White Paper
U.S. Arctic Research Commission Recommends Steps to Expanded U.S. Funding for Arctic/Subarctic Oil Spill Research

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Summary

The U.S. Arctic Research Commission (USARC) recommends steps that the United States government should take to invigorate oil spill research in the United States, and specifically emphasizes the growing need for more effective spill prevention and response in the Arctic region. The risk of oil spills will likely increase if the anticipated increase in offshore energy exploration and production is realized. The challenges of such exploration are compounded by the projected growth of Arctic shipping, and by exploration that is occurring further offshore, in deeper waters, and in a marine environment characterized by a changing climate and concomitant sea ice conditions. The promise of a rigorous and coordinated national research program on oil spills, made in the Oil Pollution Act of 1990, after the Exxon Valdez disaster, has fallen short. The current spill-related disaster in the Gulf of Mexico makes this white paper all the more timely and should result in greater consideration of our proposed actions. The USARC has worked closely with the Interagency Coordinating Committee on Oil Pollution Research (ICCOPR), stakeholders, and the public to develop ideas on this subject that we have integrated into this white paper.

This paper recommends several priority actions:

- ✓ 1) Government should update national and regional research plans as mandated by OPA 90 and should fund those plans, as authorized, through the $2.7 billion Oil Spill Liability Trust Fund (OSLTF), which is replenished by an eight cents per barrel tax on crude oil produced in or imported to the United States.[1] The Interagency Coordinating Committee on Oil Pollution Research (ICCOPR) is the leader of this federal research effort, as prescribed by law;
- ✓ 2) The "endowment" funding for the National Oceanic and Atmospheric Administration (NOAA)-chaired Arctic/subarctic focused spill research program created in OPA 90, the Prince William Sound Oil Spill Recovery Institute, should also be expanded and serve as a funding model for the national ICCOPR program;
- ✓ 3) There should be increased funding to understand the basic ecological structure and populations of key indicator species in the Arctic. These include species important for subsistence and, in general, to the ecosystem;
- ✓ 4) While planning research and development objectives, funding them, and reviewing the results, federal agencies should employ a rigorous and thorough stakeholder consultation process; and

[1] 26 U.S.C. 4611 (c) (2) (B)

- ✓ 5) NOAA should co-Chair ICCOPR, along with the USCG, as NOAA has significant experience in directly conducting scientific research and in overseeing research conducted by NOAA-sponsored research entities.

Background

The Arctic has particularly acute needs to improve oil spill prevention and response. Unique risks in the North include protracted darkness, cold, variable ice conditions and powerful storms. These complicate prevention and response efforts for spills on land and in ice-covered waters. Fundamental baseline scientific information is lacking for living resources in the much of the region, and basic biological aspects, such the ecology of the area, and the spatial habitat of flora and fauna that might be at risk from spills are poorly known. Information is also required on the effects of oil on wildlife and on effective response intervention. Despite these limitations, the Arctic is an area of increasing opportunity for both energy exploration and marine shipping. A 2008 USGS assessment[2] estimated that 13% of the world's undiscovered oil and 30% of its undiscovered gas lies within the Arctic. All five Arctic Ocean coastal states and Iceland have offshore exploration or production programs underway. There are currently over 600 active leases in Alaskan outer continental shelf (OCS) waters. A 2009 *Arctic Marine Shipping Assessment*, endorsed by the eight-nation Arctic Council, projects greater use of the Arctic Ocean by mariners. Over time, such shipping will initially serve communities and resource development, and may ultimately provide trans-Arctic "shortcut" routes for global shipping.

As the U.S., Russia, Canada, Greenland, Iceland, and Norway all proceed with plans for high-Arctic oil and gas exploration, political and legal requests for improved spill response capability are on the rise. The current oil spill disaster in the Gulf of Mexico only amplifies the importance and the need for action. In 2007, North Slope Borough Mayor, Edward Itta, said, "We oppose offshore [drilling] until somebody proves to us they can clean up an oil spill in the Arctic."[3] Though his views have tempered recently, the fear of oil spills impacting subsistence resources is very much alive in the mind of the public inhabiting a region in which response capacity is minimal and fraught with difficulty. It's not surprising that representatives of the oil and gas industry argue that, with the appropriate precautions, the risks of oil spills are sufficiently low to enable safe, secure, and reliable exploration and production of offshore energy. Nevertheless, in communicating to the USARC, these same industry representatives, in the U.S., Canada, and Norway, express widespread agreement and support for increased research and development in spill prevention and response.

Federal research on Arctic oil spill prevention and response is currently undertaken primarily by the U.S. Coast Guard (USCG), the Department of the Interior's Minerals Management Service (MMS), NOAA's Coastal Response Research Center (CRRC), the Environmental Protection Agency (EPA), and the Prince William Sound Oil Spill Recovery Institute (PWS OSRI). At least two federal interagency committees have been established by law to coordinate these activities: the Interagency Arctic Research Policy Committee (IARPC), established by the Arctic Research and Policy Act of 1984, which coordinates planning for all U.S. Arctic research programs throughout the government, and the ICCOPR, established in the Oil Pollution Act of 1990.[4] IARPC is chaired by the National Science Foundation (NSF); ICCOPR is chaired by the USCG.

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[2] Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle (*2008)*. < http://energy.usgs.gov/arctic/>. See specifically "Slide Presentation."

[3] Ipsen, Beth. "Residents voice opposition to Shell's offshore drilling." *Pacific Environment*, 19 April 2007. <http://www.pacificenvironment.org/article.php?id=2340>

[4] Oil Pollution Act of 1990, 101 H.R. 1465, P.L. 101-380. <http://thomas.loc.gov/cgi-bin/bdquery/z?d101:h.r.01465:/>.

Recent dialogue between the USARC and the ICCOPR has highlighted several "themes of importance." These relate to funding, Arctic-specific response (including defining the area in question, necessary baseline environmental research, unique conditions, such as ice-covered waters, and unique logistics), infrastructure capabilities, national priorities, opportunities for cooperation and collaboration between agencies and other stakeholder groups, use of "spills of opportunity" and controlled burns as research tools, building the next generation of researchers and keeping abreast of industry research and development (R&D) reports with specific emphasis on the efforts of the International Petroleum Industry Environmental Association (IPIECA) which currently has a task force developing a prioritized list of additional research and technology projects to further advance oil spill preparedness in Arctic locations. We hope that, with the adoption of a regular ICCOPR meeting schedule, these themes will be addressed in crafting a new national research program.

The USARC, under its authority to establish national policy, priorities, and goals for Arctic research, has long supported an appropriate basic and applied research program to find better methods to prevent and respond to oil spills in the Arctic region. We were asked by the State of Alaska to recommend that priorities meet natural resource management needs and the needs established by regulatory processes for contingency planning[5]. The Commission published *Oil Spill Response in Ice-Covered Waters* in 2004, [6] in which we found that "consistent long-term funding is needed for developing and improving response options for dealing with accidental oil spills in ice-covered waters." Following the 1989 Exxon Valdez oil spill and during the legislative consideration of the *Oil Pollution Act of 1990* (OPA 90), USARC supported the creation of the Oil Spill Recovery Institute.[7] USARC recently helped the U.S. complete the *Arctic Marine Shipping Assessment*,[8] in which the U.S., along with the seven other Arctic nations, agreed on the need for more research.[9] The Commission also worked with the Congress, the State of Alaska, and the USCG to encourage an oil spill risk assessment in the Aleutian Islands. We co-sponsored a CRRC workshop[10] and a U.S.-Canada workshop,[11] and visited the Joint Industry Program at SINTEF on oil in ice, which explored new spill mitigation strategies.[12] Finally, from a local perspective, the Commission recognizes and supports the call for in-situ spill scenario testing promulgated by Mayor Itta and others. Integration of traditional knowledge into spill prevention and response efforts and oil spill-related social science research, essential to the determination of impacts, are also of great importance.

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[5] Alaska Department of Environmental Conservation, Division of Spill Prevention and Response, USARC Oil Spill White Paper comments, March 5, 2010.

[6] Oil Spill Response in Ice-Covered Waters (2004). < http://www.arctic.gov/publications/oil_in_ice.pdf>.

[7] Oil Spill Recovery Institute. <http://www.pws-osri.org>.

[8] *Arctic Marine Shipping Assessment 2009 Report*, Arctic Council, April 2009. http://arcticportal.org/pame/pame-document-library/progress-reports-to-senior-arctic-officials/olgaamsa2009report.pdf.

[9] The AMSA report is the result of a four-year, multinational-led project that was subsequently adopted in the 2009 Tromsø Declaration, a set of guidelines for the Arctic Council during the next two years that was ratified on April 29 by the eight Arctic states, including Deputy Secretary of State James Steinberg, who led the U.S delegation. Among many other findings, the AMSA report states that the "current lack of infrastructure" in the Arctic makes it more difficult to respond to spills because of the Arctic's "vast geographic distances in various seasonal and climactic circumstances" (187).

[10] *Opening the Arctic Seas: Envisioning Disasters and Framing Solutions*. Held March 18-20, 2008, and sponsored by the Coastal Response Research Center at the University of New Hampshire. <http://www.crrc.unh.edu/workshops/arctic_spill_summit/arctic_summit_report_final.pdf>.

[11] *Northern Oil and Gas Research Forum: Current Status and Future Directions in the Beaufort Sea, North Slope and Mackenzie Delta*. Held in Anchorage, Alaska, October 28-30, 2009.

[12] The Joint Industry Program for Oil in Ice, Selskapet for Industriell og Teknisk Forskning ved norges tekniske hoegskole (The Foundation for Scientific and Industrial Research at the Norwegian Institute of Technology), <http://www.sintef.no/Projectweb/JIP-Oil-In-Ice>.

These priorities, and the actions that they support, are timely. If the debate on offshore exploration in America's Arctic, specifically the Beaufort and Chukchi Seas, was not enough to make these proposals timely, the 2010 blowout in the Gulf of Mexico is. This disaster has the potential to cause severe environmental and economic effects in the Southeastern United States, despite the fact that it happened in a temperate region with substantial and proximal spill response infrastructure. We hope now the United States will commit to funding a long-term, appropriate and robust spill research program that also contains a component that focuses on Arctic waters.

Despite the growing need for such research, and the glaring absence of it, as revealed in the ongoing Gulf of Mexico spill, much of the funding authorized in OPA 90 has expired. Oil pollution effects research, regional research programs, demonstration projects in New York and New Jersey, Los Angeles and Long Beach, and New Orleans, and a joint program from the Department of Commerce and the EPA to monitor the environmental effects of oil discharges have all lost funding authorization in the recent past. Although improvements are needed in both the ability to clean up oil spilled under ice and the detection of thin oil slicks trapped under ice in the Arctic and sub-Arctic regions, little progress has been made over the last two decades[13]. Recovery statistics for mechanical response techniques are similarly disappointing. Improvements are needed in areas such as health and human safety concerns (getting response personnel safely to spill sites), operability of equipment in arctic conditions, and transport of equipment from populated areas to remote spill sites. Concerns surrounding the environmental effects of *in situ* burning, chemical dispersants and herding agents remain. Though some data exist, additional research is needed in all of these areas.

From the existing arctic/cold water response research, the "State of the Art" is defined by technical reports and in conference proceedings that do not always meet the higher standards of "peer review." Much of what has been investigated has been published in technical reports ("gray literature"), not subjected to peer review, and not readily available to researchers and the public who might benefit from it. The Commission encourages the ICCOPR to endorse the practice of publishing high quality, peer-reviewed research related to oil spill response and prevention, as feedback has shown this to be a necessary part of gaining the trust of stakeholder groups in research of this nature.

In a more favorable light, some research efforts are being conducted on priority issues, most recently by the SINTEF organization, in cooperation with various stakeholder groups. We applaud these efforts and encourage transparency in the conduct of the research and in the broad distribution of the results. We look forward to learning more about the group's progress when the final report is released in the near future.

Despite these recent efforts, the Commission concludes that federal oil spill research efforts for Arctic conditions are fragmented, uncoordinated, under-funded, and in dire, immediate need of improvement.

Commission Recommendations

To this end, the Commission proposes the following coordinated actions among the executive branch, the Congress, the State of Alaska and its municipalities, industry, academia and other stakeholder groups:

[13] 2006 MMS Svalbard Experimental Spill to Study Spill Detection and Oil Behavior in Ice

1. **Strengthen interagency planning and coordination.** The ICCOPR created by OPA 90 should begin to meet, regularly, in a transparent fashion and with a regular agenda to develop justification for an appropriate level of national funding for oil spill research. It should involve state environmental agencies, industry and academic institutions, as it did in the early 1990s and ICCOPR needs to produce a regularly updated research and development program plan. It should be prioritized to reduce the greatest risks in the chain of oil exploration, production, transport and use. Notices of meetings, minutes and agendas should be posted online for the public to see. Congress should exercise its oversight and the Office of Science and Technology Policy (OSTP) and should exercise its coordination powers to ensure the research provisions of OPA 90 are followed. We recommend that ICCOPR establish a Federal Advisory Committee Act (FACA)-governed advisory committee comprised of a general advisory arm (involving academic and other non-federal members) and a scientific advisory arm (involving academic and industry members, and others based on their scientific or technical expertise). This would help leverage public-private partnerships and promote stronger cooperation with non-governmental researchers and may help build trust among stakeholders. With the expertise from advisory committee members, federal officials and the nation would have access to information and advice on a broad range of issues affecting ICCOPR policies and programs. The public, in return, would be afforded an opportunity to participate actively in the ICCOPR decision-making process.

2. **Create and fund a regional plan specific to the Arctic.** The Commission appreciates the fact that as we crafted this white paper, the members of ICCOPR met in Anchorage, Alaska, on March 4, 2010 with the Commission and Commission experts to review oil spill research needs in the Arctic. A day later, ICCOPR chair Capt. Anthony Lloyd joined the Commission in a public discussion of this paper's recommendations, and on April 13, 2010, the Commission received additional written comments from ICCOPR.

   The law sets out, in OPA 90 and in the Arctic Research and Policy Act, the means for research planning. Given the significant potential of offshore oil and gas in America's Arctic, an Alaska-specific research plan should be developed for presentation to both ICCOPR and the IARPC. IAPRC has already assigned the drafting of a "civil infrastructure research" plan to the U.S. Army Corps of Engineers, and an Arctic spill research plan could become part of that work product.

   Regarding the development of an Alaska-region research plan for oil spill research, ICCOPR should work closely with other interagency research entities created by Congress and based in Alaska. One such entity is the Prince William Sound Oil Spill Recovery Institute (OSRI) which has already done much of the groundwork. OSRI provides public funding for Arctic/Subarctic spill research. The board of directors to OSRI, and their scientific advisory committee includes representatives from a broad cross section of federal agencies, the State of Alaska and the general public. The Commission met with the OSRI board in February, 2010, to discuss this proposal and the matter is to be given further consideration at their upcoming meeting.

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Other Congressionally chartered research or spill response entities that should be involved include the members of the Regional Response Team for Alaska, the North Pacific Research Board, the North Slope Science Initiative, Regional Citizens Advisory Councils, the Arctic Institute of North America, and the Alaska Ocean Observing System. Additionally, Alaska coastal municipalities, the University of Alaska, and the University of New Hampshire's NOAA sponsored Coastal Response Research Center have much to add. The plan should be cognizant of, and support cooperation with, oil spill research programs of Arctic industry and response cooperatives, including IPIECA, efforts of the Arctic Council, and well-established efforts at SINTEF in Norway and in the Arctic and Marine Oil-spill Program (AMOP) sponsored by Environment Canada. This list is not meant to exclude others, but highlights existing infrastructure and cooperation that has made contributions so far. Senator Mark Begich has proposed legislation to fund research to further define Arctic Ocean research needs. Such a study should have an Arctic regional research plan to review. When a US Arctic oil spill research plan is complete, it can be forwarded to ICCOPR and IARPC for inclusion in both national plans. We recommend plan renewal at least every five years.

3. **An "endowment approach" will ensure long-term funding.** Given recent lease sales earning close to $3 billion in revenues to the U.S., other offshore development in Arctic/subarctic ice covered areas that will serve U.S. markets, and the increasing amount of shipping of all types occurring in the Arctic Ocean, USARC recommends a research funding level of $30 to $50 million per year, for a national program, with $8-10 million per year dedicated to Alaska. This work would cover both the baseline biological research required in the Arctic as well as aggressively improve research, development, and on-water (in-situ) experimentation of spill response in ice-covered conditions. Support for oiled wildlife response research and practices is also needed, as is additional funding specific to laboratory-based R&D for spill response tactics. Oil spill research and development needs long-term funding continuity and commitment to facilities and people, particularly in the Arctic. An attached amendment to OPA 90 (Annex 1) would create a funding stream from the Oil Spill Liability Trust Fund (OSLTF)[14] and be spent through a competitive program managed by ICCOPR agencies. Besides the "endowment approach", Congress could authorize an appropriate amount of funding from the OSTLF to go to oil spill research: by annual appropriation. The built-in "endowment" approach is now used to fund research and oil tank upgrade/replacement work by OSRI and the Denali Commission.

4. The Commission has considered the need for new legislation in the following areas:

    a. The aforementioned "endowment approach." Support appropriate authorizations needed for the OSLTF to maintain a competitive research program, involving industry and academic applicants with local stakeholders.

    b. Support for increasing the "endowment" fund for the OSRI by approximately $12 million for inflation proofing, as is now contained in S. 1194.

[14] The Oil Spill Liability Trust Fund was established by section 9509 of the Internal Revenue Code of 1986 (26 U.S.C. 9509).

c. Support for Senator Mark Begich's initiative, S. 1564, to fund research to review research needs in the areas of spill response and prevention and to investigate the utility of Response Gap Analysis research. We recommend the generation of a "State of the Science" report from these efforts to be compiled via a joint IARPC and ICCOPR effort followed by *external* peer-review. This report would analyze existing information, define best management practices (BMPs) and use these data as a basis for defining new R&D priorities.

d. Expanding the membership of the Interagency Oil Pollution Research Coordinating Committee to include OSRI, CRRC, industry, state, local and academic members, and tying the ICCOPR's work to that of the White House –chaired National Science and Technology Council. Additionally, NOAA should co-Chair ICCOPR, along with the USCG, as NOAA has significant experience in directly conducting scientific research and in overseeing research conducted by NOAA-sponsored research entities.

e. Allowing the Environmental Protection Agency and other appropriate regulators the ability to waive restrictions that have so far prevented on-water testing of oil spills in the waters of the United States. Legislation could also encourage "spills of opportunity" to be used to test new response techniques.

f. Directing the Department of Justice to see that fines and penalties for oil spills are allocated to further support research.

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Annex 1

Proposed Amendment to Increase Oil Spill Research Funding

The proposed amendment would fund the Oil Pollution Research and Development Program coordinated by the Interagency Coordinating Committee on Oil Pollution Research (33 U.S.C. 2761(c)) with annual interest earned on a $1 billion investment from the Oil Spill Liability Trust Fund established by 26 U.S.C. 2509. The purpose of this amendment is to create a dedicated funding stream for coordinated oil spill research without requiring new appropriations. It is important for the Committee to expand its research funding and coordination efforts as oil exploration, shipping, transportation and other forms of commerce in Arctic waters increase in the coming years. The proposed amendment also modifies the existing statute to require agencies that are members of the Committee to spend Program funds on grants and cooperative agreements with independent entities including universities, research institutions, industry, and state and foreign governments to the maximum extent practicable.

1) Purpose and Awarding of Grants

Section 2761(c)(10) of title 33, United States Code, is amended by striking "may" from the first sentence and replacing it with "shall to the extent practicable" and by inserting "joint industry programs, pilot projects financed jointly with state or foreign governments," before "and other persons." Section 2761(c)(10) is further amended by inserting after the first paragraph the following:

"(a) Competitive awards. Contracts, cooperative agreements, and grants entered into under this section shall to the extent practicable be awarded on a competitive basis. Applications for awards will be subject to scientific merit review (peer review) and will be evaluated based on criteria developed by the Interagency Committee."

2) Funding

Section 2761(f) of title 33, United States Code, is amended by striking paragraph (f) and inserting in lieu thereof:

"(f)(1) Amounts in the Fund shall be available without further appropriation and without fiscal year limitation, to carry out this section except for subsection (c)(8) of this section.

(2) USE OF INTEREST ONLY. The amount of funding to be made available annually to establish and implement the program under (c) of this section shall be the interest produced by the Fund's investment of $1,000,000,000 and currently deposited in the Fund and invested by the Secretary of the Treasury in income producing securities along with other funds compromising the Fund. The National Pollution Funds Center shall transfer all such accrued interest annually to the Coast Guard beginning no more than six months after enactment of this Act, for the program.

(3) Congress may appropriate such additional funds as may be necessary to carry out this section."

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