

# Marine Resources Committee Newsletter

Vol. 17, No. 1

January 2014

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## MESSAGE FROM THE CHAIR

Eric S. Andreas

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No doubt about it, the Arctic is becoming increasingly free of ice. We have two articles for you in our first newsletter of the year that address what this means in terms for a national strategy and the future of offshore drilling there. Even with the receding ice, oil companies are finding that the Arctic still presents a real challenge to development. Next, if you haven't heard, President Obama has signed into law a historic transboundary agreement with Mexico that for the first time opens up production in the Gulf of Mexico that was previously off limits. There's more. Aquaculture has many benefits and is a key component to sustainable fisheries. But did you know it is having environmental impacts on the coastal waters of our national parks? Finally, we have an article that argues convincingly that the National Marine Sanctuaries Act should be used to save and defend our existing coral reefs in the United States.

In other news, the Marine Resources Committee webpage now has a hot topics box. I encourage you to check it out. If you would like to contribute a hot topic, contact John Cossa, our Electronic Communications vice chair, at [jcossa@bdlaw.com](mailto:jcossa@bdlaw.com).

Thanks to everyone who worked on and contributed to the newsletter! And remember to follow us on LinkedIn.

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## THE MELTING ARCTIC ICE CAP PRESENTS OPPORTUNITIES FOR SHIPPING, MINERAL DEVELOPMENT, COOPERATION, AND CONFLICT

Joan M. Bondareff

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### State of the Arctic

According to a recent report from the Oceanographer of the Navy, the Arctic ice is getting increasingly thinner, and therefore the Arctic sea lanes will be increasingly open to ship traffic during the summer months (*When Will New Arctic Maritime Crossroads Open?*, as reported in [www.MarineLink.com](http://www.MarineLink.com), Nov. 26, 2013). With these developments, the attention of the world, and in particular the eight members of the Arctic Council (the United States, Canada, Russia, Finland, Sweden, Denmark, including Greenland and the Faroe Islands, Norway, and Iceland) are turning to the future of the Arctic. Whether that future brings increased cooperation among nations or increased conflict remains to be seen. Certainly these activities will have an increased impact on the biodiversity of the Arctic region and the indigenous populations that call this region home.

In addition to the potential for increased shipping through the Arctic, the potential also exists for oil and gas development. According to the U.S. Geologic Survey, more than 35 percent of the world's undiscovered oil and gas lie beneath the

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**SECTION OF ENVIRONMENT,  
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February 5-11, 2014  
**ABA Midyear Meeting**  
Chicago, IL

February 10, 2014  
**Regulating Executive Compensation: The Federal TARP Statute and the Role of the Pay Czar**  
Webinar  
Free CLE!

February 19, 2014  
**Real Environmental Concerns in Real Property and Business Transactions**  
Webinar/Teleconference  
Primary Sponsor: Business Law Section

February 19, 2014  
**So You're Not In The Top 10% Of Your Class, That's Not A Prerequisite For Success!**  
Non-CLE Webinar

February 20, 2014  
**Meet the ABA SEER--Social/Network Event**  
New York, NY

February 27, 2014  
**CERCLA Case Studies and Lessons Learned: Novel Approaches to and Noteworthy Outcomes for Superfund Sites**  
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March 20-22, 2014  
**43rd Spring Conference**  
The Grand America Hotel  
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Arctic. Companies like Shell Oil are developing plans to extract these resources, but the recent government shutdown has delayed plans for the U.S. Department of the Interior to issue new regulations governing Arctic drilling.

## **Legal Regime for the Arctic**

The principal legal regime for the Arctic remains the United Nations Convention on the Law of the Sea (UNCLOS). Article 76 of UNCLOS establishes the Commission on the Limits of the Continental Shelf. The commission is responsible for adjudicating claims to extended continental shelves that lie under the Arctic and are adjacent to member nations' exclusive economic zones. So far, Russia, Norway, Iceland, and Denmark have submitted claims to the Arctic region with the commission but none have yet been adjudicated ([www.un.org/depts/los/clcs\\_news/commission\\_purpose.htm](http://www.un.org/depts/los/clcs_news/commission_purpose.htm)). Since the United States has never ratified UNCLOS, it has no official seat on the commission and can only participate as an observer.

The United States is a member of the eight-nation Arctic Council that establishes policies and guidelines for activities in the Arctic. Canada currently chairs the Arctic Council, but the United States will take over this role in 2015. To prepare for this role, U.S. Secretary of State John Kerry attended the last Ministerial Meeting of the Arctic Council in Kiruna, Sweden. At the meeting, Secretary Kerry reiterated President Obama's support for a "secure and well-managed Arctic marked by international cooperation and an absence of conflict" (John Kerry, U.S. Sec'y of State, Remarks at the Arctic Council Ministerial Session in Kiruna, Sweden, May 15, 2013, *available at*: <http://www.state.gov/secretary/remarks/2013/05/209403.htm>). He also reiterated the findings that "[t]emperatures we know in the Arctic are increasing more than twice as fast as global averages, and they are endangering habitats and they are endangering ways of life." The ministers also signed the Arctic Marine Oil Pollution Preparedness

and Response Agreement, the second legally binding agreement among the Arctic states (Office of the Secretary of State, May 10, 2013).

The International Maritime Organization (IMO) is also in the process of drafting a mandatory international code of safety for ships operating in polar waters (the Polar Code). The Polar Code will govern all aspects of shipping and ship construction for the Arctic (<http://www.imo.org/MediaCentre/HotTopics/polar/Pages/default.aspx>). According to the IMO Secretary General, "The Polar Code may be implemented by IMO in 2017" (*International Conference Unanimous That Arctic Code Is Needed*, as reported in [www.MarineLink.com](http://www.MarineLink.com), Oct. 23, 2013).

## **Recent U.S. Policy Developments**

The United States is developing its own policy frameworks to govern its activities in the Arctic. In May 2013, the White House released a national strategy for the Arctic region ([www.whitehouse.gov/sites/default/files/docs/nat\\_arctic\\_strategy.pdf](http://www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf)). The primary objectives of the national strategy are to (1) advance U.S. security interests in the Arctic; (2) pursue responsible Arctic region stewardship; and (3) strengthen international cooperation. The White House Office of Science and Technology Policy is collecting comments on the strategy in an effort to develop a more specific implementation plan. Comments can be submitted to [Arctic@ostp.gov](mailto:Arctic@ostp.gov).

Tiering off of the national strategy, the Coast Guard issued its own Arctic strategy ([www.uscg.mil/seniorleadership/DOCS/CG-Arctic\\_Strategy.pdf](http://www.uscg.mil/seniorleadership/DOCS/CG-Arctic_Strategy.pdf)). The Coast Guard noted that the polar ice cap is 40 percent smaller than it was in 1979; there has been a 118 percent increase in maritime transit through the Bering Strait; that 90 billion barrels of oil or approximately 1.3 percent of the world's undiscovered oil reserves, and 30 percent of the world's undiscovered natural gas, lie under the Arctic region; and that they expect more than one million tourists to visit the region in 2013. To protect the region, inhabitants, and visitors, the

Coast Guard's strategic objectives are to improve maritime domain awareness; improve Arctic governance; and broaden partnerships (USCG Arctic Strategy, p.10). The Coast Guard is also seeking comments on its strategy in order to develop an implementation plan.

Finally, in November 2013, the U.S. Department of Defense released its own Arctic strategy. In releasing the strategy at an international security forum in Halifax, Nova Scotia, Secretary of Defense Chuck Hagel stated that “[a] flood of interest in energy exploration has the potential to heighten tensions over other issues,” so “multilateral security cooperation will be a priority to . . . ultimately help reduce the risk of conflict” (*Pentagon Releases Strategy for Arctic*, as reported by T. Shanker in the *New York Times*, Nov. 22, 2013). The department's strategy is intended to implement the President's goal to keep “[t]he Arctic region . . . peaceful, stable, and free of conflict,” preferably in cooperation with other nations and independently if necessary (Arctic Strategy, Department of Defense, Nov. 2013, pp.1–2).

### Potential for Peace or Conflict?

On or about September 20, 2013, Russian commandos arrested the Greenpeace ship, *Arctic Sunrise*, flying under the Dutch flag, and took its American Captain and crew prisoner. Greenpeace had been protesting oil drilling in the Arctic north of Russia (*Captain of Seized Greenpeace Ship Speaks from Russia*, as reported by A. Kramer in the *New York Times*, Nov. 23, 2013). Russia claimed that the ship had been in Russian waters—a fact that was disputed by the Dutch.

The International Tribunal of the Law of the Sea, another UNCLOS body, ordered the Russian Federation to release the ship and its crew upon payment of a EUR 3.6 million bond (*Law of the Sea Tribunal Orders (Bonded) Release of “Arctic Sunrise,”* Nov. 24, 2013; [www.MarineLink.com](http://www.MarineLink.com)). Subsequently, the captain and crew were released on bail, but not before Russia made known its

claims to the region and set a trial for February 2014.

Another way Russia is staking its claim to the Arctic is through the expenditure of funds to build a \$1.2 billion nuclear-powered icebreaker—the largest ever (*Russia Starts Building Largest Ever Nuclear Icebreaker*, RIA NOVOSTI (May 11, 2013) at <http://en.ria.ru/russia/20131105/18456081.html>). Russia expects to spend \$63 billion by 2020 on its Arctic programs.

The United States is struggling to build even one new icebreaker for the Coast Guard, but the Coast Guard did deploy its cutters and two (aging) icebreakers to the Arctic this summer in an exercise called “Arctic Shield” (*Coast Guard Completes Arctic Shield 2013*, Nov. 4, 2013, [www.MarineLink.com](http://www.MarineLink.com)). In this time of reduced resources and sequesters, it will be a challenge for the United States to compete with Russia's shipbuilding plans. For this reason, we can only hope that peace and cooperation remain the operative themes for the Arctic, and not conflict.

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## THE FUTURE OF DRILLING IN THE U.S. ARCTIC

Ben Lippard and Theresa Romanosky

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What does the future hold for drilling in the Alaskan Arctic? Prior to the 2012 drilling season, most oil companies would have responded that the future of Arctic drilling was bright. Today that answer appears to have become a bit more nuanced.

In 2008 the Bureau of Ocean Energy Management (BOEM) held a lease sale for Arctic leases in which several companies paid billions for the chance to explore the region for oil. Two subsidiaries of Shell Oil, Shell Offshore Inc. and Shell Gulf of Mexico Inc. (Shell), began final preparations in 2012 to drill the first well in the Alaskan Arctic in almost 20 years. Shell encountered a host of problems during its drilling attempts, including issues with sea ice and a damaged oil spill containment dome. Despite such setbacks and the difficulties of operating in the Arctic environment, most energy experts continue to see a future for oil exploration and drilling in the United States after ongoing uncertainty regarding offshore drilling regulations is resolved.

### Vast Reserves

The Alaskan Arctic holds enormous potential for oil and gas development. Government estimates suggest that the region contains approximately one-third of the technically recoverable oil and natural gas reserves on the U.S. outer continental shelf (OCS) (*see* <http://www.boem.gov/Oil-and-Gas-Energy-Program/Resource-Evaluation/Resource-Assessment/2011-RA-Assessments.aspx>). Although the area has not been fully explored, BOEM has estimated that the Alaskan Arctic contains about 26 billion barrels of technically recoverable oil and 131 trillion cubic feet of technically recoverable natural gas. (*Id.*)

Recent exploration has focused on the Chukchi and Beaufort Seas, both located on the northern coast of Alaska. The Chukchi Sea is expected to contain

approximately 15 billion barrels of technically recoverable oil and 76 trillion cubic feet of technically recoverable natural gas. Estimates for the Beaufort Sea suggest that it holds approximately 8 billion barrels of technically recoverable oil and 27 trillion cubic feet of technically recoverable natural gas. (*Id.*)

### Exploration in the U.S. Arctic

Most of the exploration activity in the Alaskan Arctic has taken place in the Beaufort Sea, in areas near Prudhoe Bay. Oil and gas operations have been ongoing in this area since the 1960s. Interest from private industry declined during the 1990s and early 2000s, possibly due to several costly dry wells in the Beaufort Sea (*see* REPORT TO THE SECRETARY OF THE INTERIOR, REVIEW OF SHELL'S 2012 ALASKA OFFSHORE OIL AND GAS EXPLORATION PROGRAM, Mar. 8, 2013 (hereinafter REPORT)). Prior to the summer of 2012, only three exploratory wells had been drilled on the Alaskan OCS in 18 years, the most recent of which was in 2003. (*Id.*)

Industry interest in the Alaskan Arctic increased recently as a result of improved technology, updated information regarding gas reserves in the Chukchi Sea, and revised estimates for potential oil and gas reserves in the Arctic (*see* National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, *The Challenges of Oil Spill Response in the Arctic* (Staff Working Paper No. 5, updated Jan. 11, 2011)). These developments have made exploration in the area more attractive and economically viable.

This renewed interest is reflected in the results of the 2008 Chukchi Sea oil and gas lease sale 193, in which 487 leases sold for approximately \$2.7 billion (REPORT at 9). Seven companies bid for leases in the sale. Shell acquired 275 lease blocks and is the only company that presented plans to drill in the Chukchi. (*Id.*)

### Regulatory and Environmental Challenges

Just as Shell was preparing for oil exploration on its new leases, the regulatory regime for offshore

exploration changed following the Deepwater Horizon oil spill in the Gulf of Mexico in April 2010. Most notably, the agencies with oversight of offshore drilling within the U.S. Department of the Interior (DOI) were reorganized. The Bureau of Ocean Energy Management, Regulation and Enforcement (formerly the Minerals Management Service), was divided into BOEM and the Bureau of Safety and Environmental Enforcement (BSEE), each with authority over various aspects of the development of offshore resources (*see* <http://www.boemre.gov/>).

Further complicating the effort, new safety and permitting requirements were imposed on offshore drilling operations. For example, the drilling safety rule established new requirements regarding well design, casing and cementing, well bore integrity, and well control equipment (*see* 30 C.F.R. §. 250). Operators using subsea or surface blowout preventers on floating facilities were required to provide additional information demonstrating that adequate spill response and well containment resources are present in drilling operations (*see* NTL No. 2010-N10, Nov. 8, 2010). When combined with existing permitting requirements, the result is a long, difficult permitting process that can result in significant cost overruns (*see* [http://www.ey.com/Publication/vwLUAssets/Arctic\\_oil\\_and\\_gas/\\$FILE/Arctic\\_oil\\_and\\_gas.pdf](http://www.ey.com/Publication/vwLUAssets/Arctic_oil_and_gas/$FILE/Arctic_oil_and_gas.pdf)).

Beyond the regulatory requirements, the Arctic climate and environment present challenges for offshore drilling operations. Extreme temperatures and winds, common in the region, require adaptation of both drilling and emergency response procedures. Sea ice can also complicate offshore drilling operations and limits the drilling season to just a few months each year.

Further, the United States has limited infrastructure in the region, particularly with respect to operations in the Chukchi Sea. The Coast Guard has only one icebreaker in the area and the nearest Coast Guard outpost is in Kodiak, Alaska, approximately 1000 miles from the lease sites. The presence of sea ice could complicate the response to a spill, making

spilled oil more difficult to locate. Further, chemical dispersants are largely untested in Arctic waters. In situ burning as an oil spill response mechanism presents other challenges because it requires a rapid response that may not be possible in remote Arctic locations.

## **A Future for Drilling in the U.S. Arctic?**

As mentioned above, Shell experienced a host of problems during the 2012 drilling season. As a result of these setbacks, Shell was not able to secure the permits it needed to drill into the hydrocarbon-bearing zone on its leases but was able to complete top-hole drilling on two wells to approximately 1500 feet below the seabed in the Beaufort and Chukchi seas (*see* REPORT at 16).

On February 27, 2013, Shell announced that it planned to delay its exploration drilling activities in the Chukchi and Beaufort Seas for one year in order to prepare plans and equipment for future activities (*see* <http://www.shell.us/aboutshell/projects-locations/alaska/events-news/02272013-alaska.html>). Shell was not alone in delaying such plans. ConocoPhillips also announced that its plans to begin oil and gas exploration in the Chukchi Sea, originally slated for 2014, would be placed on hold. The company cited uncertainty over the new federal regulations as the reason for the delay (*see* <http://alaska.conocophillips.com/EN/news/newsreleases/Documents/NR-AK-Chukchi%20Sea-FINAL%204-9-2013.pdf>). Statoil, which is said to have spent \$23 million on leases to drill in the Chukchi Sea, has also reportedly decided to postpone plans to drill until 2015 at the earliest, with some sources indicating that the company may abandon its leases (*see* <http://www.houstonchronicle.com/business/energy/article/Statoil-may-abandon-U-S-Arctic-drilling-leases-4337590.php>).

In January 2013, DOI announced that it would be conducting an assessment of the 2012 Arctic drilling operations, focusing mainly on the challenges encountered by Shell (*see* <http://www.doi.gov/news/pressreleases/secretary-salazar-launches-expedited-assessment-of-2012-arctic->

operations.cfm). The report, released on March 8, 2013, identified seven “key principles and prerequisites for safe and responsible offshore exploration drilling in the Alaskan Arctic—five applying to industry and two relevant to government oversight” (see REPORT at 3). These seven principles primarily highlight the need for improved planning and coordination regarding all aspects of oil exploration and drilling operations in the Alaskan Arctic. The report also emphasizes the importance of interagency coordination in oversight and regulatory activities.

In addition to the report’s seven principles, DOI has announced that it plans to propose Arctic-specific rules for operations off Alaska’s north coast (see <http://online.wsj.com/article/BT-CO-20130507-713028.html>). The new rules are expected to impose similar restrictions on operators as those agreed to by Shell for the 2012 drilling season, but it is unclear whether the requirements will apply to all operators in the region or if there will be flexibility in the regulations in light of the experience and capabilities of each particular drilling operator. The contents of the new rules will have a huge impact—they will either encourage or discourage oil companies from continued exploration in the Alaskan Arctic.

In September, the Pew Charitable Trusts also released a report discussing the need for federal standards to improve the safety of Arctic drilling (see <http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Report/Arctic-Standards-Final.pdf>). The report proposes standards specific to the Arctic to improve consistency in the design, construction, installation, and operation of equipment used to explore and develop oil and gas resources and to respond to future accidents. Some of these proposed changes include building vessels and drilling rigs to withstand maximum ice forces and sea states and requiring that equipment used to control a spill in the Arctic be specifically designed for and located in the Alaskan Arctic. The report highlights the need for redundant systems, including blowout preventers, because equipment and access to the drilling sites can be extremely limited for

significant parts of the year due to weather and ice conditions. Further, the report suggests that Arctic offshore drilling operations in hydrocarbon-bearing zones be limited to periods in which drilling rigs and spill response systems can efficiently function in the Arctic climate.

On November 6, 2013, Shell filed an updated exploration plan with DOI but the plan limits drilling to the Chukchi Sea (see <http://www.shell.us/aboutshell/projects-locations/alaska/events-news/shell-submits-chukchi-sea-ep.html>). Given the allure of significant oil reserves in the Alaskan Arctic and the resources already invested in the area, it is likely that oil exploration will continue when regulatory uncertainties are resolved and the industry has a chance to make changes to operations in light of Shell’s experience. It appears that many in the industry are taking a wait-and-see approach to Arctic exploration; so all eyes are on Shell to learn from how it manages the uncertainty and risk in the coming years.

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## **BILLS PASSED BY THE SENATE AND THE HOUSE WOULD APPROVE A HISTORIC U.S.-MEXICO AGREEMENT TO DEVELOP TRANSBOUNDARY OIL AND GAS RESERVOIRS**

Timothy H. Baker

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### **Introduction**

When the President signed into law the Bipartisan Budget Act, he approved a historic agreement between the United States and Mexico that allows, for the first time, the joint exploration, development, and production of oil and gas reservoirs in the Gulf of Mexico (GOM) by U.S. lessees and the Mexican national oil company, Pemex. The act incorporates virtually all of H.R. 1613 that passed the House on June 27 and approves the “Agreement between the United States of America and the United Mexican States Concerning Transboundary Hydrocarbon Reservoirs in the Gulf of Mexico” (agreement). The act also amends the Outer Continental Shelf Lands Act granting the U.S. Department of the Interior (DOI) additional authority to implement the agreement. The agreement, which was signed by the United States and Mexico in February 2012, establishes a legal framework that makes possible the formation of voluntary commercial cooperative agreements to explore and exploit oil and gas reservoirs on and near the U.S.-Mexico maritime boundary in the GOM. When the agreement enters into force, 1.5 million acres of the outer continental shelf (OCS) will be made accessible to U.S. operators; the Western Gap moratorium will be terminated and the 2.8-mile buffer zone removed. DOI estimates that the area on the OCS, which the agreement will open up, contains as much as 172 million barrels of oil and 304 billion cubic feet of natural gas.

The agreement is organized as follows: (1) Articles 1–3 set out the agreement’s scope, definitions, and jurisdiction; (2) Articles 4–13 establish the various mechanisms for the development of actual transboundary reservoirs, as well as other oil and gas resources near the maritime boundary including

the determination of a transboundary reservoir, allocation of production, unit operating agreements, and unitization; (3) Articles 14–17 provide for the creation of a “Joint Commission” and mechanisms for resolving disputes; (4) Articles 18–19 provide for inspections and safety, health, and environmental protection standards for facilities authorized under the agreement; and (5) Articles 20–25 set forth the protections for confidential information and the process for amending and terminating the agreement. Under Article 22, the agreement enters into force 60 days after the United States and Mexico notify each other that the necessary internal procedures for ratification have been completed.

At the heart of the agreement are its provisions to facilitate the voluntary commercial development of oil and gas resources both on and near the maritime boundary through “unitization,” which is the joint coordinated exploration and/or development of an oil and gas reservoir by those who have rights in that reservoir. Under the agreement, unitization consists of a “unit operating agreement” between a U.S. lessee(s) and Pemex, and a “unitization agreement” that is subsequently negotiated by the U.S. lessee(s) and Pemex and then submitted to the relevant government agencies for approval (Agreement – Article 6). In the United States, the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) (both within DOI) are the relevant agencies. In Mexico, the agreement will be implemented by the Secretary of Energy (SENER) and the National Commission on Hydrocarbons (CNH).

Important to the success of the agreement’s voluntary unitization provisions are its requirements concerning the safe and efficient exploration and exploitation of oil and gas resources along the maritime boundary. Any activity undertaken pursuant to voluntary agreements between U.S. lessees and Pemex will be subject to the safety and environmental regulations in the jurisdiction where the exploration or exploitation activity takes place. Though Mexican law would apply to operations under Mexican jurisdiction and U.S. law would

apply to operations under U.S. jurisdiction, each government will have the means to ensure that all activity meets applicable laws and standards. There will be a system of joint inspections involving the respective agencies for any activity approved under the agreement wherever it takes place (Agreement – Article 18). Moreover, the agreement commits the United States and Mexico to develop common safety, health, and environmental standards and requirements for activities conducted pursuant to the agreement. Failing that, the agreement commits the governments to work to ensure that such standards are compatible (Agreement – Article 19). However, the greatest impact that the agreement may have on safety and the environment may result from the cooperative agreements themselves, such as unitization, that will likely lead to fewer unnecessary wells and more efficient production of oil and gas resources.

### **Transboundary Reservoirs**

The agreement's legal framework that facilitates voluntary unitization is made possible by the protections the agreement provides for the rights of each government in the oil and gas resources that cross the maritime boundary. Under the agreement, certain activities occurring within three statute miles of the maritime boundary trigger an obligation for the government having jurisdiction over such activities to notify the other and provide relevant non-confidential information about the activity (Agreement – Article 4). Moreover, if either government becomes aware of the presence of oil and gas within three statute miles of the maritime boundary or that a transboundary reservoir is likely to exist, that government is required to provide written notice to the other government within 60 days (Agreement – Article 4). Such a notice triggers a requirement for consultation between the governments for the purpose of determining whether a transboundary reservoir exists (Agreement – Article 5). If the respective government agencies cannot come to an agreement on the existence of a transboundary reservoir within 60 days, the matter is subject to the dispute resolution procedures of the agreement (Agreement – Article 5).

### **Impact on U.S. Leaseholders**

U.S. leaseholders that are directly affected by provisions of the agreement are those who hold leases located within three statute miles of the U.S.-Mexico maritime boundary in the GOM. However, holders of such leases issued before the date of notification that triggers the 60-day waiting period prior to the agreement entering into force are exempted from the agreement's mandatory provisions, although they may voluntarily agree to abide by its terms (Agreement – Article 1). Also exempted from the agreement's mandatory provisions are reservoirs located on any part of the submerged lands of Texas. Such reservoirs are deemed not to be a "transboundary reservoir" and, therefore, not subject to the mandatory terms of the agreement (Agreement – Article 2).

### **Unitization Agreements**

Before entering into a unitization agreement, a U.S. lessee(s) and Pemex are required to enter into a unit operating agreement (Agreement – Article 11). In the unit operating agreement, the U.S. lessee(s) and Pemex will designate an operator and draft a unitization agreement for approval by the governments. Once a unitization agreement is in place, and 60 days prior to the commencement of production, the unit operator is required to submit a proposal for the allocation of production for approval. If there is no agreement on the allocation of production within 30 days, the matter is subject to the dispute resolution procedures spelled out in the agreement (Agreement – Article 8).

In circumstances in which a transboundary reservoir is determined to exist before a U.S. lessee(s) and Pemex enter into a unit operating agreement, the agreement encourages voluntary unitization by providing for various negotiating timelines and escalating disincentives to unilaterally produce (Agreement – Article 7). The disincentives escalate from the prohibition on production to placing in the hands of the governments some of the decision making regarding the terms of the unit operating agreement and unitization agreement. However,

while the disincentives escalate, they do not reach the point where the U.S. lessee(s) and Pemex are forced into a unitization agreement and related unit operating agreement. The agreement protects the right of the U.S. lessee(s) and Pemex to refuse to sign such agreements. In the event that there is no agreement (i.e., the governments cannot agree on a unitization agreement or the U.S. lessee(s) and Pemex fail to enter into a unit operating agreement and submit a unitization agreement), the agreement provides that each government, in order to secure its own resources, may allow the managed development of a transboundary reservoir according to what has been determined to be the recoverable hydrocarbons in the transboundary reservoir, as allocated (Agreement – Article 7). This means that if the U.S. lessee and Pemex fail to reach agreement or there is no agreement among the relevant government agencies, the U.S. lessee(s) and Pemex could each produce separately its share of the resources from the transboundary reservoir. As a result, the agreement deprives both governments of the power to veto the production of transboundary oil and gas resources belonging to the other.

### **Safety and the Environment**

The agreement provides that both governments have the right to jointly inspect any facility approved under the agreement wherever it might be located (Agreement – Article 18). Moreover, inspectors operating outside their jurisdiction have the right to request that the inspector, under whose jurisdiction the inspection is taking place, enforce compliance with applicable safety, and environmental standards and requirements (Agreement – Article 18). Importantly, the agreement also establishes the right of inspectors, operating outside their jurisdiction, to request that an order be given for the immediate cessation of any or all activities of a facility if necessary to prevent risk to life, injury, or damage to the environment (Agreement – Article 18). Upon such a request, the inspector(s) having authority over the facility is required to accede to the request and issue the order. The agreement, however, requires that any such cessation of operations be

brought immediately to the attention of the relevant agencies (Agreement – Article 18).

### **Conclusion**

The approval of the agreement marks a new chapter in increasingly closer U.S.-Mexico cooperation in energy production and underscores the way forward for the joint U.S. and Mexican exploration, development, and production of oil and gas reservoirs in the GOM. Notably, the way forward is characterized by voluntary cooperative development agreements, subject to comprehensive safety, health, and environmental regulations, which should promote the safe and efficient exploration and exploitation of oil and gas on and near the U.S.-Mexico maritime boundary.

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## THE EFFECTS OF AQUACULTURE ON THE U.S. NATIONAL PARKS COASTAL WATERS

Misty A. Sims, Esq., LL.M.

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The National Aquaculture Act addresses the issue of the harvesting of fish and shellfish exceeding levels of optimum sustainable yield, and asserts that the rehabilitation and enhancement of fish and shellfish are desirable applications of technology (*see* 16 U.S.C.A. §§ 2801 to 2810). Aquaculture is the practice of farming shellfish, finfish, and plants in controlled or selected environments (*see* 16 U.S.C.A. § 2802(1), (5)). The act declares aquaculture has the potential for reducing the U.S. trade deficit in fisheries products, augmenting existing commercial and recreational fisheries, and producing other renewable resources (*see* 16 U.S.C.A. § 2801(c)). In effect, satisfaction of U.S. sustenance demands may be met, and the ability to contribute to the solution of resource problems globally (*see* William Lindsley & Tim Thomas, *National Aquaculture Act*, 35 AM. JR. 2d *Fish, Game, and Wildlife Conservation* § 78).

The act seeks to declare a national agriculture policy, and establish and implement a national aquaculture development plan (*see* 16 U.S.C.A. § 2801(b)(1), (2)). Also, the act establishes the Secretary of Agriculture as the lead federal agency with respect to the coordination and dissemination of national aquaculture information. In addition, the Secretary of Commerce and the Secretary of the Interior are cited to contribute to the National Aquaculture Development Plan that will identify aquatic species that have significant potential for culturing on a commercial or other basis. Furthermore, the secretaries of the three governmental departments will provide continuous recommendations for research and development, technical assistance, resolution of legal or regulatory constraints affecting aquaculture, and management of aquaculture facilities (*see* 16 U.S.C.A. § 2803). Moreover, the act calls for the coordination of national activities relating to aquaculture (*see* 16 U.S.C.A. § 2805).

Although aquaculture produces many benefits, it can negatively affect the environment and, in effect, the waters within the national parks. For example, when shrimp and salmon cages are crowded, fish wastes and antibiotics are released from the cages (*see* Environmental Impact of Aquaculture, “Existing Hazards,” <http://archive.is/sydar>). The wastes pollute waters with high levels of nutrients that increase the growth of algae. The resulting degradation of algae reduces the levels of oxygen in the water, killing fish and other organisms. Fish within the national parks lose their habitats and suffer from poor water quality. (*Id.*) For example, salmon farms discharge fecal waste directly into surrounding coastal ecosystems (*see* Seafood Choices Alliance, [http://www.seafoodchoices.com/resources/afishianado\\_pdfs/Salmon\\_Spring05.pdf](http://www.seafoodchoices.com/resources/afishianado_pdfs/Salmon_Spring05.pdf)). In order to minimize aquaculture’s adverse impact on park resources, the National Park Service (NPS) must evaluate the future shape of coastal and marine areas and sustainability issues when formulating overall management plans.

Thus far, both the U.S. Department of Commerce and National Oceanic and Atmospheric Administration have endorsed aquaculture policies in support of the National Aquaculture Act; however additional statutory authority is required to establish a regulatory framework for aquaculture in the U.S. exclusive economic zone (*see* Written testimony of Vice Admiral Conrad Lautenbacher, [http://74.125.95.132/search?q=cache:aijO\\_u64hZkJ:www.ogc.doc.gov/ogc/legreg/testimon/110f/Lautenbacher0712.doc +”National+Aquaculture+Act”+%26+law&cd=12&hl=en&ct=clnk&gl=us](http://74.125.95.132/search?q=cache:aijO_u64hZkJ:www.ogc.doc.gov/ogc/legreg/testimon/110f/Lautenbacher0712.doc+%26+law&cd=12&hl=en&ct=clnk&gl=us)). Executive and legislative actions indicate that the United States is aware of the issue in finding a resolution to the inherent conflict of interest in the government’s position on aquaculture (*see* R.R. STICKNEY & J.P. McVEY, RESPONSIBLE MARINE AQUACULTURE, 2002).

Numerous attempts to strengthen the National Aquaculture Act and to establish a legislative basis for marine aquaculture have been exercised. (*Id.*) The current draft National Marine Aquaculture Act proposes to establish a federal framework for

offshore aquaculture and to push for further government action to advance sustainable and responsible marine aquaculture. (*Id.*) Innovative technologies and practices are reducing the risks of chemical and biological pollution. The new sustainable exercises and strategies of aquaculture include the minimization of fish stress, usage of vaccines to reduce the necessity of antibiotics, and applying integrated pest management (*see* International Centre for Trade and Sustainable Development, *Aquaculture: Issues and Opportunities for Sustainable Production and Trade*, <http://ictsd.net/i/environment/11849/>). By enforcing onshore recirculating aquaculture systems and utilization of polyculture practices, the NPS and other federal agencies may reduce the negative environmental effects associated with aquaculture.

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## NATIONAL MARINE SANCTUARIES ARE THE KEY TO PROTECTING CORAL REEFS

Meghan Boian

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In the United States there are approximately 7607 square miles of coral reefs. These reefs are located off the coast of Hawaii, Florida, Puerto Rico, the U.S. Virgin Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands (D.D. TURGEON ET AL., NOAA, THE STATE OF CORAL REEF ECOSYSTEMS OF THE UNITED STATES AND PACIFIC FREELY ASSOCIATED STATES (2002)). Coral reefs are susceptible to environmental and anthropogenic stressors. United States lawmakers understanding the value of coral reefs have many laws that help to protect them. However, the best way to protect these underwater national treasures is to designate them as national marine sanctuaries.

### Threats to Coral Reefs

Fishing, pollution, and climate change are the three main causes of coral reef destruction in the United States (NOAA, CORAL REEF CONSERVATION PROGRAM GOALS AND OBJECTIVES 2010–2015). What all these threats have in common is that they are all anthropogenic. Like many environmental problems in the world, humans are the cause, but they also hold the cure.

Fishing is a popular recreational sport, an economic industry, and a means to survival. However fishing can have serious negative impacts on coral reefs. Fishing directly removes fish, invertebrates, or algae from coral reefs; it can upset the trophic levels of the reef; and it can damage species that were not the intended target of the fishing, known as “by-catch.” (*Id.*)

Land-based sources of pollution are reaching coral reefs through runoff into waterways that lead to oceans and into oceans directly. Pollution can come from farming, deforestation, stormwater, impervious surfaces, coastal development, construction activities, and oil and chemical spills. Pollution negatively impacts coral reefs by increasing

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sedimentation, nutrients, toxins, and pathogens in the water. The pollutants can cause disease, damage, kill, disrupt ecological functions, cause trophic structure and dynamic changes, as well as impede growth, reproduction and larval settlement. (*Id.*)

Climate change may be the biggest threat to coral reefs. In 2007, the Intergovernmental Panel on Climate Change (IPCC) found that it is “unequivocal” that the earth’s atmosphere and oceans are warming and that those changes are due to anthropogenic factors (IPCC FOURTH ASSESSMENT REPORT: CLIMATE CHANGE 2007). Rising ocean temperatures can cause the bleaching of corals. Coral bleaching occurs when the symbiotic relationship between algae (zooxanthellae) and their coral host breaks down (Paul Marshall and Heidi Schuttenberg, *A Reef Managers Guide to Coral Bleaching* (2006), at 98. [www.coris.noaa.gov/activities/reef...guide/reef\\_managers\\_guide\\_ch.4.pdf](http://www.coris.noaa.gov/activities/reef...guide/reef_managers_guide_ch.4.pdf)). When the zooxanthellae are gone, the white calcium carbonate skeleton of the coral is exposed, making the reef look bleached. Coral bleaching causes the loss of corals, changes in habitat, and changes in fish populations on the reef (PAUL MARSHAL & HEIDI SCHUTTENBERG, *A REEF MANAGER’S GUIDE TO CORAL BLEACHING* (2006)).

Ocean acidification is another negative impact of climate change. The ocean sequesters one-fourth to one-third of the carbon dioxide released by human activities (cited in Uta Passow & Craig A. Carlson, *The Biological Pump in a High CO<sub>2</sub> World*, 470 MARINE ECOLOGY PROGRESS SERIES 249–71 (2012)). Due to this sequestration of carbon dioxide, the oceans are becoming increasingly acidic. As carbon dioxide enters the ocean it reacts with seawater to form carbonic acid. When carbon dioxide concentrations in the ocean increase, it inversely affects the levels of carbonate, making it less available (IPCC WORKSHOP ON IMPACTS OF OCEAN ACIDIFICATION ON MARINE BIOLOGY AND ECOSYSTEMS (2011)). The presence of carbonate in the ocean is important because corals make their shell from calcium carbonate, which in turn builds the reef. Not only does the lack of carbonate ions in the ocean inhibit the formation of calcium carbonate shells but

it also reverses the process of calcification, which will dissolve existing shells and thus reef structures.

## How to Protect Coral Reefs

Many federal laws can help to protect coral in the United States. These laws include Clean Water Act of 1977 as amended (33 U.S.C. § 1251), Coastal Zone Management Act (16 U.S.C. § 1451), Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801), National Environmental Policy Act of 1969, as amended (42 U.S.C. § 4331), National Park Service Organic Act (16 U.S.C. § 4321), National Wildlife Refuge System Administration Act (16 U.S.C. § 668dd-ee), and the Endangered Species Act (16 U.S.C. § 1531). However, the most useful law is the National Marine Sanctuaries Act (16 U.S.C. § 1431).

The National Marine Sanctuary Act establishes areas in the marine environment that have special “conservation, recreational, ecological, historical, cultural, archeological, scientific, educational, or esthetic qualities as national marine sanctuaries” (16 U.S.C. § 1431(a)). Once a marine area is designated as national marine sanctuary, management is undertaken to conserve and restore that special place; it becomes illegal for anyone to destroy the area in any way (16 U.S.C. §§1431(b), 1436).

Five national marine sanctuaries have been created that protect coral reefs: the Fagatele Bay, Florida Keys, Flower Garden Banks, Gray’s Reef, and the Hawaiian reefs. Not only are the coral reefs protected in these designated marine sanctuaries, they are also being managed by NOAA. What that means is that scientists are monitoring them and have the authority to establish any necessary regulations to protect the coral reefs.

All fishing activities in national marine sanctuaries are regulated to limit likelihood of overfishing. This can be problematic for coral reefs as was seen in the Fagatele Bay National Marine Sanctuary in American Samoa. There, the managers of the sanctuary discovered that spear fishing and the use

of poisons and explosives to harvest fish was damaging the reef. Upon discovery, managers reported these prohibited activities to the National Marine Fisheries Service and local management agencies that intensified patrols of the reef to eliminate overfishing violations.

Monitoring reefs can also lead to early detection of land-based pollution impacts caused by runoff. As pollution impacts are discovered, managers can implement or alter watershed management plans to reduce runoff. Likewise, harmful changes in water temperature and pH can also be discovered through reef monitoring. Like all problems related to climate change, there is no quick fix for these issues, but monitoring the changes can provide insight into the problem until a solution is reached.

However, recent studies suggest corals may have climate change capabilities (Cheryl A. Logan, John P. Dunne, Mark Eakin & Simon D. Donner, *Incorporating Adaptive Responses into Future Projections of Coral Bleaching*, 28 *GLOBAL CHANGE BIOLOGY* (Oct. 2013)). Continued monitoring will further science as more data are gathered. Also, designating new marine sanctuaries containing coral reefs in areas that are more protected from climate change impacts can increase the likelihood of coral reef preservation as a whole. The National Marine Sanctuary Act gives the framework for coral reefs to be conserved for future generations of humans and sea creatures to enjoy.

**Meghan Boian** received her J.D. in 2010 from Pace University School of Law with a certificate in environmental law. Ms. Boian has worked in the areas of clean inland and oceans waters through litigation and policymaking.

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### **ABA Award for Distinguished Achievement in Environmental Law and Policy**

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