



ALASKA STATE LEGISLATURE

# FINDINGS & RECOMMENDATIONS OF THE



## ALASKA NORTHERN WATERS TASK FORCE

JANUARY, 2012

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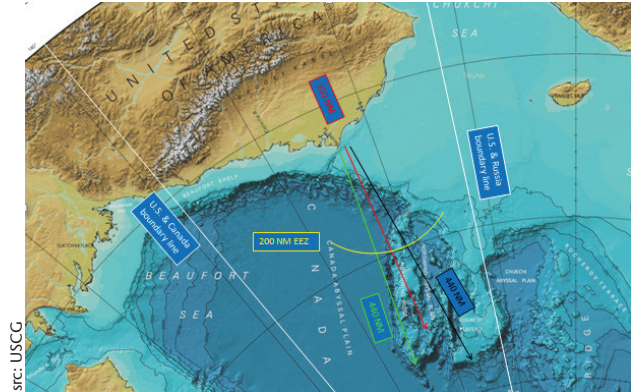
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## Executive Summary

Diminishing sea ice and the intensifying worldwide race for natural resources has rapidly increased international interest in the Arctic. Arctic Nations are anticipating the development of northern shipping routes, mineral extraction, oil and gas exploration, commercial fisheries, and tourism. For Alaska, the economic benefits over the long term could be substantial. But how will we confront the challenges and opportunities awaiting us in the Arctic while also providing for sustainable communities and protecting the environment?

In 2010, the Alaska State Legislature established the Alaska Northern Waters Task Force (ANWTF) to identify opportunities to increase the state's engagement with these issues. On both the state and federal level, the task force has found many urgent needs. The following are its topmost recommendations:

1. Statewide public testimony gathered by the task force made it clear that the state and federal governments must provide Alaskans with meaningful opportunities to participate in Arctic policy and Outer Continental Shelf development decisions. Many local government officials, tribal government representatives, and individuals expressed a need for timelier, more frank, and more thorough information from state and federal authorities regarding policies and activities off Alaska's coasts. The task force believes that consistent, structured communication and consultation—particularly with those Alaskans likely to be most impacted by evolving conditions—is the best way to build consensus, advance responsible policies, and stimulate broadly beneficial economic development.
2. The state of Alaska has only just begun to grapple with the challenges and opportunities developing in the far north. It is imperative the state be strategically involved and in a leadership role in the development of policies affecting the state, its communities, and citizens. It is therefore among the task force's highest priorities to press for the creation of a commission to develop a comprehensive state strategy for the Arctic. As the Arctic changes, the decisions Alaska faces will continue to evolve and grow in complexity. An Alaskan Arctic Commission will enable Alaska to more effectively respond to unfolding developments and will jumpstart Alaska's preparations to ensure that the interests of the state and its people are protected.
3. The ANWTF recommends that the Alaska State Legislature and the state of Alaska continue to urge the United States Senate to ratify the United Nations Con-



Map shows the extent of the US Continental Shelf off Alaska's Arctic coast.

vention on the Law of the Sea (UNCLOS). Joining the more than 160 nations that have ratified UNCLOS will enable the U.S. to legitimize its claims to resources in areas of the Continental Shelf that extend beyond the 200-mile Exclusive Economic Zone. To quote President George W. Bush, who, like President Barack Obama, supports U.S. ratification of the convention, "It will give the United States a seat at the table when the rights that are vital to our interests are debated and interpreted."

The following pages summarize top recommendations among the many task force findings in areas including Arctic governance, oil and gas development, marine transportation, infrastructure, fisheries, and research. The full report of the task force, including these and additional recommendations in-depth, follows.

## Governance

Changes in the Arctic make it necessary to evaluate the adequacy of existing Arctic governance structures and to consider adjusting these systems or creating new ones to better suit developing needs. At the international level, Arctic Nations must strengthen their relations and enhance regulatory frameworks and policy mechanisms to address pressing issues. We in Alaska must ensure that our Arctic residents and the state of Alaska have a strong voice in these matters.

1. The ANWTF supports the development and implementation of a comprehensive U.S. Arctic strategy. This strategy should ensure that national interests are balanced with Alaska state interests, so that commitments to safeguard the environment and the wellbeing of the region's communities and cultures accompany all plans to advance economic development.
2. The ANWTF recommends that the state of Alaska

and the United States participate in the adoption of international agreements for shipping, fisheries, oil and gas development, and other transboundary issues. It is in our interest to ensure all parties develop resources in the region safely and responsibly.

3. The ANWTF recommends the state of Alaska and the Alaska State Legislature support greater international cooperation through the Arctic Council. Having recognized that the Arctic Council is the world's predominant intergovernmental forum for Arctic governance, the ANWTF recommends greater state engagement with the council and its working groups and encourages the council's member countries to support expanding its mandate as an institution for forging multilateral agreements among Arctic Nations.

## Oil and Gas Development

A warming Arctic provides new opportunities and challenges for oil and gas development. The U.S. Geological Survey estimates that 13 percent of the Earth's undiscovered oil reserves and 30 percent of undiscovered gas reserves are in the Arctic.

1. The ANWTF recommends that the state of Alaska and the United States develop a framework for the identification, acquisition, and sharing of data and other information to support leasing, permitting, and other agency decisions.
2. The ANWTF recommends that the state of Alaska and the United States support continued improvement in the ability of industry and the government to prevent, contain, control, clean up, and remediate spills in the Arctic. These measures should include contingency plans and response capabilities for all large commercial vessels operating in Arctic waters, including vessels travelling internationally in "innocent passage."
3. The ANWTF recommends that the University of Alaska establish an oil spill research center.

## Marine Transportation

Maritime powers have been searching for a shorter route from the Atlantic to Asian waters for centuries. The warming Arctic raises the feasibility of two such routes: the Northern Sea Route, north of Russia, and the Northwest Passage, north of Canada and Alaska. Shipping traffic—already increasing—is expected to surge in the decades ahead. We must take steps to establish secure and environmentally sound marine transportation in the region as soon as possible.

1. The ANWTF recommends that the United States, with the participation of the state of Alaska, work with the international community to finalize the Polar Code for ships operating in Arctic waters and examine whether to establish an offshore vessel routing scheme for circumpolar marine traffic, including through the Aleutians.
2. The ANWTF supports increasing short- and long-range navigational aids in the North American Arctic and extending Automatic Identification System



(AIS) vessel tracking across the North Slope waters to Tuktoyaktuk, in the Northwest Territories.

3. The ANWTF endorses completing the Aleutian Islands Risk Assessment and recommends that the state of Alaska continue to support and participate in the United States Coast Guard Port Access Route Study.

## Fisheries

As sea ice diminishes and some commercial fish species move into northern waters, interest in fisheries north of the Bering Strait has increased. However, currently there is not nearly enough information available to make sustainable management of commercial fisheries possible there, and in 2009 the North Pacific Fishery Management Council approved a moratorium on fishing in these waters. The ANWTF believes the state of Alaska and the U.S. government should continue in its precautionary policy, but the moratorium should not cause Alaska to postpone research into viable commercial fisheries north of the Bering Strait.

1. The ANWTF recommends greatly increasing fisheries-related research and monitoring in the region.
2. The ANWTF encourages the state of Alaska and the U.S. government to continue actively negotiating fisheries-related transboundary accords with other nations.
3. The ANWTF recommends that the state of Alaska and federal authorities prepare strategies to maximize the degree to which local communities and resident Alaskans will benefit from the development of commercial fisheries in waters north of the Bering Strait.

## Infrastructure

Immediate investment in Arctic infrastructure is a foremost priority for Alaska and the entire United States. Increased human activity related to shipping, oil and gas development, commercial fishing, and tourism will require, at a minimum, new ports and safe harbors, equipment and facilities for oil spill response, additional Polar Class icebreakers for the U.S. fleet, and improved charting and mapping.

1. The ANWTF recommends the Alaska State Legislature and the state of Alaska continue to urge the federal government to forward base the United States Coast Guard in the Arctic and to fund the construction of additional icebreakers and ice-capable vessels for the U.S. fleet.
2. The task force recommends the state of Alaska and the federal government continue efforts to develop deep-draft ports and additional safe harbors in northern waters as soon as possible.
3. The ANWTF supports increased funding to expedite the National Ocean and Atmospheric Administration's (NOAA) Hydrographic Arctic mapping. The task force particularly supports updated mapping of coastal navigation routes and entrance routes to coastal villages.

## Research

Worldwide climate change is already having an impact on the Arctic, where temperatures are rising twice as quickly as those in more southern latitudes. Profound transformations

are underway in its complex ecosystems. These changes are expected to trigger unprecedented degrees of human activity in the region. As a consequence, transformation in the far north will accelerate all the more, not just environmentally, but also on socioeconomic levels. Under these circumstances, the need for wide-ranging scientific research and monitoring in the Arctic has never been more pressing. We must continue to gather essential baseline information about the environment and its dynamics in order to become better able to discern shifting conditions. In turn, our understanding of the implications of changes there will increase, and we will improve our ability to prepare for and mitigate impacts.

1. The ANWTF recommends that the state of Alaska and the federal government identify priorities for Arctic research. By ranking priorities funding can be targeted more effectively and research can be better coordinated. Major knowledge gaps will be closed far more quickly.
2. The ANWTF recommends improving the exchange of research information and integration of data management. Faster and more extensive integration of data collected by state and federal agencies, academics, and industry would yield enormous benefits for all stakeholders.
3. The ANWTF recommends increased long-term monitoring of the Arctic, including routine surveys of key chemical, physical, and biological parameters of the Beaufort and Chukchi Seas and associated coastal plains. In order to better understand, quantify, and predict the effects of changes in both marine and terrestrial Arctic ecosystems, Alaska must increase our long-term monitoring of a wide range of environmental characteristics.

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**ALASKA NORTHERN WATERS TASK FORCE**  
**JANUARY, 2012 REPORT**  
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The Alaska Northern Waters Task Force would like to thank the many communities throughout the state that welcomed us and took the time to help us understand the issues they face. The task force thanks the specialists, dedicated public servants, local leaders, and concerned citizens who addressed our group. Presenters gave their time and traveled great distances to share their knowledge. The task force would also like to acknowledge the work of the late Bill Noll, who with others began the conversation that ultimately led to the creation of the task force.

This report contains information on many topics and identifies a number of opportunities and concerns. It also includes recommendations to prepare communities and state government for changes in the Arctic. In a number of instances there is already work underway that may address the opportunity or concern that underlies a recommendation. In those cases, the recommendation should be read as encouraging the good work that is already being done, whether that work is being done by local communities, state and federal agencies, universities, companies, or other organizations and individuals.

*A quote from a resident of Wales, Alaska, on the Bering Strait:  
"From here we can see into tomorrow."*



## Introduction

The Arctic is warming at twice the rate of the rest of the planet.<sup>1</sup> The years 2005 to 2010 were the warmest measured there since record keeping began around 1880. Recent predictions foresee an entirely ice-free Arctic summer within four decades.

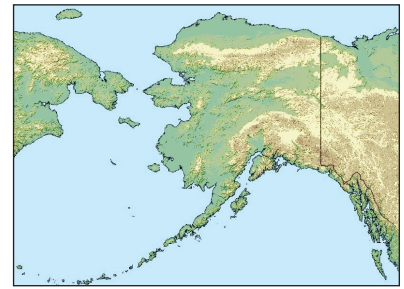
Diminishing sea ice and the intensifying worldwide demand for natural resources has rapidly increased international interest in the far north. In addition to the eight Arctic Nations—the United States, Russia, Canada, Iceland, Denmark (Greenland), Norway, Finland, and Sweden—other governments are eyeing the economic potential of the resource rich region. They include China, Japan, South Korea, and the European Union.<sup>2</sup>

These nations and others are anticipating the development of northern shipping routes that will bring savings in time and fuel costs, and they recognize a new frontier for mineral extraction, oil and gas exploration, commercial fisheries, and tourism. There are many challenges accompanying these opportunities, including the preservation of communities and cultures confronted with thawing glaciers and permafrost, intensifying storm surges and coastal erosion, and declining populations of migratory animals.<sup>3</sup>

In 2010, the Alaska State Legislature established the Alaska Northern Waters Task Force (ANWTF) to increase the state's engagement with these issues.<sup>4</sup> The task force studied a vast quantity of scientific, social, and economic research. It consulted with more than 65 experts from universities, the U.S. military, non-governmental organizations, and dozens of state and federal agencies.<sup>5</sup> During twelve meetings in Juneau, Anchorage, Barrow, Wainwright, Kotzebue, Nome, Wales, Bethel, and Unalaska, the task force listened to thoughtful testimony delivered by hundreds of Alaskans, many already impacted by transforming conditions.<sup>6</sup>

In some areas of planning and preparation Alaska and the federal government lag behind other Arctic Nations. On both the state and federal level, the task force has identified numerous urgent needs, many of them deeply intertwined.

For example, to prepare for dramatically increased shipping—whether through the Northwest Passage or through the Northern Sea Route—Alaska must begin developing deep draft ports and safe harbors in northern waters as soon as possible; support the completion of the United States Coast Guard (USCG) Port Access Route Study; and encourage the development of a Bering Strait vessel traffic separation scheme. Moreover, the USCG needs to establish bases considerably nearer to the Arctic, and all involved parties must increase research to understand possible impacts on Arctic communities and the marine life on which they depend.



The subject of icebreakers provides perhaps the most telling example of policy shortcomings at the federal level. As of 2011, Russia had a fleet of eight active nuclear powered icebreakers, with plans to launch a ninth by 2015. Intent on being a player in trans-Arctic shipping, China owns the world's largest non-nuclear icebreaker and has funded construction of a second that will be ready by 2013. Sweden, Finland, Canada, South Korea, and Japan are also adding to their icebreaking fleets. However, the United States has just one active icebreaker—the USCG vessel Healy. Meanwhile, the 1970s-era icebreaker Polar Star has been sidelined in “Caretaker” status in Seattle since 2006, and its sister ship, the Polar Sea, has been decommissioned. Despite persistent appeals from many quarters—including from Alaska Lieutenant Governor Mead Treadwell, former chair of the United States Arctic Research Commission—Congress has not yet legislated funding to add new polar class icebreakers to the United States fleet.

The state of Alaska has only just begun to grapple with these and many other pressing issues. Although a number of individuals in state government have duties important to resolving issues and advancing opportunities described in this report, no one person is tasked with coordinating or prioritizing these efforts as part of an overarching Arctic strategy. Apart from the Alaska Northern Waters Task Force, there have never been personnel in state government—not even a single individual—focused exclusively on these complex concerns. It is therefore among the task force's highest priorities to press for the creation of a commission to develop a comprehensive state strategy for the Arctic. As the Arctic changes, the decisions Alaska faces will continue to evolve and grow in complexity. An Alaskan Arctic Commission re-

1. For the purposes of this report the Arctic is defined using the definition found in the Arctic Research and Policy Act (ARPA). See Appendix A.

2. China and South Korea have increased their research in the area, are constructing icebreakers, and have established a permanent research station at Svalbard.

3. To learn more about recent environment changes see National Oceanic and Atmospheric Administration's (NOAA) newest report card. Richter-Menge, J., M.O. Jeffries and J.E. Overland, Eds., 2011: Arctic Report Card 2011. <http://www.arctic.noaa.gov/reportcard..>

4. See Appendix B for the full text of House Concurrent Resolution 22. See Appendix C for the Alaska Northern Waters Task Force member's biographies and Appendix D for the member roster.

5. See Appendix E for a list of the presenters.

6. See Appendix F for the list and dates of the hearings.



sponsible for these issues on state, national, and international levels will enable Alaska to more effectively respond to unfolding developments and will jumpstart our preparations to ensure that the state and its peoples' interests are protected long into the future.

This report summarizes the Alaska Northern Waters Task Force's recommendations on Arctic issues affecting Alaska. The recommendations are in the following six areas:

- **Governance**
- **Planning & Infrastructure Investment**
- **Oil & Gas Development**
- **Fisheries**
- **Marine Transportation**
- **Research**



## Membership And Duties Of The Task Force

The Alaska Northern Waters Task Force includes state legislators, leaders from Arctic communities, and representatives of key federal and state agencies.

### Members of the task force are as follows:

- Representative Reggie Joule, Chair, Kotzebue
- Senator Bert Stedman, Vice-Chair, Sitka
- Senator Lyman Hoffman, Bethel
- Representative Bob Herron, Bethel
- Larry Hartig, Commissioner, Alaska Dept. of Environmental Conservation
- Chuck Greene, Vice-President, NANA Corp., Kotzebue
- Chris Hladick, City Manager, Unalaska
- Edward Itta, Former Mayor, North Slope Borough
- Dave Kubiak, Chair, Alaska Marine Conservation Council, Kodiak
- Denise Michels, Mayor, Nome

### Alternate members of the task force include:

- Senator Donald Olson, Golovin
- Representative Bryce Edgmon, Dillingham
- Cora Campbell, Commissioner, Department of Fish & Game
- Richard Glenn, Vice President, Arctic Slope Regional Corporation, Barrow

The United States Coast Guard served as the federal liaison and was represented by Rear Admiral Christopher Colvin until May 19, 2011. Upon Rear Admiral Colvin's departure, Rear Admiral Thomas Ostebo served as the federal liaison.

### The duties of the task force are as follows:

1. Assess and facilitate creation of a state and federal commission responsible for overseeing the development of state and federal northern ocean waters;
2. Facilitate regional coordination, cooperation, and outreach regarding the creation of the commission to keep local stakeholders informed and to incorporate their input into the process;
3. Identify and coordinate efforts of mutual concern for federal, state, and local agencies, as well as international interests, in the creation of the commission; and
4. Conduct hearings in the Arctic and Sub-Arctic regions of Alaska.

Agendas, presentations, recordings of hearings, and other pertinent information regarding the task force can be found at the following website: [www.anwtf.com](http://www.anwtf.com).

## Governance

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*“Most of the Arctic, like most of the world, is commonly owned. With ownership comes the obligation to manage our resources for the benefit of the total. To do that, we must understand the reality, the richness, and the responsibility of the North.”*

—Former Alaska Governor Wally Hickel

### Introduction

The Arctic is transforming, largely due to a changing climate and increased globalization of economic activities. These rapid changes make it necessary to explore the adequacy of existing Arctic governance structures and to consider adjusting these systems or creating new ones to better suit developing needs. Arctic Nations must enhance cooperation at regional and international levels as they each develop and refine their regulatory frameworks and policy mechanisms on Arctic issues. Alaska must ensure its Arctic residents and the state of Alaska have a strong voice in these matters.

Developing the resource rich Arctic in a way that maintains sustainable communities and limits adverse impacts to the environment will require unprecedented cooperation among Arctic Nations. This level of cooperation will require changes in how Arctic Nations think about sovereignty and territorial boundaries on both land and water. Traditional sector-based regulation will not effectively safeguard the environment from damage. Each Arctic Nation must recognize that how they develop their resources can impact not only themselves but also their neighbors. Working together, the Arctic Nations can foster productive, sustainable development while respecting the entire region’s fragile ecosystems and the cultures and quality of life of its inhabitants.

Over the past year, it has become apparent to the ANWTF that the United States lacks a national vision for the Arctic and has no comprehensive strategy for its future. The state of Alaska has supported environmentally sound resource development in the Arctic and elsewhere in the state as the primary means to provide for an economy and jobs for all Alaskans. The ANWTF believes it would benefit the state, as discussions on Arctic issues and opportunities continue with the federal government and internationally, to collect the different elements of state policies relating to the Arctic into one definitive document. Substantial efforts are necessary on both the national and state level to prepare for changes in the Arctic and to ensure responsible stewardship of the U.S. Arctic far into the future.

### National and International Actions

**1. The ANWTF Recommends that the Alaska State Legislature and the State of Alaska Continue to Urge the United States Senate to Ratify the United Nations Convention on the Law of the Sea.**

The Alaska State Legislature and Governor Sean Parnell are on record supporting the United States Senate ratification of the United Nations Convention on the Law of the Sea (UNCLOS). The United States is the only major maritime power and the only Arctic Nation that is not a party to the convention. More than 160 nations and the European Union have joined UNCLOS. Congressional ratification will substantially benefit our country’s economic and national security interests. The ANWTF strongly encourages the state of Alaska to continue to support ratification, and it appreciates the efforts of Senators Mark Begich and Lisa Murkowski, who are working with their colleagues in the U.S. Senate to ratify UNCLOS.

International cooperation in the Arctic must be strengthened with the force of law recognized by all Arctic parties. Public testimony and comments from international, national, and state representatives indicate that legal frameworks are already in place for Arctic governance over certain matters.<sup>1</sup> The Law of the Sea Convention provides a mechanism to resolve disputes.

An annex to the convention negotiated under President George H. W. Bush and finalized in 1994 put to rest concerns regarding diminished national sovereignty. Since then, every U.S. president has endorsed ratification. On May 15, 2007, President George W. Bush said, “[Ratification] will secure U.S. sovereign rights over extensive marine areas, including the valuable natural resources they contain. Accession will promote U.S. interests in the environmental health of the oceans. And it will give the United States a seat at the table when the rights that are vital to our interests are debated and interpreted.”

Ratification of UNCLOS will enable the U.S. to peacefully legitimize its Extended Continental Shelf claims in the Arctic and gain access to additional oil and gas reserves. Under the convention, nations can submit claims to submerged lands and the resources there if they demonstrate that their continental margin extends beyond the 200-mile Exclusive Economic Zone (EEZ). UNCLOS also secures open sea lanes for maritime commerce and corridors for submarine cables and pipelines.

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1. Global agreements related to Arctic issues include the United Nations Framework Convention on Climate Change, the Stockholm Convention on Persistent Organic Pollutants, the Treaty of Spitsbergen, which provides for access to the Svalbard Archipelago, and the International Maritime Organization’s guidelines for shipping. Regional agreements also exist, such as the joint management agreement between Norway and Russia regarding fishing and the agreement between Canada and the United States regarding co-management of the Porcupine Caribou Herd.

United States military, national security, and business interests support ratifying UNCLOS. By failing to act, the United States jeopardizes its effectiveness in shaping future ocean policies, risks its ability to improve its strategic position in the Arctic, and imperils economic opportunities afforded under the convention. The United States should ratify UNCLOS as quickly as possible.

## **2. The ANWTF Supports the Continued Development of a Comprehensive United States Arctic Strategy, Including Necessary Funding For Its Implementation.**

A comprehensive U.S. Arctic strategy must be developed to implement current domestic Arctic policy. This strategy should carefully balance national interests with Alaska state interests. Commitments to safeguard the environment and preserve the traditions and wellbeing of the region's communities and cultures should accompany all strategies for economic development. Alaska should not only support this effort but also contribute to it, given that Alaska's residents are clearly among those Americans who know the U.S. Arctic best.

On January 9, 2009, President George W. Bush adopted a U.S. Arctic Policy through National Security Presidential Directive 66 (NSPD-66) and Homeland Security Presidential Directive 25 (HSPD-25).<sup>1</sup> Under the Obama Administration, this policy still stands. In addition to addressing national security and homeland security needs, it calls on the U.S. to:

- Protect the Arctic environment and conserve its biological resources;
- Ensure that natural resource management and economic development in the region are environmentally sustainable;
- Involve the Arctic's indigenous communities in decisions that affect them; and
- Enhance scientific monitoring and research into local, regional, and global environmental issues.

The policy also endorses ratification of UNCLOS and calls for continuing participation in the Arctic Council; negotiation of agreements with other Arctic Nations regarding increased human activity in the region; and continuing cooperation with other countries on Arctic issues through the United Nations.

On July 19, 2010, building on President Bush's directive, President Obama signed an Executive Order<sup>2</sup> establishing the first ever National Policy for the Stewardship of the Ocean, Our Coasts, and the Great Lakes, which adopts the Final Recommendations of the Interagency Ocean Policy Task Force

(IOPTF)<sup>3</sup> and directs federal agencies to implement these recommendations.

A cabinet-level National Ocean Council (NOC) has been created to carry out the National Policy. It has established a Governance Coordinating Committee to formally engage with states, tribes, and local governments. Mark Robbins, Associate Director of the Office of the Governor in Washington, D.C., was selected in consultation with Governor Parnell to represent the Alaska region on the 18-member committee.

The implementation of Coastal and Marine Spatial Planning—a comprehensive, ecosystem-based approach for coordinating sustainable uses of our oceans and coasts—is among the NOC's priority objectives. The council has called for the creation of nine regional planning bodies—consisting of federal, state, and tribal authorities—to develop coastal and marine spatial plans. According to the existing framework, Alaska will be a region unto itself, with its own planning body.

As the NOC moves forward and U.S. Arctic policy becomes further defined, the state of Alaska should work with federal agencies to ensure that state interests and the interests of Alaska's Arctic communities are fully recognized and incorporated.

## **3. The ANWTF Recommends that the State of Alaska and the United States Encourage and Participate in the Adoption of International Agreements for Shipping, Fisheries, Oil and Gas, and Other Transboundary Issues.**

Arctic Nations will benefit from agreements to ensure all parties develop resources in the region safely and responsibly. Cooperation between the United States, Canada, and other Arctic Nations in areas including marine research, sea-floor mapping, and vessel tracking is encouraging, but more such accords are needed. Marine life, oil spills, and shipping accidents do not respect national boundaries.

The ANWTF recommends that international standards related to Arctic oil and gas infrastructure be established among all Arctic Nations. These should include requirements for the design, construction, transportation, installation, operation, and removal of offshore structures. An international agreement on oil spill response standards is also essential. Reflecting the level of risk such development brings to the region, these standards should be particularly rigorous. Both the Arctic Council and the International Organization for Standardization have begun work toward these goals. In May 2011, the Arctic Council established a

1. The full text of the Arctic Policy can be found at: <http://www.fas.org/irp/offdocs/nspd-66.htm>

2. The full text of the Presidential Executive Order can be found at: <http://www.whitehouse.gov/the-press-office/executive-order-stewardship-ocean-our-coasts-and-great-lakes>

3. The full text of the Interagency Ocean Policy Task Force Final Recommendations can be found at: [http://www.whitehouse.gov/files/documents/OPTF\\_FinalRecs.pdf](http://www.whitehouse.gov/files/documents/OPTF_FinalRecs.pdf)



task force to develop an international instrument on Arctic marine oil pollution preparedness and response. The recommendations are to be presented jointly at the next Ministerial meeting in 2013. In light of oil and gas development already underway in some regions of the Arctic, the ANWTF encourages finalization of this work as soon as possible.

The U.S. government should also continue international negotiations regarding the management of Arctic marine life. Northern fisheries are covered by international agreements in waters within the 200-mile Exclusive Economic Zones of coastal nations. However, high Arctic waters beyond those limits are unregulated. We must reach agreements with other Arctic Nations to cooperatively research fish stocks and sustainably manage transboundary marine life of all kinds. These accords should be finalized as soon as possible, before commercial fishing expands into the high Arctic.

As part of any marine life agreement, the Arctic Nations should consider establishing an international fisheries management organization for the Arctic. The state of Alaska and its Arctic communities should be represented in any such organization that is formed.

**4. The ANWTF Recommends that the Alaska State Legislature and the State of Alaska Support and Encourage Greater International Cooperation through the Arctic Council and Inuit Circumpolar Council-Alaska.**

There is a need for on-going, proactive, international cooperation on Arctic issues. Having recognized that the Arctic Council is the world's predominant intergovernmental forum for Arctic governance, the ANWTF recommends greater state engagement with the council and its workgroups and encourages its member countries to support expanding its mandate as an institution for forging multilateral and mutually beneficial agreements among Arctic Nations.

Established in 1996, the Arctic Council is an intergovernmental group that includes representatives from the governments of Canada, Denmark (including the Faroe Islands and Greenland), Finland, Iceland, the Russian Federation, Norway, Sweden, and the United States.<sup>1</sup> The chairmanship of the council alternates between the member states every two years. Presently, Sweden holds the chair. In 2013 Canada will assume the chairmanship, and in 2015 it moves to the United States.

The state of Alaska is represented at Arctic Council and Senior Arctic Official meetings. The state also monitors and contributes to Arctic Council work groups and task forces.

No other international body provides a forum for such a diversity of perspectives on matters related to the Arctic. In

particular, northern indigenous peoples play an active role in the council's activities. Organizations granted Permanent Participant status by the council include the Aleut International Association (AIA)<sup>2</sup>, Arctic Athabaskan Council (AAC)<sup>3</sup>, Gwich'in Council International (GCI)<sup>4</sup>, Inuit Circumpolar Council (ICC), Russian Association of Indigenous Peoples of the North (RAIPON), and the Saami Council. Permanent Participants enjoy full consultation rights in Arctic Council deliberations and decisions.

The Arctic Council's work is supported by experts in six working groups who conduct research and prepare analyses to inform the deliberations of the council and other international bodies. Their areas of concentration include sustainable development, Arctic monitoring and assessment, Arctic contaminants, protection of the marine environment, emergency prevention and preparedness, and conservation of flora and fauna.

In May of 2011, the members of the Arctic Council formalized a search and rescue agreement that details Arctic emer-



gency response.<sup>5</sup> It is the first binding legal instrument to have originated with the organization. The Arctic Council also created a task force to develop an international instrument on Arctic marine oil pollution preparedness and response, and the Emergency Preparedness Prevention and Response work group initiated a project to develop a summary of best prevention practices for marine oil pollution. The director of the Division of Oil Spill Prevention and Response, within the Alaska Department of Environmental

2. The AIA is based in Anchorage. For more information on the AIA go to: <http://www.aleut-international.org/index.html>  
 3. The AAC is comprised of 18 Canadian and Alaskan village members, with more than half being Alaskan. For more information on the AAC go to: <http://www.arcticathabaskancouncil.com/aac/?q=node/5>  
 4. For more information on the GCI go to: <http://www.gwichin.org/>  
 5. The details of the Search and Rescue agreement can be found at: <http://arctic-council.npolar.no/en/meetings/2011-nuuk-ministerial/docs/>

1. For more information on the Arctic Council go to: <http://www.arctic-council.org>

Conservation (DEC), has been an active participant on the U.S. delegation working on these documents. Potentially, these efforts will serve as models for mutual support and cooperation among Arctic Nations.

Because the Arctic Council has been instrumental in moving the international agenda forward, it makes sense for the state of Alaska to continue to support and participate in its efforts. In order to strengthen the Arctic Council, the ANWTF makes the following recommendations:

- The ANWTF recommends that the US government support expanding the Arctic Council's mandate to include discussions on environmental security. Given greater authority, the council will be better able to advance agreements on shipping, commercial fishing, environmental protection, and oil and gas development.
- The ANWTF agrees with Aspen Institute and the Arctic Governance Project Steering Committee<sup>1</sup> findings that stronger and more stable funding should be secured for the Arctic Council. In turn, the council would be better equipped to provide resources to its Permanent Participants for increased involvement in council forums.
- The ANWTF also supports enlarging the number of non-Arctic nations that enjoy Observer status at the Arctic Council, however, not in such a way that would weaken the influence granted to the council's Permanent Participants.
- The state of Alaska should continue participation in the Emergency Prevention and Preparedness Working Group and Task Force of the Arctic Council and become active in other Arctic Council initiatives by attending related forums. Presently, the state of Alaska moderates bimonthly meetings for an Arctic Council Ad Hoc Working Group. This serves in large part to allow the U.S. Department of State to provide updates on Arctic Council activities and receive input from Alaskans. The state should continue these periodic reports and otherwise work to keep Alaskans informed of progress in these endeavors.

Additionally, the task force recommends the state of Alaska and the Alaska State Legislature support the efforts of the Inuit Circumpolar Council (ICC).<sup>2</sup> Founded in 1977 by the late Eben Hopson of Barrow, Alaska, the Inuit Circumpolar Council has grown into a major international non-government organization representing approximately 150,000 Inuit of Alaska, Canada, Greenland, and Chukotka (Russia). In addition to holding Permanent Participant status with the Arctic Council, the ICC holds Consultative Status II at the

United Nations. ICC-Alaska represents Inuit from Alaska at the Circumpolar Council.

ICC Alaska's long involvement with the Arctic Council is a valuable asset. In order to enhance collaboration on matters of mutual interest before the Arctic Council and the ICC, the state of Alaska and the Alaska State Legislature should establish means for regular communications with ICC-Alaska and grow a better working relationship.

## State and Local Involvement

### *1. The ANWTF Recommends that the Alaska State Legislature Create a Commission to Develop an Alaskan Arctic Strategy.*

Many complex issues are emerging in the Arctic that hold enormous ramifications for Alaska's future. The state of Alaska and others have only just begun to grapple with these challenges and opportunities.

The Alaska State Legislature should create a commission to develop a comprehensive, long-term Arctic strategy to help guide and coordinate the many critical decisions Alaska faces in the years ahead. The Alaskans assembled for this commission should properly reflect the wide diversity of stakeholders in the U.S. Arctic.

This commission's responsibilities should include coordinating efforts between the Legislature, the Administration, and Alaska's Congressional Delegation to effectively communicate Alaska's needs concerning the Arctic to the U.S. federal government. The commission should also work to enhance the state's engagement at the international level, both to keep the state responsive to relevant developments and to ensure that Alaska's manifold interests are understood and acknowledged by all others concerned with the region.

### *2. The ANWTF Recommends that the Responsibilities of an Alaska Arctic Strategy Commission Include Substantial Communication and Consultation with Alaskans.*

The commission formed to create an Alaskan Arctic strategy should adopt formal processes for Alaskans to receive information and provide input on Arctic and oceans issues. During ANWTF hearings in coastal communities across the state, it was clear that Alaskans must be provided opportunities to participate in Arctic policy and Outer Continental Shelf development decisions. Many local government officials, tribal government representatives, and individuals expressed a need for timelier, more frank, and more thorough information from state and federal authorities regarding policies and activities off our coasts.

The task force believes that consistent structured communication and consultation—particularly with those Alaskans

1. . For the full Arctic Governance Project Report go to: [http://img9.c.UStompublish.com/getfile.php/1219555.1529.wyaufoxvuxu/AGP+Report+April+14+2010\[1\].pdf?return=arcticgovernance.c.UStompublish.com](http://img9.c.UStompublish.com/getfile.php/1219555.1529.wyaufoxvuxu/AGP+Report+April+14+2010[1].pdf?return=arcticgovernance.c.UStompublish.com)

2. . More information about ICC can be found at: <http://library.arcticportal.org/99/>

likely to be most impacted by evolving conditions—is the best way to build consensus, advance responsible policies, and stimulate broadly beneficial economic development.

**3. The ANWTF Recommends that Communities and Organizations in Alaska’s Arctic Communities Consider Forming an Arctic Working Group.**

Residents across Alaska’s Arctic should consider forming an Arctic working group to build region-wide consensus on priority issues and advance their interests at the state, national, and international levels. Through such a working group, Arctic communities and organizations would be able to collaborate on positions that clearly address local needs, including the preservation of essential indigenous traditions and ways of life. The working group could also serve a valuable communications role, helping to keep its constituent communities abreast of related issues in Alaska, in Washington D.C., and abroad.

The formation of such a working group would be particularly timely, given that the chairmanship of the Arctic Council moves to Canada in 2013 and, in turn, to the U.S. in 2015. This should provide North American interests excellent opportunities to advance their objectives.



**The task force holds a community meeting.**

**4. The ANWTF Recommends that the State of Alaska Continue the Dialogue Regarding a Coastal Zone Management Program.**

The Alaska State Legislature should continue to discuss re-establishing a coastal zone management program as a mechanism for coordination, consultation, and consensus building with coastal communities and the federal government on matters of resource development.

**5. The ANWTF Recommends that Alaska Continue Participating in the Pacific Northwest Economic Region’s Arctic Caucus.**

The Pacific Northwest Economic Region (PNWER) is a non-partisan forum for regional planning whose membership includes governmental, business, and non-profit representatives from Alaska, Idaho, Montana, Oregon, and Washington in the U.S., and Alberta, British Columbia, Saskatchewan, Yukon Territory, and Northwest Territories in Canada.

In 2009, PNWER members from Alaska, Yukon, and Northwest Territories formed the Arctic Caucus in order to explore issues of common interest, including development opportunities and responsible environmental safeguards. The caucus’s current priorities include strategies to maximize opportunities for North American interests when the two-year chairmanship of the Arctic Council moves to Canada in 2013 and to the U.S. in 2015.



**Residents of Wales bringing in fish during a task force visit to the community.**

Alaska should continue to support the participation of its members in the PNWER Arctic Caucus as advocates for Alaska’s interests.



# Oil and Gas Exploration and Development

## Introduction

According to a 2008 U.S. Geological Survey (USGS) report, “The extensive Arctic continental shelves may constitute the geographically largest unexplored prospective area for petroleum remaining on Earth.” The USGS estimates that 13% of the world’s undiscovered oil reserves and 30% of the undiscovered gas reserves are in the Arctic.<sup>1</sup> To put that into perspective, if these estimates are accurate, it would be the equivalent of adding two Saudi Arabias to the world’s global reserves.

The USGS estimate includes:

- 90 billion barrels of oil.
- Nearly 1,700 trillion cubic feet of natural gas.
- 44 billion barrels of natural gas liquids.

These amounts are in addition to the 240 billion barrels, or about 10 percent of the world’s known petroleum reserves, that have already been discovered.<sup>2</sup>



Eighty-four percent of these new amounts estimated by USGS are predicted to be located offshore. The report puts one third of the estimated oil in the circum-Arctic region of Alaska and the Alaska Outer Continental Shelf (OCS). The Chukchi and Beaufort Sea areas off Alaska’s north coast rank behind the Gulf of Mexico for domestic resources.<sup>3</sup>

The state of Alaska and a number of the companies that have operations here have decades of experience in exploring and developing oil reservoirs in the Arctic. Although most of the production (over 15 billion barrels) has come from wells on the North Slope, there have also been 78 wells drilled in the Arctic Ocean, 33 wells in the Bering Sea, and 695 wells in Cook Inlet. The safety and environmental record associated with exploration and development work has largely been good, with no major spills or casualties.

However, the challenges of operating in the Arctic must al-

ways be respected. As exploration and perhaps development extend farther offshore and farther from existing operations on the North Slope, these challenges will intensify. Careful evaluation of risks and implementation of mitigation measures will be critical each step of the way, and constant vigilance will be a mandate.

New OCS exploration and development will occur in steps over time, with perhaps a decade or more between the discovery of any new reservoir and its development. Current exploration plans limit drilling on the OCS to open water periods, with a buffer before seasonal ocean ice starts to form again in the fall. This allows a period of time for addressing drilling problems or spills without the additional complication of ice. Once a well goes into production it would likely be operating year-round, as would any associated pipelines and other facilities needed to move the oil to shore for processing and transportation to markets. It will be important to use the time leading up to the production phase to identify any new measures that should be taken to minimize the risk of spills.

The state of Alaska must also track the exploration and development of oil and gas resources occurring elsewhere in the Arctic, including offshore areas near Norway, Greenland, Iceland, Russia, and Canada. Norway and Russia already have producing wells off their shores. The Baltic Sea, which freezes annually, is a major transportation corridor for shipment of crude oil by tanker through ice-infested waters. State-of-the-art, purpose-built ice-breaking tankers equipped with emergency towing systems, advanced mechanical recovery systems for oil in ice, and recovered oil storage capacity provide valuable insights for operating in broken ice. The experience of Russia, where there are ice conditions similar to conditions in Arctic Alaska, may also prove instructive. We must also look at the risks to Alaskan waters and shores from spills in the Canadian Arctic and from tankers passing from Russia to Pacific ports. Canada could be looking at deep water drilling in the Eastern Beaufort Sea off their shore in the near future. The Canadian National Energy Board (NEB) has recently completed a review of offshore drilling practices based on lessons learned from the Gulf of Mexico spill and other recent incidents. The NEB report contributes additional valuable knowledge for how to safely operate in the Arctic. Lastly, cooperation with other Arctic Nations, and with individual states and provinces, could help enhance abilities to prevent and respond to spills.

There will also be continuing production from existing and new reservoirs on the North Slope, including perhaps from

1. See USGS Circum-Arctic Resource Appraisal website at <http://energy.USGS.gov/arctic/>.

2. USGS Fact Sheet 2008-3049: Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle; at <http://pubs.U.S.g.s.gov/fs/2008/3049/>.

3. Department of the Interior, “Estimated Undiscovered, Economically Recoverable Resources,” <http://www.doi.gov/whatwedo/energy/ocs/upload/UERR-map-2012-2017-80-NoYear-Note.pdf>.

unconventional oil sources such as shale formations. New technologies and systems may be needed to tap these reservoirs, and with them, new methods and means for regulators to oversee the safety of these operations and provide environmental protection.

The Trans-Alaska Pipeline System (TAPS) has been transporting crude oil from the North Slope to Valdez for over three decades. Continued production on and around the North Slope is extending the operating life of TAPS beyond its original design life. This is necessitating modifications up and down TAPS. Another challenge to the continued safe operation of TAPS is the decline in the flow of oil through the system. The flow is currently (2011) at about 600,000 barrels per day, less than one third of the average daily flow at peak production in the late 1980s. Lower flow rates mean less heat in the line and a longer time for the oil to travel from the North Slope to Valdez. With cooler oil in the line there is less time the line can be shut down or slowed down in winter before ice and wax formation begin to occur in the system, possibly making it impossible to safely restart the line until systems thaw in the summer season. There is the need to consider, among other measures, adding heat to certain areas of the line to avoid longer periods of shutdown or slowdown of TAPS.

There is the prospect of the commercialization of natural gas produced from the North Slope and nearby areas. Although there aren't the same environmental risks associated with the production, storage, and transmission of natural gas as there are with crude oil, there are other environmental concerns. One of these is greenhouse gas (GHG) emissions associated with the production, transmission, and eventual burning of natural gas. There is much interest around the world in moving to natural gas as an affordable yet less carbon-intensive fuel for heat and power. The gas produced on the North Slope varies by production field. Prudhoe Bay gas contains about 12 mol% carbon dioxide, which is one of the primary GHGs and is not marketable. If the U.S. Congress or EPA chose to regulate the emissions of GHGs, the carbon dioxide in the North Slope gas may have to be removed and re-injected underground rather than released to the atmosphere. It takes a lot of energy to produce energy. It is likely a much larger quantity of natural gas would be burned on the North Slope to power the compressors, generators, and other equipment needed to produce and move the gas. There would be a volume of GHG released from the burning of this fuel. Lastly, there is the carbon in the natural gas that would be released when it is burned by the ultimate consumers of the gas. The U.S. Environmental Protection Agency currently does not have limits on the concentrations of GHGs that are allowable in the atmosphere (thus what amounts may be emitted), and the U.S. does not impose any kind of tax or fee

on GHG emissions. If this changes, it could affect the economics of a North Slope natural gas project.

The ANWTF heard from a number of stakeholders during field hearings conducted in Barrow, Wainwright, Kotzebue, Wales and Nome about the potential benefits and detriments of Arctic oil and gas exploration and development. There was broad concern about the likelihood of a large oil spill and the impacts it could have on the fragile Arctic environment. Such a spill could impact subsistence and other cultural practices of the local people for decades. Stakeholders reminded the ANWTF of the need to be cautious and respectful of the environment and to learn from the local knowledge of the people who have lived sustainably in the Arctic for many generations.

The ANWTF also heard from scientists about the need for better scientific knowledge of Arctic ecosystems, the stresses that may already be present from the current climatic warming, and what additional impacts marine transportation and drilling could have on the Arctic. They also described the need to advance mechanical recovery of oil in water, particularly where ice is also present, and other response options.

The ANWTF recognizes that as draft plans, leases, permits, and other proposed authorizations are put together and distributed for public and agency review, it will be vitally important to have the input of local knowledge and the best science, and where there are critical gaps in our knowledge, to acknowledge this and work diligently to timely and constructively address these gaps.

The ANWTF recognizes and appreciates the many efforts that are already underway by local governments, organizations, federal and state agencies, universities, and industry to develop ways to make future activities in the Arctic safer and more protective of the environment and culture of indigenous people. It is intended that the recommendations below support the continuation and possible enhancement of these efforts, including through better coordination and cooperation among local people, all levels of government, international organizations, and industry to maximize the sharing of knowledge and the arrival at positive outcomes.

***1. The ANWTF Recommends that the State of Alaska and the United States Develop a Framework for the Identification, Acquisition, and Sharing of Data and Other Information to Support Leasing, Permitting, and Other Agency Decisions.***

The many decisions that will be made by federal and state agencies regarding OCS leasing, exploration, and development will be based on data and other information, some of which may not currently exist or be readily accessible. This creates the risk that agency decisions could be delayed while important information is collected or that agency decisions

could go forward without consideration of all relevant information. There is also the need to monitor for impacts in the Arctic from increased activity and to take these impacts into consideration in future permitting decisions. Good coordination among federal and state agencies and other organizations involved in data collection, data integration, and scientific research will help assure that any data or science gaps will be identified and timely addressed.

**To this end, the ANWTF recommends:**

- State and federal agencies with responsibilities relating to OCS leasing, exploration and development, and oil spill prevention, preparedness, and response collaborate to identify future research that would contribute key data or knowledge to enhance and augment the permitting processes in a timely manner.
- Federal and state agencies, universities, and others coordinate and enhance the sharing and accessibility of scientific data and local knowledge. Data and local knowledge that are important to future decisions relating to OCS activities should be reasonably accessible to the public, researchers, and industry and government agencies. Creating reliable syntheses of studies and reports may also be helpful in providing a broader understanding of important facts and avoiding a duplication of effort.
- Federal and state agencies survey current efforts to develop baseline information and track potential changes in key biological and physical conditions relevant to the sustainability of Arctic ecosystems and species, including walrus, ice seals, bowhead whales, fish, birds, and other marine mammals that inhabit the Beaufort and Chukchi Seas. Identify any additional monitoring that would be helpful in making future resource decisions or responding to spills and other accidents. Identify potential means for collecting these data.
- Greater involvement by the state of Alaska and its universities in international, regional (with Russia and Canada), national, and statewide collaborations on Arctic scientific research. This includes active participation with the U.S. Arctic Research Commission and with U.S. agencies involved with the work of the Research Commission, the North Pacific Research Board, and the North Slope Science Initiative, among others.

**2. *The ANWTF Recommends that the State of Alaska and the United States Support Continued Improvement in the Ability of Industry and Government to Prevent, Contain, Control, Clean-up, and Remediate Spills into Arctic Waters.***

Any spill of oil or hazardous substances into open water is a challenge to clean up. The Arctic environment creates additional challenges, such as ice cover and broken ice conditions. Mechanical recovery of oil is the primary cleanup

strategy in both state and federal oil spill planning requirements. Other response options, such as igniting the volatile portions of spilled oil (in-situ burning) or applying dispersants, may reduce the impacts of the oil on the environment. In-situ burning was developed in Alaska to augment removal of oil in broken ice to accommodate offshore drilling in state waters. The state has developed guidelines for the use of this response tool, and its usefulness has been demonstrated in the Gulf of Mexico spill and recent industry tests in cold water ice conditions. The window for use of in-situ burning in Arctic conditions is actually extended by cold temperatures, which reduces volatilization. Improvements to mechanical recovery of oil in ice using brush and oleophilic technologies are progressing. Submerged application of dispersants in the Gulf of Mexico significantly reduced the volume of dispersants needed when compared to conventional surface applications. More research will allow continued advancements in spill response technologies to better understand the benefits, or detriments, of the use of mechanical recovery, in-situ burning, and dispersants.

All of the above points to the importance of doing what we reasonably can to prevent spills from ever happening. Realistically, the probability of a spill ever occurring will not get all the way to zero. Thus, it is necessary to be prepared to respond to spills in ways to minimize their consequences. Damages from spills will be reduced if the spill is contained within a smaller area and the source of the spill is stopped quickly. Still, some risk will remain that a spill in open water could not be contained quickly and would migrate towards coastal areas. This creates the need to be able to respond to a spill that covers a large area, encompassing different environments (offshore open ocean, near shore areas, tidelands, estuaries, and shorelines) requiring different response tactics. Virtually all marine spills in Alaska are supported with an on-water response capability because of the lack of road access to coastal shorelines. This requires federal, state, and local governmental entities to work together on spills that cross multiple jurisdictional boundaries. It also raises questions about how industry and agencies will support a response that could last weeks if not longer, particularly in the Arctic, where there is less infrastructure in place.

Russia and Canada are Alaska's neighbors and share the goals of preventing spills and responding effectively to those that may occur. Bilateral agreements between Russia and the United States for combating pollution in the Bering and Chukchi Seas and between Canada and the United States for Dixon Entrance and the Beaufort Sea are the means for coordinating joint efforts to prevent, prepare for, and respond to incidents which may threaten or cause transboundary marine pollution. The state of Alaska also has jurisdiction over state waters and is coupled to the federal response sys-



tem through the Unified Plan for Response to Oil and Hazardous Substance Releases and a formal Memorandum of Agreement. With increased shipping through the Arctic and Bering Strait and oil and gas development being planned for the Chukchi Sea and both the Canadian and U.S. portions of the Beaufort Seas, it is essential that the state and the U.S. Coast Guard aggressively advance international cooperation and coordination for preparedness and response with Russia and Canada.

**To this end, the ANWTF recommends:**

- State and federal agencies with direct responsibilities for oil spill prevention, preparedness, and response work cooperatively with industry, local officials, and other stakeholders to develop a framework to periodically share information on their respective efforts to reduce the probability and severity of oil spills in the Arctic. The purpose would not be to duplicate current agency or industry efforts to comply with federal and state law, but rather to enhance communication and transparency on issues of mutual concern and seek additional synergies and means for improving oil spill prevention, preparedness, and response.
- Update current agreements or memoranda of understanding among state and federal agencies that describe the state of Alaska's role in the review and consideration of spill prevention and response provisions in federal OCS exploration and contingency plans.
- State and federal agencies should enhance oil spill preparedness and response through forums by which on-scene coordinators and incident commanders in Alaska can provide recommendations for improvement based on operational experience.
- State and federal agencies should work jointly under the existing bilateral agreements to formally plan, prepare, and drill for mutual aid and a joint international response with Russia and Canada for transboundary spills which may impact Alaskan waters.
- Enhance coordination among state and federal agencies, industry, and stakeholders in the preparation of government regional response plans and facility-specific plans prepared by industry.
- State and federal agencies and industry should be encouraged to work with people in coastal communities where spills could occur to incorporate local knowledge into the spill contingency plans and to enhance local initial response capabilities.
- State and federal agencies should timely address any outstanding science or other issues relating to the use of in-situ burning or dispersants in responding to spills in marine waters. The Unified Plan for Alaska should provide for pre-approval of the use of in-situ burning and dispersants in accordance with appropriate find-

ings and consultations by the federal and state on-scene coordinators.

- The state of Alaska, which has primary jurisdiction over the flow lines that carry the mixture of crude oil, water, gas, and other material from the wellhead to a processing facility where the oil is extracted, should continue to develop and implement its current program to oversee the safe operation and maintenance of these lines and encourage development of practicable means to reliably monitor for leaks from these lines. This will become all the more critical as the number of subsea or buried flow lines (as well as surface flow lines) may likely increase in the future. Pipeline leak detection helps identify leaks early and avoid small leaks that could continue undetected for longer periods of time, resulting in larger spills.
- State and federal agencies should work with Alyeska Pipeline Service Company, its owners, and other stakeholders to timely identify and address risks associated with operating TAPS at decreasing flows. The pipeline is critical to bringing North Slope oil to market and crosses hundreds of miles of Arctic environment.
- The state of Alaska should encourage collaborations among companies operating on the OCS to share best practices, fund research, and establish goals, expectations, and voluntary monitoring and reporting programs that drive the industry towards continuous improvement in increasing safety and reducing environmental risks.
- The state of Alaska should also encourage collaborations among industry and government, both at international and domestic levels, to develop better means to track and mechanically recover oil in ice and broken ice conditions in the Arctic. There are a number of existing collaborations that the state should continue to encourage, including the Joint Industry Partnership.
- The state agencies with primary responsibilities for well safety, control, spill response, and leasing (the Alaska Oil and Gas Conservation Commission, the Alaska Department of Environmental Conservation, and the Alaska Department of Natural Resources) should continue to coordinate their efforts relating to well safety and control risks, response planning standards, and the evaluation of the value of establishing state requirements for safety and environmental management systems.
- DEC should maintain its relationships with neighboring jurisdictions to exchange information and share resources to reduce the risk of spills. This includes participating in mutual aid agreements, transboundary spill planning, training exercises, and research.

**3. The ANWTF Recommends that the State of Alaska Set a Goal to be a Leader in the Safe Exploration and Production of Oil and Gas in the Arctic.**

Over the last three decades, companies operating on the North Slope and in Cook Inlet pioneered a number of important technologies and programs in the oil and gas industry. These include advancements in extended-reach drilling and enhanced oil recovery, to name two. The TAPS, when it was completed over 30 years ago, was considered an outstanding engineering accomplishment. Over the past 20 years, the state, along with federal agencies, industry, response cooperatives, and local oversight organizations, has developed and maintained oil spill planning, preparedness, and response capabilities for Cook Inlet and Prince William Sound that are models for what can be achieved with innovation, commitment, and cooperation.

Alaska is home to indigenous people who have lived here sustainably for thousands of years and have a deep respect and understanding of the natural Arctic environment. They have been important contributors to the success of scientists studying the area and the companies that work there.

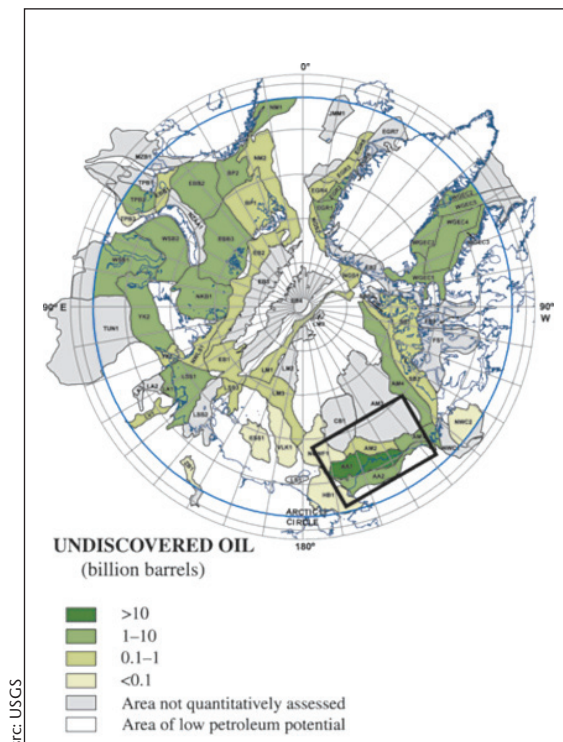
Alaska should be a leader in any development of oil and gas resources in the Arctic. The University of Alaska is well positioned to support this effort along with state agencies. Currently, the University of Alaska Fairbanks (UAF) is proposing to establish a research center focused on oil spill prevention and preparedness in the Arctic. Experts across the university are already engaged in numerous research projects related to Arctic oil spills; the center would help consolidate these efforts. This center will allow UAF to partner with state and federal agencies, industry, and other academic institutions on their work.

#### To this end, the ANWTF recommends:

- Development of the University of Alaska as a center of excellence for research of practical and deployable technologies that can be used by government agencies and industry to reduce the probability and severity of spills in Arctic waters, whether from vessels or fixed facilities such as drilling platforms and pipelines.
- Collaborations with local governments and other regional entities that will help integrate local knowledge with science and improve the understanding of the risks of offshore oil and gas operations in the Arctic.
- Alaska's continued participation in international and national venues, including Arctic Council working groups, where best practices and knowledge are shared, and where additional research can be done together.

#### 4. The ANWTF Recommends that the State of Alaska Encourage Congress to Raise Liability Limits and Fund Oil-Spill-in-Ice Research.

The state of Alaska and the Legislature should encourage Congress to raise the liability limit for oil spills and increase the per incident pay out from the Oil Spill Liability Trust Fund. They should also encourage Congress to fund oil-spill-in-ice research by appropriating the Oil Pollution Act of 1990 resources as originally intended. DEC should participate in the Interagency Coordinating Committee on Oil Pollution Research (IC-COPR) established under the Oil Pollution Act to advocate for development of Arctic-specific oil spill research and development.



Assessment units of the Circum-Arctic Oil and Gas Assessment, color-coded according to the mean estimated undiscovered, technically recoverable oil resources. The black rectangle outlines the approximate location of the Alaska North Slope and Beaufort and Chukchi Seas OCS areas. Modified from Gautier and others (2009) by the U.S. Geological Survey.

# Marine Transportation

## Introduction

Within the next ten to twenty years, the loss of perennial sea ice is expected to open Arctic waters for a part of each year to new shipping routes. Maritime powers have been searching for a shorter route from the Atlantic to Asia for centuries. The melting Arctic raises the possibility of two such routes:

- The Northern Sea Route runs along Russia’s northern border from Murmansk to Provideniya and could be used for trade between north-east Asia and northern Europe.
- The Northwest Passage runs through the Canadian Arctic Islands and the Alaskan Arctic Ocean and could be used for trade between north-east Asia and North America.



Source: Hugo Ahlenius, UNEP/GRID-Arendol

The economic benefits of these new routes could be significant. Of the two sea lanes, the Northern Sea Route holds particular promise due to superior depth, summers freer of ice, and comparatively direct routing. Therefore, it is anticipated that this will be the preferred Arctic sea lane in the near future. Ships sailing between East Asia and Western Europe could save more than 40% in transportation time and fuel costs by navigating this route instead of the Suez Canal.

Currently, most Arctic marine traffic is destinational, delivering goods and supplies to the Arctic or transporting minerals out of the region. In 2006, it was estimated that some 6,000 vessels operated in or transited the Arctic in tourism, minerals mining, oil and gas exploration, military operations, and other activities. Today this number has reached more than 7,000, and many nations are actively building more ships designed to operate in Arctic waters. Notably, traffic related to eco-tourism is expanding rapidly in the region. In 2004, an estimated 1.2 million passengers visited the Arctic; by 2007 this number had doubled.

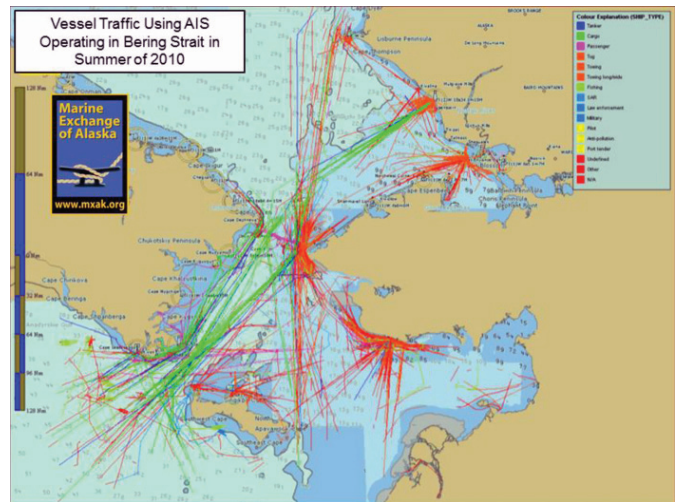
With increased shipping and marine traffic comes increased risk of vessel groundings, spills, collisions, pollutants, noise disturbances, and invasive species. This risk is particularly high due to the lack of detailed navigational charts, reliable weather forecasting, vessel traffic separation protocols, search and rescue infrastructure, and overall maritime domain awareness throughout the Arctic.

**Based on these factors the ANWTF makes the following recommendations:**

1. *The ANWTF Recommends that the United States Work with the International Community to Finalize the Polar Code and Establish a Bering Strait Vessel Traffic Separation Scheme.*

Maritime shipping is regulated through international treaties that establish standards for the safety and security of maritime operations. These standards are agreed upon through the International Maritime Organization (IMO), an agency of the United Nations.

Currently, ships navigating the Arctic are governed by the same requirements as any other open water ships. The IMO



**Vessel Traffic in the Bering Strait Region during the summer of 2010 as depicted by the Marine Exchange of Alaska.**

needs to finalize the Polar Code to supplement international maritime and environmental conventions that already apply in the Arctic. The Polar Code can provide additional requirements regarding rescue equipment, passenger safety, firefighting, ice navigation, and navigation in uninhabited areas. Additionally, the code can include requirements for ship construction, design, equipment, crew training, and operations. The IMO should also consider measures or regulatory frameworks to provide safety mechanisms for the regions of the central Arctic Ocean beyond coastal state jurisdiction.

The Polar Code is currently being drafted, and the rules are expected to be in force by 2014. The United States and Alaska should be actively involved in discussions with the IMO to ensure that Alaska’s unique needs are met.

The United States and Russia need to begin a process with the IMO of establishing Bering Strait routing measures.



Clearly, all transient traffic in the future, regardless of the route taken, must transit the Bering Strait. This remote, narrow, and hazardous international strait is located in an environmentally sensitive area with little to no search and rescue or maritime disaster-response capability within 800 miles. Increased vessel traffic in the future will make this area particularly vulnerable to maritime disasters. It is only prudent that basic routing measures and vessel monitoring systems be put in place to reduce the risk of calamity in the Bering Strait.

**2. *The ANWTF Recommends the Establishment of Non-Tank Vessel Rules and Standards for Arctic Transit.***

Today the most likely environmental threat to the Arctic is an incident involving a non-tank vessel. These are typically large commercial vessels with fuel tanks in excess of one million gallons of fuel and related hazardous cargos. These vessels make up the greatest percentage of transits, and they have proven over time to be the vessels most likely to experience an accident that puts them in jeopardy of sinking or running aground. Non-tank Vessel rules will require these vessels to meet more stringent standards of responsible-party requirements and allow government agencies to provide greater oversight.

Immediate implementation of the USCG Non-tank Vessel Response Plan (NTVRP) rules would advance development of a response capability as well as marine firefighting and salvage capacity in the Aleutians. This is critical in an area of the state that supports the largest commercial fishery in the country. This rule would require vessel response plans for non-tank vessels calling in U.S. ports. In combination with the tank vessel rule already in place, this rule would place the burden of providing sufficient salvage, firefighting, and response capabilities on all vessels passing through the Aleutians that call on U.S. ports. The requirement to comply with these rules would provide the necessary incentives for vessel owners/operators to fund increased salvage and spill response capabilities in the Aleutians. It may also be the means for financing an appropriate rescue tug for this economically and biologically important resource area.

**3. *The ANWTF Recommends that Navigational Charts and Other Aids to Navigation be Updated and Improved along with Vessel Tracking and Automatic Identification Systems (AIS).***

For safe shipping, existing nautical charts for the Arctic need to be updated. In an effort to reduce the likelihood of accidents, an assessment of navigational needs should be undertaken to identify priority actions and target locations most likely to present hazards. Short and long range navigation aids will be needed, including buoys, iceberg and other sea-condition warning systems, high-risk-area ves-

sel-traffic management systems, and improved communication technology.

Alaska currently has over 70 automatic identification stations that track vessels in Alaskan waters. The existing Automatic Identification System should be expanded across Alaskan northern waters beyond the Canadian border to Tuktoyuktuk. This should be a high priority. The current system—an international government/industry partnership—serves vital governmental and private sector needs by aiding safe, secure, efficient, and environmentally sound maritime operations. Expanding AIS will provide a clear record of transport across the U.S. Arctic waters, particularly for vessels servicing Canadian western Arctic communities or bound for transit through the Northwest Passage. AIS also provides emergency contact information, port data, locations of other vessels, and navigational information via the internet. Expanding the AIS network across the western Arctic will also allow for compliance under the International Maritime Organization Guidelines for Ships Operating in Polar Waters (Resolution A.1024(26)).

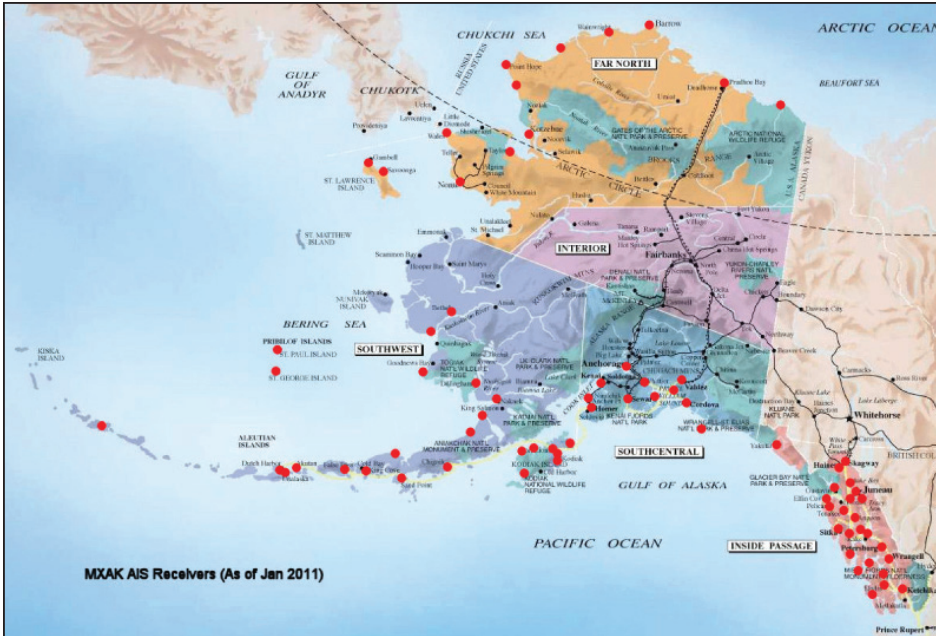
The Alaska State Legislature and the state of Alaska should continue to support the expansion of vessel tracking in the Arctic. The task force encourages the organizations and agencies involved in vessel tracking to pursue all channels of funding to increase their vessel tracking range.

**4. *Alaska Northern Waters Task Force Supports the National Oceanic and Atmospheric Administration's (NOAA) Hydrographic Arctic Mapping and Recommends that NOAA Also Include Detailed Near-Shore Bathymetric Mapping.***

The ANWTF supports increased funding to expedite the mapping of the Arctic regions of Alaska, with particular support for updated mapping of coastal navigation routes and entrance routes to coastal villages.

The ANWTF concurs with the 2011 National Hydrographic Survey Priorities for Alaska. However, NOAA priorities for Alaska in the Bering Strait should be moved from priority two to priority one. The Bering Strait is the shipping choke point in Alaska's northern waters. It is imperative that up-to-date bathymetric information be provided for safe navigation. The ANWTF encourages the exchange of this information with the Russian government so that both governments have complete mapping of the entire strait.

The task force also supports NOAA's efforts to fund additional tidal observations to close the tidal data gap in accordance with the 2008 NOAA Network Gap Analysis for the National Water Level Observation Network. These increased observations will allow the joining of the digital mapping initiative vertical data with the Mean High Water and Mean Lower Low Water data that determine own-



Locations of the Marine Exchange of Alaska’s AIS Receivers as of Jan 2011.

ership and jurisdiction of state, federal, Native, and private lands.

The ANWTF also encourages public release of bathymetric data collected by the U.S. Navy that would not threaten our national security, as well as public release of bathymetric data collected by private industry that would not threaten their proprietary economic interests.

**5. The ANWTF Recommends that the Alaska State Legislature and the State of Alaska Continue to Support Maritime Training Centers in Alaska.**

The need for trained and experienced mariners to operate in the Arctic is clear. The task force highly recommends the development of training programs throughout Alaska that can produce competent seafarers for safe operations in the Arctic. Specialized training—such as a USCG approved Ice Navigator curriculum that would implement the recommendations of the Arctic Marine Shipping Assessment and be consistent with the future requirements of the IMO Polar Code—is essential. In addition, qualifications, training, and experience standards for operation of icebreakers, arctic lightering operations, and high latitude navigation should be considered to ensure that increased maritime commerce in the Arctic is developed safely.

The ANWTF sees a real opportunity for Alaska to become the U.S. center of excellence in Arctic maritime training and seafarer development. Building on the state’s strong university system, institutions such as the AVTEC Maritime Train-

ing Center, and practical training opportunities in Alaska’s ice covered waters, this state is uniquely positioned to become an international leader in high latitude navigation safety training.

**6. The ANWTF Supports Completion of the Aleutian Islands Risk Assessment; State of Alaska Participation in the U.S. Coast Guard Port Access Route Study; and Development of a Bering Strait Vessel Traffic Separation Scheme.**

**Aleutian Islands Risk Assessment**

The Aleutian Islands Risk Assessment is a joint venture between the National Fish & Wildlife Foundation, the USCG, and the Alaska Department of Environmental Conservation. The project was organized in response to the grounding of the M/V Selendang Ayu in 2004 and the oil spill it caused. It is a multi-phase risk assessment of maritime transportation in the Bering Sea and the Aleutian Archipelago. Phase A of the Aleutian Island Risk Assessment has been completed.<sup>1</sup>

The study mainly focused on traffic following the great circle route through the Aleutian Islands and Bering Sea. The guiding principles applied to the analysis of risk reduction options were that prevention measures take priority over response measures and all measures should be realistic and practical.

The advisory panel assembled for the project developed recommendations for risk reduction options in two categories: those recommended for immediate implementation and those recommended for further study in Phase B of the assessment.

**Options for immediate implementation include:**

- Develop an enhanced vessel monitoring and reporting program;
- Enhance towing capabilities on USCG cutters, and increase cutter presence in the Aleutians;
- Stage additional emergency towing systems in the Aleutians.

1. The findings of the Aleutian Islands Risk Assessment can be found at <http://aleutiansriskassessment.com/>.

**Options recommended for additional development or study in Phase B, prior to full implementation, include:**

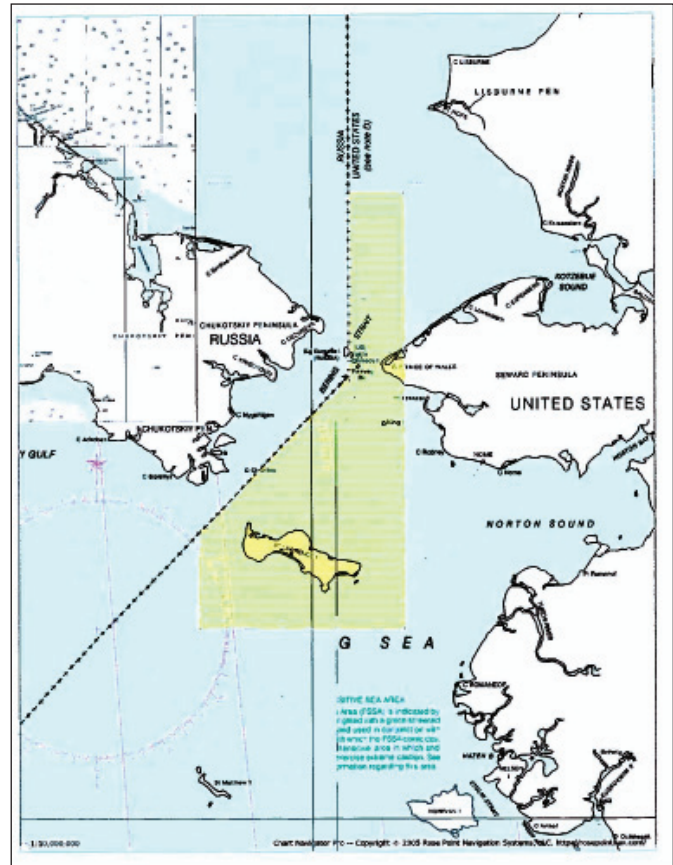
- Increase rescue tug capability in the Aleutians;
- Increase salvage and spill response capability in the Aleutians;
- Determine the boundaries of IMO Particularly Sensitive Sea Areas, and develop recommendations for associated protective measures;
- Strengthen the Aleutians Subarea Contingency Plan.

The ANWTF recommends that the risk assessment move forward with those risk reduction options that were identified by the advisory panel for immediate implementation. In addition, it is recommended that an additional risk reduction option be evaluated in Phase B of the project. A key consideration for reducing the risk of groundings and spills is offshore vessel routing for circumpolar traffic to provide timeframes for responding to disabled vessels. Offshore vessel routing has been successfully employed along the Pacific west coast and is a primary, cost-effective tool for reducing risk.

**Bering Strait Port Access Route Study and Vessel Traffic Separation Scheme**

The ANWTF recommends that the state of Alaska participate in and support the efforts of the USCG Port Access Route Study of the Bering Strait. Alaska should work with the USCG and Russia to bilaterally assess the risk of increased shipping through the Bering Strait and analyze the options for staging international assets to respond to that risk. The location of staging areas in Nome or other Alaska coastal locations should be considered for U.S. assets. Prov-

ideniya or other Russian coastal areas should be considered for Russian assets. This effort would contribute greatly to the development of any future IMO-led effort to establish internationally binding ship routing measures, such as a Bering Strait Vessel Traffic Separation Scheme.



The shaded region represents the Study Area for the USCG's Bering Strait Port Access Route Study as described in 75 FR 68568.



## Planning and Infrastructure Investment

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### Introduction

A number of state initiatives are underway to look at the potential needs and feasibility of infrastructure projects in Alaska's Arctic region. These include the Alaska Department of Transportation and Public Facilities' (ADOTPF) Industrial Use Roads Study, several Arctic Ports studies, and similar work relating to possible land transportation links to Nome, Ambler, and the Umiat region.

Changes in temperature and precipitation are likely to hold enormous implications for both existing and future construction of all sorts. The ability to better predict and understand the effects of phenomena such as widespread thawing of permafrost will help Alaska prepare for considerable maintenance issues on existing roads, airports, buildings, and pipelines. Just as importantly, it will aid engineers when it comes to properly siting, designing, and constructing new infrastructure capable of withstanding future changes in their specific environments. These important concerns have also been examined in ADOTPF's "Impact of Climate Change on Alaska's Transportation Infrastructure."

These changes also pose significant challenges to some communities in Arctic coastal and riverine areas, most notably those located along the Bering and Chukchi Seas. A number of communities are threatened with increased rates of coastal erosion and flooding as a result of storm activity and battered shorelines once protected by shore-fast ice. These problems could become chronic as the climate warms, seasonal sea ice retreats, and destructive coastal storms become more frequent. These important concerns have been recognized in reports issued by the state of Alaska's Climate Change Subcabinet Immediate Action and Adaptation work groups.

Immediate investment in Arctic infrastructure is a foremost priority for Alaska and the entire United States. Alaska will need to explore ways to attract substantial sources of capital investment in addition to state and federal funding. Action is needed to enable the responsible development of resources; facilitate, secure, and benefit from new global transportation routes; and safeguard Arctic residents and ecosystems.

This investment will improve the safety, security, and reliability of transportation in the region—a goal established by the U.S. Arctic Policy signed by President Bush in 2009. As interest and activity in the Arctic continues to rise, America's preparedness in the region becomes ever more important to national security.

Increased human activity related to shipping, oil and gas development, commercial fishing, and tourism will require, at

a minimum, new ports and safe harbors, equipment and facilities for oil spill response, additional Polar Class icebreakers for the U.S. fleet, and improved charting and mapping.

The U. S. Coast Guard's needs in these areas well illustrate the magnitude of infrastructure investment necessary in the Arctic. The Search & Rescue (SAR) agreement recently negotiated by the eight Arctic Nations through the Arctic Council commits the United States to search and rescue response in regions of the Arctic. Domestically, the National Contingency Plan requires the U.S. Coast Guard to oversee oil spill planning and preparedness in coastal waters and to supervise any oil spill response. Additionally, the U.S. Coast Guard's mission is to protect the public, the environment, and U.S. economic interests in the nation's ports and waterways, along the coast, on international waters, or in any maritime region as required for national security.<sup>1</sup>

At present, the Coast Guard has very limited Arctic emergency response capabilities and no permanent bases on Alaska's North Slope to support its operations. Basic needs there include communications, housing, and support facilities. It is especially notable that the Coast Guard has only one operational Polar Class icebreaker, the USCG Cutter Healy. Clearly, the Coast Guard does not have the assets required to carry out its expanding mission in the Arctic.

With transformation in the Arctic calling for a broad spectrum of new facilities on such a large scale, the state of Alaska must take an active role in regional planning efforts with communities and their stakeholders. This will help communities develop local strategies and ensure that the state is getting the most return on investment for local projects. Some communities may not have the resources to adequately prepare for the future, and the state should take this opportunity to help increase local capacity for the benefit of all Alaskans.

### ***1. The ANWTF Recommends that the Alaska State Legislature Urge the United States to Forward Base the U.S. Coast Guard in the Arctic.***

As human activity increases in Alaska's northernmost waters, the need to establish a Coast Guard base in the Arctic grows. The most northern Coast Guard base in the United States is in Kodiak, Alaska, more than 1,000 miles from pos-

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1. The Coast Guard has 11 Statutory (non-discretionary) missions: Search and Rescue, Maritime Safety, Ports & Waterways Security, Drug Interdiction, Migrant Interdiction, National Defense, Living Marine Resources, Marine Environmental Protection, Aids to Navigation, Ice Operations, and Law Enforcement.

sible Chukchi Sea drilling sites and nearly as far from existing Arctic shipping lanes in the Bering Strait.<sup>1</sup> This distance causes untenable logistical problems that negatively impact response times and capabilities. The Coast Guard must have a greater overall presence in the Arctic, with the ability to stage assets closer to future shipping, oil and gas drilling, and commercial fishing activities.

The federal government should begin planning immediately to establish an Arctic base, and it must also move forward on interim measures for search and rescue and oil spill response in the region. The latter include working with communities to site required equipment at strategic locations, upgrading regional airports and associated storage facilities to enable efficient airlifting of assets, and increasing communications infrastructure.

**2. The ANWTF Recommends that the Alaska State Legislature Urge the United States to Fund Icebreakers and Other Ice-capable Vessels.**

At present, the United States has only one Polar Class icebreaker in service, the Coast Guard's Healy. A second Polar Class icebreaker, the Polar Star, is undergoing extensive repairs in Seattle and is not expected to return to service until 2013. Its sister ship, the Polar Sea, was decommissioned in 2011.

Meanwhile, Russia has a fleet of eight service-ready nuclear powered icebreakers, including an ice-breaking container ship. A ninth is under construction and will join their fleet in 2015. China owns the world's largest non-nuclear icebreaker and plans to launch a second by 2013. Canada has committed \$38 billion to a 30-year plan to build additional icebreakers and other ice-strengthened ships suitable for Arctic service. Sweden, Finland, South Korea, and Japan are adding icebreakers to their fleets.<sup>2</sup>

The United States Coast Guard Cutter Healy is a medium strength vessel used most recently as a platform for scientific research. Its design is less suited to military missions. Congress has appropriated \$60 million for repairs to the Polar Star. At this level of funding, its overhaul is estimated to provide for seven to ten years of additional service—the same length of time the Coast Guard estimates is required to design and construct a new Polar Class icebreaker, at a cost of about \$860 million.

This limited number of icebreakers presents a major challenge to the Coast Guard mission in Alaska. Having ice-capable vessels is vital to maintain sovereignty, continue scientific research, and provide emergency and oil spill response.

1. To put this distance into perspective, the distance between Kodiak and Barrow is about the distance between Los Angeles and Seattle.

2. For a list of ice breaker assets around the world go to: <http://www.globalsecurity.org/military/world/icebreakers-list.htm>

Overreliance on the Healy, which was not designed to meet all these challenges, poses risks for the United States and Alaska.

The ANWTF urges the state of Alaska to prevail upon the U.S. government to fund the construction of new heavy icebreakers and additional cutters for the U.S. Coast Guard. The Coast Guard is developing a long term vessel asset plan, but so far it has been unable to secure funding. It is expected that additional vessels will be required in support of oil spill response; these vessels must be capable of year-round Arctic operations. Immediate steps should be taken to begin construction of these assets.

Further, the ANWTF supports planning for other necessary facilities for search and rescue responsibilities, spill cleanup equipment and response vessels, and research. The Coast Guard needs this infrastructure to fulfill its mission.

**3. The ANWTF Recommends that the Alaska State Legislature Support Search and Rescue Coordination Centers along the Coast to Assist Federal and State Responders.**

The ANWTF supports search and rescue efforts at all levels—federal, state, and local. Because the USCG doesn't have an Arctic presence, local communities are often the first responders to an emergency.

The state of Alaska should coordinate planning with the USCG and local communities to develop strategies for increased search and rescue capabilities in the Arctic. Strategies may include purchase of equipment, training, and increased communications capability at the community level.

Other countries are already moving ahead with similar initiatives. Russia is currently in the process of building ten search and rescue centers along its Arctic coast line. Given the size of the Alaskan Arctic, effective local response will be critical. State planning should begin immediately.

**4. The ANWTF Recommends Supporting the University of Alaska Fairbanks Scenarios Network for Alaska and Arctic Planning.**

Scientists reviewing weather data for Alaska believe the state has been experiencing a warming trend with drier conditions in parts of the state. The ANWTF heard presentations on impacts this could have on Arctic communities and businesses. They include, among others, drier conditions in Interior Alaska resulting in more frequent and severe forest fires; species moving outside their historical ranges and perhaps displacing other species; changes in the active layer and permafrost in areas of the state resulting in loss of structural support and other adverse effects on roads and infrastructure; increase in the rate of coastal erosion in areas of

the state; and changes in hydrology including loss of surface ponds used for drinking water. It is important for state and local governments and industry to have a better understanding of possible future climatic conditions in the state when planning long-term infrastructure and critical services.

The University of Alaska Fairbanks formed the Scenarios Network for Alaska and Arctic Planning (SNAAP) to help decision makers understand possible future climate scenarios and their impacts in the state. SNAAP has developed data-driven models and scenarios for specific areas of the state that describe possible effects from longer-term changes in air temperature and precipitation. SNAAP has been working with other researchers to integrate down-scaled climatic models with terrestrial models to make predictions of landscape changes and the implications of such changes (melting permafrost, shifting and intensity of fire regimes, etc.) on the state's roads, airports, ports, pipelines, and rural communities. Both marine and terrestrial models should include predictions of impacts on resource development and related infrastructure. Such models would inform future infrastructure development and management.

The ANWTF recommends the state of Alaska support the work being done by SNAAP and encourages making this information, along with any important caveats on the limitations on such climatic predictions, available to state agencies, local governments, and the public to assist them in their long-term planning. The ANWTF believes this information could also be useful to agencies and organizations involved in setting standards for construction around the state.

#### **5. The ANWTF Recommends Continuing the Analysis and Development of Ports and Safe Harbors in the Arctic Region.**

Studies by the U.S. Coast Guard, the U.S. Navy, the Arctic Council, the U.S. Army Corps of Engineers, and the Alaska Department of Transportation and Public Facilities all identify the need to develop ports and harbors in Arctic Alaska. Given the long lead times for such construction, ports should be among the highest priorities for Arctic infrastructure.

Building on the findings of the 2008 and 2011 state/federal Alaska Regional Ports Workshops and the 2011 Arctic Ports Charette, the state of Alaska and the U.S. Army Corps of Engineers should continue analyzing options for deep- and medium-draft port and safe harbor construction in the Alaskan Arctic. The state should convene an industry-focused Alaska Arctic Ports Workshop to assess the pros and cons of alternative locations and types of ports, address environmental conditions and engineering approaches, and explore funding alternatives.

#### **Locations to consider include:**

- St. Paul Island in the Pribilof Islands. Here there is an existing harbor for the Central Bering Sea fishing fleet and fish processing facilities.
- St. Lawrence Island. There is no existing sea port on St. Lawrence.
- Nome/Teller. A medium-draft port exists at Nome. Considerations include expanding the Nome causeway, improving the Nome-Teller road, and developing a seasonal deep-draft port at Port Clarence Bay off Teller.
- Kotzebue/Cape Blossom. A shallow-draft port complex exists at Kotzebue. During the ice-free season, deep-draft freighters anchor 15 miles out to sea and cargo is lightered to port. Shallow-draft barges deliver cargo to area communities. Cape Blossom, across Kotzebue Sound, offers a potential deep-draft port site.
- Mekoryuk. Located on Nunivak Island, Mekoryuk has no boat harbor but does have moorage for small boats protected by a breakwater.
- Cape Thompson. Located on the Chukchi Sea about 26 miles southeast of Point Hope, Cape Thompson has previously been considered for a port site. It is located on a promontory with bulk rip-rap and aggregate potential and is broadly sheltered from the north by the spit of Point Hope. It has an old airstrip but is otherwise largely undeveloped.
- Wainwright. Wainwright is the nearest village to the Chukchi Sea OCS leases and is located on Wainwright Inlet, which is capable of sheltering shallow- to medium-draft vessels. It is located 90 miles west of Barrow. The city presently does not have a seaport.
- Point Franklin. Located between Wainwright and Barrow, Point Franklin and its adjacent barrier islands may serve as a shelter and possible port site for shallow- to medium-draft vessels.
- Barrow. With a population of more than 4000, Barrow boasts considerable infrastructure despite its remote location and is the geographic midpoint between the active exploration areas in the Beaufort and Chukchi Seas. Just east of Point Barrow is Eluitkaak Pass, which is the "notch" between the Barrow spit and the barrier islands of Elson Lagoon. Eluitkaak Pass is about 50 feet deep at its deepest, although it shallows at both ends toward the north and the south. Elson Lagoon, although shallow, is protected from the open ocean by barrier islands. At present there is no protected harbor at Barrow.
- Prudhoe Bay. Prudhoe Bay has been extensively developed for oil industry support. There is a causeway and dock system on the east and west sides of Prudhoe Bay that currently services the line-haul barges that transport drilling and production infrastructure to the North Slope. The community, made up almost entirely of oil industry



employees, is connected year-round to the North American road system by the Dalton Highway.

- Mary Sachs Entrance. This is a channel between barrier islands located about 60 miles north and east of Prudhoe Bay.

Plans for the development of deep-draft ports and improved safe harbors in northern waters should be intended also to improve access to inland resources in the region. Consideration should be given to the proximity of exploitable natural resources and access to them by navigable inland waterways or through the construction of railways or roads.

A key economic factor in the viability of developing natural resources in Alaska is the distance to an ocean port. Natural resources within 100 miles of a coast line typically have a higher probability of development due to shipping proximity. Development of resource transportation corridors to Arctic ports is critical for both shipping of product to market and for resupply of materials and equipment necessary for resource exploration, development, and extraction. Options for public-private partnerships (P3's) should be explored as a mechanism to capitalize development of the resource deposits and provide a return on investment to the state and private sector industries. Port planning for the Arctic should include a prioritized strategy for approaches to specific resource deposits and options for developing infrastructure to support exploration, development, and transportation of the resource.

**6. The ANWTF Recommends the State of Alaska Consider Proposals to Expand Fiber Optic Cable Routes Across Northern Waters.**

The retreat of sea ice and stability of the sea floor in the Arctic is creating interest in a potential fiber optic cable route from London to Tokyo via the Canadian Northwest Passage and Alaskan Arctic. Just as shipping routes are significantly shorter across the northern waters, so would be cable routes.

Linking Alaska's Arctic communities to trans-Arctic cable routes would bring many benefits. Increased communications will be needed in support of the Coast Guard's mission, including search and rescue and oil-spill response operations. Better communications are also required for the safe operations of ships transiting the region and offshore oil

field development activities. At the same time, broadband links would enhance economic development and distance learning opportunities for Arctic communities.

The state should consider an assortment of strategies. In 2010, Kodiak Kenai Cable Company developed an international consortium for a Tokyo-London link with a landing at Prudhoe Bay. The company also proposed branches linking Kodiak with the more remote communities of Dutch Harbor, Nome, Kotzebue, and Barrow before rejoining the primary cable at the Prudhoe Bay landing. While this proposal was unsuccessful in obtaining funding, the effort produced valuable research, and the related Arctic Cable Company has now been formed.

On land, GCI's Terra SW has connected 65 coastal villages and communities in the Bristol Bay and Yukon-Kuskokwim Delta regions to a fiber optic/microwave network. GCI is exploring expanding the network to include the communities of northwest Alaska. On the North Slope of Alaska, the Arctic National Broadband Network initiative explored developing broadband capability between Barrow and Nuiqsut.

The state should continue to encourage fiber optic cable ventures that will include links to coastal hub communities and industry bases adjoining the northern waters.

**7. The ANWTF Recommends that the State of Alaska Explore Models to Access Funding for Arctic Infrastructure.**

As the state of Alaska determines its priorities for Arctic infrastructure projects, the Alaska Industrial Development and Export Authority (AIDEA) should begin examining which categories of projects are likely to meet its criteria for funding and which will need additional or wholly alternative sources.

The state should consult with financing and investment specialists to explore strategies to attract additional sources of capital to infrastructure priorities. Such considerations could include private sector investment as well as the creation of state, national, and international development corporations.

# Fisheries

## Introduction

As sea ice diminishes and some commercial fish species move into northern waters, interest in fisheries north of the Bering Strait has increased. However, in 2009 the North Pacific Fishery Management Council approved a National Marine Fisheries Service management plan establishing a moratorium on commercial fishing in these waters, including the Chukchi and Beaufort Seas.<sup>1</sup> While there are some 100 known species of fish in northern Arctic waters, their population dynamics and ecology are poorly understood. And while scientists have discovered that a number of species such as cod, herring, and pollock are expanding northward in the Bering Sea, there is currently not nearly enough information available to make sustainable management of commercial fisheries possible north of the Bering Strait.

Changes occurring and in store for the Arctic are expected to have significant impacts on Arctic fish stocks. Understanding the effects of salinity and temperature changes, the loss of sea ice, ocean acidification, and increased human activity will require considerable study and monitoring of fish stocks over a significant period of time.

On one hand, changes in the Arctic may lead some fish populations to reach levels that allow for gainful, responsibly managed commercial fisheries. On the other, developing conditions might also harm existing fish populations, including subsistence resources. Thus, while the changing Arctic may create significant new economic opportunities for Alaskans in the form of commercial fisheries, the future may also yield troubling impacts on the subsistence way of life that has sustained the region's peoples for thousands of years.

For these reasons, the ANWTF believes the state of Alaska and the U.S. government should continue with precautionary policies regarding Arctic fisheries. At the same time, state and federal agencies should greatly increase fisheries-

related research in the region, should remain active in the negotiation of fisheries-related transboundary accords with other nations, and should prepare strategies for commercial fisheries structures and management in the region in anticipation of future developments.

### 1. The ANWTF Recommends the State of Alaska Support a Comprehensive Arctic Fisheries Research and Monitoring Plan.

The current moratorium on Arctic commercial fisheries in the U.S. Exclusive Economic Zone should not postpone Arctic fisheries research. Since the ban was established in 2009, research in the region has not significantly increased. There is a critical need to establish baseline data on fish stocks and to conduct other relevant studies to enable future decision making.



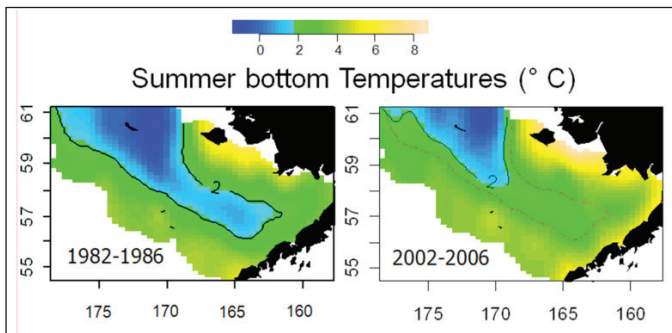
The state of Alaska should support increased research by state agencies, the University of Alaska and other institutions, and the National Marine Fisheries Service in the following areas:

- Baseline studies of the fishery resources of Arctic Alaska.
- Surveys to estimate biomass of potentially harvestable species.
- Ecosystem-based studies to evaluate potential effects of fisheries on other fish species, marine mammals, and seabirds.
- Research on specific productivity parameters—rates of growth, recruitment, and natural mortality—to estimate potential sustainable fishery yields.
- Socioeconomic studies to evaluate benefits and costs to communities along the Arctic coast.

The Alaska Department of Fish & Game should continue to closely monitor all fisheries-related research in the Arctic in order to anticipate and prepare for a possible lifting of the moratorium on commercial fisheries in the region.

### 2. The ANWTF Recommends the State of Alaska Develop Strategies in Anticipation of the Establishment of State Waters Arctic Fisheries.

Alaska's state government should consider measures to maximize the degree to which local communities might benefit from the development of commercial fisheries in Arctic wa-



1. For the full text of the NPFMC's Management Plan go to: <http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/Arctic/ArcticFMP.pdf>

ters within the state’s management jurisdiction, which extends three miles from shore. It is the duty of the state of Alaska and the Alaska State Legislature to promote the development of predominantly resident fisheries.

If future research indicates that state-waters commercial fisheries can be safely established and sustainably managed in the Arctic, the state should create policies and programs to develop and manage those fisheries to the maximum benefit of the people of the region and the state. These efforts should include programs and workshops through the Commercial Fisheries Entry Commission along with the Division of Economic Development and the University of Alaska’s Marine Advisory Program to prepare residents of Arctic communities to participate in commercial fisheries at all levels.

The Alaska Department of Transportation and Public Facilities should examine the need for increased infrastructure—including boat harbors, shipping facilities, and airstrips—to enable fish harvesting and onshore processing operations to be based in Arctic coastal communities.

If it appears that fisheries are likely to be established that target species whose stocks cross state and federal management boundaries, the Alaska Department of Fish & Game and the Board of Fisheries should work with the National Marine Fisheries Service and the North Pacific Fishery Management Council to ensure that regulations and manage-

ment agreements are in place for the conduct of fisheries in a sustainable manner.

**3. The ANWTF Recommends that the State of Alaska and the Federal Government Develop Management Programs that Benefit Coastal Communities in Anticipation of the Establishment of Federal Waters Arctic Fisheries.**

The state of Alaska and the federal government should be prepared to institute programs in Arctic communities that ensure local residents have access to Arctic fisheries developed in federal waters.

Any Individual Transferable Quota systems considered for Arctic fisheries should include provisions—such as Community Development Quota and Community Quota Entity programs—to secure a substantial degree of local ownership, participation, and stewardship in such fisheries.

The ANWTF encourages all relevant agencies, boards, and councils to consider innovations to management systems—established or otherwise—that would guarantee Arctic fisheries resources would be sustainably regulated in a manner that most equitably benefits Alaskans.

When considering future appointments to the North Pacific Fishery Management Council, the governor of Alaska should select a candidate with considerable knowledge and experience related to the state’s northernmost waters.



## Research

### Introduction

Worldwide climate change is having an outsized impact on the Arctic, where temperatures are rising twice as quickly as elsewhere on Earth. Profound transformations are underway in its complex ecosystems. These changes are expected to trigger unprecedented degrees of human activity in the region. As a consequence, transformation in the far north will accelerate all the more, not just environmentally, but also on socioeconomic levels.

Under these circumstances, the need for wide-ranging scientific research and monitoring in the Arctic has never been more pressing. We must continue to gather essential baseline information about the environment and its dynamics in order to become better able to discern shifting conditions. In turn, our understanding of the implications of changes there will increase, and we will improve our ability to prepare for and mitigate impacts.

The enormous amount of research that will be required in the years ahead presents an extraordinary opportunity for Alaska's university system. The Arctic is certain to become an ever more prominent international focal point in the coming decades. Already recognized for exceptional programs for study of the far north, the University of Alaska is in the position to become among the world's foremost institutions for marine and terrestrial Arctic research. The state of Alaska should actively support the university in this endeavor.

Research in the Arctic is already substantial. The state of Alaska has supported the valuable work of the U.S. Arctic Research Commission for more than twenty years and will continue to do so in the future. During its nearly two years of hearings, the ANWTF examined the research of more than 20 state and federal agencies, quasi-governmental institutions, universities, and NGOs. On more than one occasion, scientists who came before the task force remarked that they had only become aware of the work of a colleague in the same agency after seeing that colleague's presentation to the task force. There is obviously opportunity for more collaboration among scientists and researchers focused on the Arctic.

Inevitably, as more government agencies and other institutions converge on the region there are going to be inefficiencies and redundancies. Therefore, the task force encourages greater coordination of research activities. This would not only increase efficiency and reduce duplicative work; it would also improve data management, sharing, and synthesis efforts.

Many specific research needs for the Arctic are addressed in other sections of this report. The recommendations below primarily speak to broader concerns related to scientific investigation in the region.

#### ***1. The ANWTF Recommends the State of Alaska and the Federal Government Identify Priorities for Arctic Research.***

There have been several recent analyses of Arctic research to identify gaps in the scientific knowledge needed to develop resources responsibly there. The latest, by the U.S. Geological Survey (USGS), included more than 50 findings and recommendations.<sup>1</sup> However, the USGS report, like previous efforts, did not clearly prioritize the many research needs it documented.<sup>2</sup> Prioritizing additional necessary research is particularly important in light of the limited funding for such projects.

The state, the federal government, and other stakeholders should come together in conjunction with the University of Alaska to determine Arctic research priorities as soon as possible. By ranking priorities we can target funding more effectively and better coordinate efforts. Major knowledge gaps will be closed far more quickly.

#### ***2. The ANWTF Recommends Improving the Exchange of Research Information and Integration of Data Management.***

The pace at which results from Arctic studies and monitoring projects are shared and integrated is too slow. A stronger effort to consolidate and coordinate data is needed. This is particularly crucial to enabling timely synthesis of multiple studies in order to refine and amplify their findings. Improved distribution of real-time monitoring data can be of substantial immediate value, to aid in emergency responses and to support weather and ice conditions forecasts.

Faster and more extensive integration of data collected by state and federal agencies, academics, and industry would yield enormous benefits for all stakeholders. Several entities

1. U.S. Department of the Interior and the U.S. Geological Survey. 2011. An Evaluation of the Science Needs to Inform Decisions on the Outer Continental Shelf Energy Development in the Chukchi and Beaufort Seas, Alaska. Circular 1370. <http://pubs.usgs.gov/circ/1370/pdf/circ1370.pdf>. The Pew Environment Group and Ocean Conservancy commissioned an independent review of the U.S. Geological Survey's report. The Pew report can be found at: <http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Report/USGS-Report-Review-Sept2011.pdf>

2. For example, among the top priorities should be identifying and protecting areas of special biological importance. Some areas in the Beaufort Sea have already been identified as ecologically sensitive, including Ledyard Bay, Hanna Shoal, Barrow Canyon, and the Boulder Patch. Some studies have been done to synthesize data on these ecological hotspots, but further research is still needed. Such designated areas should be given priority in research and monitoring programs to reach a better understanding of the underlying features and processes that make them important.



are already working toward this goal, including the Alaska Ocean Observing<sup>1</sup> System and the North Slope Science Initiative<sup>2</sup>. These and other such efforts need to be encouraged and supported.

**3. The ANWTF Supports Increased Long-Term Monitoring of the Arctic, Including Routine Surveys of Key Chemical, Physical, and Biological Parameters of the Beaufort and Chukchi Seas:**

In order to better understand, quantify, and predict the effects of on-going changes in both marine and terrestrial Arctic ecosystems, we must increase our long-term monitoring of a wide range of environmental characteristics.

Current research indicates that the Arctic is changing at a faster pace than recent modeling predicted. The state has many ongoing monitoring programs (including wildlife monitoring through the Department of Fish and Game and water and air quality monitoring through the Department of Environmental Conservation) that could be interwoven into a broader effort to provide a seamless network across jurisdictions. Establishment of such a monitoring system should be a top priority.

Increased monitoring will strengthen our baseline knowledge of the Arctic and enhance our capacity to accurately measure its transformation. As Alaska becomes more able to anticipate changes and predict their effects, we will have greater likelihood for success in efforts to moderate impacts. This will contribute significantly to responsible and sustainable approaches to all categories of development in the region.



**4. The ANWTF Recommends Support for Comprehensive Surveys of Alaska Native Marine and Subsistence Use.**

Several reports have noted a scarcity of detailed information on marine uses by Arctic indigenous peoples, and much of the existing data on land-based subsistence practices is lacking in specificity and breadth. Projects initiated by the North Slope Borough, the Northwest Arctic Borough, and the city of Wainwright are researching Native marine and subsistence uses in Alaska's Arctic with groundbreaking comprehensiveness.

These studies will provide invaluable baseline documentation of Native Alaskans' traditional uses of resources—information that is particularly critical in light of increasing environmental changes and accelerating development activities in the region. More knowledge in these areas will help all stakeholders identify and minimize potential conflicts and socioeconomic impacts that may result from increased human activities. These projects will also provide valuable baseline data for recommended research on the social, cultural, and economic impacts that changes in the Arctic are having on its inhabitants.

**5. The ANWTF Recommends the Use of Traditional Knowledge in Alaska Based Arctic Research.**

The testimony of many Alaska Natives during hearings in several locations across the state supported the task force's conviction that the local and traditional knowledge gathered by Alaska's indigenous peoples over thousands of years is critically important to a fuller understanding of our northern ecosystems and the multitude of marine and land-based resources within them.

When the Arctic Council was established in 1996, its declaration recognized "the traditional knowledge of the indigenous people of the Arctic" and acknowledged "its importance and that of Arctic science and research to the collective understanding of the circumpolar Arctic."

The policy on traditional knowledge adopted by the government of Canada's Northwest Territories in 1997 states that "aboriginal traditional knowledge is a valid and essential source of information about the natural environment and its resources."



1. Find more information about Alaska Ocean Observing Systems at <http://www.aos.org/>.

2. Find more information about the North Slope Science Initiative at: <http://www.northslope.org/>

The Circumpolar Universities Association, whose more than 50 members include the University of Alaska, Dartmouth College, the Russian State Hydrometeorological Institute, and the University of Aberdeen, states in its Ethical Principles for the Conduct of Research in the North, “The research should take into account the knowledge and experience of the people and respect that knowledge and experience in the research process. The incorporation of relevant traditional knowledge into all stages of research is encouraged.”

As additional research into the Arctic continues in Alaska, the ANWTF recommends that the local and traditional knowledge of the state’s indigenous inhabitants be incorporated into all relevant areas of study.

**6. *The ANWTF Recommends Improved Sea Ice, Wind, and Current Forecasts and Trajectories.***

The ANWTF endorses increased study and monitoring of a wide range of Arctic environmental features, but it would particularly like to emphasize the need to improve sea ice forecasting and predictive modeling.

The continuing loss of perennial sea ice is a major driver of consequential changes across the region. Diminishing sea ice affects transportation access, regional weather, marine mammal habitat, marine food webs, and countless aspects of the lives of Arctic residents. The understanding of ice as a habitat also has implications for oil spill response and damage assessment.

As tourism, oil and gas exploration, and shipping increase in the region, floating sea ice will present a major threat to maritime safety and increase the potential for oil spills. Improved daily and weekly modeling of ice conditions and better wind, current, and trajectories forecasts are among the most urgent immediate needs in the Arctic. There is currently no up-to-date sea ice atlas and little capacity to formulate reliable seasonal predictions—critical tools for shipping and off-shore development operational planning. New seasonal prediction services will also benefit communities and support the management of protected marine resources.



## Appendix A

### Definition of the Arctic

#### Arctic Boundary as Defined by the Arctic Research and Policy Act (ARPA)

All United States and foreign territory north of the Arctic Circle and all United States territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim rivers; all contiguous seas, including the Arctic Ocean and the Beaufort, Bering, and Chukchi seas; and the Aleutian chain.



## Appendix B

### House Concurrent Resolution 22

#### HCR022c -1- CSHCR 22(FIN) 26-LS1622\W

Establishing and relating to the Alaska Northern Waters Task Force.

BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

**WHEREAS** Alaska is the only Arctic state in the nation; and

**WHEREAS** recent warming trends have resulted in the depletion of Arctic perennial sea ice by nine percent a decade; and

**WHEREAS**, according to the National Aeronautics and Space Administration, the rate of depletion is accelerating because of the interaction among the ice, oceans, and atmosphere; and

**WHEREAS** rapidly retreating sea ice is altering fish and wildlife habitats and affecting the accessibility and viability of certain species, on which many local communities rely for nutritional and cultural purposes; and

**WHEREAS** reduced sea ice is affecting polar route navigation by opening oceans previously frozen year-round; and

**WHEREAS** the new accessibility of the Northern waters is resulting in increased marine transportation, access to resources, tourism, fisheries, and the presence of United States government agencies in the North; and

**WHEREAS** the waters of Northern Alaska are of national security and strategic importance to the United States and the State of Alaska; and

**WHEREAS**, because of national security concerns, the United States Coast Guard is increasing its presence in the North and has plans to build new infrastructure to support its heightened activity, including housing and office facilities and possibly a deep water port; and

**WHEREAS** Northern Alaska contains important mineral and other resources both in state waters and on the outer continental shelf; and

**WHEREAS** commercial activities, including resource development, and the revenue they generate for the state may be significantly affected by the changing Arctic waters; and

**WHEREAS** those changes will affect local communities, businesses, the state, and the natural resources on which they rely; and

**WHEREAS** there is no comprehensive state plan for Alaska's Northern waters; and

**WHEREAS** various federal agencies and international bodies are working together to form a commission to address the changing ocean patterns and the opportunities and problems that may arise as a result of those changing patterns; and

**WHEREAS** the State of Alaska should be involved in the process of forming the commission; and

**WHEREAS** a comprehensive plan to address the warming ocean, including the economic, ecological, and security effects, will benefit the state and its residents;

**BE IT RESOLVED** by the Alaska State Legislature that the

## Alaska Northern Waters Task Force Findings and Recommendations 2012

Alaska Northern Waters Task Force is created in the legislative branch and shall consist of 11 members as follows:

- (1) two senators appointed by the President of the Senate;
- (2) two representatives appointed by the Speaker of the House of Representatives; and
- (3) seven members appointed jointly by the President of the Senate and the Speaker of the House of Representatives, as follows:
  - (A) five public members, three of whom reside in coastal areas of the state;
  - (B) one member representing the executive branch of state government;
  - (C) one member representing the federal government; and be it

**FURTHER RESOLVED** that a vacancy on the task force shall be filled in the manner of the original appointment; and be it

**FURTHER RESOLVED** that the legislators on the task force shall select a chair from among themselves and the chair may assign staff to provide support to the task force; and be it

**FURTHER RESOLVED** that the public members, and, if the member does not receive reimbursement for expenses from the federal government, the federal government member of the task force may receive per diem and travel expenses authorized for boards and commissions under AS 39.20.180; and be it

**FURTHER RESOLVED** that the task force may meet during and between legislative sessions and the duties of the task force include the following:

- (1) assess and facilitate creation of a state and federal commission responsible for overseeing the development of state and federal northern ocean waters;
- (2) facilitate regional coordination, cooperation, and outreach regarding the creation of the commission to keep local stakeholders informed and to incorporate their input into the process;
- (3) identify and coordinate efforts of mutual concern for federal, state, and local agencies, as well as international interests in the creation of the commission; and
- (4) conduct hearings in the Northern region of the state to fulfill its purpose; and be it

**FURTHER RESOLVED** that the task force shall provide recommendations regarding the formation of the commission and shall deliver a preliminary report of its findings to the legislature by January 20, 2012, and deliver a final report to the legislature on January 30, 2012, together with legislative proposals for consideration; and be it

**FURTHER RESOLVED** that the task force shall be available for legislative hearings regarding its final report and recommendations; and be it

**FURTHER RESOLVED** that the continuation or termination of the task force shall be reevaluated during the Second Regular Session of the Twenty-Seventh Alaska State Legislature.

## Appendix C

### Biographies

#### Representative Reggie Joule, Chair, Northern Waters Task Force



Representative Reggie Joule was born in Nome on July 14, 1952, to Alfred and Vera Huff. He was adopted at birth by grandparents Tony and May Joule. As a young boy Rep. Joule lived in St. Michaels and Deering and traveled extensively with his parents, as he went with them wherever they taught. His father was a well-known Inupiaq teacher from the village of Point Hope. Kotzebue has been Rep. Joule's home since 1958. He graduated

from Cooper Valley High School in 1970.

Rep. Joule has been elected to the Alaska State House of Representatives continuously since 1996. Currently he is a bush legislator in coalition with the House Majority. He serves as a member of the House Finance Committee, chair of the House Finance Subcommittee on the Health & Social Services Operating budget, and chair of the Bush Caucus. Previously he has served on the Kotzebue City Council, the NANA Regional School Board, the local Dog Musers Association, the NANA Regional and Village Corporation Board, the statewide Alcohol and Drug Abuse Advisory Board, the Governor's Council on Disabilities, the Governor's Interim Commission on Children and Youth, the Alaska Human Resource Investment Council, and the Native Scholars Advisory Board. He is a highly recognized Bundle Carrier for the Sobriety Movement. Rep. Joule is currently serving his eighth term in the Alaska House of Representatives.

#### Senator Bert Stedman, Vice-Chair, Northern Waters Task Force



Senator Bert Stedman represents Southeast Alaska in the Alaska State Senate and serves as vice-chairman of the Alaska Northern Waters Task Force.

A fourth-generation Alaskan, Senator Stedman was raised in Petersburg and Sitka, spending several years working in commercial fishing and construction. After receiving a business degree from the University of Oregon in 1985, Senator Stedman founded Pioneer Capital Management, the Sitka investment firm he manages today.

In 2003 Senator Stedman was appointed to represent Senate District A in the Alaska State Legislature by Governor Frank Murkowski. Senator Stedman was elected to the seat in 2004 and 2008. Previously the Senator served four years on the Sitka City & Borough Assembly and eight years on the Sitka Planning Commission.

Senator Stedman has served as co-chairman of the Senate Finance Committee since 2007. He is vice-chair of the Legislative Budget & Audit Committee, and he is a member of Legislative Council, the Senate Rules Committee, and the Senate Resources Committee. In 2011 he was elected vice-chairman of the Energy Council.

The senator resides in Sitka with his wife Lureen and daughter Susie.

### Senator Lyman Hoffman

Senator Lyman Hoffman was born and raised in Bethel and has lived on the Kuskokwim River for most of his life. He graduated from Bethel High School in 1968 and earned a degree in Business Administration from the University of Alaska Fairbanks in 1974. He and his wife Lillian raised two children—Trina and Douglas—in Bethel, and they are now the proud grandparents of three granddaughters.



Senator Hoffman has a long history of public service, both in volunteer and elected positions. Organizations he has served in Bethel include the Planning Commission, Bethel Family Clinic, Bethel Native Corporation, Bethel Pre-maternal Home, Yukon-Kuskokwim Health Corporation, and the Lower Kuskokwim Development Corporation.

Senator Hoffman was first elected to the Alaska Legislature as a representative in 1987, and he reached the Senate in 1995. He is now part of the Bi-Partisan Senate Working Group. He serves as co-chair of the Senate Finance Committee and co-chair of the Legislative Budget and Audit Committee. In recent years, he has focused on implementing and funding programs for energy rebates, weatherization, and alternative energy. He is a member of the Renewable Energy Funding Advisory Committee and is actively working on projects to produce affordable energy.

### Representative Bob Herron

Representative Bob Herron has represented the 38th District in the Alaska State House since 2008. He was previously the government and public relations director for the Yukon Kuskokwim Health Corporation. His Southwest Alaska district ranges from Nunivak Island to Upper Kalskag to Bethel and Platinum. He previously served as the Bethel City manager (1998-2005), legislative aide in the office of Sen.



Lyman Hoffman (1987-1994), and general manager/partner with Swanson's Theater/Bethel Cablevision. Rep. Herron also has owned and operated a number of businesses, including Bethel Drilling & Welding, Blue Sky Estates, Golden Eagle, Kisaralik Unlimited, and North Star Gas.

He currently serves as chairman of the Economic Development Trade & Tourism Committee and vice-chair of Legislative Council. He serves on four Finance Sub-Committees, and on the House Fisheries, Health & Social Services, and Resources Committees.

Rep. Herron is active in PNWER's Arctic Caucus. In 2011 he sponsored legislation highlighting the Alaska Legislature's formal recognition of the Arctic Caucus and legislation urging the U.S. Senate to ratify the Law of the Sea Treaty.

### Larry Hartig, Commissioner, Alaska Department of Environmental Conservation

Commissioner Larry Hartig is an attorney with more than 20 years' experience in environmental law, regulations, permits, and land use issues. Prior to his appointment in 2007 as commissioner of the Department of Environmental Conservation, he was in private practice as an attorney with the Anchorage law firm of Hartig Rhodes Hoge & Lekisch, PC. Joining the firm in 1983, Mr. Hartig worked primarily on environmental, natural resources, and commercial matters. His practice included assisting clients in obtaining environmental and other permits for natural resource development projects as well as projects involving environmental compliance and cleanup of contaminated properties. Clients included government, private developers, industry, and Native Corporations, among others. He also worked as a landman in the Land/Legal Department of Alyeska Pipeline Service Company between 1972 and 1976.

Mr. Hartig has a B.A. from the University of Utah and received his J.D. from Lewis and Clark College. He is a member of the Exxon Valdez Oil Spill Trustee Council and serves on the board of the Alaska Permanent Fund Corporation. He is also a member of the Alaska Bar Association and a former member of the State Board of Forestry.





### **Chuck Greene, NANA Regional Corporation**

Chuck Greene is currently Vice-President of Government and Community Affairs for NANA Regional Corporation. Prior to this role, Mr. Greene worked in government relations with the NANA Development Corporation. Before joining the NANA team, Mr. Greene served as mayor of the Northwest Arctic Borough for 13 years and was a special assistant to the governor of Alaska. Mr. Greene is a board member of the Resource Development Council and has served on many other boards, including the Kotzebue City Council, Kikitagrak Inupiat Corporation, Inuit Circumpolar Council-Alaska, the state Alcohol Beverage Control Board, and the Rural Governance and Empowerment Commission. Mr. Greene also served his country in the United States Navy for four years, two of which were in Vietnam.



### **Chris Hladick, City Manager, Unalaska**

Chris Hladick is a long-standing city manager in Alaska with over twenty years of varied experience in capital projects such as docks and harbors, power projects, water and wastewater plants, landfills, shore protection, bridges, and multiple additional facilities. He has an in-depth background in strategic planning, having also volunteered his time to help community organizations reach their goals. Mr. Hladick has been city manager for Unalaska/Dutch Harbor for the past 11 years. Having lived in the Arctic during his tenure in Alaska, he has a special interest in the region and has testified before the State Legislature regarding the need to ratify the Law of the Sea Treaty. Mr. Hladick is versed in



Bering Sea commercial fishing issues and has worked closely with the Coast Guard regarding search and rescue missions, clean-up of shipwrecks, and port of refuge incidents. He has served on a variety of governing boards over the years.

### **Edward Saggan Itta, Barrow**

Edward Itta is an Inupiat whaler and hunter. He is committed to protecting the Inupiat subsistence heritage and ensuring the long-term social and economic viability of all the communities of Alaska's North Slope. Mr. Itta was elected mayor of the North Slope Borough in 2005 and re-elected in 2008. He is a member of the federal Outer Continental Shelf Policy Committee, a member of the Barrow Whaling Captains Association, and a past commissioner of the Alaska Eskimo Whaling Commission. Mr. Itta also served as president of the North Slope Borough School Board and was vice-chairman of the federal subsistence advisory council for northern Alaska. He and his wife, Elsie, have two children and four grandchildren.



### **Dave Kubiak, Alaska Marine Conservation Council**

Dave Kubiak, an Alaska resident for the past 47 years, retired from teaching English at Kodiak High School in 1996. He has fished commercially out of Kodiak for crab and salmon and currently fishes halibut and Pacific cod. Mr. Kubiak also uses his boat for research chartering and limited tour chartering. He has served on various community boards and committees and is past chair of the Alaska Marine Conservation Council.



### **Denise Michels, Mayor, Nome**

Denise Michels was elected Mayor of the City of Nome in October 2003. Born and raised in Nome, she is the first Alaskan Native and first woman to serve in this capacity. As mayor, she works closely with an appointed city manager, the Nome City Council, and other elected and appointed boards and commissions. The mayor is the chief spokesperson for the city, representing community legislative priorities to the



Alaska Legislature and the U.S. Congressional delegation. She continues to focus on public safety, community, and economic and infrastructure development, and she promotes bringing diverse groups and residents together.

The position of mayor in Nome can be characterized as a “full time job with part-time pay.” Mayor Michels is employed as Director of Transportation by Kawerak, Inc., a Native not-for-profit service organization. She and her husband, Terry Michels, have also owned and operated several businesses in Nome. Mayor Michels is past president for the Alaska Conference of Mayors and the Alaska Municipal League and past co-chair of the Public Works and Infrastructure Committee.

Mayor Michels is a shareholder of Bering Straits Native Corporation and Sitnasuak Native Corporation and is a Nome Eskimo tribal member. She is a member of the Alaska Airlines Northwest Community Advisory Board and the Resource Development Council. Her past memberships include serving BLM’s Resource Advisory Council, the Governor’s Transition Team for the Department of Military and Veterans Affairs, the Advisory Committee of the Alaska Military Force Advocacy and Structure Team, DOTPF’s Long

Range Transportation Plan 2010 Update, and the Governor’s Subcabinet on Climate Change Adaptation Advisory Work Group on Public Infrastructure.

### **Federal Liaison**

#### **Rear Admiral Thomas P. Ostebo, United States Coast Guard**

Rear Admiral Thomas P. Ostebo assumed the duties as Commander, Seventeenth Coast Guard District, in May 2011. He is responsible for all Coast Guard operations throughout Alaska.



In his previous assignment, Rear Admiral Ostebo was the Coast Guard’s Assistant Commandant for Engineering and Logistics (CG-4). He was responsible for all naval, civil, aeronautical, and industrial engineering and logistics for the Coast Guard’s \$25 billion capital plant. Rear Admiral Ostebo graduated from the U.S. Coast Guard Academy in 1981 with a Bachelors of Science in Mathematics and Computer Science and earned a Master of Science in Industrial Administration from Purdue University’s Krannert School of Business. He completed a Senior Fellowship in National Security at Harvard University in 2002 and a Senior Fellowship at the Naval War College in 2005. Additionally, he is a Program Manager Level III Certified Acquisition Professional and a Level I Certified Logistician.

His military decorations include three Legions of Merit, the Distinguished Flying Cross, three Meritorious Service Medals, two CG Commendation Medals, and the CG Achievement Medal.

## Alternate Members

### Senator Donald Olson, Golovin

Born in 1953, Senator Donald (Donny) Olson grew up in the native village of Golovin, Alaska. Senator Olson earned his M.D. in 1983. After completing a medical internship, he returned to rural Alaska to fulfill a life-long dream of practicing medicine in his home area. He later studied law at the University of Colorado, Boulder, and he finished his formal schooling at Emmanuel College, at Cambridge University in England, where he studied international and maritime law.



Senator Olson served on the Alaska State Medical Board from 1994 until 2000, when he was elected state senator. In addition to saving lives as a doctor, Senator Olson has participated in aerial searches for missing aircraft and lost individuals. He has flown his own airplane or helicopter in searches. Also a Reindeer Herder, Senator Olson personally financed and conducted an airlift rescue of reindeer off Hagemeister Island in 1992. Having the only ski-equipped commercial bush plane in Nome, he does all the off-airport flying out of Nome, including service to the ice runway at Little Diomede.

Travel for education, business, and adventure has taken Senator Olson to Russia, Greenland, Norway, Japan, China, South Korea, United Kingdom, France, Germany, Belgium, Switzerland, Austria, New Zealand, Australia, Canada, and Mexico. Lately, Senator Olson values spending time with his family. He and his wife Willow are raising two sons, Martin and Donald Jr.

### Representative Bryce Edgmon, Dillingham

Representative Bryce Edgmon was born in Dillingham, Alaska, in 1961. Also raised in Dillingham, Rep. Edgmon fished commercially for Bristol Bay salmon and herring for more than twenty years. A graduate of the University of Alaska Anchorage with a degree in Business Administration, Rep. Edgmon has worked as the Community Development Quota manager for the Department of Commerce, Community & Economic Development and is a former chief operating officer for the Bristol Bay Economic Development Corporation.



Presently, the representative is chairman of the board of Choggiung Ltd., the Alaska Native village corporation for Dillingham, Ekuk, and Portage Creek.

A state legislator since January 2007, Rep. Edgmon currently holds a seat on the House Finance Committee, with chairmanships of the Department of Transportation and Department of Corrections Finance Subcommittees. In the 26<sup>th</sup> Legislature, he was chairman of the House Special Committee on Fisheries and co-chair of the House Energy Committee. Additionally, he has served on the Resources and Education Committees and the ADF&G, Revenue, CCED, and Transportation Finance Subcommittees. He lives with his wife Melody and their children Evan and Emma in Dillingham.

**Cora Campbell, Commissioner,  
Department of Fish and Game**

Commissioner Cora Campbell is a lifelong Alaskan, a sport-fishing and outdoor enthusiast, and an advocate for sustaining Alaska's world-class fishing, hunting, and wildlife viewing opportunities. Ms. Campbell worked in the commercial fishing industry beginning the early 1990s. In addition to being a commercial fisher, she served as executive director for a regional fishing association and was a member of numerous boards and committees.



After serving as Governor Sarah Palin's fisheries policy advisor, she became Governor Sean Parnell's policy advisor for fisheries, wildlife, environmental conservation, natural resources, Arctic issues, and climate change. In December 2010, Governor Parnell appointed Ms. Campbell commissioner of the Alaska Department of Fish and Game. Among her duties, she represents the state of Alaska on numerous bodies, including the North Pacific Fishery Management Council, which oversees commercial and sport fisheries in federal waters off Alaska, and the Exxon Valdez Oil Spill Trustee Council, which addresses effects and recovery from the 1989 oil spill.

**Richard Savik Glenn**

A resident of Barrow, Alaska, Richard Glenn is executive vice-president of Lands and Natural Resources at Arctic Slope Regional Corporation (ASRC). He is a member of ASRC's board of directors. ASRC is the Alaska Native-owned regional corporation for the Inupiat Eskimos of Alaska's North Slope. ASRC owns approximately five million acres of surface and subsurface lands and has more than ten thousand Inupiat shareholders.



Mr. Glenn is a certified professional geologist in Alaska and has experience in onshore and offshore Arctic geologic processes. He was appointed twice to the U.S. Arctic Research Commission and has served on many boards and commissions, most dedicated to science or education. Mr. Glenn is a founding member and board president of the Barrow Arctic Science Consortium, a non-profit organization dedicated to bringing visiting researchers and local Arctic experts together.



## Appendix D

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### Roster of Northern Waters Task Force Members

**Representative Reggie Joule, District 40, Kotzebue, Chair**

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**Senator Lyman Hoffman, District S, Bethel**

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**Representative Bob Herron, District 38, Bethel**

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 Department of Environmental Conservation**

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**Chuck Greene, Vice President,  
 NANA Development Corporation**

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**Chris Hladick, City Manager, Unalaska**

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**Edward Itta, North Slope Borough, former Mayor**

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**Dave Kubiak, Alaska Marine Conservation Council**

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 Kodiak, AK, 99615

**Mayor Denise Michels, Nome**

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**Representative Bryce Edgmon  
 District 37, Dillingham (alt.)**

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**Senator Donald Olson, District T (alt.)**

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**Cora Campbell, Commissioner,  
 Alaska Dept. of Fish & Game (State alt.)**

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**Richard Glenn, Arctic Slope Regional Corporation,  
 Executive Vice-President, Lands and Natural Resources  
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**Federal Liaison:**
**Rear Admiral Thomas Ostebo, Commander,  
 17<sup>th</sup> District, United States Coast Guard**

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(Rear Admiral Christopher Colvin served as the federal liaison until May 19, 2011)

**Staff to task force: Christine Hess**

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## Appendix E

### List of Presenters

Ahlstrom, William.....	Elder, St. Mary's	Itta, Edward.....	Mayor, North Slope Borough (former); Former President, Inuit Circumpolar Council
Amos, Howard.....	Elder, Mekoryuk	Kelty, Frank.....	Natural Resource Analyst, City of Unalaska
Andreassen, Nils.....	Executive Director, Institute of the North	Kenney, Frederick.....	Judge Advocate General and Chief Counsel, U.S. Coast Guard (Rear Admiral)
Andrew, Tim.....	Natural Resource Manager, Association of Village Council Presidents	Kruse, Gordon.....	President's Professor of Fisheries, School of Fisheries Division and Ocean Sciences, University of Alaska, Fairbanks
Boardman, Stephen.....	District Chief, Civil Project Management Branch, U.S. Corps of Engineers	LaBelle-Hammer, Nettie (Dr.)	Associate Vice Chancellor for Research; Director, Office of Research Integrity, University of Alaska, Fairbanks
Brubaker, Mike.....	Director, Community Environmental Health, Alaska Native Tribal Health Consortium	Laroux, Kenneth.....	Elder, Bethel
Brune, Jason.....	Executive Director, Resource Development Council	Leighty, Wayne.....	Commercial Regulatory Analyst, Shell Oil
Coffey, Mike.....	Maintenance and Operations Chief, Alaska Department of Transportation	Lisius, Jeffrey.....	Assistant Area Port Director, U.S. Customs and Border Protection
Colvin, Christopher.....	Commander of the 17th District, U.S. Coast Guard (Rear Admiral)	Loten, Jennifer.....	Canadian Consul, Canadian Consulate, Anchorage
Connor, Billy.....	University of Alaska Transportation Center	Lukshin, Michael.....	Engineer, Alaska Department of Transportation and Public Facilities
Crane, Kathleen (Dr.).....	Arctic Research Programs, NOAA Co-Chair, Arctic Council's Circumpolar Biodiversity Marine Monitoring Program	MacLean, Steve.....	Protected Species Coordinator and Fisheries Analyst, North Pacific Fishery Management Council
Crockett, Marilyn.....	Executive Director, Alaska Oil and Gas Association	Macrander, Michael.....	Venture Support Integration Group Science Team Leader, Shell Alaska
DeMaster, Douglas (Dr.).....	NOAA Science and Research Director, Alaska Fisheries Science Center	Magone, Dan.....	Owner, Magone Salvage
Dietrick, Larry.....	Director, Division of Spill Prevention and Response, Alaska Department Environmental Conservation	Marquardt, Shirley.....	Mayor, Unalaska
Fitzgerald, Dan.....	North Slope Borough, North Slope Science Initiative	McCammon, Molly.....	Director, Alaska Ocean Observing Systems
Furgione, Laura.....	Deputy Assistant Administrator, Weather Services, NOAA; Deputy Director, National Weather Service	McCarthy, Colleen.....	Communications Manager, Shell Oil
Garay, Pater (Captain).....	Alaska Marine Pilots	Michels, Denise.....	Mayor, Nome
Hartig, Larry.....	Commissioner, Alaska Department of Environmental Conservation	Moran, Kate (Dr.).....	Senior Policy Analyst, White House Office of Science and Technology Policy
Heiman, Marilyn.....	Director, Pew Environmental Group, U.S. Arctic Program	Murkowski, Lisa (Senator).....	United States Senator for the state of Alaska
Holland-Bartels, Leslie.....	United States Geological Survey	Nick, Robert.....	Elder, Nunapitchuk
Holman, Amy.....	Alaska Regional Coordinator, NOAA	Okleasik, Tom.....	Planning Director, Northwest Arctic Borough, Subsistence Mapping

Ostebo, Thomas (Rear Adm.) ...	Commander, 17 <sup>th</sup> District, U.S. Coast Guard	Stotts, Jimmy.....	President, Inuit Circumpolar Council-Alaska
Page, Edward.....	Executive Director, Marine Exchange of Alaska	Street, Steve.....	Director of Cultural and Environmental Sciences, Association of Village Council Presidents
Pekich, Lisa.....	Community Relations, ConocoPhillips	Suydam, Robert (Dr.).....	North Slope Borough, North Slope Science Initiative
Pete, Mary.....	Commissioner, U.S. Arctic Research Commission	Tom, Stanley.....	Elder, Newtok
Rosa, Cheryl (Dr.).....	Deputy Director, United States Arctic Research Commission	Toohey, Cam.....	Governmental Affairs Manager, Shell Exploration and Production Co., Alaska
Schnabel, Billy.....	Water and Environmental Research Center, University of Alaska, Fairbanks	Uchytel, Carl (Captain).....	U.S. Coast Guard, 17th District
Sfraga, Mike.....	Vice- Chancellor, University of Alaska, Fairbanks	Ulmer, Fran.....	Chair, U.S. Arctic Research Commission
Shake, Kristen.....	School of Fisheries and Ocean Sciences, University of Alaska, Fairbanks	Venes, Elias.....	Elder, Bethel
Shaw, Adam (Captain).....	U.S. Coast Guard, 17th District	Whalen, Carter (Captain).....	Alaska Marine Pilots
Sheehan, Glenn (Dr.).....	Executive Director/Senior Scientist, Barrow Arctic Science Consortium	Wheeler, Polly.....	Coordinator, NW Interior Forest - Landscape Conservation, U.S. Fish and Wildlife
Smith, Melanie.....	Audubon Alaska	White, Dan.....	Associate Dean, Research University of Alaska, Fairbanks

## Appendix F

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### Hearing Schedule

**The task force held meetings around the state as follows:**

- Anchorage, October 1, 2010
- Barrow, December 2–3, 2010, in conjunction with PNWER's Arctic Caucus
- Juneau, March 14, 2011
- Kotzebue, July 6–7, 2011
- Nome and Wales, July 8–9, 2011
- Unalaska, August 24, 2011
- Bethel, October 10, 2011

- Anchorage, October 11, 2011
- Anchorage, October 19, 2011, in conjunction with Alaska Federation of Natives
- Anchorage, December 15–16, 2011

Many members of the task force also participated in the Arctic Imperative Summit in Girdwood, June 19–21; PNWER's Arctic Caucus Meeting, August 17–19 in Yellowknife, Northwest Territories, Canada; and the Norway Policy Tour, August 27–September 4, Norway.

