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Written Testimony for Legislative Hearing on HR 2231, the "Offshore Energy and Jobs Act"

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Good morning, Mr. Chairman and Members of the Committee. Thank you for the invitation to participate in today's hearing. My name is Michael LeVine, and I am Pacific Senior Counsel for Oceana. Oceana is an international, nonprofit, marine conservation organization dedicated to using science, law, and public engagement policy to protect the world's oceans. Our headquarters are in Washington, DC, and we have offices in five states as well as Belgium, Belize, Spain, Denmark, and Chile. Oceana has more than 500,000 members and supporters from all 50 states and from 150 countries around the globe. Our Pacific work is headquartered in Juneau, Alaska, and, together, our Pacific staff has more than 200 years of experience working and living in Alaska. I am presenting testimony today on behalf of Oceana and Alaska Wilderness League.[1]

As companies seek to explore for oil in more remote and difficult places, the government must think carefully about how it balances anticipated benefits with increased risks and how it can ensure that decisions are based on good science, preparedness, and planning. Indeed, both the *Deepwater Horizon* accident and Shell's ill-fated efforts to drill exploration wells in the Arctic Ocean unfortunately demonstrated that decisions to prioritize expediency and profit often create significant and unnecessary risk to important ocean resources on which we depend for economic wellbeing, cultural connection, food security, and many other important uses. They also evidence a disturbing lack of government oversight and substantial problems in the manner in which government agencies have made decisions to allow offshore oil and gas activities. Change, clearly, is needed, and that change should include requirements for better science, demonstrated response capacity, and equitable balancing of risks and benefits to the American people.

Unfortunately, HR 2231, the "Offshore Energy and Jobs Act," would prioritize oil and gas leasing above all other uses of our oceans. This "leap before you look" approach would preclude the science-based planning needed to ensure the long term health of the Arctic Ocean. Rather than forcing the Department of the Interior to hold lease sales and limiting environmental review, we should focus on crafting a plan for Arctic region that allows for healthy ocean ecosystems and

[1] Alaska Wilderness League is a non-profit 501(c)(3) corporation founded in 1993 to further the protection of Alaska's amazing public lands. The League is the only Washington, D.C.-based environmental group devoted full-time to protecting Alaska's wild land and waters. The League has four offices in Alaska, including an Arctic Environmental Justice Center in Anchorage that provides a base of outreach and support for members of Arctic communities who are on the front lines of the destruction from industrial development. The League's Arctic Ocean program aims to check the unbalanced and potentially destructive development of Alaska's Arctic waters.

affordable, clean energy. Such a plan should provide stewardship and oversight based on understanding the Arctic Ocean, including identifying and protecting Important Ecological Areas, requiring demonstrated response capabilities, and more fully and fairly balancing costs and benefits.

My testimony today will focus on the potential impacts of HR 2231 in Alaskan waters. I will begin with an overview of the importance of ocean resources, the changes occurring in the Arctic Ocean, the threats from proposed industrial activities, and the difficulties in managing those threats. I will then detail the problems Shell encountered in its efforts to drill exploration wells in the Arctic Ocean in 2012 and explain the broader ramifications of those failures. Finally, I will recommend ways to make better decisions about whether to allow these activities and, if so, under what conditions.

I. GOOD DECISIONS ABOUT OCEAN RESOURCES REQUIRE SCIENCE, PREPAREDNESS, AND PLANNING.

Covering more than 70% of the world's surface, oceans and seas are our largest public domain, and good stewardship of our ocean resources is vital to our lives and livelihoods. As the U.S. Commission on Ocean Policy stated, "the importance of our oceans, coasts, and Great Lakes cannot be overstated; they are critical to the very existence and wellbeing of the nation and its people." Similarly, President Obama wrote that "America's stewardship of the ocean, our coasts, and the Great Lakes is intrinsically linked to environmental sustainability, human health and well-being, national prosperity, adaptation to climate and other environmental changes, social justice, international diplomacy, and national and homeland security."

Oceans provide economic opportunity, sustenance, recreation, cultural connection, and a variety of other services. Together, recreational and commercial fisheries provide over 2 million jobs in the United States. Coastal tourism provides another 28.3 million jobs and generates $54 billion in goods and services annually. In addition, oceans provide essential protein to nearly half the world's population. More than one billion people worldwide depend on fish as a key source of protein, and wild-caught ocean fish currently provide about as much animal protein to humans as eggs do. For these reasons and others, we must not risk the long-term viability of our ocean resources by prioritizing short-term economic gains or making poorly informed decisions that could foreclose future opportunities for sustainable management.

A. The Arctic Ocean

These management considerations are particularly important as decisions are made for the Arctic Ocean. Despite harsh conditions, the Arctic is home to vibrant communities and healthy ecosystems. The Beaufort and Chukchi seas are central to life in coastal communities, provide important habitat for countless species of wildlife, and play a vital role in regulating the world's climate.

Thousands of people inhabit the Arctic region of the United States, which is entirely in Alaska. The majority of these residents consider themselves to be Alaska Natives and, for many, their culture is inseparable from subsistence harvesting; sharing of food; teaching youth how to fish,

hunt, and gather resources; and celebrating successful harvests. The Arctic seas are a foundation of the subsistence way of life for coastal communities, and for the villages that hunt bowhead whales, that hunt is a centerpiece of their culture.

In addition to the vibrant communities that have adapted to the top of the world, Arctic waters also support some of the world's most iconic wildlife species, such as beluga whales, polar bears, walrus, and ice seals. The endangered bowhead, as well as beluga and gray whales spend time in these waters. Millions of birds, including more than 100 species, migrate from nearly every corner of the world to feed and nest in the Arctic each summer. More than 100 fish species live in the U.S. Arctic Ocean, including Arctic grayling, Arctic char, all five species of Pacific salmon, capelin, herring, and various species of cod and sculpin.

The Arctic region plays a critical role in the global climate system and helps shape weather patterns in the northern hemisphere. The colder Arctic is a sink for heat from the rest of the world, and the movement of heat from the tropics to the poles affects weather patterns. Storm tracks depend on the position, strength, and orientation of the jet stream, and fluctuations in polar regions affect the location and speed of the jet stream, which affects weather patterns, especially at mid-latitudes.

B. Change: Warming, Ocean Acidification, and Industrialization

The Arctic region is changing. Climate change is resulting in substantial warming, and marine absorption of carbon dioxide is causing oceans to become more acidic. At the same time, increased industrial activity has begun in the Arctic Ocean. As the Interagency Working Group on Coordination of Domestic Energy Development and Permitting in Alaska explained:

> The U.S. Arctic is experiencing rapid, sustained change, and those changes are expected to continue into the coming decades due to climate change, resource extraction, and increasing human activities. Terrestrial, freshwater, and marine ecosystems as well as broader environmental, cultural, and economic trends in the Arctic will be affected.

Together, these changes will have substantial effects on the people and ecosystems in the region and the world.

i. Changing Climate and Ocean Acidification

The Arctic is warming roughly twice as fast as the rest of the world. The scientific consensus is that this warming results from human-caused emissions of greenhouse gases, particularly carbon dioxide. The more rapid temperature increase in the Arctic, known as Arctic amplification, results from particular sensitivities in the region, including the presence of ice and snow.

The most prominent change in the Arctic has been the rapid loss of sea ice extent and volume. In 2012, the seasonal minimum sea ice extent in the Arctic reached a record low, and that low was only 50% of the average extent from 1979-2000. The loss of sea ice volume has been more dramatic. The record minimum in 2012 was only 20-30% of previous minimums over the satellite record. If the current trend in ice volume loss continues, the Arctic is likely to become seasonally ice-free by 2017. Climate change in the Arctic is also accompanied by stronger and

more frequent storms, sea level rise, melting permafrost, and coastal erosion. The changes make subsistence hunting more difficult and dangerous, and they affect Arctic species by changing the food web and reducing the habitat of ice-dependent species such as polar bears.

The changes in the Arctic have implications for the rest of the world. Loss of sea ice cover in the fall is already associated with changing weather patterns across the northern Hemisphere with consequences for agriculture and losses of life and property from extreme weather events.

In addition to warming, carbon dioxide emissions are also causing ocean acidification. Approximately one-third of the carbon dioxide that is added to the atmosphere is absorbed by the oceans, and this absorption changes the chemistry of the seawater, making it more acidic. The Arctic is at particular risk from the effects of acidification due to its cold, low-salinity waters, which lead to increased solubility of carbon dioxide. A recent study even concluded that "Arctic marine waters are experiencing widespread and rapid ocean acidification." These changes will fundamentally alter the Arctic Ocean ecosystems and may have substantial effects on the people and animals dependent on them.

ii. Increasing Industrial Threats

As the Arctic environment changes due to climate change and ocean acidification, melting sea ice is making the region increasingly available for industrial activities. With these activities come substantial risks for a part of the world that has remained relatively free from large-scale industrialization. These risks arise from both accidents and routine activities inherent in oil and gas exploration and development, shipping, and fishing.

We are in the second boom cycle for oil and gas in the Arctic Ocean. Companies invested billions of dollars in the 1980s and 90s purchasing leases and drilling several exploration wells. Eventually, the price of oil collapsed and, along with it, industry interest; by 2000, almost no leases were owned in the Arctic Ocean. Between 2003 and 2008, more than three million acres of leases were sold in the Beaufort and Chukchi seas. Netherlands-based Royal Dutch Shell owns the majority of those leases, and the company has pushed forward aggressively to drill exploration wells on those leases. As explained below, those efforts have resulted in controversy, litigation, and near-disaster. Shell and other companies have also conducted seismic surveys across the Arctic Ocean.

In addition, as sea ice continues to retreat and the demand for goods increases around the world, the number of vessels transiting the Arctic Ocean is predicted to increase. The Aleutian Islands, at the southern edge of the U.S. Arctic, are already a major shipping thoroughfare, and shipping is predicted to rapidly expand into the Arctic Ocean. Similarly, large-scale commercial fishing has been an important economic and ecological force in the southern Bering Sea and Gulf of Alaska for several decades. There is currently no large-scale commercial fishing in the US Arctic Ocean. It has been thought, however, that "[c]limate warming is likely to bring extensive fishing activity to the Arctic, particularly in the Barents Sea and Beaufort -Chukchi region where commercial operations have been minimal in the past."

With these activities comes substantial risk. The most apparent of these risks, of course, is a catastrophic oil spill, which would have dramatic impacts on the people and wildlife in the Arctic

region. While acknowledging the "limited information" available upon which to make an assessment, the federal government has estimated that, "[f]or a catastrophic oil spill, it is assumed that two entire years of Arctic marine mammal subsistence harvests and one and one-half years of Bowhead whale harvests would be lost." It has also estimated that there is a substantial likelihood of such a spill; in its 2008 Draft Environmental Impact Statement for the Chukchi and Beaufort Planning Areas, federal regulators estimated that there is a 40% chance of a large spill in the Chukchi Sea and a 26% chance of a large spill in the Beaufort Sea.

In addition to creating the risk of dramatic impacts from a catastrophic spill, oil exploration and production activities also routinely release smaller amounts of oil, toxic muds, and other fluids into the ocean. Drilling muds, in particular, can have toxic effects in the water column. Moreover, discharges of oil are virtually guaranteed to result from routine activities. As one Shell executive made clear, "There's no sugar-coating this, I imagine there would be spills, and no spill is OK."

Industrial activities in the Arctic would also increase air pollution and contribute to global warming. Combustion will produce air pollutants that can cause human health problems and affect the environment. In addition, the activities would produce greenhouse gases and would emit substantial amounts of soot. The black carbon particles in soot are a particular concern in the Arctic because they contribute to a feedback loop that accelerates snow and ice-melt.

Seismic testing, exploration and production drilling, icebreaking, and vessel traffic also dramatically increase noise levels in the ocean, and this noise can have significant effects on marine mammals and other wildlife. As the National Marine Fisheries Service stated, "Marine mammals use hearing and sound transmission to perform vital life functions. Sound (hearing and vocalization/echolocation) serves four primary functions for marine mammals, including: (1) providing information about their environment; (2) communication; (3) prey detection; and (4) predator detection." Additional noise can disrupt these functions by displacing animals from breeding and feeding habitat, causing temporary or permanent hearing loss, causing stress and other physiological responses, making it more difficult for animals to hear other, relevant sounds, and, in extreme situations, causing stranding or death.

Further, offshore oil and gas activities are massive industrial undertakings. For example, Shell's 2012 activities in the Chukchi and Beaufort Seas included a drill rig, a drilling vessel, ice breakers, tugs, barges, other support vessels, aircraft, helicopters, and other industrial machinery. In addition to the direct impacts to the ecosystem discussed above, this large-scale industrialization more subtly affects the communities along the coast by bringing an influx of people and industry from outside the communities and outside Alaska. These changes have economic, social, and cultural impacts to Arctic communities.

iii. Management Challenges

Effective management and decision-making about industrial activities in the U.S. Arctic Ocean is hindered by a lack baseline scientific knowledge, remoteness, absence of infrastructure, and the lack of adequate and proven oil spill prevention and response technology. Together, these challenges make it difficult to understand or predict the impacts of activities, to craft appropriate mitigation, and to weigh risks.

Scientists recognize that the recent losses of sea ice during summer are fundamentally changing Arctic Ocean ecosystems, but relatively little still is known about the abundance and distribution of common species, much less how the food webs work in this region. In its analysis of the potential impacts from Lease Sale 193 in the Chukchi Sea, the Department of the Interior explicitly recognized that there is significant missing information about even the most basic parameters for every one of the largest and most conspicuous animals in the ecosystem—all fish, marine mammals and birds—which in other regions are typically the most highly studied animals of an ecosystem. The missing information for these species includes abundance, distribution, and life history. The U.S. Geological Survey (USGS) has detailed information gaps for nearly every species in the Arctic Ocean. The final report of the National Commission on the BP *Deepwater Horizon* Oil Spill and Offshore Drilling echoed this sentiment, observing that the "[s]cientific understanding of environmental conditions. . . in areas proposed for more drilling, such as the Arctic, is inadequate. The same is true of the human and natural impacts of oil spills," as well as the impacts of routine oil and gas operations.

The lack of adequate baseline information creates a significant impediment to effective planning and preparedness. The U.S. Commission on Ocean Policy stated as a principal tenet, "Ocean managers and policy makers need comprehensive scientific information about the ocean and its environment to make wise decisions." As the USGS explained, the gaps in information about the Arctic Ocean are a "major constraint to a defensible science framework for critical Arctic decision making." Similarly, an inter-agency government report addressing the need for integrated management in the Arctic noted that "scientific information and data relevant to U.S. Arctic decisions can be difficult to access and it is not clear that the scientific agenda for the U.S. Arctic adequately serves the informational needs of decision-makers."

Despite harsh and changing conditions, progress is being made. Various private and public entities have recently started scientific research programs in the Arctic Ocean to fill some of the data gaps. For example, the Chukchi Sea Environmental Studies Program, funded by ConocoPhilips, Shell and Statoil, is a multi-year, multi-discipline marine science research program collecting information on physical oceanography, atmospheric conditions, sediments, benthic communities, plankton ecology, fish, seabirds, marine mammals, and underwater acoustics. Other entities are working to synthesize existing information. Nonetheless, there are still substantial gaps in the available information, and a comprehensive, long-term research and monitoring program is needed.

Moreover, there is no proven method to respond to spilled oil in the Arctic. Indeed, the National Commission on the BP *Deepwater Horizon* and Offshore Drilling found that "successful oil spill response methods from the Gulf of Mexico, or anywhere else, cannot simply be transferred to the Arctic." The National Academy of Sciences similarly determined that "no current cleanup methods remove more than a small fraction of oil spill in marine waters, especially in the presence of broken ice." Tests of skimmers, boom, and vessels in 2000, were characterized as a "failure," despite calm weather. In particular, the tests showed that even though mechanical recovery is typically assumed to work in up to 30 percent ice coverage, the system only actually worked in up to 10 percent ice coverage. In August 2012, the Coast Guard conducted oil spill response tests that included the deployment of boom and the use of a skimmer designed to

recover oil in pockets of water trapped by ice. The report of those exercises notes that the lack of docking facilities or ports was a challenge, that ice and fog inhibited the exercise, and that it was difficult to find berthing facilities for personnel.

Weather and other environmental conditions can be severe in the Arctic. The Arctic Ocean is covered with sea ice from approximately October through May, and the air temperature goes below freezing on nearly every day of the year. Fog, wind, and storms are common, and long hours of darkness limits visibility in the late fall and winter. These environmental conditions make operations, as well as response and rescue, difficult or impossible.

In addition, there is a significant lack of infrastructure in the U.S. Arctic. Very little response equipment is stored on the North Slope, and there are hardly any vessels there that could assist in a response effort. Senator Begich, for example, has pointed out that icebreakers are "sorely lacking" as well as Coast Guard "cutters, aircraft hangars, crew quarters, communication capabilities, deepwater ports and other infrastructure." Characterizing the lack of infrastructure, Coast Guard Commandant Robert Papp explained that, "[t]here is nothing up there to operate from at present and we're really starting from ground zero." Moreover, there are not hotels or other housing capable of accommodating thousands of responders. Nor is there an easy way to move equipment or personnel from one location to another. The remoteness of the Arctic is also a substantial challenge; the nearest Coast Guard station is in Kodiak, roughly 1000 miles from the likely locations of oil and gas exploration, and the nearest deepwater port is Dutch Harbor. Even Dutch Harbor has limited ability to service drilling vessels and house people.

II. THE 2012 DRILLING SEASON SHOWS THAT COMPANIES ARE NOT PREPARED TO DRILL IN THE ARCTIC OCEAN.

Since 2004, Shell has invested heavily pursuing oil in the Arctic Ocean. The company's unsuccessful efforts to complete exploration wells have resulted in controversy, litigation, and, most recently, near disaster. In 2012, Shell sought to use the *Kulluk* drill rig and *Noble Discoverer* drilling vessel to drill exploration wells. Though Shell did manage to complete two top holes (the beginning of exploration wells), it was not allowed to drill into oil-bearing zones. Along the way, the company's lack of preparedness and forethought resulted in a series of substantial mishaps:

1. Spring and early summer 2012—before the drilling season even began—Shell:
    - backtracked on the commitment in its oil spill response plan to clean up 95 percent of a major Arctic oil spill, asserting instead that it intended only to "encounter" spilled oil, not necessarily clean it up;
    - admitted it could not comply with the terms of the Clean Air Act permit is had negotiated over several years and received a "compliance order" from the government allowing it to exceed the established standards; and

- began a prolonged argument with the Coast Guard about safety standards for its 37-year-old oil spill response barge, the *Arctic Challenger*, which had been dormant since the 1990s. The barge was not certified until October.

2. July 14, 2012—On its way to the Arctic Ocean, Shell lost control of its drillship, the *Noble Discoverer*, near Dutch Harbor, and the vessel almost ran aground.

3. September 10, 2012—Shell was forced to abandon its drilling operations in the Chukchi Sea less than 24 hours after starting when an ice sheet about the size of New York City covered the drilling site.

4. September 16, 2012—Shell's oil spill containment dome failed spectacularly during sea trials off the coast of Washington State in calm seas. Government observers said that the dome was "crushed like a beer can" and "breached like a whale."

5. November 2012—Shell delayed departure of the *Kulluk* from the Beaufort Sea due to cold and windy, but routine, Arctic weather. The problems included helicopters without de-icing equipment and pilots unfamiliar with flying on Alaska's North Slope.

6. November 16, 2012—The *Noble Discoverer* suffered a loud explosion and fire while docked in Dutch Harbor on its way to Seattle.

7. November 2012—The *Noble Discoverer* was boarded by Coast Guard personnel and cited for a series of discharge and safety violations—including skimming oil from main engine piston cooling water with a "ladle and bucket." The vessel also barely made it to Seward, where it was announced that it had suffered substantial engine damage, would not be able to sail under its own power, and would be dry towed to Asia for repairs.

8. December 21, 2012—The drill rig *Kulluk* departed Dutch Harbor under tow by a single vessel for Seattle for repairs. It was rumored at the time—and has since been confirmed—that the departure was timed at least in part to avoid a $6 million state tax payment

9. December 27, 2012—The *Kulluk* separated from its tow vessel in bad, but not unexpected, weather and drifted on and off for four days. During this time, the Coast Guard heroically rescued all 18 crew aboard the *Kulluk*. The *Kulluk* had more than 150,000 gallons of fuel on board as ballast.

10. December 31, 2012—The *Kulluk* ran aground on Sitkalidak Island, near Kodiak, Alaska.

11. January 7, 2013—The *Kulluk* was towed off the rocks and into Kiliuda Bay, approximately 45 nautical miles away. It remained there for assessment until it was towed back to Dutch Harbor (this time with three separate tow vessels) then dry-towed to Asia for repairs.

12. January 10, 2013—EPA issued two Notices of Violation—one for the *Discoverer* and the other for the *Kulluk*—making it clear that Shell violated the terms of both its original Clean Air Act permits and the negotiated "compliance order." The notices, which identify 35 separate violations, have been referred to the Department of Justice for enforcement.

Shell's mishaps and problems resulted in a series of investigations and reports. The Department of the Interior completed a 60-day review of the drilling season in March. Violations of the Clean Air Act and discharge and safety requirements have been referred to the Department of Justice for enforcement. The Coast Guard recently completed a two-week marine casualty hearing and will complete its investigation in coming months. Although investigations are still pending, it is abundantly clear that there are problems with both corporate actions as well government oversight

Shell's lack of preparedness put lives and the marine environment at substantial risk. Moreover, the response to these problems diverted government resources and led to substantial expenditures of public funds. Even Shell's routine operations resulted in violations of air and water protections.

In light of its problems, Shell announced that it was foregoing drilling operations in 2013. ConocoPhillips and Statoil have announced they would not seek approvals for exploration drilling in 2014.

III. MOVING FORWARD, DECISIONS MUST BE BASED ON SCIENCE AND PREPAREDNESS.

As the problems encountered during the 2012 efforts to drill exploration wells make all too clear, even one of the biggest and most well-financed companies in the world is not prepared to drill in the Arctic Ocean, and government agencies are not able to provide appropriate oversight and regulation. Fundamental reassessment and change is needed in order to allow for decisions based on sound science, preparedness, and a fair balancing of risks and benefits. Unfortunately, many of the provisions of HR 2231 would foreclose this path.

Indeed, HR2231 seeks to require the Department of the Interior (DOI) to offer leases on vast tracts of the Outer Continental Shelf. The bill would change the manner in which DOI balances risks and benefits by prioritizing leasing irrespective of the risks it might cause. It does so without ensuring that the lease sales it mandates will result in public economic good or additional oil production that might justify the risks it seeks to impart on coastal communities.

Nor does the bill take into consideration the lease sales in the Beaufort and Chukchi seas that DOI has included in its current 2012-17 Five-Year Leasing Program. For all the reasons explained below, there is no need to hold those sales, let alone additional ones. In addition, the leases currently owned in the Chukchi and Beaufort seas were purchased more than five years ago. Companies have yet to complete any exploration wells on those leases.

Rather than putting a thumb on the scale in favor of drilling, we need to address the problems identified above by: (1) obtaining the basic scientific information needed to make good decisions; (2) requiring demonstrated response capacity; and (3) taking a more careful look at the risks and benefits to the American people of offshore drilling in remote and difficult places.

A long-term research and monitoring program would provide the baseline scientific information needed to better understand the potential effects of industrial activities and the measures needed to ensure protection of the marine environment. With that information, Important Ecological Areas could be better identified and protected, and more informed decisions could be made about whether and under what conditions to allow industrial activities.

Similarly, companies must be required to demonstrate that response capabilities on which they plan to rely might work. Vessels, clean-up technologies, and other aspects of response plans should be proven in Arctic waters before decisions are made to put the Arctic Ocean at risk.

Those two steps—better science and preparedness will also help more fully and fairly evaluate the risks and benefits of proposed activities. 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 public at large bears the risks, including threats to fisheries, coastal communities, food security, and all of the other things for which we depend on oceans. By contrast, large, private companies—many of them foreign—stand to benefit the most from these activities. More than 80% of the leases sold in the Arctic Ocean are owned by companies based in foreign countries. In addition, subsidies, royalty relief, and other loopholes greatly reduce the payments companies make directly to the federal government.

Moreover, offshore drilling—particularly in the Arctic Ocean—will not substantially affect the price consumers pay for gasoline. Nor will it make us substantially less dependent on foreign sources of oil. The United States currently imports roughly 62% of our crude oil, most of it from Canada and Mexico. The Department of Energy estimates that even if we opened all offshore areas to drilling, the U.S. would still import about 58% of its oil supply. The United States simply does not have enough domestic oil to reduce its dependence on imports, much less to fulfill its demand.

For similar reasons, increasing offshore leasing—as HR 2231 attempts to do—will not increase national security. In fact, it is possible that national security needs will be more effectively protected by leaving large reservoirs of oil in the ground until other, cheaper sources are exhausted. Moreover, increasing offshore oil and gas activities threatens the economic benefits and food security provided by fisheries and other uses of our oceans.

It is important to put the situation in the proper context. More than 90% of the world's oil and gas reserves have been nationalized by the countries that control them. As a result, the opportunities for large, multi-national corporations have become substantially narrower. The push to develop in the U.S. Arctic results in part from these incentives, which are not necessarily congruent with our national interests.

Moreover, these oil and gas resources are finite. It is widely recognized that we, as a society, must transition away from fossil fuels and toward renewable sources of energy. Leasing, exploration, or development offshore—if it occurs—should be undertaken only with clear recognition that this transition to renewables is necessary and only as part of a broader plan that advances that transition.

Ultimately, we need to make careful decisions about whether to allow these types of activities and, if so, under what conditions. As Dr. Jeffrey Short, one of the world's experts on the impacts of oil spills, stated in his testimony before the Senate Energy Committee in November 2009:

> Oil development proposals in the marine environment are often presented and discussed as engineering challenges, without sufficient regard for the complexity of the environment in which they would occur, or the often dubious assumptions implicit in assessments of environmental risks and cleanup and mitigation technologies. Oil spill contingency plans are treated as exercises in damage control, taking for granted that not all damage can be controlled, and based on the faulty assumption all potential outcomes are adequately understood, predictable, and manageable.

In other words, we can and must make better informed decisions about whether to allow these activities and, if so, under what conditions.

IV. CONCLUSION

As we consider any industrial activities in the ocean—oil and gas, shipping, fishing, alternative energy development—our first step should be to understand and protect the marine environment and those dependent on it. Once we better understand the ecosystem and what steps can be taken to protect it, we can better balance risks and benefits and, therefore, make better decisions about whether and under what conditions to allow industrial activities.