in2004.

854. Carol Turley, (Researcher, Plymouth Marine Laboratory), OCEAN

ACIDIFICATION, 2011, 251. Fish provide 16% of annual protein

consumption for around 3 billion people worldwide and global fish

production in 2004 was valued at US$150 billion per annum. Fish is theprimary protein source for about 1 billion people. In low-income food-

deficient countries fisheries can make up 22% of animal protein

consumption, whilst in many coastal communities the percentage can be

considerably higher.

855. R. Quentin Grafton, (Prof., Economics, Crawford School of

Economics), HANDBOOK OF MARINE FISHERIES CONSERVATIONAND MANAGEMENT, 2010, 3. The world harvest of capture fisheriesreached a plateau in the early 1990s at about 85 million metric tons, and

much of the future supply of fish will come largely from aquaculture.

Aquaculture already supplies about half of the fish people directly consume.

856. Frank Asche, (Prof., Economics, U. of Stavanger, Norway),

HANDBOOK OF MARINE FISHERIES CONSERVATION AND

MANAGEMENT, 2010, 60. If the current trend continues, in 2009

aquaculture will be as important as wild fisheries as a provider of seafood

for human consumption. Given the status of global fisheries, with a majorityof fish stocks being either fully exploited or overexploited, aquaculture has

to provide growth if the seafood sector is to be able to maintain or increase

its global seafood supply per capita. Fortunately, the aquaculture sectorseems well positioned to succeed in this respect.

857. Juliet Eilperin, (Staff), WASHINGTON POST, June 11, 2011, A4.

China and the rest of Asia account for 91 percent of the world's cultivated

seafood, the report found, while North America produces just 1.9 percent.

858. Cornelia Dean, (Staff), NEW YORK TIMES, Feb. 10, 2011, A14.

Aquaculture has been growing rapidly worldwide, and in 2009, farmed fish

and shellfish surpassed wild-caught stocks as the major source of seafood

worldwide. NOAA estimates that 84 percent of the seafood consumed in the

United States is now imported, and half of that is produced through

aquaculture.

859. Kristen Johns, (J.D.), SOUTHERN CALIFORNIA LAW REVIEW,

Mar. 2013, 685. Specifically, Part II will explain why the ever-increasing

demand for seafood will lead to a rise in aquaculture production. As the

industry moves offshore into the federal waters of the open ocean (known

as the exclusive economic zone, or "EEZ"), explicit regulations are needed

to promote the offshore industry's development as well as to address its

environmental effects.

860. Kristen Johns, (J.D.), SOUTHERN CALIFORNIA LAW REVIEW,

Mar. 2013, 684. Traditionally, U.S. aquaculture farms are located inland,

typically in ponds or tanks that grow freshwater fish. However, as

Americans come to prefer products grown in the sea rather than in

freshwater — saltwater shrimp is the number one imported seafood product

— marine aquaculture operations are sure to grow. Most marine farms arecurrently located nearshore or in state-owned coastal waters; however, as

competition for space near the coast increases, the industry will inevitably

move offshore.

861. Kristen Johns, (J.D.), SOUTHERN CALIFORNIA LAW REVIEW,

Mar. 2013, 691. According to Kona Blue CEO and cofounder Neil Sims,

the most difficult aspect of launching a commercial project in federal waters

is the permit process. Under existing law, there is no way to obtain an

aquaculture permit for operation in federal waters. Instead, aquaculturists

must navigate their way through a bewildering array of authorities and

jurisdictions. Several government agencies have a hand in aquaculture andcan issue permits for their respective responsibilities, including the NationalOceanic and Atmospheric Administration (regulating fisheries), the ArmyCorps of Engineers (regulating navigation), the Environmental Protection

Agency (water quality), and the Food and Drug Administration (foodsafety) — yet no agency has the ultimate authority to issue an aquaculturepermit in federal waters.

862. Kristen Johns, (J.D.), SOUTHERN CALIFORNIA LAW REVIEW,

Mar. 2013, 699-700. The most significant consequence of allowing multiple

agencies to invoke regulatory authority over different aspects of offshoreaquaculture is that there is currently no centralized or streamlined process

for obtaining a permit to operate a farm in federal waters. As discussed in

Part II.C, the permitting process is often cited as the single greatestconstraint to offshore aquaculture development. Because there is no specificpermitting system for offshore aquaculture, multiple agencies have invokedtheir authority to require permits for various aspects of the aquacultureactivities. This complex multiagency permitting system is confusing, time-

consuming, and costly.

863. Alex Steffen, (Journalist & Editor, Worldchanging.org),

WORLDCHANGING: A USER’S GUIDE FOR THE 21ST CENTURY,

2011, 516. Farmed fish, shellfish, and crustaceans represent almost one-

third of the seafood we eat today. With worldwide demand for seafood on

the rise and most wild fisheries going under, aquaculture has become a

lucrative business. The industry and its methods have their critics, but notall aquaculture is bad.

864. Kristen Johns, (J.D.), SOUTHERN CALIFORNIA LAW REVIEW,

Mar. 2013, 719. The [National Sustainable Offshore Aquaculture] Act also

satisfies the third aspect of an effective regulatory system: a process for

environmental review and monitoring. It establishes rigorous environmental

standards to guide federal rulemaking and industry performances. These

standards address some of the major environmental concerns associated

with offshore aquaculture, including fish escapes, disease, pollution,

chemicals, and impacts on wildlife and predators. For instance, the Act

allows fish to be cultured only if they are native to the local ecosystem and

prohibits the culture of genetically modified species, decreasing the risk ofharm to native fish populations in the event of escape.

865. Kristen Johns, (J.D.), SOUTHERN CALIFORNIA LAW REVIEW,

Mar. 2013, 694. Biological pollution may be caused by the unintentional

release of farmed fish into the ocean, which can harm native fish

populations in a number of ways. Nonnative farmed fish can compete with

native fish for food, habitat, or spawning grounds. In the Pacific Northwest,

escaped fish from salmon farms have threatened or displaced native salmonpopulations for years, while many scientists believe nonnative escaped fishcontributed to the extinction and endangerment of several native fishspecies, such as the bonytail and humpback chubs, the desert pupfish, the

Gulf sturgeon, and the June and razorback suckers.

866. Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting),

THE ATLAS OF COASTS & OCEANS: ECOSYSTEMS, THREATENED

RESOURCES, MARINE CONSERVATION, 2011, 67. The complete lackof coastal management plans in many developing countries has contributed

to the rush to develop new fish and shellfish pond cultures. The wastes fromthese operations — uneaten feed, feces, and chemicals — unless disposed

of properly, contribute to coastal and near-shore pollution, degrading water

quality and harming wild stocks.

EVIDENCE BAYLOR BRIEFS 128

867. Elizabeth DeSombre, (Prof., Environmental Science, Wellesley

College), FISH, 2011, 129-130. Concentrations of antibiotics also remain in

the farmed fish, which may have health effects in humans (or may not —

the evidence is not yet clear on this issue). The use of antibiotics is not

specific to shrimp aquaculture; it can be found in some tilapia farming

operations, and can be a problem in salmon farms as well, as discussed

below. The denser the concentration of fish in any aquaculture operation,

the more likely that widespread antibiotic use will be necessary to keep thefish alive.

868. Paul Greenberg, (Staff, National Geographic), FOUR FISH: THE

FUTURE OF THE LAST WILD FOOD, 2010, 252. With salmon there is

ample evidence to suggest that the culture of farmed variants in closeproximity to wild strains can negatively affect wild populations over time.

Indeed, if one compares the fate of Atlantic salmon with that of the

American striped bass, two fish that were dangerously reduced in the wild

and then domesticated, it is instructive to compare their respective fates.

Wild salmon populations have generally declined in Maine, Atlantic

Canada, and Europe in areas where they interact with farmed salmon.

869. Mark Kurlansky, (Journalist), WORLD WITHOUT FISH, 2011, 89. Insome ways, the idea of fish farming seems like a good one. But upon closer

examination, supplying people with farmed fish doesn't actually save wild

fish at sea. Most farmed fish are fed wild fish that are caught by net

draggers the size of factories. These ships indiscriminately scoop up fish bythe thousands and grind them up into fish meal, which is then pressed intofish pellets to feed to the fish back on the farm. In the case of salmon, it hasbeen estimated that four pounds of wild fish are fed to grow one pound offarmed fish.

870. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 253.

Aquaculture also suffers problems of husbandry. Farmed fish, like any

animals kept at high density, are troubled by diseases and parasites. Tocombat infection and infestation, most farmers dose animals in ponds and

pens with antibiotics, pesticides, and fungicides. Since pens are mostly open

to the sea, these chemicals spread pollution far beyond the bounds of farms.

Nor are these problems confined to captive fish. Take salmon farms, forexample, that are mostly located in estuaries that lead directly to rivers

inhabited by wild fish. Adult salmon in the wild rarely come into contactwith juveniles, because they either die after spawning or return to sea beforethe young hatch.

871. Carmel Finley, (Prof., History, Oregon State U.), ALL THE FISH IN

THE SEA: MAXIMUM SUSTAINABLE YIELD AND THE FAILURE

OF FISHERIES MANAGEMENT, 2011, 7. It was not until 2003, when

two researchers at Dalhousie University in Halifax began to look past the

case studies of individual instances of fish decline to what was happeningmore broadly throughout the oceans. Instead of a single case study of onefish, Ransom Myers and Boris Worm looked at dozens of fisheries, plotting

the escalating harvest throughout the world's oceans, changing the scalefrom the individual to the global. They argued that the development of

industrial fishing after World War II was responsible for removing up to 90percent of the largest fish in the oceans.

872. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

58. The first fish to be taken from an unexploited population are the largest

and oldest, the "old timers" that have demonstrated superior survival traits.

They are also the ones that produce the most offspring. When they go, hard-

won experience as well as reproductive capacity goes, too.

873. Paul Snelgrove, (Prof., Oceanography, Memorial U., Newfoundland),

DISCOVERIES OF THE CENSUS OF MARINE LIFE: MAKING

OCEAN LIFE COUNT, 2010, 223. The effects of whole-scale removal of

apex predators can cascade through the entire food web, altering species

that are not directly related to fishing. Precipitous declines in all 11 species

of great sharks in the Northwest Atlantic ecosystem allowed increases of

cownose rays that prey on scallops and may have caused the demise of a

century-old scallop fishery. In the Pacific, declines of 21% in numbers and

50% in size of sharks and tuna since the 1970s coincided with increases of a

few small species that were insufficient to replace the lost biomass.

874. Brooke Glass-O’Shea, (Prof., Law, Haramaya U., Ethiopia), WESTNORTHWEST

JOURNAL OF ENVIRONMENTAL LAW & POLICY,

Summer 2011, 193. Oceanic habitat is destroyed by enormous trawling

ships, which drag huge weighted nets across the continental shelf,

sometimes covering an entire fishery in less than a year.

875. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 208.

There is another form of injury to marine life that in scale and severitydwarfs the impacts from scuba divers: bottom trawling and dredging. When

a trawl net is dragged across the seabed it causes immense collateraldamage to anything that lives on or near the ocean floor. The footrope of a

trawl is designed to run close to the seabed. Sometimes it is weighted and

other times it has rollers to enable it to work over rougher areas. In manybeam trawls, where the net is held open by a heavy steel beam that drags

above the bottom on metal runners, there are several "tickler" chains set

ahead of the net mouth to scare up fish that hug the bottom, such as plaice,

sole, and flounder. Footropes and chains slice off marine life like corals,

sponges, sea fans, and seaweeds. Ahead of the net, they catch boulders that

can be yards across, sometimes entire chunks of living reef, and then roll

them along the bottom as the net is towed.

876. Elizabeth DeSombre, (Prof., Environmental Science, Wellesley

College), FISH, 2011, 42. Although all trawling leads to bycatch, bottom-

trawling is particularly harmful to the ecosystems in which it takes place,

because it can harm structures on the ocean floor, such a deep water coralreefs and seaweed, on which fish and other aquatic creatures depend. It alsostirs up sediment that clouds the water, and can stir up pollutants, causingharm to the species that live there.

877. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 309. The

car crash of bluefin tuna management is a perfect example of all that iswrong with the system. Bluefin tuna are hugely valuable (in part becausethey are now rare) so nations are reluctant to stop fishing them, even when

scientists are virtually unanimous in saying that this is what must happen

for the stock to recover. Countries are so busy competing with one another

for a slice of the pie that they seem blind to the fact that every year the pie issmaller. Prince Charles summed up the folly of this behavior beautifully: "Itseems one thing to destroy a species out of ignorance; but it is totallyanother to destroy it in the full knowledge of what we are doing."

878. Jason Scorse, (Prof., Environmental Science, Monterey Institute of

International Studies), WHAT ENVIRONMENTALISTS NEED TO

KNOW ABOUT ECONOMICS, 2010, 13. Given the open access nature of

the world's fisheries, if one company decides to stop fishing in order toallow the species to recover, there is nothing stopping another companyfrom taking the fish for themselves. This produces a very shortsighted "race

to the bottom" mentality that we observe in virtually all of the ocean's

international waters, and even domestic waters where property rights are notclearly defined. It is no surprise that fish stocks are at or near levels ofcollapse globally as a result.

879. Jason Scorse, (Prof., Environmental Science, Monterey Institute of

International Studies), WHAT ENVIRONMENTALISTS NEED TO

KNOW ABOUT ECONOMICS, 2010, 152. Overfishing and the threats it

poses to the health of marine ecosystems is a serious problem that is only

getting worse as population grows and people become wealthier, increasing

the demand for seafood. The problems are exacerbated because most of theoceans are "open access" resources that face unlimited exploitation from

fleets of powerful fishing vessels, many of which are subsidized by theirrespective governments.

880. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 309. The

perversity of political decision making is mirrored within the industry itself.

Both are manifestations of "the tragedy of the commons." Fishermen will

try to take as much as they can to maximize their own gains, even though

they would all be better off in the long run if they exercised restraint.

881. Greenpeace International, OCEANS IN THE BALANCE: THE CRISISFACING OUR WATERS, 2013, 3. Overfishing, pirate fishing, and destructive and

unsustainable fishing methods are some of the main causes of ocean destruction

and the collapse of fish populations. Giant factory ships are using state-of-the-art

equipment to locate and literally vacuum entire schools of fish out of the water.

These industrial fishing fleets target one species at a time, deplete it and then turn

to another species, threatening the very future of our oceans’ ability to sustain

life on Earth.

882. Natalie Harrison, (Editor), UNIVERSITY OF MIAMI LAW

REVIEW, Fall 2013, 190. At a local scale, overfishing destabilizes the coralreef ecosystem through the removal of both large predators and smallerherbivorous fish. Corals are particularly sensitive to overfishing of certain

groups of fish that graze on algae, which would otherwise outcompetecorals.

883. Margaret Young, (Prof., Law, Melbourne Law School, Australia),

TRADING FISH, SAVING FISH: THE INTERACTION BETWEEN

REGIMES IN INTERNATIONAL LAW, 2011, 190. Modern fishingtechniques are often indiscriminate and cover extensive marine areas, with

the result that many non-targeted marine species are caught in wide nets andother fishing gear. According to some estimates, 38 million tonnes, or at

least 40 per cent of global marine production, is caught as by-catch every

year.

EVIDENCE BAYLOR BRIEFS 129

884. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

58. Baited hooks attract more than the desired species, causing an"incidental catch" of birds, mammals, turtles, and numerous unintended

fish. Drift nets, like trawls, take everything too large to get through the

mesh. Traps for fish, lobsters, and crabs capture and kill many other kindsof fish and invertebrates. Imagine trying to selectively extract just the

lawyers out of New York City!

885. Margaret Young, (Prof., Law, Melbourne Law School, Australia),

TRADING FISH, SAVING FISH: THE INTERACTION BETWEEN

REGIMES IN INTERNATIONAL LAW, 2011, 190. The harvesting ofshrimp, one of the most important globally traded fishery commodities,

contributes to large-scale drowning or killing of non-target species.

Threatened and high-profile species that are caught as bycatch by shrimptrawling techniques include dolphins, seahorses, dugongs, albatrosses,

penguins and—prominently—sea turtles. Sea turtles, which are listed as

endangered in Appendix I of CITES, are particularly threatened by shrimpfisheries. Their nesting sites and feeding grounds are often located near the

most intensely trawled waters, and their entanglement and capture in shrimptrawls has been identified as causing more sea turtle mortality than all other

human activities combined.

886. Stuart Kaye, (Prof., Law, U. Western Australia), CLIMATE CHANGEAND THE OCEANS: GAUGING THE LEGAL AND POLICY

CURRENTS IN THE ASIA PACIFIC AND BEYOND, 2012, 154. The

implications of a movement of fish stocks are significant from an ecological

point of view. Fisheries represent a significant part of the diet of billions of

people, and the movement or decline of key stocks could have catastrophic

impacts upon the well-being of hundreds of millions of people, most

notably in East and South Asia, coastal Africa and South America.

887. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 216-217.

A billion people rely on seafood as their main source of animal protein

today, most of them in the developing world. The continued decline of wild

fisheries threatens malnourishment for many more by the middle of this

century.

888. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 51. Big,

old, fat fish produce far more offspring than their young, lithe, and smaller

brethren. Their size and experience give them an edge. Their eggs are betterprovisioned than those of small fish, so more of them survive the dangers ofearly life. But fishing has dismantled the dominion of the old in the span ofa century or two, and evolution has begun to work in a different direction.

889. Jason Link, (Fisheries Biologist, National Marine Fisheries Service),

ECOSYSTEM-BASED FISHERIES MANAGEMENT: CONFRONTING

TRADEOFFS, 2010, 4. There is growing evidence that we are "fishing

down the food web", or at least through it, by removing upper trophic level

predators or the functional redundancies in a system. This includes not only

large fishes like tunas, swordfishes, or sharks, but also many marine

mammals. Conversely, there is a notable increase in small pelagic fishesand their associated fisheries, as well as a noted increase in invertebrate

fisheries.

890. Rashid Sumaila, (Dir., Fisheries Center, U. of British Columbia),

SHIFTING BASELINES: THE PAST AND FUTURE OF OCEAN

FISHERIES, 2011, 25-27. Historically, the answer to local overfishing has

been to "move on," down the food web, toward deeper waters, and to other

areas or regions of the world. Excess fishing effort by European vessels, forexample, has traditionally been exported toward West Africa. Alder and

Sumaila have demonstrated how this region of the world has attracted anincreasing number of distant water fleets from western and eastern Europe,

and from Asia between 1960 and 2000. The result has been steep declines

in biomass in the waters off West Africa.

891. Mansel Blackford, (Prof., History, Ohio State U.), MAKING

SEAFOOD SUSTAINABLE: AMERICAN EXPERIENCES IN GLOBAL

PERSPECTIVE, 2012, 36. The collapse of the cod fisheries of the

Northwest Atlantic imposed tremendous damage on people and their towns.

In 2009, only 600 fishing boats remained active in the New England fleet,

half the number that went to sea in 2001. About 30,000 of Newfoundland's

total 570,000 residents, a figure that includes all women and children, were

unemployed in 1997, even after 3 percent of the province's people had left

between 1991 and 1996 alone. Among young adult males who stayed in

their home ports the unemployment rate soared.

892. Mary Ann Palma, (Research Fellow, Australian National Center forOcean Resources and Security), PROMOTING SUSTAINABLE

FISHERIES, 2010, 4. Illegal, unreported, and unregulated fishing or "IUU

fishing" is a term popularised by the FAO International Plan of Action to

Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing

(IPOA-IUU) adopted in 2001. The term encompasses most of the issues

identified above as contributing to the decline of global fisheries resources.

According to the Report of the United Nations (UN) Secretary-General,

IUU fishing is considered as "one of the most severe problems affectingworld fisheries" and the "main obstacle in achieving sustainable fisheries inboth areas under national jurisdiction and the high seas." IUU fishing is also

regarded as one of the factors that can lead to the collapse of fisheries

resources or that which can seriously affect efforts to rebuild fish stocks

which have already been depleted.

893. Mary Ann Palma, (Research Fellow, Australian National Center forOcean Resources and Security), PROMOTING SUSTAINABLE

FISHERIES, 2010, 5. It is estimated that IUU fishing accounts for almost

one third of the total catch in some important fisheries and may represent anoverall cost to developing countries of between USD2 billion to USD15

billion a year.

894. Jason Scorse, (Prof., Environmental Science, Monterey Institute of

International Studies), WHAT ENVIRONMENTALISTS NEED TO

KNOW ABOUT ECONOMICS, 2010, 145. This decline of the world's

fisheries is easy to explain: virtually all of the oceans are "open access"

resources, and fishermen, fueled by a surge in demand for seafood, harvest

as much fish as they can resulting in unsustainable rates of fishing. Not only

has demand for seafood skyrocketed, but also technology for catching fishhas improved dramatically; many large commercial fleets employ

sophisticated sonar systems costing hundreds of thousands of dollars and

nets hundreds of meters long.

895. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

59. Perhaps the most important flaw in the MSY concept is that it regards

fish and other ocean wildlife first and foremost as commodities, with an

implied obligation to take them as such. The important functions of intact

ocean systems that benefit people everywhere (generating oxygen, takingup carbon, maintaining biodiversity, driving the water cycle, shapingplanetary chemistry, holding the planet steady, and so on) are put aside in

favor of single-minded extraction of salable products, benefiting relatively

few.

896. Kevin Bailey, (Senior Scientist, Alaska Fisheries Science Center),

BILLION-DOLLAR FISH: THE UNTOLD STORY OF ALASKA

POLLACK, 2013, 181. Several questions arise, given that rights-basedfisheries are profiting. Why continue to use public funds to support fisheries

research and enforcement and the decision-making process? Federal

subsidies to the US fishing industry are estimated at $6.4 billion from 1996to 2004, not including funds for fisheries management, port construction,

and maintenance! Subsidies during that period were worth about $420

million to fisheries in Alaska. And why are the rights handed down inperpetuity rather than for the generation time of the target fish when theyare assigned?

897. Elizabeth DeSombre, (Prof., Environmental Science, Wellesley

College), FISH, 2011, 161. There are three general reasons why the fishingindustry is so heavily subsidized. The first is the same reason that industriesin general can often attract government subsidies. Industries are

concentrated, and it makes economic sense for them to invest in extensive

lobbying of the government for special privileges. Taxpayers and

consumers (and environmentalists in this case) are a more diffuse group,

and are therefore less likely to lobby effectively to prevent rules that cost

taxpayers and consumers money, and harm the environment. This

phenomenon is seen in the regulation of many industries, though, and doesnot explain why fishing is more heavily subsidized than most industries.

898. J. Samuel Barkin, (Prof., International Relations, U. Massachusetts at

Boston), SAVING GLOBAL FISHERIES: REDUCING FISHING

CAPACITY TO PROMOTE SUSTAINABILITY, 2013, 149. The

expansion of the fishing industry as a tool of economic development

contributes to a global problem of overfishing. It increases capacity in a

world in which there is already too much capacity, thereby putting

additional pressure on management strategies that are already failing. But itis also the case that expansion of the fishing industry as a tool of economic

development is likely to fail in its own terms as well.

899. Will Swartz, (Research Scientist, World Trade Organization), THE

OCEAN AS A GLOBAL SYSTEM, 2013, 30-31. One of the main sources

of perverse economic signals encouraging over-fishing is the provision ofinappropriate government subsidies that artificially generate profit in

unprofitable fishing operations. Fisheries subsidies have been provided for a

wide range of purposes, including stimulating industry development and

supporting regional and rural communities. While it is unreasonable to

suggest that fisheries subsidies are implemented in a deliberately destructive

way, the economic incentives that such programs create can lead to

overcapacity and overfishing.

900. Anastasia Telesetsky, (Prof., Law, U. Idaho College of Law), MAINELAW REVIEW, 2013, 630. The proponents of "maximum sustainable

yield" as the foundation for global fishery management never took intoaccount the possibility of government subsidies to the fishing industryfunding what would otherwise be unprofitable fishing. In fact, the Law ofthe Sea Convention never directly mentioned subsidies.

901. John Roff, (Prof., Environmental Science, Acadia U.), MARINE

CONSERVATION ECOLOGY, 2011, 288. The single-species approach,

however well intentioned and applied, is subject to the political whims of

governments, which are rarely willing to fundamentally reform fisheries

policies.

EVIDENCE BAYLOR BRIEFS 130

902. John Roff, (Prof., Environmental Science, Acadia U.), MARINE

CONSERVATION ECOLOGY, 2011, 288-289. Guerry eloquentlysummarized the reasons for the failure of traditional species-based

approaches as follows: fragmented ocean governance where the fishery as a

commons resource has led to jurisdictions competing for the resources;

inability to maintain ecosystem elements, such as water quality or spawning

habitat necessary to sustain successful fisheries; inability to manage diverse,

non-fisheries-related impacts, including pollution, habitat loss,

overharvesting, climate change and introduced species; and lack of

recognition of connections between ecosystem structure, functioning, and

services)

903. Tim McHugh, (Staff, Ocean Conservancy), IMPERILED SOUTH

ATLANTIC FISH LEFT UNPROTECTED. June 8, 2012. Retrieved Feb.

14, 2014 from http://www.oceanconservancy.org/who-weare/

newsroom/2012/ imperiled-south-atlantic-fish.html. Two criticallyimperiled species of deepwater grouper – speckled hind and Warsaw

grouper – must be protected from overfishing immediately, according to alawsuit filed today by the Natural Resources Defense Council and Ocean

Conservancy. “The government arbitrarily removed protections necessaryto stop overfishing these extremely vulnerable species,” said NRDC

attorney David Newman. “Healthy fish populations mean a healthy fishing

industry into the future. By providing immediate protections, we ensurethey will still be there for our children and our grandchildren to catch.”

904. Tim McHugh, (Staff, Ocean Conservancy), IMPERILED SOUTH

ATLANTIC FISH LEFT UNPROTECTED. June 8, 2012. Retrieved Feb.

14, 2014 from http://www.oceanconservancy.org/who-weare/

newsroom/2012/ imperiled-south-atlantic-fish.html. Speckled hind andWarsaw grouper are “extremely vulnerable to overfishing,” according to the

National Marine Fisheries Service (NMFS), as they grow slowly, can live

up to 40 years, and tend to spawn in groups. The International Union for theConservation of Nature classifies Warsaw grouper and speckled hind as

“critically endangered,” and they are listed as “endangered” by the

American Fisheries Society. NMFS has listed both as “Species of Concern,”

one step short of Endangered Species Act listing.

905. Elizabeth DeSombre, (Prof., Environmental Science, Wellesley

College), FISH, 2011, 155. Even though consumer awareness is valuable, a

strategy that relies on all individual consumers making environmentally

aware seafood purchasing decisions is unlikely to succeed. Althoughconsumer pressure initially may lead to these larger collective decisions to

sell only sustainable fish products, taking the decision away from the

consumer increases the number of people who ultimately eat only certified

fish when they eat fish.

906. Becky Mansfield, (Prof., Geography, Ohio State U.), GLOBAL

POLITICAL ECOLOGY, 2011, 96. The whole idea of property rights

regimes in fisheries is to give some people access while excluding others.

Quota programs can be designed to benefit different groups of people over

time, but this does not negate the fact that (unless they aren't working as

intended!) property-rights approaches provide the resource to some and take

it away from others. Because quota permits become another expensive itemthat fishers must own in order to fish — the boat, the gear, and now the

quota permit — in most cases those who are already better off will benefit

the most. Those with access to capital will be able to buy quota permits and

expand their operations, and those without will reduce the amount they fish,

or stop altogether.

907. Becky Mansfield, (Prof., Geography, Ohio State U.), GLOBAL

POLITICAL ECOLOGY, 2011, 96. Privatized quotas on their own do

nothing to prevent overfishing, while they do much to encourage further

consolidation of fishing into the hands of the wealthy, and therefore to

increase inequality. In other words, quota programs encourage the further

demise of small-scale fishing and intensification of industrial fishing, and

do so in the name of conservation!

908. Becky Mansfield, (Prof., Geography, Ohio State U.), GLOBAL

POLITICAL ECOLOGY, 2011, 96. Using quota programs to enclose theoceans as private property is the latest means for turning fisheries into the

modern, capitalist, industrial enterprise that has been envisioned and

encouraged for decades. Because quota programs are rooted in notions of

individual rationality and the necessity of private property, they are not only

completely consistent with this vision of capitalist economic development,

but in fact extend it in new ways.

909. J. Samuel Barkin, (Prof., International Relations, U. Massachusetts at

Boston), SAVING GLOBAL FISHERIES: REDUCING FISHING

CAPACITY TO PROMOTE SUSTAINABILITY, 2013, 188. If fishers are

required to hold (or buy) allocations for all fish species they catch,

nontarget species are not just unintended, but actively costly, a problemremedied by discarding rather than by landing the unsought species.

Whether these fish are thrown back or kept, they are no longer available inthe fishery because fish returned to the ocean after being caught rarely

survive.

910. J. Samuel Barkin, (Prof., International Relations, U. Massachusetts at

Boston), SAVING GLOBAL FISHERIES: REDUCING FISHING

CAPACITY TO PROMOTE SUSTAINABILITY, 2013, 189. Fishers may

also still engage in "high grading," a process by which fishers who areallowed to take only a limited amount of fish want to land those of the

highest quality or that will fetch the highest price, so they catch more fishthan they are allocated, keep the best ones, and throw the less desirable ones

overboard.

911. Elizabeth DeSombre, (Prof., Environmental Science, Wellesley

College), FISH, 2011, 106. Protected areas in the ocean are referred to asmarine protected areas (MPAs); the areas that disallow harvesting

altogether are sometimes called marine reserves, to distinguish them frommarine areas protected in other ways. The areas chosen as MPAs are often

those where the ocean's resources are particularly vulnerable.

912. Joachim Claudet, (Scientist, National Center for Scientific Research),

MARINE PROTECTED AREAS, 2011, 2. A Marine Protected Area is

defined as a discrete geographic area of the sea established by international,

national, territorial, tribal, or local laws designated to enhance the long-termconservation of natural resources therein.

913. Erich Hoyt, (Sr. Research Fellow, Massachusetts Institute of

Technology), MARINE PROTECTED AREAS FOR WHALES,

DOLPHINS, AND PORPOISES, 2011, 82-83. We must plan future marineand freshwater protected areas in light of predicted climate change so that

they are located in optimal conditions and have the best possible size andconnectivity. This will begin to enhance the resilience of marine systems,

and then MPAs and PAs can become part of a comprehensive adaptive

management strategy for addressing the impacts of climate change.

914. Erich Hoyt, (Sr. Research Fellow, Massachusetts Institute of

Technology), MARINE PROTECTED AREAS FOR WHALES,

DOLPHINS, AND PORPOISES, 2011, 88. An MPA network is not just

any system of MPAs. An MPA network can be defined as 'an organizedcollection of individual MPAs operating co-operatively and synergistically,

at various spatial scales and with a range of protection levels, to fulfill

ecological aims more effectively and comprehensively than individual sites

could alone'.

915. Rashid Sumaila, (Dir., Fisheries Center, U. of British Columbia),

SHIFTING BASELINES: THE PAST AND FUTURE OF OCEAN

FISHERIES, 2011, 28. The loss of this natural protection, moreover, is not

compensated for by the establishment of marine protected areas, whichpresently cover only about 0.7 percent of the area of the world's ocean.

916. Peter Kareiva, (Chief Scientist, Nature Conservancy),

CONSERVATION SCIENCE: BALANCING THE NEEDS OF PEOPLE

AND NATURE, 2011, 119. Between 1984 and 2006, the worldwide area

covered by MPAs grew at a rate of 4.6% per year. Extrapolating this rate

into the future, the goal of protecting 10% of the areas within 200 nautical

miles of land, originally set for 2010, will not be met until 2047. The more

ambitious goal of protecting 10% of the entire ocean area by 2010 will notbe met until 2067. And if the growth rate falls below 4.6% per year, it willtake even longer to reach these goals.

917. Alex Steffen, (Journalist & Editor, Worldchanging.org),

WORLDCHANGING: A USER’S GUIDE FOR THE 21ST CENTURY,

2011, 512. The least-protected ecosystem on the planet is that of our oceans.

As Sylvia Earle, oceanographer and pioneering deep sea explorer, noted

when she accepted the TED Prize in 2009, only a fraction of 1 percent of

our seas is protected. Even in highly sensitive—and highly protected—

areas, conservation stops at the shoreline. The land of the Antarctic or of theGalapagos Islands is protected, but the surrounding waters are still open tonumerous destructive practices such as fishing and dumping.

918. Jason Scorse, (Prof., Environmental Science, Monterey Institute of

International Studies), WHAT ENVIRONMENTALISTS NEED TO

KNOW ABOUT ECONOMICS, 2010, 149. For MPAs to make a

significant impact in stemming the oceans' decline, the hope is for upwards

of 10 to 20 percent of the world's marine ecosystems to eventually comeunder some type of MPA protection.

919. Alistar Hobday, (Scientist, Institute for Marine and Atmospheric

Research, Australia), MARINE PROTECTED AREAS, 2011, 348.

Depending on the exact definition used for a protected area, the total

percentage of the world's oceans in MPAs is between 0.08% (no-take) and

0.65% (all MPA categories). The proportion of pelagic systems in protected

areas does not even register in a recent review of the global MPA network.

Given that the vast majority of MPAs are biased towards benthic features,

both in territorial waters and the high seas, it is likely that <0.1% of pelagic

habitat is currently adequately protected within MPAs.

920. Elizabeth DeSombre, (Prof., Environmental Science, Wellesley

College), FISH, 2011, 108. Currently there are more than 5,000 MPAs,

covering 2.85 million km2, or just shy of one percent of the ocean's area. Ofall protected areas, only one percent are closed to resource harvesting

altogether. Although some conservation organizations have proposed

networks of MPAs that would cover up to 20 percent of the ocean's area,

current measures fall far short of what would be needed for this policy

approach to have a meaningful impact on global-scale fishery conservation.

EVIDENCE

921. Callum Roberts, (Prof., Marine Conservation, U. of York), OCEANS:

THE THREATS TO OUR SEAS, 2010, 229-230. We have much to do to

realize a vision of the world in which the seas are spangled with mosaics of

marine reserves. With just three fifths of 1 percent of the ocean currently

protected, we need fifty times more reserve areas to do the job well, spreadacross the waters of coastal nations and the high seas. This is far more than

many politicians, fishery managers, and even some people in conservation

agencies are willing to countenance. I have spoken to hundreds of them in

my career.

922. Ray Hilborn, (Prof., Aquatic Science, U. Washington),

OVERFISHING: WHAT EVERYONE NEEDS TO KNOW, 2012, 106.

Several international agreements have targets to set aside l0%-20% of theoceans for MPAs, and many countries have their own specific targets for

their own marine regions. Overall, as of 2007, only 1.6% of national

economic zones are in MPAs and only 0.2% are in marine reserves.

923. Erich Hoyt, (Sr. Research Fellow, Massachusetts Institute of

Technology), MARINE PROTECTED AREAS FOR WHALES,

DOLPHINS, AND PORPOISES, 2011, 194. Currently, less than 0.1 percent of US marine waters around the 50 states is highly, or fully, protected

in Category 1A areas. In response to this, and as part of an effort to evaluatethe sanctuaries, the National Academy of Public Administration reviewedthe US National Marine Sanctuary Program in 2000. It determined that the

sanctuaries 'need to take more steps to protect marine resources within theirboundaries, including regulating and prohibiting fishing or other activitieswhen appropriate'. Subsequently, national marine sanctuaries amendmentsspecifically included a restriction on designating new sites until the

programme could show that it had the resources to manage effectively theexisting sites

924. Callum Roberts, (Prof., Marine Conservation, U. of York), OCEANS:

THE THREATS TO OUR SEAS, 2010, 224. On land, protected areas have

proliferated as human populations have grown. Here, compared to the sea,

we have made greater headway in our struggle to maintain the richness andvariety of wildlife and landscape. Twelve percent of the world's land is now

contained in protected areas, whereas the corresponding figure for the sea is

but three-fifths of 1 percent. Worse still, most marine protected areas allow

fishing to continue. Areas off-limits to all exploitation cover something like

one five-thousandth of the total area of the world's seas.

925. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 104. Roberts argues passionately for the

setting up of oceanic reserves to allow recovery of fish populations. In 2007he noted that 'Twelve per cent of the world's land is now contained in

protected areas, whereas the corresponding figure for the sea is but three-

fifths of one per cent. Worse still, most marine protected areas allow fishing

to continue.' Roberts claims that in order to have a significant effect,

reserves would need to cover 30 per cent of the sea with many located in thehigh seas.

926. Kirsten Selvig, (J.D. Candidate), MINNESOTA JOURNAL OF

INTERNATIONAL LAW ONLINE, 2013, 46. Analogous to national parks

on land, MPAs have been increasing in popularity in the past thirty years

within EEZs. This is because a MPA protects an entire habitat, as opposed

to a single species. Such protection conserves the complicated food websthat exist in the marine environment that are critical to maintaining thehealth of any given fish stock. In addition, MPAs protect against harmful

fishing practices that result in a high level of bycatch in a way that single

species protections cannot.

927. Tundi Agardy, (Dir., World Ocean Conservancy), OCEAN ZONING:

MAKING MARINE MANAGEMENT MORE EFFECTIVE, 2010, 24.

There is a fundamental dilemma in ocean management: the scales at whichwe can readily practice effective management, and the scales upon which

marine ecosystems operate, are wholly different. This is not an esoteric

problem; the result of this mismatch of scales is that most of the small-scalemanagement interventions we practice today — regulations regarding a

single fishery or establishment of an MPA — do not add up to effective

protection across the scales of marine or coastal ecosystems, let alone

regions, whole seas or the global ocean.

928. Tundi Agardy, (Dir., World Ocean Conservancy), OCEAN ZONING:

MAKING MARINE MANAGEMENT MORE EFFECTIVE, 2010, 24.

Typical marine marine conservation interventions include marine protectedareas, regulations to protect critical habitat of a species and fisheries

restrictions pertaining to a threatened stock. The size of these responses is

usually far too small to address the bigger (and growing) problems of

unsustainable use of resources, indirect degradation of marine ecosystemsand large-scale declines in environmental quality, such as those broughtabout by climate change, since virtually all the world's nearshore areas

experience multiple threats that act simultaneously to degrade ecosystemsand decrease ecosystem services.

BAYLOR BRIEFS 131

929. Callum Roberts, (Prof., Marine Conservation, U. of York), OCEANS:

THE THREATS TO OUR SEAS, 2010, 228-229. Other scientists have used

more sophisticated approaches to estimate how much of the sea we shouldprotect. Their answers have a great deal of consistency despite the variety ofmethods used to make the calculations. They suggest we need to protect

between 20 percent and 40 percent of the sea from all fishing. Doing thiswill maximize returns to the fishing industry, provide adequate refuges forvulnerable species, sustain genetic variability in populations, and affordprotection to the full spectrum of biodiversity.

930. Callum Roberts, (Prof., Marine Conservation, U. of York), OCEANS:

THE THREATS TO OUR SEAS, 2010, 230. I believe that we need to flip

this paradigm on its head. Rather than thinking that marine reserves

protection should be afforded to only a few species or in only out-of-theway

places, we need to view reserves as the foundation and underpinning

for all other management. According to this view, reserves would coversome 30 percent of the sea, perhaps more in some places.

931. Philippe Sands, (Prof., Law, University College, London),

PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW, 2012,

443. Support for establishing MPAs stems from reasons similar to those that

justify terrestrial protected areas. If properly designed and managed, MPAs

can help protect, recover and maintain fish stocks, ecosystem resilience,

habitat structure and biological diversity.

932. David Biello, (Associate Editor, Scientific American), THE POLITICSOF THE OCEANS, 2011, 150. Although the trend is grim, the study of

protected areas offers some hope that marine ecosystems can rebound,

according to the paper presenting the analysis in the November 3 issue ofScience. The 48 studied showed an overall increase of 23 percent in speciesdiversity and a fourfold increase in available catch. "It's not a miracle. It's

something that is do-able, it's just something that requires a big chunk of

political will to do it," Worm observes. "We have a 1,000-, probably10,000-year habit of taking the oceans for granted and moving from onespecies to the next, or replacing it with a technological fix like aquaculture.

To me, the major roadblock is we have to change our perception of what the

ocean is." Should we fail, we may lose the ocean's bounty entirely.

933. John Roff, (Prof., Environmental Science, Acadia U.), MARINE

CONSERVATION ECOLOGY, 2011, 17. Establishment of MPAs is not

the only thing we need to do to accomplish sustainable management of theoceans. However, it has been repeatedly shown that MPAs are effective notonly in protecting the various habitats of the marine environment — that is,

they have a dominant role in marine preservation — but that they can alsocontribute significantly to the conservation of individual species —

primarily of fish. That is, they have an important role in the sustainable

exploitation of biological resources.

934. Raquel Goni, (Scientist, Institute of Oceanography, Spain), MARINEPROTECTED AREAS, 2011, 88. Our review of MPAs of various types andhistories and in various ecosystems indicates that in successful MPAs with

permeable boundaries, spillover can induce increases in CPUE of target

species in fisheries surrounding MPAs. These increases constitute a yield

surplus and fishers CPUE tends to be higher, although often more variable

due to seasonal processes underlying spillover.

935. Callum Roberts, (Prof., Marine Conservation, U. of York), OCEANS:

THE THREATS TO OUR SEAS, 2010, 226. By providing refuges fromfishing, reserves raise baseline population sizes and allow the development

of more natural age structures. Egg production is increased and can besustained through periods of unfavorable conditions for the survival ofyoung. This restores resilience. Without marine reserves, the runs of bad

years that inevitably strike industries dependent on the environment could

cause population and fishery collapse, as indeed they have done.

936. Callum Roberts, (Prof., Marine Conservation, U. of York), OCEANS:

THE THREATS TO OUR SEAS, 2010, 228. Success in recoveringpopulations will likely be far greater if marine reserves are part of therebuilding package. Georges Bank fisheries have shown promising recoveryof scallops and groundfish because those managers complemented reducedfishing effort with areas closed to trawling and dredging. Within six years,

there were five times more haddock, fourteen times more scallops, and 50

percent more cod, and benefits are spilling into surrounding fisheries. Thoseclosures would have been even more effective if they had been real marinereserves that prohibited all forms of fishing.

937. Ray Hilborn, (Prof., Aquatic Science, U. Washington),

OVERFISHING: WHAT EVERYONE NEEDS TO KNOW, 2012, 107.

Not only will there be more fish but there will also be more species, orhigher biodiversity, inside a reserve. Reserves with overfished surroundingswill typically show a 30% increase in species counts, and the fishes will live

to a ripe old age and trophy size—a natural consequence of not ending life

early on a hook or in a net.

EVIDENCE BAYLOR BRIEFS 132

938. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 297.

Watching reserves refill with life over a span of years, as I have many times

in the Caribbean, is an uplifting experience. Caves, ledges, and overhangs

repopulate with animals that had formerly been scarce, while the blue

waters above thrill again with the flash and strike of predators and prey.

After an absence of ten years I recently revisited a small marine reserve atMolasses Reef in the Florida Keys National Marine Sanctuary, which has

been protected from fishing since the 1970s. I was delighted to find manymore fish than on my first visit, including several kinds that are usuallyabsent from exploited reefs. Three-foot-long blue parrotfish grazed thebottom in amiable groups, their pale flanks a pleasing contrast to the indigoshades of the midnight parrotfish mingling with them. I even spotted a

thick-set Nassau grouper between two coral heads, once the mainstay of

Caribbean fish dinners, it is now missing from much of its former range.

939. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 297-298.

Marine reserves—places off limits to all exploitation—have proven to be

spectacularly good breeding grounds. This is a simple consequence of twothings: increased abundance and extended lifespan of the animals they

contain. Early on in this book I explained that overfishing had caused a

collapse in fish and shellfish stocks because it culled the big, old, fat

females that were the engines of egg production. A big fish can produce

hundreds of times more young than a small fish, and many marine creatures

keep on getting bigger as they grow older and remain fertile most of their

lives. So having craggy and ancient giants around is a brilliant way to

ensure masses of offspring. If you think of a marine reserve as a fountain ofmicroscopic eggs and larvae pouring into the sea, you won't be far off. Aspopulations recover and individual inhabitants grow larger, the flow

increases from a trickle to a stream to a gush. Long-established reserves

offer up countless millions of eggs, larvae, seeds, spores, planulae, or

whatever other means their inhabitants use to reproduce. Like dandelionseeds caught in the wind, currents carry offspring away from their parents

for distances of feet to hundreds of miles, depending on the species. So the

new life spreads far beyond the limits of the protected habitat.

940. Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting),

THE ATLAS OF COASTS & OCEANS: ECOSYSTEMS, THREATENED

RESOURCES, MARINE CONSERVATION, 2011, 100. Protecting ocean

ecosystems is a sensible and cost effective way to restore fisheries and

boost coastal incomes, while maintaining vital ecosystem services such as

protecting shorelines, stabilizing sediments, sequestering carbon, andfiltering out pollutants.

941. Callum Roberts, (Prof., Marine Conservation, U. of York), OCEANS:

THE THREATS TO OUR SEAS, 2010, 232. Can the world afford to

protect the oceans? One estimate, made in 2004, put the cost at $12 to $14

billion per year to run a worldwide network of marine reserves covering 30percent of all oceans and seas. Initial one-time setup costs would be aboutfive times this amount. These sums seem like a lot but are put into

perspective when we consider they are less than the $15 to $30 billion we

currently spend on harmful subsidies that encourage excess fishing capacity

and prop up overexploitation. Most countries offer fishermen tax breaks on

fuel, for example, or free nets, and many countries pay for access to fish inanother country's waters.

942. Callum Roberts, (Prof., Marine Conservation, U. of York), THE

OCEAN OF LIFE: THE FATE OF MAN AND THE SEA, 2012, 304.

Where there is a broad portfolio of species to draw upon, ecosystems are

much more likely to continue to function as the seas change. Simplified

ecosystems of the kind that now predominate in many places have little of

this resilience. Their variety has been winnowed to a handful of species,

like prawns and scallops. We will not be able to restore life to these placesby tinkering with mesh sizes or fishing gears alone. Marine reserves are

essential to defend and promote diversity and thereby help both wildlife and

the fishing industry weather turbulent times ahead.

943. John Roff, (Prof., Environmental Science, Acadia U.), MARINE

CONSERVATION ECOLOGY, 2011, 303. On the east coast of Canada,

the position of shipping lanes has been adjusted, and advice issued toshipping in order to reduce the probability of collision with endangered

populations of right whales. There is no fundamental reason why this kind

of initiative should not be extended to the high seas to create a series of

temporary mobile pelagic MPAs.

944. Daniel Chiras, (Prof., Ecology, Colorado College), NATURAL

RESOURCE CONSERVATION: MANAGEMENT FOR A

SUSTAINABLE FUTURE, 2010, 339-340. One of the keys to protectingthe world's marine fisheries is the establishment of marine protected areas.

Like wildlife refuges for terrestrial species, a subject you'll read about inChapters 15 and 16, marine preserves are areas off limits to many human

activities, especially commercial fishing. As such, they provide vital habitat

for fish and other species, permitting them to survive without humaninterference. In recent years, scientists are finding that these preserves do

more than protect small pockets of habitat and the species that live there.

They also seed surrounding areas. That is, excess fish and other

commercially important species in these areas migrate into depleted areas,

helping restore commercial stocks.

945. Elizabeth DeSombre, (Prof., Environmental Science, Wellesley

College), FISH, 2011, 160. Research has shown that MPAs not only are

effective as insurance against the collapse of fish stocks, but they also make

surrounding fisheries considerably more productive. Creating more MPAs

within national waters and EEZs, and finding a way to create MPAs ininternational waters, would decrease the risk of ecosystem collapse, and

possibly increase the productivity of the world's fisheries overall.

946. Erich Hoyt, (Sr. Research Fellow, Massachusetts Institute of

Technology), MARINE PROTECTED AREAS FOR WHALES,

DOLPHINS, AND PORPOISES, 2011, 82. How can MPAs help? In the

face of climate change, it is important to look at what we can do as a

practical matter and MPAs can play an important precautionary role. One

thing is to recognize the fundamental importance of protecting fish stocksfor coastal human populations, for cetaceans that feed on fish and for ahealthy ocean. There is a growing body of work showing that highlyprotected PAs and MPAs can serve not only as reservoirs for fish stocksthreatened by climate change but can also be responsible for increases in

stocks.

947. John Roff, (Prof., Environmental Science, Acadia U.), MARINE

CONSERVATION ECOLOGY, 2011, 411. Marine protected areas (MPAs)

are a primary interest of this text not because the establishment of MPAs isthe only thing we should do, but because it has been repeatedly shown that

MPAs are effective in protecting 'pieces' of the marine environment and

their constituent species.

948. Peter Sale, (Prof., Marine Ecology, United Nations University), OUR

DYING PLANET: AN ECOLOGIST’S VIEW OF THE CRISIS WE

FACE, 2011, 293. The use of MPAs of various types has been a favored

strategy for sustainable management of coastal waters for several decades.

The concept is simple: by excluding human activities, principally fishing,

from a specific region of coastal environment, the target species, theirhabitats, and the ecological processes that sustain them are all protected

from damage due to extraction. Fish live longer, grow larger, and are

correspondingly more fecund; their habitats escape the damage caused by

nets, trawls, or dynamite fishing; and other species are undisturbed also.

These positive changes inside the reserve spill over to surrounding areas,

improving fishing outside the reserve.

949. Scott Michael, (Environmental Consultant, National GeographicExplorer Channel), REEF LIFE: A GUIDE TO TROPICAL MARINELIFE, 2013, 604. A marine protected area (MPA) is a section of coastline or

reef where fishing and other activities that can damage the habitat aremanaged, while in a fish replenishment area (FRA) no fishing is allowed at

all. In both cases the goal is to maintain biodiversity. In the MPA or FRA,

resident adult fishes (broodstock) can supply vast tracts of unmanaged

coastline with their pelagic progeny, ensuring preservation of fish

populations on reefs in and around the protected areas. In marine reserves,

the density of fishes targeted by fisheries can be more than twice as high.

950. Robin Craig, (Prof., Law, U. Utah College of Law), PUBLIC LAND &

RESOURCES LAW REVIEW, 2013, 60. It was the U.S. Supreme Court,

however, that gave the first decisive answer to the question of which

government controlled the ocean. On June 23, 1947, in United States v.

California, it found in favor of the federal government.

951. Joachim Claudet, (Scientist, National Center for Scientific Research),

MARINE PROTECTED AREAS, 2011, 37. Marine protected areas

(MPAs) are recommended to promote the recovery of exploited populations

and conserve or restore habitats, ecosystems, and biodiversity. Marine

protected areas have also been recommended as tools for ecosystem-basedmanagement (EBM) of marine resources and for restoration of ecosystemfunction.

952. Andrew Rosenberg, (Prof., Institute for the Study of the Oceans, U. of

New Hampshire), SHIFTING BASELINES: THE PAST AND FUTURE

OF OCEAN FISHERIES, 2011, 187. Marine protected areas (MPAs), such

as the fisheries closures on Georges Bank, are one of the few strategies with

proven success on an ecosystem level. This makes them important tools forecosystem-based fisheries management, in which people's actions are

managed to ensure healthy marine ecosystems and sustainable resources.

953. Nancy Gaines, (Staff, Goucester Times), OCEANS: OPPOSING

VIEWPOINTS, 2011, 60. "We've reduced fish mortality in most of the

stocks," Steven Murawski, director of scientific programs and chief science

adviser for NOAA's National Marine Fisheries Service, said in a recent

interview. "We can't drain the pond and count, but the science is

compelling." Tom Nies, chief fishery analyst of the New England Fishery

Management Council, said the rebuilding of imperiled stocks is on track oreven ahead of schedule.

954. Nancy Gaines, (Staff, Goucester Times), OCEANS: OPPOSING

VIEWPOINTS, 2011, 60. Two hundred miles out, from the Canadian

border down to Florida, under the belly of the nation, through the Gulf of

Mexico and up the Pacific Coast to Alaska, the great American fishery is in

no risk of dying. That is what the latest stock data shows. What has beenportrayed by some as a catastrophe in the making can be seen as an

American success story.

EVIDENCE BAYLOR BRIEFS 133

955. Lindsey Abrams, (Assistant Editor, Salon Magazine), THE FUTURE

OF SALMON IS FARMING, Sept. 10, 2013. Retrieved Feb. 18, 2014 fromhttp://www.salon.com/2013/09/10/the\_future\_of\_salmon\_is\_farming/. This

summer, 15 farmed salmon companies from around the world

announced the formation of the Global Salmon Initiative (GSI) to createindustry-wide reform. If they succeed, farmed salmon might not onlybecome a good choice — it could be the thing that saves wild fish.

956. Lindsey Abrams, (Assistant Editor, Salon Magazine), THE FUTURE

OF SALMON IS FARMING, Sept. 10, 2013. Retrieved Feb. 18, 2014 fromhttp://www.salon.com/2013/09/10/the\_future\_of\_salmon\_is\_farming/.

Farmed fish, or aquaculture, is the future of seafood. Very soon, human

consumption of farmed fish will surpass that of wild-caught species; as

more than one expert I spoke with pointed out, seafood consumption is onthe rise, and the human population is still growing. Wild-caught fish won’tbe able to feed us all for long.

957. Ramez Naam, (Fellow, Institute for Ethics and EmergingTechnologies), THE INFINITE RESOURCE: THE POWER OF IDEAS

ON A FINITE PLANET, 2013, 111. The key to saving the fish in ouroceans will be to transition from a culture of hunting fish to one of farming

fish. That transition is underway now. Since 1990, the worldwide wild fishcatch has been more or less flat at around ninety million tons of seafood per

year. In that time, fish farms have grown from providing just over ten

million tons per year to providing more than sixty million tons per year. For

some species, like sea bass and salmon, fish farms now provide more food

each year than wild-caught fish.

958. Ramez Naam, (Fellow, Institute for Ethics and EmergingTechnologies), THE INFINITE RESOURCE: THE POWER OF IDEAS

ON A FINITE PLANET, 2013, 111. New fish farming techniques use

separated pools, where fish can be grown away from wild populations. The

water in these pools is gradually recycled, allowing waste products andparasites to be caught and filtered out. And fish farms around the world are

now experimenting with soy-based fish feeds and other types of feeds that

reduce the need to consume large amounts of smaller fish. New ideas are

addressing the environmental problems that fish farms create, while leaving

in place their main advantage: a potential conservation of wild fish

populations.

959. Lindsey Abrams, (Assistant Editor, Salon Magazine), THE FUTURE

OF SALMON IS FARMING, Sept. 10, 2013. Retrieved Feb. 18, 2014 fromhttp://www.salon.com/2013/09/10/the\_future\_of\_salmon\_is\_farming/.

Regulations are only starting to catch up. In 2011, the AquacultureStewardship Council (ASC) formed and began handing out certifications tosustainable aquaculture operations; salmon will only be the third species

eligible for such recognition. GSI signatories have committed to making

100 percent of their production ASC-certified by 2020. You may notimmediately recognize any of their names, but you’ve probably eaten theirproduct — together, they represent 70 percent of the global farmed salmonindustry.

960. Carl-Christian Schmidt, (Head of the Fisheries Policy Division,

Organization for Economic Development and Cooperation), THE OCEAN

AS A GLOBAL SYSTEM, 2013, 130. Aquaculture has some majoradvantages compared to wild fisheries (or "capture fisheries" as they areknown). In particular the production in aquaculture is controlled, just likeagricultural farming. Farmers know what they are growing and the inputs

used (e.g. feed) and can therefore manage the quality of their outputs. Incapture fisheries on the other hand, although many modern techniques help

(e.g. fish finders, echo sounders, etc.) fishers do not know how much they

will catch in any given haul, or which species or the quality of the catch (for

example, price depends on the size of the fish caught).

961. Anne Hayden, (Prof., Environmental Studies, Bowdoin College),

ROGER WILLIAMS UNIVERSITY LAW REVIEW, Winter 2012, 74.

Impetus for passage of the FCMA, passed in 1976, included the desire to

capture the economic benefits of rich coastal shelf fisheries for Americans

rather than foreigners, the need to restore stocks depleted by foreign fishing

fleets, an interest in incentivizing expansion of domestic fishing fleets, and

the belief that recently developed principles of scientific management could

be applied to maximize the benefits of fisheries. Absent fishing pressurefrom foreign fleets, stocks began to recover only to be decimated in turn bythe newly capitalized American fishing fleet.

962. Anne Hayden, (Prof., Environmental Studies, Bowdoin College),

ROGER WILLIAMS UNIVERSITY LAW REVIEW, Winter 2012, 74.

Attempts to address the failure of management to stabilize harvests includeseveral amendments to the FCMA, among the most significant of which

were the Sustainable Fisheries Act of 1996, in which the FCMA was

renamed the Magnuson-Stevens Fisheries Conservation and ManagementAct (MSFCMA), and the Magnuson-Stevens Fisheries Conservation and

Management Reauthorization Act of 2006. Each sought to address the

weaknesses of the Act by further privileging the role of science in setting

management targets and by establishing legally enforceable standards for

preventing overharvesting and for rebuilding fish stocks.

963. Peter Shelley, (Sr. Counsel, Conservation Law Foundation), ROGERWILLIAMS UNIVERSITY LAW REVIEW, Winter 2012, 25. The second

major Congressional intervention in fisheries management occurred in 1996with passage of the SFA. The 1996 amendments focused on several

structural elements of the FCMA that were confounding the Congressional

goals of achieving sustainable fisheries in the United States. The SFAestablished a biological cap on setting of the optimal yield for a fishery

regardless of the social or economic consequences of that cap; it added a

new National Standard to reduce bycatch; and it mandated that regional

fisheries management councils and the federal agencies developcomprehensive measures that "minimize to the extent practicable [the]

adverse effects" of fishing on essential fish habitat.

964. Peter Shelley, (Sr. Counsel, Conservation Law Foundation), ROGERWILLIAMS UNIVERSITY LAW REVIEW, Winter 2012, 28-29. The third

major intervention by Congress with fisheries management was the 2007

passage of the Magnuson-Stevens Reauthorization Act. This reauthorizationmay well represent a sort of "final chapter" as far as refining the major

structural elements of the Magnuson-Stevens Act is concerned; Congresscertainly seemed intent at a minimum on putting an end to the lengthy

interpretative process that began in 1976 on the topic of preventing

overfishing. The Magnuson Reauthorization Act conclusively weights

biological considerations more than social and economic factors in the

situation of overfished stocks, recognizing that healthy, sustainable fisheries

are dependent in the long term on healthy fish populations. Continuedoverfishing, even in the short term, is not in the Nation's interest.

965. Eric Schwaab, (Former Assistant Administrator, National Oceanic and

Atmospheric Administration), ROGER WILLIAMS UNIVERSITY LAW

REVIEW, Winter 2012, 15. Last year marked the 35th anniversary of the

Magnuson-Stevens Fishery Conservation and Management Act as the

primary law for managing marine fisheries in Federal waters. Since its

initial enactment in 1976 and major reauthorizations in 1996 and 2007, the

Magnuson Act has proven to be a key driver for the National Oceanic and

Atmospheric Administration (NOAA) in delivering on our nation's

commitment to ocean stewardship, sustainable fisheries, and healthy marine

ecosystems. This anniversary year marks a critical point in the Act's history.

Because of the Magnuson Act, the United States is turning the corner onending overfishing in federally managed fisheries, rebuilding stocks, andensuring conservation and sustainable use of our ocean resources. As

prescribed by the 2007 reauthorization, we are now on track to have annual

catch limits and accountability measures in place for all 528 federally

managed fish stocks and complexes.

966. Eric Schwaab, (Former Assistant Administrator, National Oceanic and

Atmospheric Administration), ROGER WILLIAMS UNIVERSITY LAW

REVIEW, Winter 2012, 17-18. Fisheries management under the Magnuson-

Stevens Act is now guided by ten National Standards for fishery

conservation and management. These standards, which have their roots in

the original 1976 Act, provide a yardstick against which all fisherymanagement plans and measures developed by the regional councils are

held. National Standard 1 requires that conservation and management

measures prevent overfishing while achieving optimum yield on a

continuing basis from each fishery for the U.S. fishing industry. Thus the

councils must carefully balance fishing and conservation when developing

their plans. Other National Standards mandate that conservation and

management measures be based upon the best scientific information

available, not discriminate between residents of different states, take into

account variations in fisheries and catches, minimize bycatch, and promote

the safety of human life at sea.

967. James Merrill, (J.D. Candidate), CATHOLIC UNIVERSITY LAW

REVIEW, Winter 2011, 483-484. The Fishery Conservation and

Management Act created a federal fisheries conservation zone between

three and two hundred nautical miles off the coast of the United States. The

main purpose of the legislation was to protect and promote U.S. commercial

fishing resources from international exploitation. The Act granted the

Secretary of Commerce regulatory power over fisheries in the waters

between three and two hundred miles from shore. The findings of the Act

were clear. First, Congress found that fisheries serve an essential function tothe nation's "food supply, economy, and health." Second, Congress foundthat certain fish stocks had been overfished to dangerously low levels, and

international fishing regulations had failed to alleviate the problem. Finally,

Congress asserted that "[t]he collection of reliable data is essential to the

effective conservation, management, and scientific understanding of the

fishery resources of the United States."

968. James Merrill, (J.D. Candidate), CATHOLIC UNIVERSITY LAW

REVIEW, Winter 2011, 484. Regional councils were created and charged

with regulating the fisheries through fishery management plans. After a

regional council creates a fishery management plan, it is sent to NMFS forapproval. The Magnuson-Stevens Act requires NMFS to review the plans todetermine whether they meet the national standards prescribed by Congress.

Although conservation was a factor in the 1976 Act, Congress was moreconcerned with the effect of foreign fishing practices on local fishing

communities.

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969. James Merrill, (J.D. Candidate), CATHOLIC UNIVERSITY LAW

REVIEW, Winter 2011, 485. In 1996, Congress enacted the Sustainable

Fisheries Act that sought, among other things, to clarify and balance the

National Standards used when creating fishery management plans. Congressalso charged: “Upon determining that a fishery is overfished, the NMFS

must immediately notify the appropriate council and request the

implementation of conservation and management measures to rebuild

affected fish stocks. Once notified, the council then has one year to prepare

[a fishery management plan] to prevent overfishing. The crux of the [plan]

is to develop measures that allow the fishery to produce the maximum

sustainable yield . . . on a continuous basis.” The Act also required the planto restore the overfished resource within ten years of its identification. The

ten National Standards are meant to guide each regional council inbalancing conservation and the social and economic effects that eachregulation has on fishing communities. (ellipsis in original)

970. James Merrill, (J.D. Candidate), CATHOLIC UNIVERSITY LAW

REVIEW, Winter 2011, 486. Eleven years later, in 2007, Congressreauthorized the Magnuson-Stevens Act. The reauthorization did not amend

the National Standards, but Congress expressly authorized and encouragedthe use of limited-access fishery plans. The Act now requires annual catch

limits for all managed fisheries. In addition, the Act attempted to improvethe science used in decisions by creating both a peer-review process and a

stronger role for the Science and Statistical Committees of the regional

councils.

971. Shaun Gehan, (J.D., U. of Maine School of Law), OCEAN AND

COASTAL LAW JOURNAL, 2012, 1. During waning hours of its lameduck session, the 109th Congress passed the first major overhaul of the

Magnuson-Stevens Fishery Conservation and Management Act ("MSA")

since the 1996 Sustainable Fisheries Act ("SFA"). President Bush signed

the Magnuson-Stevens Fishery Conservation and Management

Reauthorization of 2006 ("Reauthorization Act") on January 12, 2007,

ushering a new and challenging era in fisheries management. These

amendments effected deep changes to the nation's fishery management laws

by, among many other things, strengthening the MSA's conservation

objectives and fostering increased use of controversial, market-based

fisheries management systems. The regulated fishing community, nongovernmental

organizations, and the government itself are still adjusting to

the new regime.

972. Shaun Gehan, (J.D., U. of Maine School of Law), OCEAN AND

COASTAL LAW JOURNAL, 2012, 3-4. The modern United States fishery

management regime was created in 1976. The MSA (then simply known as

the "Magnuson Act") created eight quasi-legislative bodies known as

regional fishery management councils comprising citizens "knowledgeableregarding the conservation and management, or the commercial or

recreational harvest, of the fishery resources," the head of each state's

marine fisheries agency, and the NMFS regional administrator. Councils

must respond to declarations that stocks of fish are overfished by preparing

a fishery management plan ("FMP") or plan amendment designed "to endoverfishing in the fishery and to rebuild affected stocks of fish."

Recommended management plans and implementing regulations are

reviewed for consistency with applicable law by NMFS, as the CommerceSecretary's designee. NMFS may only accept, reject, or partially reject these

recommended plans, amendments, and regulations. "Any fisherymanagement plan prepared, and any regulation promulgated to implementany such plan, shall be consistent with [ten] national standards for fisheryconservation and management." Chief among these is National Standard 1:

"Conservation and management measures shall prevent overfishing whileachieving, on a continuing basis, the optimum yield from each fishery for

the United States fishing industry."

973. Philippe Sands, (Prof., Law, University College, London),

PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW, 2012,

442-443. There are about 130,000 protected areas in the world. Of these,

around 5,000 are marine protected areas. Ninety per cent of marine

protected areas are established within territorial waters and 10 per cent in

international waters. In 2008, 5.9 per cent of the world's territorial seas were

protected by nationally designated protected areas, and 0.5 per cent of

protected areas were established in the high seas.

974. Harold Upton, (Specialist in Natural Resources Policy, Congressional

Research Service), MARINE PROTECTED AREAS: AN OVERVIEW,

Sept. 29, 2010, 1. The Bush Administration supported the MPA concept and

it continued most of the Clinton Administration initiatives to coordinate

protection of marine resources at designated sites, including implementing

Executive Order 13158 (May 2000), which endorsed a comprehensive

system of MPAs. President Bush designated the Papahanaumokuakea

Marine National Monument (Northwestern Hawaiian Islands Marine

National Monument) in 2006, and the Marianas Trench, Pacific Remote

Islands, and Rose Atoll Marine National Monuments on January 6, 2009.

Additional actions by Congress would be needed to create an MPA systemthat could be characterized as integrated or comprehensive.

975. Joachim Claudet, (Scientist, National Center for Scientific Research),

MARINE PROTECTED AREAS, 2011, 2. At sea, the awareness of the

need to manage resources and create reserves occurred later than in

terrestrial environments. These ideas were supported by the observed

restoration of fishery stocks in the North Sea after fishing had been

interrupted during World War II. The first evidence of the potential benefitsof areas closed to fishing came from there. Since then, the protection of

parts of the ocean has been recommended as a tool to manage part of the

numerous anthropogenic threats on the world's coastal and offshore marine

areas. Today, 0.65% of the world's oceans and 1.6% of the total marine areawithin Exclusive Economic Zones are currently within marine protected

areas (MPAs); 0.08% and 0.2%, respectively, are fully protected by marine

reserves.

976. Callum Roberts, (Prof., Marine Conservation, U. of York), OCEANS:

THE THREATS TO OUR SEAS, 2010, 231. A starting gun has been fired

to change all of this. In 2000, President Bill Clinton issued an executive

order, later endorsed by the Bush administration, charging governmentagencies to create a national network of marine protected areas. At theWorld Summit on Sustainable Development in 2002, coastal nations of theworld pledged to create national networks of marine protected areas by2012. Meanwhile, European nations had already committed to creating a

Europe-wide network by 2010.

977. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

252-253. Since 2006, the United States has added 865,757 square

kilometers (335,744 square miles) of ocean in the Pacific as national

monuments, places where even the fish, lobsters, and shrimp are secure.

Other nations have taken bold actions: enhanced protection for Australia'sGreat Barrier Reef (now increased from 6 percent to 33 percent), certain

New Zealand fiords, and more than 388,000 square kilometers (150,000square miles) of pristine waters of the island nation Kiribati. In May 2009,

South Africa announced the addition of an impressive new marine protected

area about the size of Oklahoma around the Southern Ocean's Prince

Edward Islands. In May, a large part of the Savu Sea was dedicated for

protection by Indonesia.

978. Ray Hilborn, (Prof., Aquatic Science, U. Washington),

OVERFISHING: WHAT EVERYONE NEEDS TO KNOW, 2012, 106107.

Some protected areas are quite large. The Great Barrier Reef was the

largest until 2000, when the United States established the NorthwestHawaiian Islands National Monument. Some countries have closed verylarge areas to trawling. The United States has closed more than two thirdsof its 200-mile zone to bottom contact gear, although most of this is in

Pacific waters too deep to be fished, and New Zealand has closed 30% of its

200-mile zone to trawling.

979. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 161. In a welcome parting gift, US

President George W. Bush added another 505,000 square kilometres tomarine national parks around US-controlled islands in the Pacific Ocean.

Most commercial fishing will be banned and limits placed on other fishing.

980. Don Hinrichsen, (Sr. Manager, Institute for War and Peace Reporting),

THE ATLAS OF COASTS & OCEANS: ECOSYSTEMS, THREATENED

RESOURCES, MARINE CONSERVATION, 2011, 91. In 1972, the USA

passed the national Coastal Zone Management Act, administered by the

National Oceanic and Atmospheric Administration (NOAA). Its primary

focus was to provide the nation's 35 coastal states and territories with

guidance and funds for program planning and implementation.

981. Sylvia Earle, (National Geographic Explorer in Residence), THE

WORLD IS BLUE: HOW OUR FATE AND OCEANS ARE ONE, 2010,

42. In the 20th century, about three million whales, including more than300,000 humpbacks, were killed by whalers from 46 countries. Norway

took the most, 27 percent, with Japan taking 21 percent, the U.S.S.R. 18percent, and the United Kingdom 11 percent. Whether this seems like a lot

or a little, the fact is that all of the great whale species were reduced to a

small fraction of their pre-whaling numbers.

982. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 107-108. The capacity of whales to suffercannot be seriously doubted today. D'Amato and Chopra write: "When

whales are harpooned and dying, their characteristic whistles change

dramatically to a low monotone. In contrast, in the normal healthy state,

their whistles are beautiful birdlike sounds with trills and arpeggios,

glissandos and sitar-like bends in the notes. This change is clearly

analogous to the transformation in human expression from talking (or

singing) in the normal state to crying when in pain. Additionally, there can

be little physiological doubt that whales feel pain; indeed, the real question

is whether they perceive acute pain to an even greater degree than humans.

This latter possibility is evidenced by the far wider range of skin sensationsapparently registered by the complex cerebral cortex of the whale.

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983. Erich Hoyt, (Sr. Research Fellow, Massachusetts Institute of

Technology), MARINE PROTECTED AREAS FOR WHALES,

DOLPHINS, AND PORPOISES, 2011, 83. Underwater noise is reducingthe size and integrity of cetacean habitats. Whales, dolphins and porpoises

are acoustic animals. To varying degrees, they use sound to navigate, findand catch their food, and to communicate, and noise has been shown to

have the capacity to mask their sounds, to reduce the size or quality of their

acoustic environment, leading to abandonment of habitat, injury including

hearing damage, or even death.

984. Erich Hoyt, (Sr. Research Fellow, Massachusetts Institute of

Technology), MARINE PROTECTED AREAS FOR WHALES,

DOLPHINS, AND PORPOISES, 2011, 83. Sound of all kinds propagatesfaster and further in the ocean than in the air. The physical properties ofsound mean that it can travel 4.5 times faster through seawater than in air.

This has positive implications for cetaceans in terms of their own

vocalizations, but negative in terms of the noise that may be transmitted to

them.

985. Denise Russell, (Research Fellow, Philosophy, U. Wollongong,

Australia), WHO RULES THE WAVES: PIRACY, OVERFISHING, ANDMINING THE OCEANS, 2010, 113. In the Arctic, the beluga and narwhal

whales feed on cod that depend on ice-edge plankton for their survival.

Decline in cod means that there may not be enough food for the whales.

Cetaceans make extensive use of hearing to navigate, locate food andcommunicate with each other. Increasing noise pollution in the oceans isinterfering with their hearing abilities. Christopher Clark from Cornell

University has researched oceanic noise pollution which he calls acoustic

smog. According to Clark, this chronic noise from shipping is interfering

with whales' well-being, limiting the range over which they can navigate,

communicate and find food or mates.

986. Donald Rothwell, (Prof., International Law, Australian National U.),

THE INTERNATIONAL LAW OF THE SEA, 2010, 341-342. Another

pollutant gaining increasing attention is noise generated by human activities

in the marine environment. It is estimated that noise levels in the oceans are

ten times higher than they were a few decades ago. Shipping, oil and gasexploration, dredging, fishing and military activities (such as the use of newforms of sonar) generate acoustic pollution that can travel considerabledistances, and cause damage to marine wildlife for example by disrupting

the natural behavior of cetaceans, which rely on sound to navigate and

communicate.

987. Kate Queram, (Staff), STAR-NEWS, Mar. 10, 2014, 1A.

Conservationists have long opposed the seismic testing process, which usesair guns to determine whether oil and gas deposits are located beneath the

ocean floor. Those concerns are largely focused on the potential effects the

frequent blasts could have on marine life, particularly the severely

endangered North Atlantic right whale. Each air-gun detonation is expectedto be around 250 decibels, roughly twice as loud as a jet engine. That sound

has the potential to travel for hundreds of miles through ocean water, which

could disrupt the migratory patterns of marine mammals that communicate

mainly through sound.

988. Michael Jasny, (Analyst, Natural Resource Defense Counsel), BOOM,

BABY, BOOM: THE ENVIRONMENTAL IMPACTS OF SEISMIC

SURVEYS, June 4, 2014, 1. For offshore exploration, the oil and gasindustry typically relies on arrays of airguns, which are towed behind ships

and release intense impulses of compressed air into the water about once

every 10 to 12 seconds. Although most of the energy from these acoustic

“shots” is intended to search downward for evidence of oil and gas deep

beneath the seafloor, a significant amount of the energy travels outwards

and can be heard throughout vast areas of the ocean.

989. Lindy Weilgart, (Ph.D., Biology, Dalhousie U.), A REVIEW OF THE

IMPACTS OF SEISMIC AIRGUN SURVEYS ON MARINE LIFE, 2013.

Retrieved Apr. 11, 2014 from http://www.cbd.int/doc/?meeting=MCBEM2014-

01. Stress effects or physiological changes, if chronic, can inhibit the

immune system or otherwise compromise the health of animals. These can

be very difficult to detect in cetaceans. Indications of increased stress and a

weakened immune system following seismic noise broadcasts were shown

for a whale and dolphin. Loud, impulsive noise produced from a seismic

water gun caused significantly increased mean norepinephrine, epinephrine,

and dopamine levels immediately after a high, but not low-level exposure in

a captive beluga whale. All three of these stress hormones increased

significantly with increasing noise levels.

990. Andrew Revkin, (Staff, New York Times), U.S. LEADERSHIP IN

THE INTERNATIONAL WHALING COMMISSION AND H.R. 2455,

THE INTERNATIONAL WHALE CONSERVATION AND

PROTECTION ACT OF 2009, House Hearing, May 6, 2010, 95. Withsome whale populations clearly thriving, the old conservation arguments

against killing based on rarity don't hold up well.

991. William Broad, (Staff), INTERNATIONAL HERALD TRIBUNE,

July 18, 2012, 7. The latest development took place at a research facility off

Oahu – at an island where the opening shots of ''Gilligan's Island'' werefilmed. Scientists there are studying how dolphins and toothed whales hear.

In nature, the mammals emit sounds and listen for returning echoes in a

sensory behavior known as echolocation. In captivity, scientists taught the

creatures to wear suction-cup electrodes, which revealed the patterns ofbrainwaves involved in hearing. The discovery came in steps. First, Dr.

Nachtigall and his team found that the animals could adjust their hearing inresponse to their own loud sounds of echolocation, mainly sharp clicks. The

scientists then wondered if the animals could also protect their ears fromincoming blasts.

992. Jonathan Hoekstra, (Chief Scientist, World Wildlife Fund), THE

ATLAS OF GLOBAL CONSERVATION, 2010, 138. Thousands of ships

crisscross the oceans every day, traveling between distant ports. Along withcrews, passengers, and freight, most also carry a rich diversity of stowawayspecies, including zooplankton, algae, crustaceans, and fish. Some of thesehitchhikers cling to the ships' hulls. Others ride within the ballast water

meant to keep the ship stable on the open ocean. As many as ten thousandspecies may be found each day on ships traveling throughout the world —

making up the main source of non-native species that invade alongcoastlines.

993. Richard Kirby, (Marine Institute Research Fellow, Plymouth

University), OCEAN DRIFTERS: A SECRET WORLD BENEATH THEWAVES, 2011, 21. In addition to microalgae and zooplankton, the transport

of bacteria in ship ballast water is held responsible for some disease

outbreaks in both marine organisms and in humans. For example, the

cholera epidemic in Central and South America in the early 1990s is

believed to have been due to the initial discharge of Vibrio cholerae inballast water from a ship in Peru. Although V. cholerae occurs freely inboth salt and freshwater, it preferentially attaches to the chitinous

exoskeleton of zooplankton such as copepods. The South American cholera

epidemic between 1991 and 1994 resulted in over a million infections and

10,000 deaths.

994. David Blockstein, (Sr. Scientist, National Council for Science and the

Environment), CLIMATE SOLUTIONS CONSENSUS, 2010, 74.

Economic trade introduces many species accidentally. Invasive species may

cost the US economy as much as $137 billion per year. About 90% of thetransport of goods globally occurs by oceangoing freight ship, often takingorganisms from one ecosystem into another far away.

995. David Blockstein, (Sr. Scientist, National Council for Science and the

Environment), CLIMATE SOLUTIONS CONSENSUS, 2010, 74. First

seen in the United States in 1988, tiny zebra mussels arrived in ballast water

from freight ships visiting the Great Lakes from Asia. These mussels

proliferated, crowded out native shellfish, and clogged underwater drains

for municipal water systems and even blocked the intake and outflow valvesof power plants that used lake water for cooling their machinery.

996. Christopher Grub, (J.D. Candidate, Chicago-Kent School of Law),

CHICAGO-KENT LAW REVIEW, 2012, 239. In addition to causing vast

ecological damage, invasive species also exact an economic toll. One recentstudy put the cost of dealing with invasive species at $ 120 billion annually,

or about $ 1100 per household.

997. Eric Hull, (Prof., Law, Florida Coastal School of Law),

GEORGETOWN INTERNATIONAL ENVIRONMENTAL LAW

REVIEW, Fall 2012, 51. The introduction and spread of invasive species

into new ecosystems poses extraordinary environmental and economic

challenges to the planet and has far-ranging impacts on human wellbeing.

Unlike oil and other chemical pollutants, which are released in finite

quantities and break down over time, biological pollutants, includingaquatic invasive species, have the unique capacity to propagate and spread.

Once introduced, invasive species can fundamentally alter complex aquaticecosystems that provide critical services and goods upon which humansdepend. The impacts are particularly acute for coastal marine ecosystems.

998. Corey Hebert, (J.D. Southern U. Law Center), SOUTHERN

UNIVERSITY LAW REVIEW, Spr. 2010, 315. Aliens, carried into U.S.

waters aboard vessels, are allowed to decimate native species that areunprepared for their new competition and diseases. These invaders take

many forms such as fish, mollusks and disease-causing bacteria. Any ofwhich may have a tremendous and tragic effect on an unsuspectingecosystem. These plunderers are non-indigenous, nuisance species that are

transported from foreign seas in the ballast tanks of ocean-going vessels.

999. Corey Hebert, (J.D. Southern U. Law Center), SOUTHERN

UNIVERSITY LAW REVIEW, Spr. 2010, 322. If vessels conduct

operations outside of the U.S. EEZ and then return to U.S. waters, U.S.

Coast Guard guidelines also mandate in addition to the previously stated

requirements that ships "(1) conduct a mid-ocean ballast exchange beforeentering US waters, (2) keep ballast water on board the ship, or (3) use anenvironmentally sound method to treat the ballast water." Any vessel failingto comply with these ballast water regulations may be subjected not only to

civil penalties of as much as $ 27,500.00 for every day the ship is inviolation, but also to the threat of being charged with a Class C felony.

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1000. John Flesher, (AP Environment Writer), COAST GUARD SETS

BALLAST CLEANSING RULES, Mar. 20, 2012. Retrieved Apr. 6, 2014from

http://chestertontribune.com/Environment/coast\_guard\_sets\_ballast\_cleansi.

htm. The rule limits numbers of living organisms in particular volumes of

water. Ships would have to install equipment to meet standards developed

by the International Maritime Organization, an arm of the United Nations.

Environmental groups contend the limits should be 100 or even 1,000 times

tougher, but industry groups say no existing technology can do that. A

tentative version of the Coast Guard rule issued in 2009 called for startingwith the international standard, then making it 1,000 times stronger by2016. But the final regulation drops the second level in favor of more

research. The Coast Guard said it made the change after an EnvironmentalProtection Agency study questioned the reliability of more stringentstandards. EPA has proposed a separate ship discharge policy based on the

international limits.

1001. Elizabeth DeSombre, (Prof., Environmental Science, Wellesley

College), FISH, 2011, 157. States manage the waters in which most

commercial fishing is done, and they have the authority to compel

compliance with rules. Domestic rules will work best if states do not treat

their EEZs either as sources of new economic development or as open

access (even if only to their national fishers) resources.

1002. John Boehnert, (Attorney Specializing in Environmental Law,

Providence, RI), ZONING THE OCEANS: THE NEXT BIG STEP IN

COASTAL ZONE MANAGEMENT, 2013, 255. Rhode Island recognized

its opportunity under the Coastal Zone Management Act (CZMA), which

gave states certain rights under the federal consistency program, a provisionof the act designed to encourage states to voluntarily establish state coastalmanagement programs in accordance with federal standards.

1003. John Boehnert, (Attorney Specializing in Environmental Law,

Providence, RI), ZONING THE OCEANS: THE NEXT BIG STEP IN

COASTAL ZONE MANAGEMENT, 2013, 268. Professor Burger notesthe arguments for the federal approach, including the impact of regulatedactivity going beyond state lines and the importance of regulatory

uniformity to avoid confusion, conflicts, and uncertainty, and the argumentsfor a more state-oriented approach, including tailoring solutions to local

conditions, the benefits of states as experimental laboratories, and limitingfederal overreaching or over-regulating. In his analysis, Professor Burger

sees the state-oriented model represented by the Ocean SAMP approach to

be the preferred approach.

1004. Sean Parnell, (Governor of Alaska), NATIONAL OCEAN POLICY:

COMMENTS ON ALL 9 STRATEGIC ACTION PLANS, Apr. 29, 2011.

Retrieved Mar. 10, 2014 from

http://www.whitehouse.gov/sites/default/files/microsites/ceq/comments\_on\_all\_9\_saps\_1.24.11-4.29.11.pdf. While Alaska manages using an

ecosystem approach, we have concern with adopting ecosystem-based

management guidelines at the federal or international level. State level

management is the best approach. We also oppose mandating"precautionary approaches" or "precautionary principles" that dictate worst-

case assumptions when faced with scientific uncertainty. These terms aremisleading and should not be confused with the careful and conservative

abundance-based management used in Alaska. We support approaches that

deal with scientific uncertainty by adopting reasonably conservative

assumptions.

1005. Doug Vincent-Lang, (Acting Dir., Division of Wildlife Conservation,

Alaska Dept. of Fish and Game), ALASKA'S SOVEREIGNTY IN PERIL:

THE NATIONAL OCEAN POLICY'S GOAL TO FEDERALIZE

ALASKA, House Hearing, Apr. 3, 2012, 10. Jurisdiction and management

decisions for marine waters and submerged lands and responsibility for

marine and coastal activities and ecosystems is divided between the states

and the federal government. Alaska's jurisdiction includes uplands,

wetlands, tide and submerged lands and extends out three nautical miles tothe territorial limit.

1006. Sean Parnell, (Governor of Alaska), NATIONAL OCEAN POLICY:

COMMENTS ON ALL 9 STRATEGIC ACTION PLANS, Apr. 29, 2011.

Retrieved Mar. 10, 2014 from

http://www.whitehouse.gov/sites/default/files/microsites/ceq/comments\_on\_all\_9\_saps\_1.24.11-4.29.11.pdf. Alaska's jurisdiction includes uplands,

wetlands, tide and submerged lands and extends out three nautical miles tothe territorial limit. Within these areas, Alaska manages and leases lands,

and with federal and local agencies, permits or restricts activities on themthat could impact the environment. New policies that may be developed

should consider the current multi-jurisdictional structure and respect for the

traditional role of states in managing their coastal resources.

1007. David S. Law & Mila Versteeg (Professor of Law and Professor ofPolitical Science, Washington University in St. Louis) June 2012. NEW

YORK UNIVERSITY LAW REVIEW. Retrieved Apr. 25, 2014 from

Lexis/Nexis. See Zachary Elkins et al., The Endurance of National

Constitutions 48-50 (2009) (observing that "formal constitutions are the

norm" for most countries, and deeming every country in the world from1789 to 2006 to have possessed a formal constitution with the sole

exception of the United Kingdom); Gardbaum, supra note 8, at 393, 411(identifying the United States as "the inventor of modern constitutional

supremacy" in the form of "a constitution containing a bill of rights that is

entrenched, the supreme law of the land, and enforced by the power of

judicial review," and observing that these "constitutional fundamentals"

have become so prevalent that "countries which continue to reject one or all

of them ... are now truly exceptional").

1008. Sean Parnell, (Governor of Alaska), NATIONAL OCEAN POLICY:

COMMENTS ON ALL 9 STRATEGIC ACTION PLANS, Apr. 29, 2011.

Retrieved Mar. 10, 2014 from

http://www.whitehouse.gov/sites/default/files/microsites/ceq/comments\_on\_all\_9\_saps\_1.24.11-4.29.11.pdf. Alaska's experience and record

demonstrates that a strong state model can be very effective when

implemented responsibly and, therefore, national policies must recognize

the need for state-based decision-making. Our record of sustainable

management of Alaska's marine and coastal resources has led to national

and international recognition of Alaska as a leader in these fields. In Alaska,

significant progress has been made to strengthen and enhance marine

research, coastal and marine observing, and habitat protection.

1009. Sean Parnell, (Governor of Alaska), NATIONAL OCEAN POLICY:

COMMENTS ON ALL 9 STRATEGIC ACTION PLANS, Apr. 29, 2011.

Retrieved Mar. 10, 2014 from

http://www.whitehouse.gov/sites/default/files/microsites/ceq/comments\_on\_all\_9\_saps\_1.24.11-4.29.11.pdf. State government works closely with

communities and is in a good position to evaluate how proposed nationalmarine and coastal policies will work, or not work, in different ecosystemsand communities around the state. With a state as large and diverse asAlaska, it will be critically important to capture the experience and

knowledge of the state in developing and implementing marine and coastal

policies. We encourage that these policies be developed from the ground up.

Durable, reliable, and implementable national policies require an

understanding of local issues and a public process sufficient to ensure local

support. There are already numerous successful partnerships in Alaskaamong federal, state, and local governments, tribes, organizations, and

concerned citizens. National policies should recognize these existingpartnerships and avoid supplanting them with management or direction

coming from outside the state.

1010. Sean Parnell, (Governor of Alaska), NATIONAL OCEAN POLICY:

COMMENTS ON ALL 9 STRATEGIC ACTION PLANS, Apr. 29, 2011.

Retrieved Mar. 10, 2014 from

http://www.whitehouse.gov/sites/default/files/microsites/ceq/comments\_on\_all\_9\_saps\_1.24.11-4.29.11.pdf. Alaska manages its resources at the

ecosystem level. This said, we have concern with adopting ecosystem-based

management guidelines at the federal or international level. State levelmanagement is the best approach.

1011. Carrie Severino (staff writer) NATIONAL REVIEW.COM. June 17,2011. Retrieved Apr. 25, 2014 from http://www.nationalreview.com/benchmemos/

269876/justice-kennedy-federalism-exists-secure-individual-libertycarrie-

severino. Unanimous Supreme Court decisions often don’t get the

coverage that close cases do, but yesterday’s decision in Bond v. United

States deserves mention because in it Justice Kennedy has once again

eloquently described the relationship between federalism and individual

liberty. Here’s a sample: The federal system rests on what might at first

seem a counter-intuitive insight, that “freedom is enhanced by the creation

of two governments, not one.” Alden v. Maine, 527 U. S. 706, 758 (1999).

The Framers concluded that allocation of powers between the National

Government and the States enhances freedom, first by protecting the

integrity of the governments themselves, and second by protecting the

people, from whom all governmental powers are derived. Federalism ismore than an exercise in setting the boundary between different institutions

of government for their own integrity. “State sovereignty is not just an endin itself: ‘Rather, federalism secures to citizens the liberties that derive from

the diffusion of sovereign power.’”

1012. Carrie Severino (staff writer) NATIONAL REVIEW.COM. June 17,2011. Retrieved Apr. 25, 2014 from http://www.nationalreview.com/benchmemos/

269876/justice-kennedy-federalism-exists-secure-individual-libertycarrie-

severino. Federalism secures the freedom of the individual. It allows

States to respond, through the enactment of positive law, to the initiative ofthose who seek a voice in shaping the destiny of their own times without

having to rely solely upon the political processes that control a remote

central power. True, of course, these objects cannot be vindicated by the

Judiciary in the absence of a proper case or controversy; but the individual

liberty secured by federalism is not simply derivative of the rights of the

States. Federalism also protects the liberty of all persons within a State by

ensuring that laws enacted in excess of delegated governmental power

cannot direct or control their actions. See ibid. By denying any one

government complete jurisdiction over all the concerns of public life,

federalism protects the liberty of the individual from arbitrary power. Whengovernment acts in excess of its lawful powers, that liberty is at stake.

EVIDENCE BAYLOR BRIEFS 137

1013. Timothy Sandefur (Principal Attorney at the Pacific Legal

Foundation) Dec. 20, 2011. Retrieved Apr. 25, 2014 from

http://blog.pacificlegal.org/2011/liberty-and-federalism-in-the-individualmandate-

cases. As the Court recently reminded us in Bond v. United States,

the limits on federal power exist in order to protect the indefinite range ofindividual freedom with which we are endowed by nature. Liberty is an

undefinable realm of free individual choice—it does not come in discrete

quanta, and cannot be reduced to a list of particular individual rights. On the

contrary, the Constitution was written on the understanding that individualshave freedom to act however they please, within the rights of others, exceptwhere the government is specifically vested with power to override their

freedom of action. Thus people can engage in commerce however they

want, except where the Commerce Clause or other provisions give Congress

the power to intrude. There is no more space between individual freedom

and the powers of Congress than there is between the beach and the ocean’s

waves.

1014. Randy Barnett (staff writer) SCOTUS Blog. June 26, 2013. Retrieved

Apr. 25, 2014 from http://www.scotusblog.com/2013/06/federalismmarries-

liberty-in-the-doma-decision/. In short, under Justice Kennedy’sreasoning, it is the fact that states have recognized same-sex marriage that

gives rise to heightened judicial scrutiny (“Here the State’s decision to give

this class of persons the right to marry conferred upon them a dignity and

status of immense import.” (emphasis added) [18]). In essence, state law isbeing used to identify a protected liberty or right within its borders against a

federal statute. Although this converted our enumerated powers argument

into a protection of individual rights, at the same time, it both relied on and

preserved the states’ prerogatives to define and protect liberty.

1015. James Huffman (dean emeritus and formerly the Erskine Wood Sr.

Professor of Law at Lewis and Clark Law School) DEFINING IDEAS: A

HOOVER INSTITUTION JOURNAL. 2012. Retrieved Apr. 25, 2014 fromhttp://www.hoover.org/publications/defining-ideas/article/119436.

Generally, the challenge of protecting liberty lies in limiting the abuse of

government power—of protecting individual rights from government

interference. Verrilli’s argument is founded on a very different conceptionof liberty. By his view, liberty consists of positive rights guaranteed by theredistribution of wealth through government programs and subsidies. Inother words, liberty depends on the grace and generosity of government.

This runs directly counter to the deeply held natural rights philosophy of the

American founders. The Declaration of Independence left no doubt aboutthe source of liberty and the relationship between individual rights andgovernment authority: We hold these truths to be self-evident, that all men

are created equal, that they are endowed by their Creator with certain

unalienable Rights, that among these are Life, Liberty and the pursuit of

Happiness.—That to secure these rights, Governments are instituted among

Men, deriving their just powers from the consent of the governed.

Consenting to be governed is both an exercise of liberty and an agreement

to limit some natural rights so that government may perform the functionsconsented to—functions that inevitably limit liberty. This reciprocalrelationship between rights and government power is recognized in the

Tenth Amendment’s guarantee that “powers not delegated to the UnitedStates by the Constitution, nor prohibited by it to the States, are reserved to

the States respectively, or the people.”

1016. Ruth Bader Ginsburg (associate justice, United States SupremeCourt) COLUMBIA JOURNAL OF GENDER AND LAW. 2013.

Retrieved Apr. 25, 2014 from Lexis/Nexis. Ginsburg: There isn't a

Constitution in the world written since 1950 that doesn't have an EqualRights Amendment. Well, that's one difference between a Constitution

written at the end of the eighteenth century and a Constitution written morerecently. I was puzzled by some commentary on my remarks in an Egyptian

TV interview. If you were writing a Constitution today, would you look

back to an eighteenth century model and not consider newer constitutions? I

mentioned specifically the Constitution of South Africa, the Canadian

Charter of Rights and Freedoms, and the European Convention on HumanRights. So yes, the United States Constitution, particularly on the structureof government, you might look to that as one model. But in the end, I think

most systems abroad will retain parliamentary systems and will not have

our separation of legislative and executive powers. Also, in most countries,

there's no federalism issue. It's one nation, not composed of several states.

As to the Equal Rights Amendment, as important as I thought and think it isas a symbol — that among the fundamental premises that the society is

committed to is the equal citizenship stature of men and women—even

though I wish that I would see that stated in our Constitution in my lifetime,

an Equal Rights Amendment is not a cure-all. It takes people who careabout implementing the right to ensure that it becomes real and not just

paper statement. It's nice to have the statement there, but if people don't care

about implementing it, it will be just that, a paper statement.

1017. Richard H. Fallon, (Professor of Constitutional Law, Harvard Law

School) MAINE LAW REVIEW, 2012. Retrieved Apr. 25, 2014 from

Lexis/Nexis. On February 7, 2012, a front-page article in The New YorkTimes reported that the Constitution of the United States has ceased to be

the leading model for constitution-writers in other countries. According to

The Times, and to the law review article on which The Times based its

report, the U.S. Constitution has fallen increasingly out of alignment withan evolving international consensus regarding the individual rights that a

constitution ought to protect. In addition, the constitutions of other countriescopy the structural provisions of the U.S. Constitution-involving federalismand the separation of powers-far less frequently than they once did. As the

editors of The Times undoubtedly anticipated when they put their story onthe front page, the news that other countries no longer regard the

Constitution of the United States as a paradigm of excellence seems likely

to provoke a shock of surprise in many American minds. Questions follow.

Why have other countries ceased to treat the U.S. Constitution as a

prototype? By reflecting on what others might view as deficiencies in ourConstitution-most of which was written in the eighteenth century-can weachieve an enhanced understanding of the respective ways in which it mayserve us well and badly in the twenty-first century? And if so, how should

we go forward?

1018. Richard H. Fallon, (Professor of Constitutional Law, Harvard Law

School) MAINE LAW REVIEW, 2012. Retrieved Apr. 25, 2014 from

Lexis/Nexis. Differences between the U.S. Constitution and the

constitutions of other countries could undoubtedly be grouped into a

multitude of categories, with a matching plethora of explanations. With

apologies for oversimplification on many fronts, I would emphasize four

phenomena. First, the constitutions of other countries increasingly deviate

from the U.S. Constitution with respect to matters involving federalism andthe separation of powers. The U.S. Constitution's assignment to the states of

a quasi-sovereign status has not proved a popular model in other nations.

Relatedly, the ambition of the U.S. Constitution to assign only limited

powers to the federal government-largely in the expectation that the states

would retain powers to legislate for the public health, safety, and welfare-

has seemed to others to be an outdated residue of eighteenth centuryattitudes. In a world in which government is widely expected to play roles

that the American Founding Fathers could not have foreseen, it has alsoseemed to many that the U.S. Constitution makes it too difficult for the

federal government to exercise even such powers as it possesses.

Presidential veto powers make legislation more difficult here than in

parliamentary systems. The design of the Senate, which allows

representatives of small states to block legislation favored by national

majorities, poses another obstacle to legislating. In addition, some haveblamed American-style separation of powers regimes, featuring an

independent president, for the tendency of a number of South American

countries to lapse repeatedly into quasi-dictatorship.

1019. Richard H. Fallon, (Professor of Constitutional Law, Harvard Law

School) MAINE LAW REVIEW, 2012. Retrieved Apr. 25, 2014 from

Lexis/Nexis. I began by noting that constitution-writers in other nationshave ceased to view the United States Constitution as a preeminent model

and then asked whether we, as Americans, could learn any useful lessonsfrom comparing the U.S. Constitution and surrounding interpretivepractices with the "generic constitution" that represents most other liberaldemocracies' current consensus about constitutional matters. In addressing

this question, I briefly considered the hypothesis that the U.S. Constitution,

most of which was written in the eighteenth century, leaves us stuck in the

equivalent of constitutionalism 1.0 when most of the rest of the world hasadvanced to constitutionalism 2.0. But this hypothesis withers underscrutiny. We are far beyond constitutionalism 1.0, as defined by theconstitutional regime of the early Republic and the set of understandings

that surrounded it; we inhabit something more analogous to what I haveloosely and metaphorically categorized as American constitutionalism 1.8.

Through adaptive interpretation, political leaders, judges, and the Americanpeople have found ways to endow our Constitution with twenty-first

century rather than eighteenth-century functionality. We have not only more

extensive rights than eighteenth- and nineteenth-century Americans did, but

also a more empowered national government in both its legislative and its

executive aspects. But the adaptations that have been necessary to make our

Constitution workable in the twenty-first century have created a tension,

still not adequately resolved, about how to reconcile adaptability with

fidelity to the Constitution's written text and original understanding. WhenAmericans are broadly (even if never unanimously) united about whichadaptations reason requires, American constitutionalism 1.8 works very

well. But when unity breaks down, and constitutional judgments appear tobe ideological and partisan, then American constitutionalism 1.8 begins to

look clunky and occasionally dysfunctional. Is it any wonder that other

nations would opt for twenty-first century constitutions that are more

expressly designed to address twenty-first century challenges?

EVIDENCE BAYLOR BRIEFS 138

1020. David S. Law & Mila Versteeg (Professor of Law and Professor ofPolitical Science, Washington University in St. Louis) June 2012. NEW

YORK UNIVERSITY LAW REVIEW. Retrieved Apr. 25, 2014 from

Lexis/Nexis. It has been suggested, with growing frequency, that the United

States may be losing its influence over constitutionalism in other countries

because it is increasingly out of sync with an evolving global consensus on

issues of human rights. Little is known in an empirical and systematic way,

however, about the extent to which the U.S. Constitution influences the

revision and adoption of formal constitutions in other countries. In this

Article, we show empirically that other countries have, in recent decades,

become increasingly unlikely to model either the rights-related provisions

or the basic structural provisions of their own constitutions upon those

found in the U.S. Constitution. Analysis of sixty years of comprehensive

data on the content of the world's constitutions reveals that there is a

significant and growing generic component to global constitutionalism, inthe form of a set of rights provisions that appear in nearly all formalconstitutions. On the basis of this data, we are able to identify the world's

most and least generic constitutions. Our analysis also confirms, however,

that the U.S. Constitution is increasingly far from the global mainstream.

The fact that the U.S. Constitution is not widely emulated raises the

question of whether there is an alternative paradigm that constitutional

drafters in other countries now employ as a model instead. One possibilityis that their attention has shifted to some other prominent national

constitution. To evaluate this possibility, we analyze the content of the

world's constitutions for telltale patterns of similarity to the constitutions of

Canada, Germany, South Africa, and India, which have often been

identified as especially influential. We find some support in the data for the

notion that the Canadian Charter of Rights and Freedoms has influenced

constitution making in other countries. This influence is neither uniform norglobal in scope, however, but instead reflects an evolutionary path sharedprimarily by other common law countries. By comparison, we uncover nopatterns that would suggest widespread constitutional emulation of

Germany, South Africa, or India.

1021. David S. Law & Mila Versteeg (Professor of Law and Professor ofPolitical Science, Washington University in St. Louis) June 2012. NEW

YORK UNIVERSITY LAW REVIEW. Retrieved Apr. 25, 2014 from

Lexis/Nexis. There are growing suspicions, however, that America's days as

a constitutional hegemon are coming to an end. It has been said that the

United States is losing constitutional influence because it is increasingly out

of sync with an evolving global consensus on issues of human rights.

Indeed, to the extent that other countries still look to the United States as an

example, their goal may be less to imitate American constitutionalism than

to avoid its perceived flaws and mistakes. Scholarly and popular attentionhas focused in particular upon the influence of American constitutionaljurisprudence. The reluctance of the U.S. Supreme Court to pay "decent

respect to the opinions of mankind" by participating in an ongoing "global

judicial dialogue" is supposedly diminishing the global appeal and influence

of American constitutional jurisprudence. Studies conducted by scholars in

other countries have begun to yield empirical evidence that citation to U.S.

Supreme Court decisions by foreign courts is in fact on the decline. By

contrast, however, the extent to which the U.S. Constitution itself continues

to influence the adoption and revision of constitutions in other countries

remains a matter of speculation and anecdotal impression.

1022. David S. Law & Mila Versteeg (Professor of Law and Professor ofPolitical Science, Washington University in St. Louis) June 2012. NEW

YORK UNIVERSITY LAW REVIEW. Retrieved Apr. 25, 2014 from

Lexis/Nexis. See, e.g., Dahl, supra note 7, at 43 (observing that the "basicelements" of the American constitutional system are imitated by none of the

world's "older democracies"); Klug, supra note 7, at 598 (arguing that,

"instead of enjoying an unassailable, dominant status," advocates of the

American model now face "open competition from advocates of the

German, Canadian, Indian, or other constitutional experiences"); Wiktor

Osiatynsky, Paradoxes of Constitutional Borrowing, 1 Int'l J. Const. L. 244,

250 (2003) (noting that in post-Cold War Eastern Europe, the Americanconstitutional model was "rejected almost out of hand because of the drasticdifference in U.S. and postcommunist traditions and social conditions");

Frederick Schauer, The Politics and Incentives of Legal Transplantation, in

Governance in a Globalizing World 253, 260 (Joseph S. Nye Jr. & John D.

Donahue eds., 2000) ("In some political quarters, avoiding Americaninfluence just because it is American often appears to be a driving force.");

Alec Stone Sweet, Constitutions and Judicial Power, in ComparativePolitics 217, 231 (Daniele Caramani ed., 2008) (deeming "the American

experience" "increasingly irrelevant to global constitutionalism"); Lorraine

E. Weinrib, The Postwar Paradigm and American Exceptionalism, in The

Migration of Constitutional Ideas 84, 84 (Sujit Choudhry ed., 2006) ("TheConstitution of the United States provided the inspiration for the rights-

protecting constitutions of liberal democracies across the world. Yet the

constitutional systems developed or newly established since the Second

World War now differ from their U.S. precursor."); Miguel Schor, Book

Review, 20 L. & Pol. Book Rev. 155, 157 (2010) (reviewing George Athan

Billias, American Constitutionalism Heard Around the World, 1789-1989:

A Global Perspective (2009)), http://www.lpbr.net/2010/05/american-

constitutionalism-heard-around.html ("The once predominant position of

the United States within the Western constitutional tradition is under

challenge by constitutional seeds planted immediately after the Second

World War, such as the Universal Declaration of Human Rights (1948) and

the German Basic Law (1949).").

1023. Keshav Bhattarai (Professor of Geography at University of Central

Missouri) MY REPUBLICA, Oct. 16, 2011. Retrieved Apr. 25, 2014 fromLexis/Nexis. Unfortunately, federalism experiences in the developing worldhave generally been less than satisfactory. Of the 92 post-colonial countries

created following WWII, exactly half of these countries' leaders chose a

form of federalism as their government following independence. By the late

1980s, only six of the forty-six states were considered legitimate models offederalism. Fourteen countries maintained some form of power sharing

arrangement between the national and sub-national governments, and five

countries categorized themselves as having a federalism form of

government, but did not have meaningful power sharing agreements.

Today, a federal government governs over 40 percent of the world'spopulation living in 26 of 193 countries. On the list of 26 are several large

and complex democracies including the United States (50 states), Germany

(16 states), Brazil (27 states), India (28 states and seven territories), Mexico(32 states).

1024. Daniel J. Elazar (Jerusalem Center for Public Affairs) FEDERALISMAND PEACE-MAKING. April 19, 2012. Retrieved Apr. 25, 2014 fromhttp://www.jcpa.org/dje/articles/fed-peace.htm. In the case of Pakistan and

other similar examples, it was lack of the requisite attitudinal dimensions of

trust, will to federate, and federal political culture that turned federation

partly into secession and partly into a dead letter for many years. On the

other hand, while the West Indies Federation collapsed because it reached

for too much, the Caribbean Community, a confederal arrangement,

emerged out of its wreckage based on an unavoidable necessity forcooperation and sharing, even among islands by definition insular.

1025. Tesfaye Habisso (former Ethiopian ambassador to South Africa)

TIGRAI ONLINE. Oct. 11, 2012. Retrieved Apr. 252014, Lexis/Nexis. In a

seminal work, S. Rufus Davis argued that there was no causal relationship

between federalism and anything else: “The truth of the matter is…. andexperience has been the teacher…that some ‘federal’ systems fail, some donot; some promote a great measure of civil liberty, some do not; some are

highly adaptive, some are not… Whatever their condition at any one time…

it is rarely clear that it is so because of their federalness, or the particularcharacter of their federal institutions, or the special way they practice

federalism, or in spite of their federalness.” [S. Rufus Davis, The Federal

Principle, Berkeley: University of California Press, 1978, pp. 211-212] IfDavis is right, then federalism may be associated in some cases with a rise

in the frequency and intensity of ethnic problems, and in other cases with a

decline in the frequency and intensity of such problems. That is, no

consistent relationship would exist between federalism and the rise or

decline of ethnic problems, as some critics fret to portray.

1026. Tesfaye Habisso (former Ethiopian ambassador to South Africa)

TIGRAI ONLINE. Oct. 11, 2012. Retrieved Apr. 25, 2014, Lexis/Nexis.

The preponderance of scholarly work on the issue in Africa and elsewhere

supports the Davis thesis, i.e. it suggests that federalism is not consistently

related to the promotion or settlement of ethnic problems. Further, as RobertMcKown contends, “neither a federal nor a unitary constitution is a solution

to multi-culturally based problems but a structural context within which

they may be confronted”. Yet, federalism continues to be viewed by someleaders of minority groups in Africa as a solution to, and by some leaders ofmajority groups as a cause of, such problems. This brings us to the

problematic of federalism: Why would these leaders advocate or oppose

something which has not proved to consistently cause or solve ethnic

problems? There is no satisfactory answer provided yet.

1027. Tesfaye Habisso (former Ethiopian ambassador to South Africa)

TIGRAI ONLINE. Oct. 11, 2012. Retrieved Apr. 25, 2014, Lexis/Nexis.

Finally, it must be clearly and firmly stated that it is absolutely difficult toformulate abstract generalizations about federal institutions and the

prospects for their stability, since it might well be that institutions that workperfectly in one context will fail to perform if transplanted to another. This

paper rejects the notion that federalism can be a one-size-fits-all solution toethnic and other forms of intrastate conflict. Instead, it proposes a vision offederalism deeply rooted in the specific features of diverse societies.

1028. ARAB NEWS, Apr. 26, 2014, Retrieved Apr. 27, 2014 from

http://www.zawya.com/story/Saudi\_Arabia\_celebrates\_9\_years\_of\_growth\_under\_King\_Abdullah-ZAWYA20140426034702/ Custodian of the Two

Holy Mosques King Abdullah today celebrates a glorious nine years as

leader of Saudi Arabia, marked by unprecedented economic growth and

social development, and far-reaching regional and international peaceinitiatives.

1029. Charles Wolf (Distinguished Corporate Chair in International

Economics, RAND Corporation) THE GEOPOLITICS OF U.S. ENERGYINDEPENDENCE, Summer 2012, Retrieved Apr. 27, 2014 from

http://www.internationaleconomy.

com/TIE\_Su12\_GeopoliticsEnergySymp.pdf For commodities

that are homogeneous, as is the case for oil and gas, only a single price foreach (apart from CIF differences) must prevail in world markets. Removing

the world’s largest importer (the United States) from the demand side of

these two global markets, and adding it to the supply side (where the United

States would become in effect a non-affiliated OPEC partner) will

dramatically affect prices in both oil and gas markets. When further

allowance is made for China’s large ongoing investments to expand global

oil and gas supplies (especially in Africa), oil and gas prices are likely to

plummet—a 50 percent decrease from current prices would not be

implausible. OPEC’s break-up might well ensue as a byproduct.

EVIDENCE BAYLOR BRIEFS 139

1030. Phil Kerpen, (president of American Commitment)

TOWNHALL.COM. Oct. 19, 2012. Retrieved Apr. 27, 2014 from

http://townhall.com/columnists/philkerpen/2012/10/19

gas\_prices\_are\_up\_because\_of\_obamas\_offshore\_ban/page/full/ On July

14, 2008, President Bush lifted the executive branch moratorium on

offshore drilling that his father had put in place. That indicated a

consolidation of support for offshore drilling that stalled the run-up in prices

at the pump. In the next two months, the average price dropped more than

thirty cents to $3.70.

1031. Phil Kerpen, (president of American Commitment)

TOWNHALL.COM. Oct. 19, 2012. Retrieved Apr. 27, 2014 from

http://townhall.com/columnists/philkerpen/2012/10/19

gas\_prices\_are\_up\_because\_of\_obamas\_offshore\_ban/page/full/ Grassroots

activists pressed even harder, demanding Congress lift the remaining barrier

to offshore drilling, the appropriations rider that had been in place since1981. The pressure on Obama was so intense that he even reversed his

opposition, claiming on August 1, 2008, that he would support offshoredrilling under some circumstances. Meanwhile, activists ratcheted up

pressure on Congress and the White House, urging Congress to let the ban

expire. Facing organized opposition in Congress, a Bush veto threat, and

overwhelming public opinion in favor of drilling, Nancy Pelosi caved. After

27 years, the ban on offshore drilling was officially lifted on October 1,

2008. With the moratorium lifted, markets anticipated future production ofthe estimated 19.1 billion barrels of oil (equal to 30 years of imports from

Saudi Arabia) in the Outer Continental Shelf. Market psychology abruptly

reversed, and the price at the pump dropped sharply. It reached a low of$1.79 in January 2009, the month of Obama's inauguration. That's no

coincidence.

1032. Daniel Gallington (Senior Policy and Program Adviser at the George

C. Marshall Institute) Dec. 24, 2012, Retrieved Apr. 27, 2014 from

http://www.usnews.com/opinion/blogs/world-report/2012/12/24/frackingopec-

and-violence-in-the-middle-east?s\_cid=rss:world-report:frackingopec-

and-violence-in-the-middle-east. Perhaps even more important, thereport observes that: A dramatic expansion of US production could also

push global spare capacity to exceed 8 million barrels per day, at which

point OPEC could lose price control and crude oil prices would drop,

possibly sharply. Such a drop would take a heavy toll on many energyproducers who are increasingly dependent on relatively high energy pricesto balance their budgets.

1033. Daniel Gallington (Senior Policy and Program Adviser at the George

C. Marshall Institute) Dec. 24, 2012, Retrieved Apr. 27, 2014 from

http://www.usnews.com/opinion/blogs/world-report/2012/12/24/frackingopec-

and-violence-in-the-middle-east?s\_cid=rss:world-report:frackingopec-

and-violence-in-the-middle-east. In sum, the real answer to high oilenergy prices is very, very simple and always has been simple: Lots and lots

of "product"—the more the better—and "product" that's "fungible" enoughso that classic Keynesian economic models can legitimately apply to world

oil pricing, thereby breaking OPEC's cartel.It also goes—almost without

saying—that if oil prices were determined this way, instead of by OPEC,

they would be a lot lower!

1034. Ajay Makan, (staff writer) FINANCIAL TIMES, August 9, 2013.

Retrieved Apr. 27, 2014 from www.ft.com/intl/cms/s/0/6e91d54e-00e711e3-

8918-00144feab7de.html#axzz2bpN5VSYu. Yet Saudi Arabia is

producing almost 10m barrels a day, an extremely high figure by historical

standards. And oil prices remain high. The reason is simple: supply

disruptions. From oil theft in Nigeria to the closure of ports in Libya and

transit disputes in South Sudan, unplanned outages are on the rise.

1035. Madhur Jha (economist) Apr. 24, 2013. Retrieved May 26, 2013 from

http://www.hsbcnet.com/gbm/global-insights/insights/2013/falling-oilprices-

winners-and-losers.html. For oil producers, lower oil prices clearlyworsen the fiscal position of governments that are very reliant on oilrevenues to fund their spending. In countries such as Saudi Arabia, where

government spending rose sharply following the Arab Spring, oil priceswould have to remain high for fiscal positions not to deteriorate sharply. On

the other hand, falling oil prices for oil importers would lower the burden ofsubsidies in countries such as India, where prices are still fully or partly

regulated.

1036. ALIF ARABIA, Apr. 28, 2013. Retrieved May 26, 2013 from

http://www.zawya.com/story/Oil\_price\_slips\_amid\_poor\_demandZAWYA20130428105319/.

An oil price collapse to USD 90 per barrel

could see a 0.4% drop in Saudi GDP, according to estimates by HSBC.

Indeed, Saudi Arabia and the UAE are among the countries most vulnerable

to an oil price shock, the bank says.

1037. REUTERS NEWS SERVICE, May 21, 2013. Retrieved May 26,2013 from

http://english.alarabiya.net/en/business/economy/2013/05/21/Inflation-apotential-

risk-for-strong-Saudi-economy-says-IMF.html. High world oil

prices have contributed to a string of large Saudi budget surpluses in recentyears, as well as sharply reduced levels of public debt and the accumulation

of a considerable buffer of financial assets. “From this position of strength,

now is a good time to consider further fiscal reforms. In this context, we

encourage the government to further develop fiscal tools, including those

dealing with oil price uncertainty,” the IMF said.

1038. Nicolas Parasie (staff writer) May 26, 2013. Retrieved May 26, 2013

from http://blogs.wsj.com/middleeast/2013/05/26/middle-east-ceos-theworlds-

most-optimistic-says-pwc/. One of the most obvious reasons for the

sunny outlook of Middle East CEOs is an oil price that remains perched at

about $100 a barrel, filling the coffers of key oil-producers such as Saudi

Arabia and the United Arab Emirates.

1039. Christopher Helman (staff writer) FORBES, Apr. 29, 2013. Retrieved

May 26, 2013 from

http://www.forbes.com/sites/christopherhelman/2013/04/29/7-reasons-whyoil-

prices-wont-plunge/. The cartel has a stated production cap of 30 millionbarrels per day. But member states are producing more like 30.4 million

today. But the OPEC nations need prices of $90 to $100 to balance their

budgets and keep their people happy with government spending. They will

adhere to quotas in order to get prices back up. The Saudis have proven that

they can be very disciplined when it comes to cutting output. In 2009 whenoil prices crashed they scaled back by 1.5 million barrels per day. They alsotend to export less when prices are low, and keep the oil in the kingdom.

1040. Yousef Gamal El-Din (staff writer) May 15, 2013. Retrieved May 26,2013 from http://www.cnbc.com/id/100739228. A downside pressure onprices would arguably come at an unfortunate time for countries like Saudi

Arabia, still the world's top oil exporter, where government spending has

risen in order to help keep the turmoil affecting the broader Middle Eastfrom hitting the country domestically. Saudi Arabia's budget is directlylinked to the global price of oil.

1041. Frederic Wehrey (Senior Associate Middle East Program, Carnegie

Endowment for International Peace) May 22, 2013. Retrieved May 26, 2013

from http://carnegieendowment .org/2013 /05/22/new-saudi-arabia/g5em.

Since the beginning of the Arab Awakening, the government has chosen tomeet the challenge through the time-tested tactic of subsidies and handouts.

And this has largely worked so far. But Saudi Arabia is not doing enough toensure that the economy will thrive in the future. There have been increasesover the past two years in public-sector spending, but the private sectorremains stagnant. Only 6.5 percent of Saudis are working in the private

sector, and the country is still importing cheap foreign labor despite recent

efforts to deport foreign workers violating their work visas. There are fewincentives for citizens or businesses to innovate. Saudi Arabia is currentlyconsuming a quarter if its own oil and could become an oil importer by2030. But the government relies on high oil prices to finance its budget.

1042. REUTERS, May 21, 2013. Retrieved May 26, 2013 from

http://www.arabianbusiness.com/imf-warns-saudi-arabia-over-inflationrisk-

502370.html. High world oil prices have contributed to a string of large

Saudi budget surpluses in recent years, as well as sharply reduced levels of

public debt and the accumulation of a considerable buffer of financial

assets.

1043. Madhur Jha (economist) Apr. 24, 2013. Retrieved May 26, 2013 from

http://www.hsbcnet.com/gbm/global-insights/insights/2013/falling-oilprices-

winners-and-losers.html. In the western world the impact of a lower

price seems to be limited in 2013 with most countries showing a 0.1percentage point improvement in GDP growth while inflation falls by anaverage 0.5 points. But the longer oil prices stay low, the greater the impact,

with 2014 seeing a stronger pickup in growth and a sharper drop in

inflation. For emerging markets, the impact is much more pronounced. Big

oil producers such as Russia and Saudi Arabia face the most negative

growth outlook in 2013 while the big oil consumers such as India, Turkey

and South Africa benefit most from lower oil prices. And all countries –

developed or developing – benefit from a drop in inflation, though clearly

with food and fuel forming a larger proportion of the consumer basket inemerging markets, the disinflationary impact is on average higher there thanfor developed markets.

1044. Martin Dokoupil (staff writer) Apr. 30, 2013. Retrieved May 26,

2013 from

http://www.saudigazette.com.sa/index.cfm?method=home.regcon&contentid=20130430163601. Saudi Arabia, the top Arab economy, has been raisingbudget spending by an average 14 percent annually in the last decade. As aresult, the oil price it needs to balance its budget jumped to $85 per barrel in

2013 from $38 in 2008, the International Monetary Fund has estimated.

1045. ALIF ARABIA, Apr. 28, 2013. Retrieved May 26, 2013 from

http://www.zawya.com/story/Oil\_price\_slips\_amid\_poor\_demandZAWYA20130428105319/

"In countries such as Saudi Arabia, where

government spending has risen sharply following the Arab Spring, oil priceswould have to remain high for fiscal positions not to deteriorate sharply,"

said HSBC. Deutsche Bank disagrees, arguing that most of the GCC states

can absorb a downward shift to prices to nearer to USD 80 per barrel beforethey will be forced to take action.

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1046. Benjamin Alter & Edward Fishman (editors, Foreign Affairs), NEWYORK TIMES, Apr. 28, 2013. Retrieved May 26, 2013 from

http://www.nytimes.com/2013/04/28/opinion/sunday/the-dark-side-ofenergy-

independence.html?pagewanted=all&\_r=0. That’s because

America’s oil and gas bonanza will drive down global energy prices,

undercutting the foundations of petrostates everywhere. According to

Francisco Blanch, the head of commodities research at Bank of America

Merrill Lynch, oil could fall to just $50 a barrel within the next two years,

which could unleash unrest in regions crucial to American interests. Far

from releasing the United States from the burden of global leadership, this

process would force Washington to assume an even greater internationalrole than it currently plays. If there’s one part of the world that America

would like to be less encumbered by, it’s the volatile and oil-rich MiddleEast. But energy independence will not spell the end of American

engagement in that region. On the contrary, lower energy prices will

undermine the stability of the Persian Gulf monarchies, whose hefty oil

revenues have allowed them to win their populations’ loyalties through

patronage and a lack of taxation. These countries do not always share

American values or help advance American interests, but anything that

destabilizes them would create problems that Washington could not affordto ignore.

1047. Maxime Fischer-Zernin (staff writer) May 20, 2013. Retrieved May

26, 2013 from http://www.policymic.com/articles/43193/fracking-how-itcould-

save-the-climate-and-u-s-foreign-policy. Some analysts predict thatthe market forces produced by natural gas production and the exploitation

of oil reserves could pull oil prices down as low as $70 to $90 a barrel,

unsettling Gulf nations who depend on high prices to meet their budgets.

Lowering prices will increase U.S. geopolitical power as OPEC countries as

forced to increase output or reduce spending, and cope with the reforms thatwould accompany these shifts.

1048. Lyudmila Alexandrova (staff writer), SENDING OIL PRICES

DOWN UNPROFITABLE FOR SAUDI ARABIA, RUSSIA BELIEVES.

Apr. 18, 2014. Retrieved Apr. 26, 2014 from http://en.itartass.

com/opinions/1747. The Russian president said that the Saudi budget iscalculated proceeding from the price of $85-90 for barrel, and for Russia’s

budget, it is $90. “If the prices drops lower than $85, Saudi Arabia itselfwill lose and have problems. For us, lowering the price from $90 to $85 isnot critical,” Putin pledged. Also, Saudi Arabia is an OPEC member, and

“it’s a very difficult matter” for the organization to increase production, he

said.

1049. Anders Aslund (Senior Fellow, Peterson Institute for InternationalEconomics) THE GEOPOLITICS OF U.S. ENERGY INDEPENDENCE,

Summer 2012, Retrieved Apr. 27, 2014 from http://www.internationaleconomy.

com/TIE\_Su12\_GeopoliticsEnergySymp.pdf. Phil Verleger has

got it right. Today, there is little doubt that the new methods for producing

unconventional natural gas and oil are causing a complete paradigm shift in

the United States and the global energy situation. The United States isalready self-sufficient in natural gas, and its dependence on oil imports is

set to fall. This change will have a huge impact on U.S. foreign policy.

Most obviously, U.S. interests in the Middle East will decline along with

U.S. energy imports. The United States is unlikely to engage in wars such

as the Gulf War of 1991 or the war in Iraq, but presumably it will no longer

accept being the global policeman either. The United States’ reluctance to

engage in Libya might be the new standard, and U.S. reluctance in Syria is

even greater. U.S. defense expenditures will probably decline. The result

may be more prolonged civil wars and failed states in the greater Middle

East.

1050. Eithne Treanor (staff writer) May 18, 2013. Retrieved May 26, 2013from http://gulfbusiness.com/2013/05/charting-the-cost-of-crude/ “There

are signs of rising production from some OPEC members and this overall

picture of rising supply and possible declining demand is the big over-ridingthreat as far as prices are concerned.” Analysts agree that this could put Iraqat odds with Saudi Arabia in the event any production cuts are needed in the

early part of 2013 and beyond. At the final OPEC meeting of the year,

Iraq’s OPEC governor Falah Alamri said his country had no intention of

cutting production and said that this was “a sovereign issue, not an OPECissue.”

1051. Christian Berthelsen (staff writer) May 25, 2013. Retrieved May 26,2013 from

http://online.barrons.com/article/SB50001424052748704895304578495311025425932.html?mod=googlenews\_barrons. The market's lack of a reaction

to the shifting realities means that it might take a Black Swan event—somesort of powerful and unexpected negative or positive development—tomove it in either direction. Absent that, prices have no catalyst to move

below $80 a barrel.

1052. ALIF ARABIA, Apr. 28, 2013. Retrieved May 26, 2013 from

http://www.zawya.com/story/Oil\_price\_slips\_amid\_poor\_demandZAWYA20130428105319/.

As was evident from the last few weeks,

markets can turn on a dime. Although commodities have been routed since

a depressing IMF report which cut global GDP growth, investors are not

willing to take defensive positions just yet.

1053. George Seffers (staff writer) “U.S. Coast Guard Rides Waves of

Change,” April 2011. Retrieved Mar. 29, 2014 from

http://www.afcea.org/content/?q=node/2568. The U.S. Coast Guard

increasingly is extending its operations, often venturing far from the

homeland to combat the rising tides of piracy and terrorism. While the

nation’s oldest seagoing service is most known for protecting the U.S.

shoreline, its homeland security as well as law enforcement and defense

capabilities are in high demand, leading to debate over its appropriate role.

1054. Michael Schmidt & Thom Shanker (staff writers) “To Smuggle MoreDrugs, Traffickers Go Under the Sea,” Sept. 10, 2012. Retrieved Mar. 29,2014 from http://www.nytimes.com/2012/09/10/world/americas/drugsmugglers-

pose-underwater-challenge-in-caribbean.html?\_r=0. The task

force’s commander, Rear Adm. Charles D. Michel of the Coast Guard, said

that drug interdictions for 2012 are already up more than 50 percent from a

year ago. He attributed that to a counternarcotics coalition assembled at Key

West that is trying innovative and aggressive measures to cut off drugtraffickers leaving South America.

1055. R. J. PAPP, JR. (Admiral, U.S. Coast Guard) Mar.7 2014, ALWAYS

READY, Retrieved May 28, 2014 from

http://www.uscg.mil/budget/docs/2015\_Budget\_in\_Brief.pdf. The FY 2015

Budget reflects sound, risk-based allocation of resources. In 2015, Coast

Guard will decommission two High Endurance Cutters (WHECs) that are

being replaced by more capable National Security Cutters. The Coast Guard

will also decommission eight 110-ft patrol boats, three HC-130 aircraft, and

corresponding shore side support personnel while accepting the delivery of

new, more capable Fast Response Cutters, HC-144 aircraft, and C-27J

aircraft to the fleet. The FY 2015 Budget ensures that our resources are

align ed to our Nation’s highest priorities in a manner that balances key

investments for the future with sustaining essential investment in today’smissions and capabilities that provide the highest return on investment. The

FY 2015 Budget sustains critical frontline operations, including maintainingsearch and rescue coverage, protecting critica l infrastructure and keyresources, and preserving operational hours dedicated to proficiency. Field

commanders will continue to optimize operational capacity to support safe

navigation, safeguard natural resources, protect the environment, detect andinterdict dru gs and individuals attempting to enter the United Statesillegally, and support the Nation’s foreign policy objectives and defense

operations

1056. HOMELAND SECURITY TODAY STAFF REPORT, Mar. 4, 2014.

“Proposed Reduction in DHS’s FY 2015 Budget Not Flying.” RetrievedMar. 28, 2014 from http://www.hstoday.us/industry-news/general/singlearticle/

proposed-reduction-in-dhss-fy-2015-budget-notflying/

695ca910b1eb5d236684590ecb4d89ec.html. Despite the

considerable budget decrease from FY 2014 called for in the FY 2015 DHS

budget, newly installed DHS Secretary Jeh Johnson said Tuesday when the

FY 2015 federal budget was released that it “provides the resources

necessary to further strengthen … the basic missions of the Department ofHomeland Security … while also being agile and vigilant in the face of ever

evolving threats and hazards.” And those “basic missions” are, he said,

“should continue to be preventing terrorism and enhancing security;

securing and managing our borders; enforcing and administering our

immigration laws; safeguarding cyberspace; safeguarding critical

infrastructure; and strengthening national preparedness and resilience.”

1057. Elliott A. Norse (President, Marine Conservation Biology Institute)

Responses to Admiral Watkins’ Questions on Marine Protected Areas, Oct.

24, 2002. Retrieved Mar. 29, 2014 from

http://govinfo.library.unt.edu/oceancommission/meetings/apr18\_19\_02/answers/norse\_answers.pdf. Area closures in the South Atlantic and North

Pacific provide cogent examples of the dangers of over-reliance on closed-

area management. In the South Atlantic, Oculina Banks was closed to

bottom trawling and all bottom-disturbing activities in an effort to protectthe remaining Oculina varicosa coral, an important element of snapper andgrouper spawning habitat. Despite the closure, roughly 90% of the deep-sea

coral in the closed areas is dead rubble. While it is unclear the extent to

which pirate trawling in the closed areas has resulted in damage since theclosure, researchers who work on trying to restore the Oculina have noticedthat some of the newly planted reef balls have been moved, rolled and

entangled in fishing gear, a clear indication of illegal trawling. The CoastGuard has reported that it has had significant difficulty patrolling the area,

which is 17 nautical miles off the east coast of Florida. The cost and time

involved have been obstacles, particularly because the majority of pirate

fishing occurs at night. Further, the weak penalty if a vessel is caught

trawling within the closed area (merely the seizure of the catch on board) ishardly a strong disincentive. Moreover, these Coast Guard enforcement

difficulties precede the shift in their priorities to homeland defense. So, the

level of enforcement can be assumed to be significantly less than it was a

year and a half ago. These reports, from those working in the area, indicate

that the closure has not been entirely effective at preventing entry by bottom

trawls or damage to the corals, and highlight the enforcement difficulties in

policing marine protected areas without vessel monitoring systems.

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1058. Andres Martinez-Fernandez (Young Leaders Program at The

Heritage Foundation) “Record Drug Bust Sheds Light on Security Concerns

for Coast Guard,” Feb. 3, 2014. Retrieved Mar. 28, 2014 from

http://blog.heritage.org/2014/02/03/record-drug-bust-sheds-light-securityconcerns-

coast-guard/. The U.S. Coast Guard and British Royal Fleet

Auxiliary recently seized $37 million worth of cocaine off the coast of the

Dominican Republic that was headed to the United States. The success of

this interdiction is due in large part to the cooperative efforts of the nations

and agencies involved, but budget constraints on the U.S. Coast Guard

could jeopardize future efforts to combat such illicit activities.

1059. Julie Watson & Elliot Spagat (staff writers) “Seafaring drug

smugglers challenging Coast Guard,” Retrieved Mar. 29, 2014 from

http://bigstory.ap.org/article/seafaring-drug-smugglers-challenging-coastguard.

As such, only a third of suspected drug smuggling boats or aircraft

out of South America that were tracked by U.S. intelligence in cocaine-

trafficking corridors in the Pacific and Caribbean were stopped last year, theCoast Guard's top officer, Adm. Robert Papp, told The Associated Press.

"Our interdictions are down 30 percent from the year before, when we hadmore assets out there, so that's an indicator to me that as soon as we start

pulling assets away, they're running more drugs and they're getting

through," Papp said.

1060. George Seffers (staff writer) “U.S. Coast Guard Rides Waves of

Change,” April 2011. Retrieved Mar. 29, 2014 from

http://www.afcea.org/content/?q=node/2568. While still adjusting to its new

home within the Homeland Security Department, the Coast Guard is beingcalled upon more often to participate in overseas operations. In September

2010, for example, Coast Guard law enforcement personnel took part in a

military operation to recapture the motor vessel Magellan Star, a ship flying

the flag of Antigua and Barbuda and owned by a German corporationknown as the Dr. Peters Group, a financial services provider. The Coast

Guard team was working with the 15th Marine Expeditionary Unit in

support of Combined Task Force 151, a multinational, counterpiracy task

force operating in the Gulf of Aden and off the eastern coast of Somalia.

“The mission went down very well. The Marines conducted the initial

assault on the vessel and secured the pirates. Then, the Coast Guard boarded

to do the law enforcement and prosecution side of it—evidence collection

and building case packages so that the marauders actually get arrested,

charged and jailed,” says Cmdr. Scott Rogers, USCG, deputy chief in theCoast Guard’s Office of Counterterrorism and Defense Operations. “I findgreater and greater demand to deploy internationally. What I don’t have is a

consistent greater and greater supply to deploy internationally, so drawing a

line between what missions we support and which ones we don’t based onresources is often a tough decision.”

1061. Andres Martinez-Fernandez (Young Leaders Program at The

Heritage Foundation) “Record Drug Bust Sheds Light on Security Concerns

for Coast Guard,” Feb. 3, 2014. Retrieved Mar. 28, 2014 from

http://blog.heritage.org/2014/02/03/record-drug-bust-sheds-light-securityconcerns-

coast-guard/. A vital element to the Coast Guard’s continued druginterdiction mission is its new flagship vessel, the National Security Cutter

(NSC). The NSC will also be tasked with enforcing the law in U.S. waters

along both coasts and even in the Arctic Circle. Yet over the past several

years, the Coast Guard has seen this program cut time and time again. The

Coast Guard had originally requested 16 NSCs, but budget constraints

forced a reduction to only eight. The NSC is an unprecedented cutter in

virtually every way: range, power, speed, and versatility of missions.

Shrinking this fleet further—as the Obama Administration has attempted to

do—would severely hamper the Coast Guard’s ability to perform its

missions.

1062. Jim Kouri (Law Enforcement Examiner) “Drug traffickers benefit

from Obama cuts to Coast Guard,” Mar. 21, 2014, Retrieved Mar. 28, 2014

from http://www.examiner.com/article/drug-traffickers-benefit-fromobama-

cuts-to-coast-guard. Adam Housley of Fox News wrote on Thursdaythat "drug smugglers are moving some of their operations away from the

U.S.-Mexico land border and out into the ocean where it's easier to avoid

law enforcement."

1063. Associated Press, Jan 28, 2014. “Budget cuts impacting Coast

Guard's fight against drug smugglers on the high seas,” Retrieved Mar. 28,2014 from http://www.foxnews.com/us/2014/02/24/budget-cuts-impactingcoast-

guard-fight-against-drug-smugglers-on-high-seas/. While security has

tightened at the U.S. border, drug smugglers are increasingly turning to the

high seas. The area where boats were seized off California and the

northwest coast of Mexico tripled to a size comparable to the state of

Montana during the 2013 fiscal year, which ended in September. Off South

America, traffickers over the years have been traversing territory so big the

continental United States could be dropped inside of it. Mexico's Sinaloa

cartel has been loading marijuana bales onto 50-foot vessels as far south asthe Mexican port of Mazatlan — where its leader, Joaquin "El Chapo"

Guzman, was captured early Saturday — and running them up the Pacific

coast to the U.S., deep into California. It's unclear if Guzman's arrest will

hinder the maritime runs.

1064. Julie Watson & Elliot Spagat (staff writers) “Seafaring drug

smugglers challenging Coast Guard,” Retrieved Mar. 29, 2014 from

http://bigstory.ap.org/article/seafaring-drug-smugglers-challenging-coastguard.

This photo taken Jan. 28, 2014, shows a Coast Guard officer

following traffic on his screen while facing a dense fog which is almost

completely eliminating visibility during a patrol off the San Diego coast inSan Diego. With the drug war locking down land routes across Latin

America and at the U.S. border, smugglers have been increasingly usinglarge vessels to carry multi-ton loads of cocaine and marijuana hundreds of

miles offshore, where the lead federal agency with extensive law

enforcement powers is the Coast Guard, a military service roughly the size

of the New York Police Department.

1065. Julie Watson & Elliot Spagat (staff writers) “Seafaring drug

smugglers challenging Coast Guard,” Retrieved Mar. 29, 2014 from

http://bigstory.ap.org/article/seafaring-drug-smugglers-challenging-coastguard.

This photo taken Jan. 28, 2014, shows the crew of a 45 foot Coast

Guard patrol boat runs through their pre-departure briefing in San Diego

harbor in San Diego. Once the vessel exited the harbor area it encountered a

dense fog. With the drug war locking down land routes across Latin

America and at the U.S. border, smugglers have been increasingly usinglarge vessels to carry multi-ton loads of cocaine and marijuana hundreds of

miles offshore where the lead federal agency with extensive lawenforcement powers is the Coast Guard, a military service roughly the size

of the New York Police Department.

1066. Julie Watson & Elliot Spagat (staff writers) “Seafaring drug

smugglers challenging Coast Guard,” Retrieved Mar. 29, 2014 from

http://bigstory.ap.org/article/seafaring-drug-smugglers-challenging-coastguard.

This photo taken Jan. 28, 2014, shows Lt. Commander Matthew

Jones, the Coast Guard chief of enforcement for the San Diego sector, talksabout the vast area of the Pacific Ocean the Coast Guard polices in San

Diego. With the drug war locking down land routes across Latin America

and at the U.S. border, smugglers have been increasingly using large vessels

to carry multi-ton loads of cocaine and marijuana hundreds of miles

offshore, where the lead federal agency with extensive law enforcement

powers is the Coast Guard, a military service roughly the size of the New

York Police Department.

1067. Julie Watson & Elliot Spagat (staff writers) “Seafaring drug

smugglers challenging Coast Guard,” Retrieved Mar. 29, 2014 from

http://bigstory.ap.org/article/seafaring-drug-smugglers-challenging-coastguard.

While security has tightened at the U.S. border, drug smugglers are

increasingly turning to the high seas.

1068. Julie Watson & Elliot Spagat (staff writers) “Seafaring drug

smugglers challenging Coast Guard,” Retrieved Mar. 29, 2014 from

http://bigstory.ap.org/article/seafaring-drug-smugglers-challenging-coastguard.

This photo taken Jan. 28, 2014, Coast Guard officer William Pless

communicates on the radio while steering the 45 foot Coast Guard vessel

through a dense fog during a patrol off the San Diego coast in San Diego.

With the drug war locking down land routes across Latin America and at

the U.S. border, smugglers have been increasingly using large vessels tocarry multi-ton loads of cocaine and marijuana hundreds of miles offshore,

where the lead federal agency with extensive law enforcement powers is the

Coast Guard, a military service roughly the size of the New York PoliceDepartment.

1069. Nadav Morag, (Ph.D., University Dean of Security Studies) “The

United States Coast Guard: A Jack of All Trades,” Dec. 2013. Retrieved

Mar. 29, 2014 from

http://www.coloradotech.edu/resources/blogs/december-2013/coast-guardjobs.

After 9/11, as with many parts of the US government, a shift to

emphasize counterterrorism missions transformed the USCG from being a

part of the Department of Transportation (where it had been for decades) to

the newly created Department of Homeland Security. In terms of itscounterterrorism mission, the USCG safeguards the maritime approaches toports and inland waterways and inland ports near large cities or criticalinfrastructure assets in order to reduce vulnerabilities to water-borne

terrorist attacks. The service also monitors all international shipping traffic

destined for American ports and searches ships deemed to be potentially

suspicious. Since the USCG is organized along military lines, it has a cadreof officers (some of whom are graduates of the US Coast Guard Academyin New London, Connecticut and others who are graduates of the service’s

Officer Candidate School) as well as enlisted personnel. The total number

of active duty personnel in the Coast Guard is around 38,000. The USCG

also has a part-time Coast Guard Reserve force of some 8,000 personnel,

over 6,000 civilian employees, and nearly 30,000 Coast Guard Auxiliary

volunteers that support various Coast Guard missions.

1070. Charlotte Sellmyer (staff writer) “Miller to Hold Hearing on U.S.

Coast Guard’s Homeland Security Missions,” Dec. 2013. Retrieved Mar.

29, 2014 from http://homeland.house.gov/press-release/miller-hold-hearingus-

coast-guard-s-homeland-security-missions. Subcommittee Chairman

Candice Miller (R-MI) on the hearing: “Since September 11th, we have

seen maritime security threats evolve – from terrorism, to narcotics and

human smuggling, the United States Coast Guard (USGC) has been called

upon to perform critical homeland security missions to protect our nationand its interests. Our committee will hear from Admiral Papp, Commandantof the USCG, on the future of its homeland security missions and examine

the resources needed to carry out the USCG’s core maritime security

missions.”

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1071. Julie Watson & Elliot Spagat (staff writers) “Seafaring drug

smugglers challenging Coast Guard,” Retrieved Mar. 29, 2014 from

http://bigstory.ap.org/article/seafaring-drug-smugglers-challenging-coastguard.

With more than 42,000 active-duty members, the Coast Guard is

assisted in the drug war by other U.S. agencies. It works closely with othernations, but that help only goes so far. Bilateral treaties sometimes limit

waters it can patrol, and some of the foreign navies are small and

underequipped.

1072. HOMELAND SECURITY TODAY STAFF REPORT, Mar. 4, 2014.

“Proposed Reduction in DHS’s FY 2015 Budget Not Flying.” RetrievedMar. 28, 2014 from http://www.hstoday.us/industry-news/general/singlearticle/

proposed-reduction-in-dhss-fy-2015-budget-notflying/

695ca910b1eb5d236684590ecb4d89ec.html. Johnson conceded that

“the terrorist threat [is becoming] more diffuse and harder to detect” and

thus “cooperation with counterterrorism partners and the American public

takes on even greater importance.” “Terrorist threats emanate from a

diverse array of terrorist actors, ranging from formal groups and foreign-

based actors, to homegrown violent extremists,” he added.

1073. R. J. PAPP, JR. (Admiral, U.S. Coast Guard) Mar.7 2014, ALWAYS

READY, Retrieved May 28, 2014 from

http://www.uscg.mil/budget/docs/2015\_Budget\_in\_Brief.pdf. The Coast

Guard not only contributes to the deterrence of terrorism and mitigation of

man-made disasters, but also to timely response in the event of natural

disasters. As the federal expert in search and rescue and marine pollution

response, the Coast Guard has proven time and again to be an effective

leader for responses to significant incidents that occur in the maritime

domain. As the principal Federal Maritime Security Coordinator and

Federal On-Scene Coordinator in the coastal zone, the Coast Guard

coordinates the response to oil and other hazardous materials spills in

navigable waterways up to and including Spills of National Significance. In

2013, the Coast Guard coordinated the response of federal , state and local

agencies to a derailed freight car that released approximately 23,000 gallonsof vinyl chloride in Mantua Creek, NJ. Efforts of the Coast Guard and

partners quickly established a safety zone and removed the hazardousmaterial and damaged railway cars from the affected waterway. Also, theCoast Guard is responsible for the development and enforcement of federal

marine safety regulations and provides credentials to over 218,000

mariners, allowing them to work in our Nation’s maritime transportation

system.

1074. Andres Martinez-Fernandez (Young Leaders Program at The

Heritage Foundation) “Record Drug Bust Sheds Light on Security Concerns

for Coast Guard,” Feb. 3, 2014. Retrieved Mar. 28, 2014 from

http://blog.heritage.org/2014/02/03/record-drug-bust-sheds-light-securityconcerns-

coast-guard/. As the U.S. works toward rebuilding relations with

Latin America, it should also sustain its Coast Guard fleet to weaken the

illicit drug trade. Such efforts serve to support security and prosperity for

America and its allies in the Western Hemisphere.

1075. George Seffers (staff writer) “U.S. Coast Guard Rides Waves of

Change,” April 2011. Retrieved Mar. 29, 2014 from

http://www.afcea.org/content/?q=node/2568. The Coast Guard’s role in

combating piracy includes cooperating with the international community to

define best practices for preventing and countering attacks and educatingcommercial shippers. The Coast Guard is an active participant in theContact Group on Piracy off the Coast of Somalia, a voluntary, ad hoc

international group designed to help combat piracy in one of the world’s

most dangerous regions. The group coordinates political, military and other

efforts to end piracy in the area and ensure that pirates face justice.

1076. Nadav Morag, (Ph.D., University Dean of Security Studies) “The

United States Coast Guard: A Jack of All Trades,” Dec. 2013. Retrieved

Mar. 29, 2014 from

http://www.coloradotech.edu/resources/blogs/december-2013/coast-guardjobs.

CTU Homeland Security Degrees — US Coast GuardThe United

States Coast Guard (USCG) is a unique organization that combines a

surprisingly wide variety of duties that include: national defense, search andrescue, law enforcement, counterterrorism, maritime safety, environmental

protection and scientific research. The Coast Guard not only operates alongthe nation’s coastline, but also on the high seas and in the country’s inland

waterways.

1077. Associated Press, Jan 28, 2014. “Budget cuts impacting Coast

Guard's fight against drug smugglers on the high seas,” Retrieved Mar. 28,2014 from http://www.foxnews.com/us/2014/02/24/budget-cuts-impactingcoast-

guard-fight-against-drug-smugglers-on-high-seas/. Papp, speaking at

a defense conference this month in San Diego, said that the Coast Guard'sresources to patrol the high seas and intercept threats are "woefully

inadequate at this point." Its aging fleet of larger cutters is being replaced

with faster, more capable National Security Cutters, but the number of highendurance cutters best suited for the high seas has dropped from a total oftwelve to eight and will remain that way. The service's operating budget

will return to 2012 levels this year, but future years are uncertain.

Meanwhile, demands for the Coast Guard's 240 cutters, some 1,775 boats,

and about 200 aircraft are expanding with the warming arctic and its

emerging fisheries, cruise ship routes and commercial traffic.

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1078. Associated Press, Jan 28, 2014. “Budget cuts impacting Coast

Guard's fight against drug smugglers on the high seas,” Retrieved Mar. 28,2014 from http://www.foxnews.com/us/2014/02/24/budget-cuts-impactingcoast-

guard-fight-against-drug-smugglers-on-high-seas/. "Drug traffickers

continue to find new ways to circumvent our laws," Engel said.

"Unfortunately, Congress's draconian budget cuts have made the Coast

Guard's ability to collect intelligence on and interdict drug traffickers

increasingly difficult."

1079. Brian Slattery (Heritage Foundation) “An SOS for the Coast Guard,”

Apr. 18, 2012. Retrieved Mar. 28, 2014 from

http://blog.heritage.org/2012/04/18/an-sos-for-the-coast-guard/. O’Rourke’s

concern is worth noting. However, the Coast Guard probably will not evenbe able to reach the goals it has stated. For example, the sea service’s

requirement for National Security Cutters (NSC) is eight vessels. The fiscalyear (FY) 2013 budget cut this fleet off at six NSCs, though the Coast

Guard never reduced its requirement, and no one in the Department ofHomeland Security has explained what effect this will have on the Coast

Guard’s missions. This fleet had already been reduced by half, a decisionwhich the Coast Guard publicly explained. Before cutting out two more, thesea service should fully address the ramifications of such a decision on U.S.

maritime security.

1080. Brian Slattery (Heritage Foundation) “Coast Guard's Latest Battle:

Underwater Drug Trafficking,” Sept. 11, 2012. Retrieved Mar. 28, 2014

from http://blog.heritage.org/2012/09/11/coast-guards-latest-battleunderwater-

drug-trafficking/. In the most recent run-in with these illegal

vessels, the Coast Guard Cutter Mohawk utilized an interagencyintelligence effort to locate the submersible and then pursued it with its

deck-launched helicopter and fast boat. Though the smugglers were able to

sink their vessel before the Coast Guard could salvage most of their cargo,

this effort is considered a success both for the joint preparatory workperformed in locating the smugglers and the proficiency the Mohawk crew

showed in executing their interdiction mission. While the Coast Guard hassuccessfully performed many similar operations, the sea service’s role in the

Caribbean and elsewhere will be increasingly burdened by an aging and

shrinking fleet. The Mohawk is the newest of the Famous-class mediumendurance cutters, commissioned in 1991. Many in this class are reaching

their 30-year service lives and will likely require extensions to fill missiongaps. According to the Government Accountability Office, the Coast

Guard’s high and medium endurance cutters have been falling below

performance expectations for a number of years. The bottom line is these

vessels need replacement.

1181. Eddie Bernice Johnson, (D-FLA. REP.), March 28, 2014, Political

Transcript Wire, REP. STEVEN M. PALAZZO HOLDS A HEARING ONNATIONAL AERONAUTICS AND SPACE ADMINISTRATION

BUDGET FOR F.Y. 2015, Retrieved April 24, 2014 from Lexis/Nexis. Asthe chairman has indicated, we're here today to review NASA's Fiscal Year2015 budget request. At the outset, I want to say that I'm heartened that the

president has been willing to commit more than $18.3 billion to NASA, a 4

percent increase over the Fiscal Year 2014 appropriations. Achieving that

level, however, will require Congress to work with the president to achieve

targeted spending cuts and increased revenue to provide necessary offsets

and stay within the budget agreement.

1182. Michael Conathan, (Director of Ocean Policy at the Center for

American Progress), Rockets Top Submarines: Space Exploration DollarsDwarf Ocean Spending, June 28, 2013. Retrieved on April 24, 2014 from

http://www.americanprogress.org/issues/green/news/2013/06/18/66956/rockets-top-submarines-space-exploration-dollars-dwarf-ocean-spending/]. In

fiscal year 2013 NASA’s annual exploration budget was roughly $3.8

billion. That same year, total funding for everything NOAA does—fishery

management, weather and climate forecasting, ocean research and

management, among many other programs—was about $5 billion, and

NOAA’s Office of Exploration and Research received just $23.7 million.

Something is wrong with this picture.

1183. Al Dove and Craig McClain, (Director of Research and Conservationat the Georgia Aquarium Research Center in Atlanta and Chief Editor for

Deep Sea News), We Need an Ocean NASA Now, Deep Sea News,

October 16, 2012. Retrieved on April 24, 2014 from

http://deepseanews.com/2012/10/we-need-an-ocean-nasa-now-pt-1/. In

general, science in the U.S. is poorly funded; while the total number ofdollars spent here is large, we only rank 6th in world in the proportion ofgross domestic product invested into research. The outlook for ocean

science is even bleaker. In many cases, funding of marine science and

exploration, especially for the deep sea, are at historical lows. In others,

funding remains stagnant, despite rising costs of equipment and personnel.

1184. Molly Peterson, (Environment Correspondent), Long Beach to hostfirst effort to craft a national ocean exploration plan, July 18, 2013.

Retrieved on April 24, 2014 from

http://www.scpr.org/blogs/environment/2013/07/18/14302/long-beach-tohost-

first-effort-to-craft-a-nationa/. The National Oceanographic and

Atmospheric Administration got just around $24 million in the most recent

fiscal year for ocean exploration. NASA’s budget for space explorationtopped out around $3.8 billion: about 150 times more money. And NOAA

funding is always on shaky ground. In the last year, Congress again kickedaround the idea of killing off the National Undersea Research Program.

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1185. Wayne Crews, (vice president for policy at the Competitive

Enterprise Institute), More government means less manufacturing; To boost

America's factories, separate the state and the economy, The WashingtonTimes, March 23, 2010 [Retrieved April 21, 2014 from Lexis/Nexis].

Federal science fosters too many conflicts: over public access to data; over

the merits of basic versus applied research, government versus industry

science; over assignment of intellectual property; and more. For another,

politics has trouble balancing trade-offs: When to subsidize

nanotechnology? Or biotech? Or fuel cells and the hydrogen economy? Or

robotics? Or bioengineered gills so we can live in the oceans? Congress

can’t fund them all.

1186. AIM West Milford (Passaic, North Jersey), March 14, 2013,

SECTION: A; Pg. 8, NASA cuts: a danger for everyone. Retrieved April

24, 2014 from Lexis/Nexis. But we, in what seems like a permanent missionto swallow the barrel of our own shotgun, refuse to adequately fund our oneline of defense against all this (the National Aeronautics and Space

Administration) and in this "GOVERNMENT IS SOOO EVIL!" era, you

can pretty much type "NASA budget cuts" into Google on any given dayand find something new that's on the chopping block. Every year the pool ofmoney devoted to scientific exploration shrinks — down to $17.7 billion

from $18.4 billion two years ago — and programs are cut and ideas

abandoned because politicians (including President Obama) refuse to

devote money to it. That is not how it should be.

1187. Rob Samouce, (Commentator), Naples Daily News (Florida), October1, 2012. Retrieved April 24, 2014 from Lexis/Nexis. Under Obama, the

national debt has skyrocketed to $16 trillion and he has failed to offer anyclear plan to address the debt. His budget-cutting discipline has been

nothing more than to place the Department of Defense and NASA on the

chopping block with arbitrary across-the-board cuts at the very time their

services are critical to our national security. Incidentally, they are both also

critical to our economy in Florida.

1188. Ricardo Alonso-Zaldivar, (Associated Press), GOP convention fact

check: Paul Ryan ignores his own record, The Journal News (Westchester

County, New York), August 31, 2012. Retrieved April 24, 2014 fromLexis/Nexis. The remaining pot of money includes the day-to-day budgetsof domestic agencies, which have already borne cuts under last year's

budget deal. There's also widespread congressional aversion to cutting most

of what remains on the chopping block, which includes health research,

NASA, transportation, air traffic control, homeland security, education,

food inspection, housing and heating subsidies for the poor, food aid for

pregnant women, the FBI, grants to local governments, national parks and

veterans' health care.

1189. Ledyard King, (Gannett Washington Bureau), House bill directsNASA to scrap commercial crew competition, Gannett News Service, May

10, 2012, SECTION: Pg. ARC. Retrieved April 24, 2014 from Lexis/Nexis.

"When NASA's not making much progress or is so over-budget, membersstart asking, 'We're paying all this money to NASA but we're not seeing

anything in return,'" Cecala said. "The more that happens, the more NASAis put on the chopping block."

1190. Sneha Shah, (Commentator), NASA's Expedition to Begin to Explore

Mars Met With Concerns, Western Free Press, April 20, 2014 [Retrieved

April 24, 2014 from Lexis/Nexis]. GOP Rep. Dana Rohrabacher, feels the

plan would take away valuable money from a number of more pressing

matters, highlighting another major concern; lack of money. Future budgetcuts which will not spare NASA, loom ahead, gradually shrinking hopes of

a mission whose importance is under-appreciated.

1191. Tyler Their, (Commentator), Without NASA, how will Americanslearn about space?, April3, 2014, The Lamron: SUNY at Geneseo,

OPINION; Pg. 1. Retrieved April 24, 2014 from Lexis/Nexis. Essentially,

unless you're studying astronomy or actually working for a space program,

there's not much out there to quench your thirst for space exploration info.

Even more so, space travel is no closer to reviving itself as a public interest

topic because of the political suppression and alienation encapsulated by

increasing cuts to NASA's already truncated budget.

1192. Julia Zarina, (Columnist), October 24, 2013, Rewards in space

exploration, The Michigan Daily, Retrieved April 24, 2014 from

http://michigandaily.com/opinion/10space-exploration25. Since the

cancellation of the Space Shuttle program two years ago, the United Statesis at a crucial crossroads in space research. In a political climate that isunreceptive to the financial costs associated with a national space program,

the questions the country faces now are different from the ones at thebeginning of the Space Race — funding and support, more than

technological capabilities, are now the limiting factors to space exploration.

Although societal trends dictating the use of such technologies have

changed drastically in the past 60 years, space exploration today is as

important as ever for both the immediate and long-term futures of

innovation and research.

1193. June Yang, (Commentator), February 21, 2014, TODAY (Singapore),

SECTION: CEC; Focus; Editors Pick; Pg. 32 [Retrieved April 24, 2014from Lexis/Nexis]. "I feel strongly that if you think of Earth only as the

place where you live rather than as a planet among many, orbiting a staramong many, in a galaxy among many, you are deprived of a cosmic

perspective that can completely shape your life, your outlook — how youvalue life, other humans, nature and the future of the species," he said.

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1194. Sarah Grey, (Commentator), March 19, 2014, Stephen Hawking:

Space exploration is vital to our future, Salon, Retrieved on April 24, 2014

from http://www.isidewith.com/news/article/stephen-hawking-spaceexploration-

is-vital-to-our-future. The event’s keynote speaker was famed

astrophysicist and bestselling author Stephen Hawking. As reported by

Scientific American, Hawking too would like to see humankind explore

Mars. He stressed human missions to other planets as the foundation for the

future. “Not to leave planet Earth would be like castaways on a desert islandnot trying to escape,” Hawking said. “Sending humans to other planets …

will shape the future of the human race in ways we don’t yet understand,

and may determine whether we have any future at all.”

1195. Eric W. Dolan, (editor for Raw Story), April 22, 2014, The Raw

Story, NASA chief touts deep space exploration: We can only survive if we

are a multi-planet species, Retrieved April 24, 2014 from

http://www.rawstory.com/rs/2014/04/22/nasa-chief-touts-deep-spaceexploration-

we-can-only-survive-if-we-are-a-multi-planet-species/. NASA

administrator Charles Bolden said Tuesday that humanity faced certain

extinction unless it developed the technology to colonize other planets. “We

today are Earth-reliant,” he said at the Humans to Mars Summit 2014, held

at George Washington University in Washington. “We are dependent on

being on this planet. We are not a multi-planet species yet. I don’t know

whether Buzz [Aldrin] is going to talk about it later, but Buzz and I agree

on a number of things — one of them is that only multi-planet species

survive for long periods of time.” “Here in the Western world, we think

very short-sighted. We think about the time in which we are going to be onthis Earth, or in which are kids or grandkids are going to be on this Earth.

Many other civilizations think much longer than that, and we need to startthinking that way.” “If this species is to survive indefinitely we need to

become a multi-planet species,” he continued. “One reason we need to go toMars is so we can learn a little about living on another planet, so that whenMikaley my granddaughter is ready to move out of the solar system we will

know a lot more about living away from this planet than we know today.

Mars is a stepping stone in the approach to other solar systems and other

galaxies and things that people have always dreamed of but frequently don’ttalk about.”

1196. June Yang, (Commentator), February 21, 2014, TODAY (Singapore),

SECTION: CEC; Focus; Editors Pick; Pg. 32 [Retrieved April 24, 2014from Lexis/Nexis]. "I think that private enterprise cannot lead our frontier inspace. The frontier is expensive, it is dangerous and it has unquantifiablerisks. If you combine all three of these, you cannot establish a capital

market valuation of that as a business model." It is really only the state

apparatus that has the wherewithal to push boundaries and establish the

risks before ceding it to private enterprise, Dr Tyson said. "To keep thescience frontier alive, that's going to require the government to move the

frontier ... And government agencies, and government mission statement.

Without that, you'll stagnate in one place, constantly making cooler gadgets

and devices, but the frontier will not advance."

1197. Steven J. Markovich, (Contributing Editor), Space Exploration and

U.S. Competitiveness, Nov. 29, 2013, Retrieved Apr. 24, 2014 fromhttp://www.cfr.org/space/space-exploration-us-competitiveness/p31959.

Space policymakers must clarify NASA's purpose, missions, and methods

by answering many questions. How should NASA balance the goals of

driving scientific discovery, promoting U.S. prestige, enhancing national

security, and developing innovations with commercial benefits? What role

should the private sector play? How much should NASA be a vehicle forinternational cooperation and diplomacy? How should U.S. spaceexploration inspire the next generation of STEM students? Despite these

questions, most experts advocate sustaining U.S. leadership in space. "I'm

convinced that in this century the nations that lead in the world are going tobe those that create new knowledge. And one of the places where you have

a huge opportunity to create new knowledge will be exploration of the

universe, exploration of the solar system, and the building of technologythat allows you to do that," said former congressman and aerospace expertRobert Walker at a CFR meeting on space policy in 2013.

1198. Niall Ferguson, (Senior Fellow at Stanford University’s Hoover

Institution), FOREIGN POLICY, Jul/Aug 2004, Retrieved Apr. 27, 2013

from https://www.mtholyoke.edu/acad/intrel/afp/vac.htm. As the United

States sought to protect itself after a second September 11 devastates, say,

Houston or Chicago, it would inevitably become a less open society, less

hospitable for foreigners seeking to work, visit, or do business. Meanwhile,

as Europe's Muslim enclaves grew, Islamist extremists' infiltration of the

EU would become irreversible, increasing trans-Atlantic tensions over the

Middle East to the breaking point. An economic meltdown in China wouldplunge the Communist system into crisis, unleashing the centrifugal forces

that undermined previous Chinese empires. Western investors would loseout and conclude that lower returns at home are preferable to the risks ofdefault abroad. The worst effects of the new Dark Age would be felt on the

edges of the waning great powers. The wealthiest ports of the global

economy — from New York to Rotterdam to Shanghai — would becomethe targets of plunderers and pirates. With ease, terrorists could disrupt thefreedom of the seas, targeting oil tankers, aircraft carriers, and cruise liners,

while Western nations frantically concentrated on making their airportssecure. Meanwhile, limited nuclear wars could devastate numerous regions,

beginning in the Korean peninsula and Kashmir, perhaps endingcatastrophically in the Middle East.

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1199. House Committee on Science, Space, and Technology, March 24,

2014, Palazzo, Edwards Say Human Space Exploration Should Be Priority,

spaceref, Retrieved April 24, 2014 from

http://spaceref.com/news/viewpr.html?pid=42863 (Quoting March 21, 2014letter to President Obama). Since the early 1960s, the U.S. has benefitted

greatly from the technological advancements, global space leadership and

inspiration that result from NASA’s human spaceflight program. Theachievements in science and technology that we have derived from human

space exploration are crucial in advancing our nation’s innovation agenda,

and the discoveries yet to be made inspire our future scientists and explorersto pursue studies in Science, Technology, Engineering, and Math (STEM)

education. We must prioritize U.S. leadership in space exploration,

especially in light of the expansion of human spaceflight programs in

countries such as China and Russia over the past decade. As NASA andtheir industry partners develop the capabilities to explore further out into the

frontier of space, our nation derives countless benefits in terms of

technological advancements. Systems and technologies developed for ourhuman space exploration program have resulted in technological leaps inthe fields of medicine, transportation, public safety, computer technology,

communications, energy efficiency, and manufacturing productivity. The

technological advancements that result from these programs have direct

civilian and military applications.

1200. Julia Zarina, (Columnist), October 24, 2013, Rewards in space

exploration, The Michigan Daily, Retrieved April 24, 2014 from

http://michigandaily.com/opinion/10space-exploration25. Although

dominance in space exploration may not be at the forefront of our national

security interests anymore, the continued support of these programs is bothan economic asset and a social and scientific necessity. Besides the positiveeconomic returns associated with investing in space research, the average

American benefits from these government-funded programs in tangible

ways. Lousma points out that the benefits of space research have relevant

mainstream applications and can be impossible to predict. “Things we never

thought might spin-off (from space research) are the things we have now:

computers in every house, GPS systems, Internet, cell phones. A whole lot

of things like that are spinoffs of space technology and are products that

nobody ever thought of,” Lousma says.

1201. Walter Russell Mead, (Council on Foreign Relations), Only Makes

You Stronger, The New Republic, February 4, 2009, Retrieved April 24,2014 from http://www.tnr.com/politics/story.html?id=571cbbb9-28874d81-

8542-92e83915f5f8&p=2. Bad economic times can breed wars.

Europe was a pretty peaceful place in 1928, but the Depression poisoned

German public opinion and helped bring Adolf Hitler to power. If the

current crisis turns into a depression, what rough beasts might start

slouching toward Moscow, Karachi, Beijing, or New Delhi to be born? The

United States may not, yet, decline, but, if we can't get the world economyback on track, we may still have to fight.

1202. Waterloo Region Record April 14, 2014, SECTION: LOCAL; Pg.

B6, Space apps competition aims to make space cool again. Retrieved April24, 2014 from Lexis/Nexis. "Now nobody thinks about NASA because theydon't have any big projects," he said. "They really need get the public

excited. Put a man on Mars and they'll have people interested." But unlesspeople are interested, NASA's budget will continue to be cut, he said.

1203. Molly Ryan, (Commentator), Houston Business Journal, April 11,2014 [Retrieved April 24, 2014 from Lexis/Nexis]. Despite these plans,

since a considerable chunk of Sierra Nevada's expected business for the

Dream Chaser is related to the ISS, the federal government will need to

maintain funding for NASA for the company's business model to take off.

With continuous budget cuts,&nbsp; NASA has expressed some concernabout how it will continue its space programs, especially in Houston.

1204. Meagan Clark, (Commentator), US, EU Drop In Science ResearchAnd Innovation, International Business Times News, April 11, 2014[Retrieved April 24, 2014 from Lexis/Nexis]. The budget sequester cuts that

took effect March 2013 slashed funding for the National Institutes of Healthby $1.5 billion, the Department of Health and Human Services by $1.6

billion, the National Aeronautics and Space Administration by $474 million

and the National Science Foundation by $283 million, among other science-

related agencies.

1205. The Stevens Point Journal (Wisconsin), March 12, 2014, SECTION:

A; Pg. 6. Retrieved April 24, 2014 from Lexis/Nexis. But to no avail. For

all of President Obama's talk of investing in science and technology, his

administration has shortchanged at least one critical area: the study of space

and planets. This is a huge loss because these types of missions have

generated remarkable results and have a significant gee-whiz factor thathelps attract young people into careers in science and engineering.

1206. The Stevens Point Journal (Wisconsin), March 12, 2014, SECTION:

A; Pg. 6. Retrieved April 24, 2014 from Lexis/Nexis. But for all this public

support, space science lacks the two things that matter in Washington: apowerful special interest group and a champion in the upper echelons ofgovernment. NASA's overall budget is no match for popular entitlementprograms. Within NASA, the scientific probes and deep space observatories

face the toughest times. The manned space program almost always involves

an expensive new rocket, so it has the aerospace industry behind it. NASA's

aeronautics and commercial space flight divisions do well for similar

reasons.

1207. June Yang, (Commentator), February 21, 2014, TODAY (Singapore),

SECTION: CEC; Focus; Editors Pick; Pg. 32. Retrieved April 24, 2014

from Lexis/Nexis. Indeed, other nations are stepping into the gap left behindby the US. China has a robust space programme and its first moon rover,

despite numerous bumps, is still operating on the airless surface. India

launched its first rocket earlier this year, joining the list of spacefaring

countries. The future of space exploration looks set to continue. "I think, if

not the United States, other countries recognise fully the value of expandinga space frontier, " said Dr Tyson." I'm American, so I'm sad that we'reteetering from our leadership position but, as a scientist, if somebody doesit, I'm happy."

1208. Leigh Ann Caldwell (CNN reporter) Apr. 16, 2014. Retrieved Apr.

28, 2014 from http://www.kcra.com/politics/2014-midterms-What-s-atstake/

25496204. "Democratic control of the Senate is at considerable risk,

with the party at no better than even money to retain control in November,"

wrote Stuart Rothenberg, editor and publisher of the nonpartisanRothenberg Political Report, one of the top political handicappers.

1209. John M. Broder (staff writer) NEW YORK TIMES, June 16, 2011.

Retrieved Apr. 29, 2014 from

http://www.nytimes.com/2011/06/17/business/energyenvironment/

17drilling.html. And while the public appears to supportexploiting domestic oil and gas resources, there is also skepticism about the

economic and environmental costs of America’s continued reliance on oil.

A New York Times/CBS News poll taken in March asked how important it

was for the United States to develop an alternative to oil as a major sourceof energy. Fully 94 percent of respondents said it was very or somewhat

important to do so.

1210. RON ELVING (NPR Correspondent) Apr. 21, 2014. Retrieved Apr.

28, 2014 from http://hereandnow.wbur.org/2014/04/21/elving-politicsobama.

They want to see the fossil fuel energies encouraged. Mark Udallhas been kind of ambivalent about it, though, because he also has a large

constituency from the environmental side, which is enormously important

to the national Democratic constituency, the national Democratic coalition.

It depends on environmental enthusiasm and also on a lot of the majordonors who come from that particular part of the political world.

1211. John M. Broder (staff writer) NEW YORK TIMES, June 16, 2011.

Retrieved Apr. 29, 2014 from

http://www.nytimes.com/2011/06/17/business/energyenvironment/

17drilling.html. Conversely, unease about the effects of

offshore drilling peaked after the BP accident, which killed 11 rig workersand spewed nearly five million barrels of crude into the gulf. “News of thatincident has faded, possibly lessening Americans’ resistance to coastal areadrilling,” Gallup said when releasing its poll in March that showed 60

percent of Americans supportive.

1212. William Yeatman (staff writer) Apr. 23, 2014. Retrieved Apr. 28,

2014 from http://www.globalwarming.org/2014/04/23/breaking-newsshocker-

billionaire-influence-peddler-tom-steyer-doesnt-embrace-kochcomparison/.

Liberal billionaire Tom Steyer insisted Tuesday that he’s notthe left’s version of the Koch brothers. “That is not something I embrace. I

think there are real distinctions between the Koch brothers and us,” Steyer

said in an interview with POLITICO and The Washington Post taped for CSPAN’s

“Newsmakers,” which will air on Sunday. Steyer, who hopes touse his vast personal fortune to make climate change a top priority in the

upcoming midterm elections, said he’s not entering politics for personalgain. Charles and David Koch’s priorities “line up perfectly with their

pocketbooks – and that’s not true for us,” Steyer said.

1213. David Keating (president of the Center for Competitive Politics) Apr.

16, 2014. Retrieved Apr. 28, 2014 from

http://www.pbs.org/newshour/bb/examining-the-record-money-hitting-themidterm-

elections/. DAVID KEATING: It’s definitely a plus when we have

more debate about where our country should be headed. And politicalscientists that have studied spending in elections, they find that when thereis more spending, there’s more message and more people are payingattention, voters are better informed, and they turn out in higher numbers. I

think these are all positive things for our democracy across the board.

1214. ENVIRONMENTAL PROTECTION, Sep. 8, 2011. Retrieved Apr.

28, 2014 from http://eponline.com/articles/2011/09/08/public-opinionresearch-

shows-american-interest-in-living-green.aspx?admgarea=News.

Three core findings from the new report, America and the Ocean,

emphasize the importance of engaging youth: Adults are united in their

support for teaching younger generations how to care for our blue planet,

even while they themselves are divided on issues such as climate change.

Young Americans not only possess significantly higher levels of concern

about the problems facing the world's ocean, and are most open to new

information, but also are the most confident in their ability to make adifference. Young Americans may not be the decision-makers in the

household but they are increasingly major "influencers" when it comes to

making choices related to our ocean and the environment and becoming

more "green." "This study continues to provide valuable insight into public

audiences' understanding and behaviors toward the ocean and our coasts,"

said Louisa Koch, Director of Education at the National Oceanic and

Atmospheric Administration (NOAA). "We at NOAA are pleased to

support this ongoing research and have found these data useful in the

carrying out our own educational programs related to the ocean and climatechange."

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1215. Geoffrey Skelley (associate editor) Mar. 27, 2014. Retrieved Apr. 28,2014 from http://www.centerforpolitics.org/crystalball/articles/puttingtheir-

eggs-in-the-wrong-midterm-basket/. However, one aspect of this trendis anything but rosy for Democrats: Since the first national exit poll was

taken for a midterm election in 1978, only once (in that first survey) has the

18-to-29 age group made up a larger portion of a midterm electorate thanvoters who were 60 or older. And not only have young people almost

always been the smallest part of midterm electorates in this period, their

participation has usually been much smaller compared to presidential years.

With Democrats more reliant on young voters to win elections, drop-offamong that group could make it harder for Democrats to find success inmidterm cycles.

1216. Nate Silver (political commentator for New York Times) Mar. 23,2014. Retrieved Apr. 28, 2014 from

http://fivethirtyeight.com/features/fivethirtyeight-senate-forecast/. A tie on

the generic ballot might not sound so bad for Democrats. But it’s a

misleading signal, for two reasons. First, most of the generic ballot pollswere conducted among registered voters. Those do not reflect the turnoutadvantage the GOP is likely to have in November. Especially in recent

years, Democrats have come to rely on groups such as racial minorities and

young voters that turn out much more reliably in presidential years than forthe midterms. In 2010, the Republican turnout advantage amounted to the

equivalent of 6 percentage points, meaning a tie on the generic ballot amongregistered voters translated into a six-point Republican lead among likely

voters. The GOP’s edge hadn’t been quite that large in past years. But if the“enthusiasm gap” is as large this year as it was in 2010, Democrats willhave a difficult time keeping the Senate.

1217. Mark Silva (staff writer) CHICAGO TRIBUNE, Apr. 14, 2014.

Retrieved Apr. 28, 2014 from http://www.chicagotribune.com/news/snswp-

blm-news-bc-senate-gop14-20140414,0,6771981.story. A fall-off in

turnout is the biggest threat Democrats face in the 2014 midterms when theelectorate will trend older and whiter, two constituencies their party hasn't

won in recent elections.

1218. Mark Silva (staff writer) CHICAGO TRIBUNE, Apr. 14, 2014.

Retrieved Apr. 28, 2014 from http://www.chicagotribune.com/news/snswp-

blm-news-bc-senate-gop14-20140414,0,6771981.story. It draws its

name from the Denver campaign headquarters for Colorado Sen. Michael

Bennet's 2010 campaign, when he was seeking a full term after being

appointed to his seat in 2009. He believes he won a close contest in part by

rallying a higher- than-predicted voter turnout and, as current DSCC

chairman, he is putting his Colorado model to work for the party. "This isgoing to be a turnout election," Bennet said.

1219. Mark Silva (staff writer) CHICAGO TRIBUNE, Apr. 14, 2014.

Retrieved Apr. 28, 2014 from http://www.chicagotribune.com/news/snswp-

blm-news-bc-senate-gop14-20140414,0,6771981.story. David Plouffe,

architect of Obama's first presidential campaign and author of ''The

Audacity to Win," has called the Florida results "a screaming siren that the

same problems that afflicted us" in 2010 "could face us again." In the 2010elections, 45.5 percent of those Americans eligible to vote did so, according

to the U.S. Census Bureau. The youngest voters, those 18 to 24, turned out

the least, at 21.3 percent. The oldest turned out the most, with 62.1 percent

of those aged 65 to 74 voting. Among the age groups, only the youngest

voted Democratic, exit polling showed. Turnout among white voters was

47.3 percent, versus blacks at 43.5 percent and Hispanics at 31.2 percent.

Whites voted Republican by a margin of 62 to 38 percent, while blacks

voted Democratic by 9-to-1, Hispanics by about 2-to-1. In the 2012

presidential election, the Census Bureau reported, eligible-voter turnout was

61.8 percent. For younger voters, the figure was 41.2 percent — almosttwice as high as in 2010. Turnout by those between the ages of 65 and 74rose by more than 10 percentage points, to 73.5 percent.

1220. Mark Silva (staff writer) CHICAGO TRIBUNE, Apr. 14, 2014.

Retrieved Apr. 28, 2014 from http://www.chicagotribune.com/news/snswp-

blm-news-bc-senate-gop14-20140414,0,6771981.story. Obama's 2012

re-election benefited from voter turnout operations in states such as

Virginia, where canvassers made repeated door-to-door visits to his backers.

A similar effort helped Democrat Terry McAuliffe win the state's

governorship last November. Arkansas is not Virginia, though. It's not a

state that Obama carried in 2008 and 2012, as he did Virginia. Democrats

with their intensive organizing efforts "have to go into states this timewhere they've never worked — Arkansas, Louisiana — and try to make a

difference there," Duffy said. In a difficult political environment,

Democrats acknowledge, they need to produce a stronger vote than they didin 2010. "If we don't do it, we get wiped out," Rep. Jim Clyburn, D-S.C.,

told Bloomberg editors and reporters in an interview. "If we do it, we get

back in charge. It's just that simple."

1221. Mark Silva (staff writer) CHICAGO TRIBUNE, Apr. 14, 2014.

Retrieved Apr. 28, 2014 from http://www.chicagotribune.com/news/snswp-

blm-news-bc-senate-gop14-20140414,0,6771981.story. Obama's

approval rating has run at an average of 42.9 percent in eight national

opinion polls conducted since March 20, matching former President George

W. Bush's standing in early 2006, when Republicans lost control of both the

House and Senate in midterm elections that he called "a thumpin'." Jennifer

Duffy, senior editor at the nonpartisan Cook Political Report in

Washington, has raised her estimate of Republicans taking control of the

Senate from a 25 percent chance last fall to 50 percent today. The tilted

turnout of midterm elections is only part of her calculation. "We are

weighting environment much higher — the president's approval ratings, the

generic congressional ballot, just basically what Americans are thinking,"

Duffy said in an interview. "The Republicans have been able to expand their

own playing field, putting races on the map that weren't there."

1222. Mark Silva (staff writer) CHICAGO TRIBUNE, Apr. 14, 2014.

Retrieved Apr. 28, 2014 from http://www.chicagotribune.com/news/snswp-

blm-news-bc-senate-gop14-20140414,0,6771981.story. White voters

will account for almost 80 percent of this year's midterm electorate,

according to Andrew Kohut, founding director of the Washington-based

Pew Research Center. And public opinion of Obama's performance poses

the biggest challenge for his party, Kohut says. When the public isn't

"satisfied with the way things are going for the nation or the way the

economy is going, the vote tends to become a referendum on the times,"

Kohut said in an interview.

1223. Leigh Ann Caldwell (CNN reporter) Apr. 16, 2014. Retrieved Apr.

28, 2014 from http://www.kcra.com/politics/2014-midterms-What-s-atstake/

25496204. Gonzales said that independents voting in midterm

elections tend to decide who to vote for based on their feelings about the

direction of the country and their approval of the President rather than on

specific issues.

1224. Danny Vinik (staff writer) NEW REPUBLIC, Apr. 21, 2014.

Retrieved Apr. 28, 2014 from

http://www.newrepublic.com/article/117466/2014-midterm-oddsrepublicans-

chances-taking-senate-are-falling. Republicans want to make

the midterms a referendum on Obamacare, but that is easier said than done.

As Brian Beutler has documented, the law’s recent success has hamstrung

Republicans' ability to use it for political gain. Readers and reporters alike

seem to be tiring of the story, as you can see from Google's headline trends

for “Obamacare” over the past year: The law was front-page news

throughout October and November due to the disastrous launch of

Healthcare.gov, the controversy surrounding the Obama's “if you like yourplan, you can keep it” promise, and health-care plan cancellations. But then

the administration fixed the website and people began signing up for the

law, and the number of headlines dropped. For Obamacare to have animpact this fall, Republicans need to maintain the media and public's

interest in the law for a long time—and they need that interest to be

negative. Millions of people now have insurance because of the law.

Millions more have received it through the Medicaid expansion, and the

refusal of many Republican governors and legislators to expand it in their

states could offer Democrats another political advantage.

1225. Leigh Ann Caldwell (CNN reporter) Apr. 16, 2014. Retrieved Apr.

28, 2014 from http://www.kcra.com/politics/2014-midterms-What-s-atstake/

25496204. "This data pretty clearly shows that even though attitudesregarding the ACA are 'baked in' with voters (68% feel strongly one way or

another about the issue), the intensity is clearly on the negative side, asGOP voters clearly dislike the new law more than Democrats are in lovewith it," said GOP pollster Neil Newhouse, a co-founder of Public Opinion

Strategies.

1226. DARREN SAMUELSOHN and MANU RAJU (staff writers)

POLITICO, Apr. 17, 2014. Retrieved Apr. 29, 2014 from

http://www.politico.com/story/2014/04/democrats-fear-president-obamacould-

give-in-106078.html. Washington’s current gridlock may seem

destined to last forever, but divided government has produced strange

bedfellows before. President George W. Bush switched teams on some keyissues in his final two years after Democrats took the House and Senate,

becoming a cap-and-trade convert who bailed out Wall Street. President BillClinton partnered with the same Republicans who impeached him to

overhaul welfare and balance the budget. And President Ronald Reagan and

House Speaker Tip O’Neill found common ground reforming the Tax Code

and Social Security. While tackling anything comprehensive with

legislation sounds far-fetched before the next president is sworn in, that

doesn’t mean there won’t be moments starting after November when

Obama would be tempted to negotiate with Republicans following four

years of stalemate. After all, the GOP would have greater leverage. And

with the White House on the line in 2016, Republicans will also want to

prove they aren’t just against Obama but actually capable of governing

again.

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1227. DARREN SAMUELSOHN and MANU RAJU (staff writers)

POLITICO, Apr. 17, 2014. Retrieved Apr. 29, 2014 from

http://www.politico.com/story/2014/04/democrats-fear-president-obamacould-

give-in-106078.html. But it’s the prospect of what Obama mightbargain on with Republicans that has Democrats really riled up. “I’m notgoing to create nightmares where none exist right now. But certainly for the

paranoid there’s plenty to fear, and maybe even just for the fearful there’s

plenty to fear,” Blumenthal said, while adding that he still had a “basic trustin [Obama’s] commitments and his instincts.”

1228. Stephen G. Brooks, G. John Ikenberry, & William C. Wohlforth(associate professor of government at Dartmouth, professor of politics @

Princeton & professor of government @ Dartmouth) FOREIGN AFFAIRS.

Jan/Feb. 2013. Retrieved Apr. 28, 2014 from

http://www.foreignaffairs.com/articles/138468/stephen-g-brooks-g-johnikenberry-

and-william-c-wohlforth/lean-forward. Of course, even if it is

true that the costs of deep engagement fall far below what advocates ofretrenchment claim, they would not be worth bearing unless they yieldedgreater benefits. In fact, they do. The most obvious benefit of the current

strategy is that it reduces the risk of a dangerous conflict. The United States'

security commitments deter states with aspirations to regional hegemony

from contemplating expansion and dissuade U.S. partners from trying tosolve security problems on their own in ways that would end up threateningother states.

1229. Stephen G. Brooks, G. John Ikenberry, & William C. Wohlforth(associate professor of government at Dartmouth, professor of politics @

Princeton & professor of government @ Dartmouth) FOREIGN AFFAIRS.

Jan/Feb. 2013. Retrieved Apr. 28, 2014 from

http://www.foreignaffairs.com/articles/138468/stephen-g-brooks-g-johnikenberry-

and-william-c-wohlforth/lean-forward. But that outlook is too

sanguine. If Washington got out of East Asia, Japan and South Korea wouldlikely expand their military capabilities and go nuclear, which could

provoke a destabilizing reaction from China. It's worth noting that duringthe Cold War, both South Korea and Taiwan tried to obtain nuclear

weapons; the only thing that stopped them was the United States, whichused its security commitments to restrain their nuclear temptations.

Similarly, were the United States to leave the Middle East, the countries

currently backed by Washington — notably, Israel, Egypt, and Saudi Arabia

— might act in ways that would intensify the region's security dilemmas.

1230. Stephen G. Brooks, G. John Ikenberry, & William C. Wohlforth(associate professor of government at Dartmouth, professor of politics @

Princeton & professor of government @ Dartmouth) FOREIGN AFFAIRS.

Jan/Feb. 2013. Retrieved Apr. 28, 2014 from

http://www.foreignaffairs.com/articles/138468/stephen-g-brooks-g-johnikenberry-

and-william-c-wohlforth/lean-forward. If Washington got out ofEast Asia, Japan and South Korea would likely expand their military

capabilities and go nuclear. The benefits of deep engagement, on the other

hand, are legion. U.S. security commitments reduce competition in key

regions and act as a check against potential rivals. They help maintain an

open world economy and give Washington leverage in economic

negotiations. And they make it easier for the United States to secure

cooperation for combating a wide range of global threats. Were the UnitedStates to cede its global leadership role, it would forgo these proven upsides

while exposing itself to the unprecedented downsides of a world in whichthe country was less secure, prosperous, and influential.

1231. Stephen G. Brooks, G. John Ikenberry, & William C. Wohlforth(associate professor of government at Dartmouth, professor of politics @

Princeton & professor of government @ Dartmouth) FOREIGN AFFAIRS.

Jan/Feb. 2013. Retrieved Apr. 28, 2014 from

http://www.foreignaffairs.com/articles/138468/stephen-g-brooks-g-johnikenberry-

and-william-c-wohlforth/lean-forward. Greater regional

insecurity could also produce cascades of nuclear proliferation as powers

such as Egypt, Saudi Arabia, Japan, South Korea, and Taiwan built nuclear

forces of their own. Those countries' regional competitors might then alsoseek nuclear arsenals. Although nuclear deterrence can promote stabilitybetween two states with the kinds of nuclear forces that the Soviet Union

and the United States possessed, things get shakier when there are multiplenuclear rivals with less robust arsenals. As the number of nuclear powersincreases, the probability of illicit transfers, irrational decisions, accidents,

and unforeseen crises goes up.

1232. Stephen G. Brooks, G. John Ikenberry, & William C. Wohlforth(associate professor of government at Dartmouth, professor of politics @

Princeton & professor of government @ Dartmouth) FOREIGN AFFAIRS.

Jan/Feb. 2013. Retrieved Apr. 28, 2014 from

http://www.foreignaffairs.com/articles/138468/stephen-g-brooks-g-johnikenberry-

and-william-c-wohlforth/lean-forward. What goes for the global

economy goes for other forms of international cooperation. Here, too,

American leadership benefits many countries but disproportionately helpsthe United States. In order to counter transnational threats, such as

terrorism, piracy, organized crime, climate change, and pandemics, states

have to work together and take collective action. But cooperation does not

come about effortlessly, especially when national interests diverge. The

United States' military efforts to promote stability and its broader leadership

make it easier for Washington to launch joint initiatives and shape them inways that reflect U.S. interests. After all, cooperation is hard to come by in

regions where chaos reigns, and it flourishes where leaders can anticipatelasting stability.

1233. Stephen G. Brooks, G. John Ikenberry, & William C. Wohlforth(associate professor of government at Dartmouth, professor of politics @

Princeton & professor of government @ Dartmouth) FOREIGN AFFAIRS.

Jan/Feb. 2013. Retrieved Apr. 28, 2014 from

http://www.foreignaffairs.com/articles/138468/stephen-g-brooks-g-johnikenberry-

and-william-c-wohlforth/lean-forward. Should America come

home? For many prominent scholars of international relations, the answer isyes — a view that seems even wiser in the wake of the disaster in Iraq and

the Great Recession. Yet their arguments simply don't hold up. There is

little evidence that the United States would save much money switching to a

smaller global posture. Nor is the current strategy self-defeating: it has not

provoked the formation of counterbalancing coalitions or caused thecountry to spend itself into economic decline. Nor will it condemn the

United States to foolhardy wars in the future. What the strategy does do ishelp prevent the outbreak of conflict in the world's most important regions,

keep the global economy humming, and make international cooperation

easier. Charting a different course would threaten all these benefits.

1234. Nate Silver (political commentator for New York Times) Mar. 23,2014. Retrieved Apr. 28, 2014 from

http://fivethirtyeight.com/features/fivethirtyeight-senate-forecast/. In plain

language: sometimes one party wins most or all of the competitive races. Ifwe had conducted this exercise at this point in the 2006, 2008 or 2012campaigns, that party would have been the Democrats. In 2010, it would

have been the Republicans. There are still more than seven months for newsevents to intervene and affect the national climate.

1235. Danny Vinik (staff writer) NEW REPUBLIC, Apr. 21, 2014.

Retrieved Apr. 28, 2014 from

http://www.newrepublic.com/article/117466/2014-midterm-oddsrepublicans-

chances-taking-senate-are-falling. The Washington consensus

right now is that Republicans are slight favorites to take control of the

Senate in the midterms. FiveThirtyEight's Nate Silver put the odds at 60

percent. Other prognosticators agree. That may be true right now, but there

are signs that the calculus could change in the coming months. Democratsmay be in better shape than anyone realizes.

1236. Leigh Ann Caldwell (CNN reporter) Apr. 16, 2014. Retrieved Apr.

28, 2014 from http://www.kcra.com/politics/2014-midterms-What-s-atstake/

25496204. The deadline to enroll in the Affordable Care Act for the

year has come and gone, but Republicans think voter anger over the law ishere to stay and they've made it a campaign priority to highlight it as thePresident struggles with dismal approval ratings. Republicans point to the

only test case they have: Florida's 13th Congressional District where David

Jolly beat Democrat Alex Sink in a special election in March. The deep-

pocketed third-party group Americans for Prosperity is all in, playing in

dozens of races using the sole weapon of Obamacare. "We do want to make

sure that Obamacare is the No. 1 issue in the country," Tim Phillips,

president of AFP, said in a recent interview.

1237. Leigh Ann Caldwell (CNN reporter) Apr. 16, 2014. Retrieved Apr.

28, 2014 from http://www.kcra.com/politics/2014-midterms-What-s-atstake/

25496204. While Republicans have vitriol over Obamacare to

motivate their base, Democrats think they've found their go-to: equal pay

and minimum wage. Those are two issues that speak to voters personalpocketbooks, especially those of women and people of color — groups thatare more likely to work a minimum wage job and get paid less than a white

male. Oh, and two groups that vote less often in midterms. "It's extremelypotent," Democratic pollster Celinda Lake said recently. "It's the No. 1 issue

that gets single women out to vote, but it also unites men and women."

1238. CORAL DAVENPORT (staff writer) Apr. 14, 2014. NEW YORK

TIMES. Retrieved Apr. 28, 2014 from

http://www.nytimes.com/2014/04/15/us/politics/political-rifts-slow-useffort-

on-climate-laws.html?\_r=0. Many members of the Republican Party

question the established science that carbon pollution contributes to climate

change — and hundreds have also signed on to a pledge promising never to

raise taxes. But there has not been a huge public outcry to endorse new

climate change policy. Polls consistently show that while a majority of

Americans accept that climate change is real, addressing it ranks at thebottom of voters’ priorities.

1239. Steven Mufson & Tom Hamburger (staff writers). WASHINGTON

POST. Apr. 25, 2014. Retrieved Apr. 29, 2014 from

http://www.washingtonpost.com/business/economy/a-battle-is-loomingover-

renewable-energy-and-fossil-fuel-interests-arelosing/

2014/04/25/24ed78e2-cb23-11e3-a75e-463587891b57\_story.html.

“Clean energy is beginning to become mainstream,” said Gabe Elsner,

executive director of the Energy and Policy Institute, a clean-energy think

tank in Washington. “Renewable energy is popular and has increasedpolitical power now,” but, he added, “that power is still eclipsed by the

resources of the fossil fuel industry.”

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1240. Elizabeth Selig, (director of marine science at Conservation

International), The Huffington Post, February 12, 2014 [Retrieved April 25,2014 from Lexis/Nexis]. To sustain the oceans' incredible diversity, wehave to identify the places that harbor the greatest numbers of species or

great concentrations of endemic species — those species that are unique to aparticular place or region. Then, to guide efforts to conserve marine life, weneed to know which of these essential areas are most and least impacted by

human activities. A recently published study[1] by scientists at

Conservation International, the University of California — Santa Barbara,

Albert-Ludwigs-University of Freiburg, the International Union for the

Conservation of Nature, and Birdlife International brought together an

extensive set of maps on marine species, detailing where some 12,500different fish, marine mammals, seabirds, corals and other species arelocated, along with data on where the risks of damage from impacts like

overfishing, climate change, marine-based pollution from shipping andports, and land-based pollution such as the run-off of fertilizers used for

farming are highest. This study gives us the best picture to date of where

important concentrations of marine biodiversity are and where they are

most and least threatened by human activities.

1241. Jim Chen, (Professor of Law and Vance K. Opperman Research

Scholar, University of Minnesota Law School, Minnesota Journal of Global

Trade), Winter, 2000, 9 Minn. J. Global Trade 157, 211 [Retrieved April

28, 2014 from Lexis/Nexis]. The value of endangered species and the

biodiversity they embody is "literally ... incalculable." 343 What, if

anything, should the law do to preserve it? There are those that invoke the

story of Noah's Ark as a moral basis for biodiversity preservation. 344Others regard the entire Judeo-Christian tradition, especially the biblical

stories of Creation and the Flood, as the root of the West's deplorableenvironmental record. 345 To avoid getting bogged down in an

environmental exegesis of Judeo-Christian "myth and legend," we should

let Charles Darwin and evolutionary biology determine the imperatives ofour moment in natural "history." 346 The loss of biological diversity isquite arguably the gravest problem facing humanity. If we cast the question

as the contemporary phenomenon that "our descendants [will] most regret,"

the "loss of genetic and species diversity by the destruction of natural

habitats" is worse than even "energy depletion, economic collapse, limited

nuclear war, or conquest by a totalitarian government." 347 Natural

evolution may in due course renew the earth with a diversity of speciesapproximating that of a world unspoiled by Homo sapiens — in ten million

years, perhaps a hundred million.

1242. Peter Aldous, (MP UK Government), European Union News,

Published Speech, Apr. 17, 2014 [Retrieved April 25, 2014 from

Lexis/Nexis]. Potentially the world’s oceans are a great untapped source of

food production. Over 70% of the earth’s surface is covered by sea water,

our seas contain 90% of the planets water and yet they only yield 2% of the

world’s food. There will be 9.1 billion people on earth by 2050 andtraditional farming might well not be able to produce enough food for them.

Limited fresh water on arable land may also constrain the growth of

agriculture, whilst growing affluence in the developing countries adds to the

challenge, as people eat more meat and turn food crops into biofuels.

1243. CANADA NEWSWIRE, Feb. 18, 2014, International Scientist Dr.

Peter Ross to lead new Ocean Pollution Science Program at Vancouver

Aquarium Retrieved April 25, 2014 from Lexis/Nexis. "Threats to ocean

health include urban and industrial effluents, runoff from forestry and

agriculture, oil and gas shipping and exploration, plastics and debris, and

climate change," says Dr. Ross. "Understanding the nature and extent ofthese threats provide a crucial basis for policies and practices that willprotect ocean health for future generations. Vancouver Aquarium's Ocean

Pollution Science Program will conduct international-caliber scientific

research on ocean pollution and provide comprehensive and authoritative

information for individuals, communities and countries." The Program will

help inform partners and stakeholders in the science, government andprivate sectors on the health of our oceans.

1244. Michael Conathan, (director of ocean policy at the Center forAmerican Progress Action Fund), REP. DOUG LAMBORN HOLDS A

HEARING ON ENERGY AND MINERAL PRODUCTION AGENCIES

SPENDING/BUDGET PRIORITIES, Political Transcript Wire, March 12,

2012 [Retrieved April 21, 2014 from Lexis/Nexis]. Such exploration doesnot happen in a vacuum. The tradeoff from increased drilling activity is

greater risk to the tremendous economic value presented by clean andhealthy oceans an coasts. The World Ocean Forum estimates that the

national capital of the worlds oceans contributes $70 trillion to global grossdomestic product.

1245. Ronald O’Rourke, (Specialist in Naval Affairs), Congressional

Research Service (CRS) Reports and Issue Briefs, May 1, 2013 [RetrievedApril 25, 2014 from Lexis/Nexis]. Although important advances in publichealth have occurred in indigenous communities over past decades, somehealth problems may increase with continued Arctic climate change.

Economic development may exacerbate Arctic pollution problems,

including higher exposure to mercury, air pollution, and food

contamination. The influx and redistribution of contaminants in the air,

oceans, and land may change in ways that are now poorly understood.

1246. Yereth Rosen, (Columnist), Study: Shippers and seabirds clash over

Arctic territory, Alaska Dispatch, April 11, 2014 [Retrieved April 21, 2014from Lexis/Nexis]. Offshore oil and gas development and ship activity

present major risks to those whales, said the study, authored by scientists

from Alaska, Canada, Greenland, Norway, Switzerland and the

Netherlands. The mapping project was launched by the World Wildlife

Fund[6] and its species-conservation programs. The Bering Strait is

identified in that study, too, as a hotspot for potential conflicts with

shipping.

1247. EarthTalk: Questions & Answers About Our Environment, January 5,2014 [Retrieved April 25, 2014 from Lexis/Nexis]. We are all familiar bynow with "urban sprawl" — the uncontrolled spread of urban developmentinto areas beyond the city. But environmentalists warn that the next frontierin sprawl is on the high seas, where the proliferation of fishing, shipping,

tourism, resource extraction, energy development, military exercises and

other human activity has begun to call into question just how vast ouroceans really are. According to the non-profit Natural Resources DefenseCouncil (NRDC), our oceans are already under siege from problems likepollution, overfishing and acidification, and increased industrial activity

offshore — leading to so-called "ocean sprawl" — will jeopardize the food,

jobs and recreation we have come to depend on the oceans to provide.

1248. Bob Berwyn, (Columnist), Summit County Citizens Voice, February

15, 2014 [Retrieved April 25, 2014 from Lexis/Nexis]. 'Climate change is

by far the worst threat to Arctic biodiversity. Temperatures are expected toincrease more in the Arctic compared to the global average, resulting in

severe disruptions to Arctic biodiversity some of which are already visible,'

Meltofte warned. Even capping global warming at 2 degrees Celsius may

not be enough to protect the Arctic, where temperatures are projected to rise

at a much higher rate. The report explains that climate-change impacts arealready apparent, including northward range expansions of many species,

earlier snow melt, earlier sea ice break-up and melting permafrost together

with development of new oceanic current patterns. It is expected thatclimate change will shrink Arctic ecosystems on land, as northward moving

changes are pressed against the boundary of the Arctic Ocean — the so

called 'Arctic squeeze.' As a result, Arctic terrestrial ecosystems may

disappear in many places, or only survive in alpine or island refuges.

Disappearing sea ice is affecting marine species, changing dynamics in the

marine food web and productivy of the sea. Many unique species foundonly in the Arctic rely on this ice to hunt, rest, breed and/or escape

predators.

1249. Erin Biba, (Columnist), Newsweek, April 18, 2014, NEW WORLD;

Pg. 1 Vol. 162 No. 15 ISSN: 0028-9604 [Retrieved April 29, 2014 fromLexis/Nexis]. On the surface of the most desolate parts of the world'soceans, billions of tiny pieces of plastic swirl and churn. They are festering

pockets of pollution, but the ocean is a resilient beast. And even in these

incredibly remote areas, where nothing much ever happens, this humangarbage has begun to attract communities of life.

1250. Tom Levitt, (CNN), March 27, 2013, Overfished and under-

protected: Oceans on the brink of catastrophic collapse, Retrieved April 29,

2014 from http://www.cnn.com/2013/03/22/world/oceans-overfishingclimate-

change/. "There's a real lack of public and political awareness of

these issues," says Alex Rogers, professor of conservation biology at the

UK's Oxford University. "They're too big to understand in economic terms.

We can put a value on the loss of fishing, but how can we put a value on

oxygen production or the absorption of carbon dioxide?" he says. The

problem is that most of the world's ocean is located outside of internationallaw and legal control. Any attempts to implement rules and regulation comewith the problem of enforcement, says Rogers, who is also scientific

director of the International Program on State of the Ocean (IPSO).