



IUCN/NRDC/UAF

**Workshop on Expanded Shipping and Other Marine Activities and the Ecology of
the Bering Strait Region**

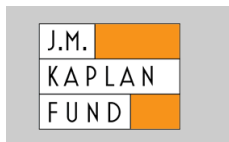
Workshop II Report

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Workshop Report

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Photo credit: U.S. Coast Guard. The Coast Guard Cutter Healy, right, approaches the Russian-flagged tanker Renda while breaking ice around the vessel in the Bering Sea January 10, 2012.

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1. Introduction

Warming ocean temperature and the dramatic loss of ice cover is opening Arctic waters to new and expanded shipping, fishing, research, offshore oil development, tourism, and other economic activities. Trans-Arctic and “destinational” shipping voyages will likely grow substantially in number as summer sea ice continues to retreat. All trans-Arctic and much destinational shipping will necessarily transit the Bering Strait, a 53 mile wide passage which provides the only connection between the Pacific and Arctic Oceans. The region is defined legally as an international strait, bordered by the United States and Russia, and ringed by numerous small communities and indigenous populations. The region is also physically and biologically dynamic as sea ice conditions of all types are found seasonally within this natural bottleneck.

The growth in Arctic marine operations is due in large part to natural resource development within the region and greater economic ties of the Arctic to the global economy. Bering Strait transits increased from 245 in 2008 to 325 in 2012. Ships include tankers, cargo ships, container ships, tugs, offshore supply vessels, landing craft, fishing vessels, passenger vessels, offshore drill ships, oil spill response vessels, and cruise ships of various size. While vessel activity is light compared to other regions of the world, the capacity to provide aid and support for these vessels is extremely limited. For example, only 7-8 % of the Arctic Ocean has been charted to international navigation standards. There are limited aids to navigation and Automatic Identification System (AIS) coverage. Arctic waters lack deep water ports or refuge for large ships, and real-time weather and ice flow forecasts are limited. For the U.S. Arctic, the nearest Coast Guard facilities are Kodiak and Dutch Harbors, 800nm and 1000nm, respectively, from the Arctic Circle. While sea ice loss is accelerating during summer months due to warmer global temperatures, the regional weather includes dense fog, extreme cold, severe storms, and unpredictable ice flows. This is evidenced by the challenge faced with respect to the January 2012 delivery of fuel to Nome, AK¹. More recently, the tug Aiviq lost the Arctic-class drilling unit, the Kulluk, in December 2012, which later ran aground by violent weather on the southeast shoreline of Sitkalidak Island carrying approximately 143,000 gallons of diesel and 12,000 gallons of other oil products. In addition, challenges have been met in the Northwest Passage when the tanker MV *Nanny* ran aground in Simpson Strait September 2010 carrying 9.5 million liters of diesel. That same year the cruise ship *Clipper Adventurer* struck an uncharted rock in the waters of western Nunavut. While these examples did not lead to environmental damage they demonstrate that the Arctic still remains a challenging environment for any shipping operations.

Given these challenges, the International Union for Conservation of Nature (IUCN), the Natural Resources Defense Council (NRDC), and the University of Alaska Fairbanks (UAF) have undertaken a cooperative project to identify measures that could be adopted to protect important areas of the Bering Strait region, including ecologically and biologically sensitive areas (EBSAs) (Figure 1) and to explore ways in which such measures might be implemented.

¹ Severe weather in the Fall of 2011 prevented a fuel delivery into Nome, AK prior to the onset of winter. In January 2012, the CG Cutter Healy guided the Russia tanker Renda through approximately 300 miles of ice covered Bering Sea to deliver 1.3 million gallons of fuel.

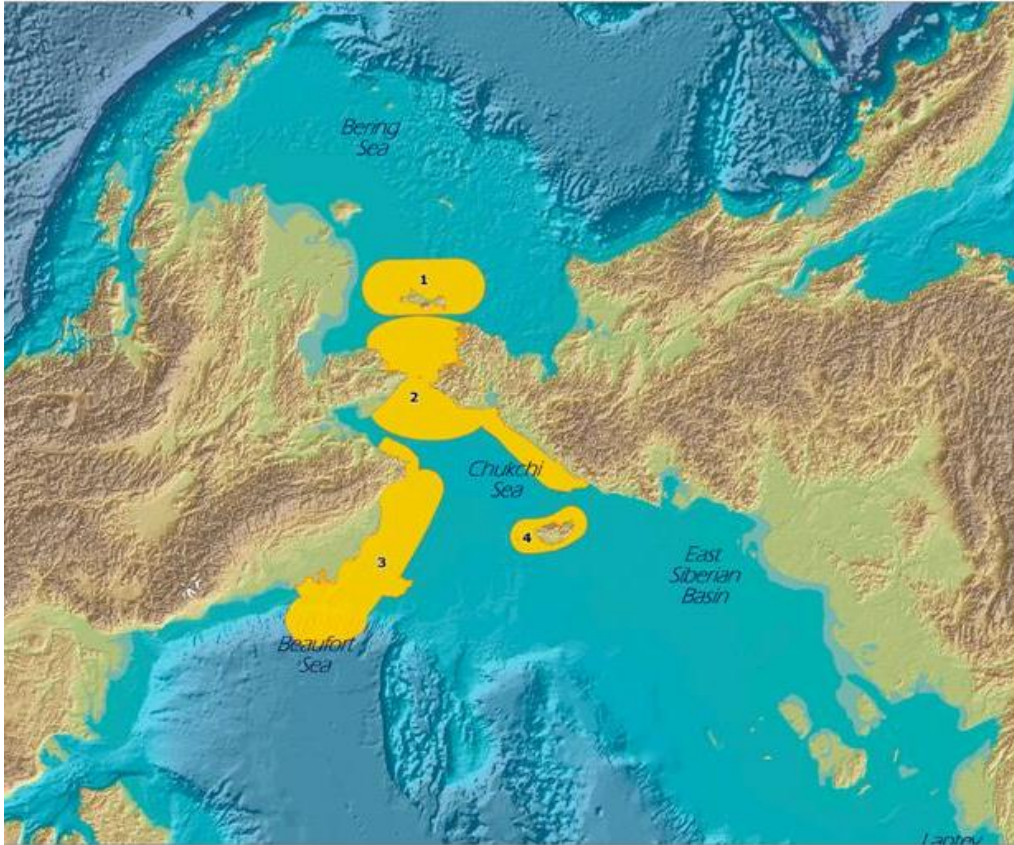


Figure 1. A depiction of “Super EBSA” in this region 1) St. Lawrence Island, 2) Bering Strait, 3) Chuckchi Beaufort Coast, 4) Wrangel Island (IUCN-NRDC Workshop, 2010).

The project involves two workshops. The first workshop, held 26-28 June 2012 in Nome, Alaska, with 35 local, governmental, scientific, indigenous and environmental experts focused on identifying a range of potential measures to manage and protect important areas. These measures, presented in a report², were grouped in four broad categories, 1) Communications/Outreach, 2) Tools for Area Protection, 3) U.S./Russia bilateral opportunities, and 4) The polar code for ships being developed by the International Maritime Organization (IMO).

Building off the first meeting, the second workshop, hosted in Washington, DC on 31 October - 02 November focused on possible means of implementing the measures identified. The meeting agenda and list of attendees are attached as annexes to this report. Views expressed at the workshop were not for attribution. This report reflects a meeting summary prepared by IUCN/NRDC/UAF. Although workshop attendees had the opportunity to review and comment on a draft report, the final report does not necessarily reflect the views of individuals who attended the workshop.

² Nome workshop report 2012:

http://www.iucn.org/about/work/programmes/marine/marine_resources/?11649/nomereport “Workshop to Identify Several Viable Options for the Protection of Ecologically and Biologically Significant areas (EBSAa) for the Possible Negative Effects of Shipping and other Marine Activities in the Bering strait Region”

2. Background

2.1 Ecological Characteristics of the Bering Strait Super EBSAs

A workshop³ held in November 2010, organized by IUCN and NRDC, identified four “super-EBSAs” (Ecologically or Biologically Significant Areas)⁴ in the Bering Strait region (Figure 1) using criteria developed under the auspices of the Convention on Biological Diversity (CBD). The workshop identified the Bering Strait region as perhaps the single most productive and diverse marine area in the Arctic. The region provides critical habitat for walrus, seals, fish, several types of whales, and immense numbers of birds. It has an ancient human history and enduring cultural heritage significance for all, especially the indigenous peoples who live there.

The geographical focus of this project is on three of the super EBSAs of the Bering Strait region: St. Lawrence Island; The Bering Strait and Wrangel Island.

1. *St. Lawrence Island*: The polynyas south of St. Lawrence Island likely support nearly the total world population of spectacle eiders for six months of each year. The polynyas also provide key habitat for alcids, kittiwakes, shearwaters, overwintering Pacific walrus, bowhead whales, ice seals and polar bears, and are an important subsistence hunting area. This area is partially protected by the Saint Lawrence Island Habitat Conservation Area.
2. *Bering Strait*: This area met all CBD criteria, as it exhibits the highest levels of productivity and diversity in the Arctic. This narrow strait is the only connection between the Pacific and Arctic Oceans, making it a biological hotspot of global significance. The Bering Strait/Anadyr Current region provides key breeding, pupping, feeding, and/or migratory habitat for many species of marine mammals, including bearded, ringed and spotted seals; Pacific walrus; gray, bowhead, and beluga whales, all of which pass through the Strait twice per year when migrating between the Bering and Chukchi Seas. Arctic cod and other species of forage fishes are abundant and important to many marine predators, and the region supports populations of whitefishes and char which are seasonally important for native community subsistence. The region also supports vast seabird populations for breeding, migration, and/or foraging during most of the year. Other notable species include the least and crested auklets; tufted and horned puffins, black-legged kittiwakes; short-tailed shearwaters, spectacled and king eiders, thick-billed and common murrelets; ivory and ross’s gulls; black guillemot, and at least 30 additional, abundant species of seabirds, sea ducks, geese, loons and phalaropes; and the only nesting sites of Little auks, which are endemic to the Northwest Atlantic, in the Western Arctic.
3. *Wrangel Island*: The polynyas, leads and coastal waters around Wrangel Island provide important spring and summer feeding habitat for polar bears, migratory and feeding habitat for

³ Workshop report can be downloaded at <http://data.iucn.org/dbtw-wpd/edocs/Rep-2011-001.pdf>.

⁴ The workshop defined “super-EBSA” as an area meeting at least six of the seven CBD EBSA criteria.

Pacific walrus, and breeding and feeding habitat for extensive seabird colonies including thick-billed and common murre, black-legged kittiwakes, horned puffins and black guillemots.

Wrangel Island is one of the three most important biological areas of Russian Beringia. It was established as a Regional Wildlife Reserve in 1960 and as a Republic Wildlife Reserve in 1968. In 1976, the island was designated as a State Strict Nature Reserve (Zapovednik).

Twelve nautical miles of the marine area around the island were included in the Wrangel Island State Nature Reserve in 1997, adding 1.4 million hectares to the Reserve. This was supplemented in 1999 with the addition of a 24 nautical mile buffer zone. In 2004, the area (without the buffer zone) was designated as a World Heritage Site. In 2009, the buffer zone was abolished by the regional government, but was recently re-established in December 2012 (see Box 1).

2.2 Subsistence Use of the Bering Strait Region

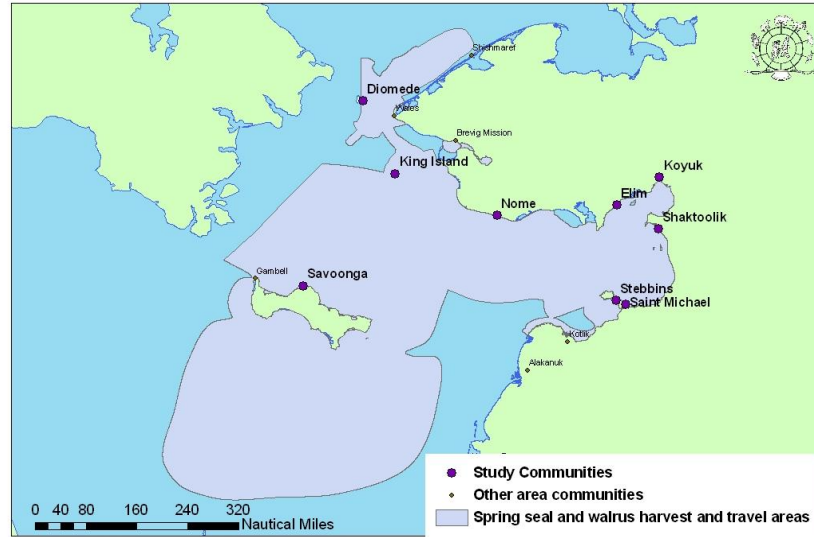
The regional indigenous culture and its subsistence hunting and fishing traditions continue to be vibrant today. The ocean waters in the Bering Strait region are some of the most biologically productive waters in the world. Fish, seals, walrus and whales are key components of indigenous diets, as they have been for over 1000 years. The presence of these animals is dependent on the rich primary productivity associated with sea ice and the confluence of major oceanographic currents through the Bering Strait. In spring, hunters may have to go long distances (up to 50-80 nautical miles from shore) in small boats to find prey. Certain key areas, such as marine mammal haul out areas, ice edges, nutrient upwellings and coastal wetlands and surrounding waters support healthy populations of fish, birds and marine mammals. The spring subsistence harvest is key to the survival of indigenous communities in the area. During this period, both hunters and passing ships are likely to use the same open water areas. An increase in shipping activity has the potential to negatively impact the natural environment. The noise and speed of boats can drive off animals and compromise the safety of hunters in small boats. In addition, marine pollution has negative effects on human, animal and ecosystem health.

Critical to developing mitigation measures for Arctic marine traffic is having a spatial and temporal understanding of the patterns of indigenous marine use. The Bering Sea Sub Network (BSSN), a U.S. National Science Foundation-funded project gathering local observations on the environment and subsistence harvest in coastal Russian and U.S. communities around the Bering Sea, utilizes the density mapping method to develop spatial data of subsistence areas. These maps show aggregated data by species and season. They can be correlated with other types of data, such as ice extent (see Nome workshop report, 2012).

In addition to the BSSN, Kawerak Inc. is conducting a major study to prepare maps showing seasonally defined habitat and subsistence use areas for seals and walrus on the U.S. side of the Bering Strait. The study involves collaboration with nine federally recognized tribes. Examples of these seasonal maps (Figure 2) are given here and, when finalized, may help inform decisions on appropriate protective measures.

Spring seal and walrus harvest and travel areas for selected Bering Strait and Norton Sound region communities

Kawerak 2012. Draft map for IUCN Bering Strait Report. Not approved for any other use.



Fall seal harvest and travel areas for selected Bering Strait and Norton Sound region communities

Kawerak 2012. Draft map for IUCN Bering Strait Report. Not approved for any other use.

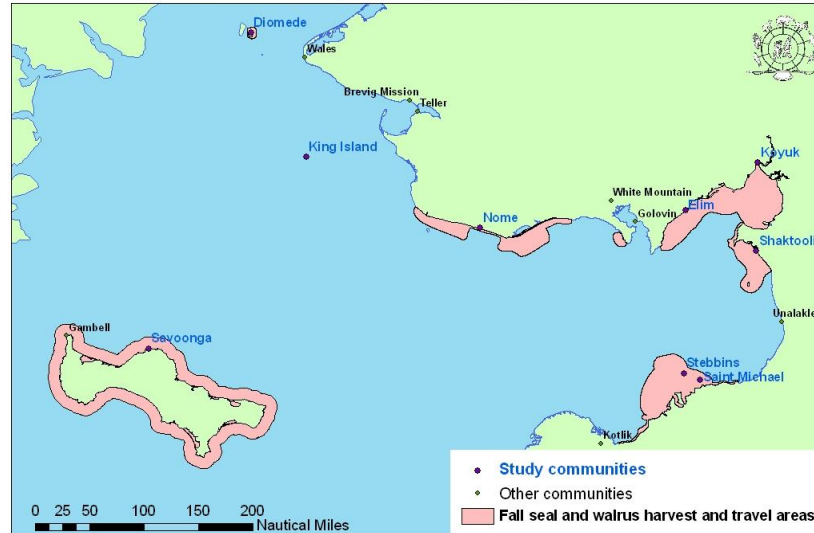


Figure 2. Seasonal seal and walrus harvest for 9 of 20 tribes on U.S. side of Bering Strait region. Fall seal hunting generally occurs near shore, where seals feed in large numbers (Kawerak, 2012).

2.3 Shipping in the Bering Strait Region

Arctic marine shipping has been the focus of considerable attention and study in recent years. The most comprehensive study to date is the Arctic Marine Shipping Assessment of 2009, prepared under the auspices of the Arctic Council and its Protection of Arctic Marine Environment (PAME) working group. The report makes seventeen recommendations, three of which are of particular importance: 1) Recommendation II A, calling for a survey of Arctic indigenous marine use; 2) Recommendation II C,

calling for identification of areas of heightened ecological and cultural significance and 3) Recommendation II D, asking Arctic States to explore the need for internationally designated areas for the purpose of environmental protection of the Arctic Ocean.

During 2012, a recent record 49 commercial ships transited the Northern Sea Route (NSR) (Figure 3) between northern Europe/western Siberia and Asia, a 10-fold increase from two years ago. Over 1 million tons of cargo, primarily petroleum products, iron ore, and coal were transported through the route, a 50 percent increase from 2011. The Arctic Institute Center for Circumpolar Security Studies (CCSS) also reported that shipping volume soared more than 75% above 2011 tonnage—to about 1.5 million tons. In addition, last year marked the first time that a liquefied natural gas (LNG) carrier, Ob River owned by Gazprom Group, successfully completed the NSR opening up the future for Russian LNG to supply Asian and European markets.

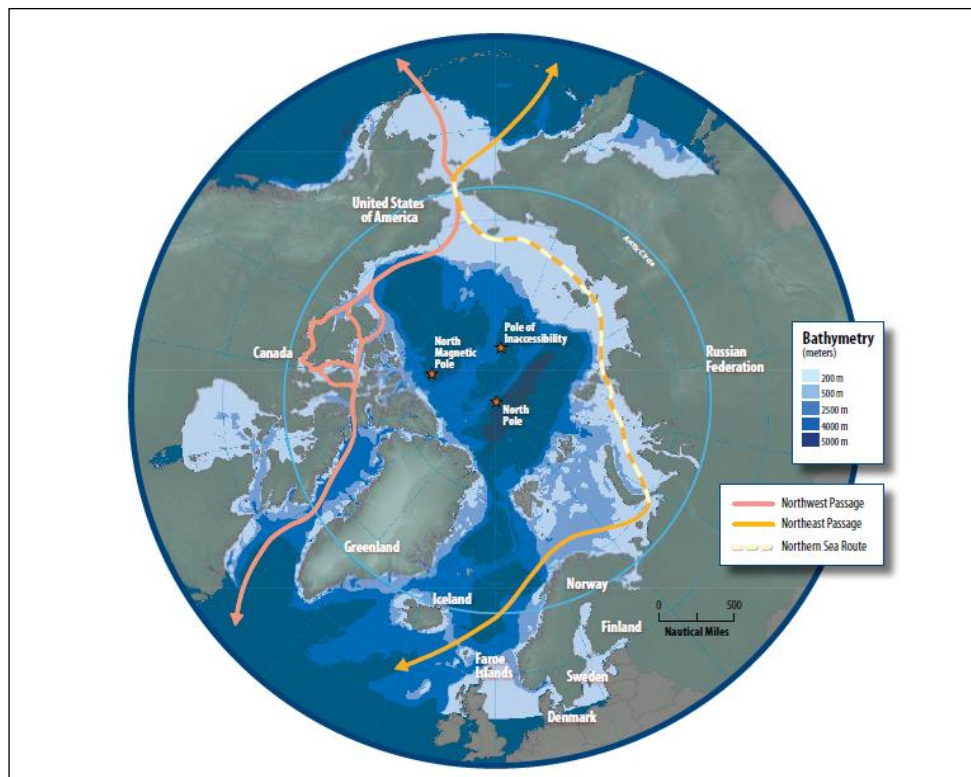


Figure 3. Trans-Arctic shipping routes (AMSA, 2009).

Over the course of this study the Russian State Duma adopted a Law on the NSR in July 2012 and entered into force January 2013. The Russian Federation also established a Northern Sea Route Administration under the Ministry of Transport. Ships transiting the Arctic Ocean through either the NSR or Northwest Passage and all traffic supporting industrial activity in the Beaufort and Chukchi Seas will pass through the Bering Strait region. A recent map (Figure 4) prepared by the Marine Exchange of Alaska shows traffic on the U.S. side of the region for 2012.

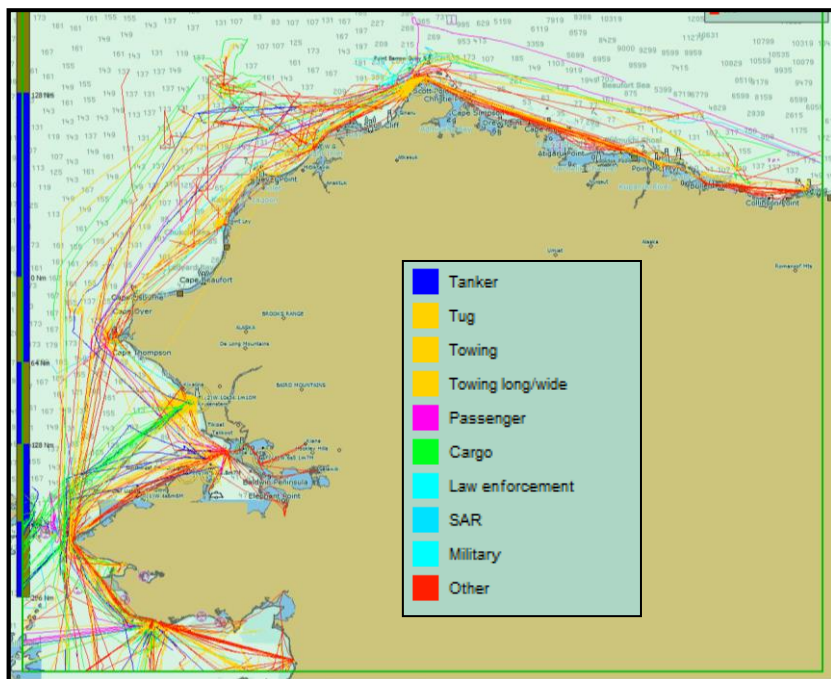


Figure 4: Arctic marine activity tracked by Automatic Identification System (AIS) in 2012 (Source: Marine Exchange of Alaska)

The impacts of increased shipping activity on marine ecosystems and the people who depend on them for subsistence as well as cultural and spiritual well-being has been a cause of concern. Increased ship traffic carries with it associated risks of collisions, noise and disturbance impacts, oil spills, exotic and invasive species introductions, polluting discharges and other effects (see Nome workshop report, 2012, for further discussion).

3. Workshop Outcomes

As marine mammals migrate, subsistence hunters travel, and patterns of sea ice change, identification of vulnerable areas is essential. Workshop attendees focused the discussion on how to best acquire and disseminate information on the location of ships, hunters, hazards, and mammals. Because of the multiple users of the marine environment, timely and effective communication is paramount between governments, vessels, and hunters. The participants identified three areas to advance improved management in this region:

1. Voluntary Measures for Shippers;
2. Communications Infrastructure; and
3. International cooperation.

There was common agreement that each of these areas requires increased cooperation among the Arctic states, in particular between U.S., Russia and Canada at the federal level. At the regional level, it

was noted that representatives from the State of Alaska and the Chukotka Autonomous District have cooperated in the past and that dialogue should continue between governments on marine activities in this region. Representatives from the Global Environment Facility (GEF) at the meeting also expressed that the GEF-Russian Federation Partnership on Sustainable Environmental Management in the Arctic (or “Arctic Agenda 2020”) initiative, which aims to improve environmental governance in the region, is an opportunity for cooperation.

It was noted that while some stakeholders responsible for marine use and traffic in this region already engage with regional indigenous populations, a more comprehensive and coordinated effort to work with these communities would be beneficial. One such avenue could be through the newly formed Arctic Marine Mammal Coalition⁵ which represents hunters from five Alaska Native Organizations and regional political bodies. Participants also discussed that an increase in information exchange among the indigenous communities in Alaska and Chukotka may also stimulate a shared understanding of the impacts of shipping in this region. A workshop held in Moscow or the Chukotka region could also provide an opportunity to address the mutual concerns for safe shipping and stewardship in this region.

3.1 Voluntary Measures for Shippers

Following discussion from the first workshop, participants discussed the development of voluntary measures for shippers transiting in this region. Even as the International Maritime Organization (IMO) proceeds with the development of the mandatory Polar Shipping Code, the identification of voluntary measures for shippers in specific areas such as the Bering Strait and Bering Sea could be explored to better protect the marine environment, ensure the resilience of the marine ecosystems for subsistence hunters and communities, and to promote safe shipping in this region. Such measures may be used by government agencies within the two Bering Strait States, and may also form the basis of future cooperative agreements and standards in the region. While not legally enforceable, experience has shown a high level of compliance with voluntary measures within the shipping community. A relevant example is found in Santa Barbara Channel, California, and nearby waters where speed restrictions are broadcast to vessels transiting the area. Thus, the development of voluntary measures is a promising way forward.

Participants discussed different types of measures that could be developed and concluded that measures vary depending on the risk and the season. For example, mainland hunters commonly follow the coastline before heading out to sea, therefore, concentrating small boat traffic closer to shore. In addition, important seasonal migratory corridors, such as the west coast of St. Lawrence Island might be considered. Measures could include:

- Buffer zones (Box 1);
- Areas to be avoided (ATBAs);

⁵ AMMC is comprised of the Alaska Eskimo Whaling Commission (AEWC), Alaska Beluga Whale Committee (ABWC), the Eskimo Walrus Commission (EWC), the Ice Seal Committee (ISC), and the Alaska Nanuuq Commission (ANC).

- Ship routing;
- Ship speed;
- Ship reporting with respect to location of hazards such as sea ice.

The Arctic community has significant information about Arctic ship traffic, indigenous marine use, animal migratory patterns and the location of ecological-biological significant areas. With advanced spatial and temporal information on indigenous marine use and migratory patterns, a process to integrate this information could begin examining the interactions of these components in the Arctic marine environment.

BOX 1. Wrangel Island and Herald Island Buffer Zones Re-established

In December 2012 a 24 nautical mile buffer zone around Wrangel Island and Herald Island was re-established by Russian Prime Minister Dmitry Medvedev. These islands lie just north of the Northern Sea Route (NSR). The buffer zone has been expanded from the original buffer zone delineated in 1999 to include the southern part of Wrangel Island between the mouth of the Predator River and Cape Hawaii. The buffer zone will aid in the protection of this sensitive area from marine activities, as it will allow better control of ships transiting this portion of the NSR. The 12-mile zone around the islands falls within Russia's territorial waters, while the entire area between the islands and the Russian mainland, between which the narrowest distance is 87 miles, form part of the country's exclusive economic zone. The Ministry of Transport of the Russian Federation will help manage the buffer zone and will post "Notice to Mariners" in regards to navigation in these protected waters.

In addition to federal agencies in the U.S., Russia, and Canada, as well as the indigenous populations, workshop participants identified other stakeholders that might have an interest in the development of voluntary measures for shippers. These include the shipping industry, trade associations, experts engaged at the IMO and the Arctic Council, Marine Mammal Commission, and intergovernmental bodies such as the International Whaling Commission (IWC). An American, Russian, and Canadian cooperative venture in the development of voluntary measures for regional shippers, may have a significant impact, even if the measures are voluntary in nature. Developing voluntary measures may have other benefits such as increasing our knowledge of gaps in socio-environmental data, and improving our shared understanding of the risks for operating in this region.

A first step could be:

- Explore coordination between relevant U.S., Russian, Canadian federal agencies on the process for developing voluntary measures, and identify knowledge gaps.
- Host a multi stakeholder workshop to facilitate cooperation and information exchange to develop a set of possible voluntary measures for shipping in the Bering Strait region.

Collectively, the various experts might also consider:

- Identifying how voluntary measures will be communicated to shippers and other stakeholder groups.
- How the region might effectively monitor compliance.
- How measures might evolve as the environment changes and ship traffic increases.

Each of these requires advances in communications infrastructure throughout this region.

3.2 Communications Infrastructure

As vessel traffic increases the Bering Strait will need supporting infrastructure such as aids to navigation, port facilities to harbor emergency tow service vessels, increased AIS coverage, and communication protocols. New infrastructure will require expenditures by the U.S. and Russia. In addition, the U.S. Interagency Committee on the Maritime Transportation System (CMTS) recommendations for improving an Arctic maritime transportation system (MTS) include expanded sea ice/weather forecasts, and improved charts of navigatable U.S. Arctic waters.

Governments and private industry could explore partnering on such investments and working with the State of Alaska and indigenous populations to accomplish improvements in communications infrastructure. A number of different communication tools were discussed at the workshop.

a. Regional Communication Centers (RCC)

Small boats can be anywhere, particularly during springtime when hunters travel large distances looking for walrus in this region. In addition, ice can be anywhere as evidenced in 2012 when sea ice was slow to break up in areas just north of the strait in the Beaufort and Chukchi Seas. Increasing communications equipment in indigenous hunting villages and exploring protocols with shipping industry and governments would aid in the dissemination of information on the location of ships, location of hunters, location of hazards, and location of marine mammals.

Box 2. Seasonal Communication Centers

In summer 2012, Royal Dutch Shell established eight seasonal communications centers in coastal villages in the Beaufort Sea, Chukchi Sea, and Bering Straits regions to exchange information to adjust operations in real-time to reduce risk. Local subsistence advisors (SA) were employed to provide consultation and guidance regarding animal migration and hunting activities twice daily. The SAs coordinated with subsistence users to communicate the location and timing of Shell activities and advised Shell on avoiding subsistence user conflicts. Shell vessels were required to call a communication center every six hours.

As discussed in the Nome workshop report (2012), the key to creating a multi-functional communications network to enhance marine safety, emergency response, and environmental monitoring is to expand the reach of the Automatic Identification System (AIS). The IMO requires larger commercial vessels to be equipped with AIS transponders that transmit information on the vessel (i.e. speed, course, type, position, and destination). The application of communication and vessel tracking

equipment can provide information to vessels and shore based communications stations on both sides of the Bering Strait (U.S. and Russia) to aid the prevention of maritime accidents, pollution incidents, and collision between ships and marine mammals and subsistence hunters. For example, a ship transiting this region could call a RCC to exchange information on location of hunters, marine mammals, or ice. The capabilities needed for shore based stations might include:

- AIS position reports from vessels;
- Satellite transponder position reports from subsistence hunting vessels;
- Ability to communicate to AIS equipped vessels, over the AIS network, the location and nature of hazards such as ice, locations of marine mammals, locations of subsistence hunters as well as non-compliance with risk reduction measures; and
- Ability to communicate with subsistence hunters, possibly over VHF Digital Select Calling, the locations of vessels transiting the area that may present a risk of collision.

Workshop participants also identified a variety of activities that could help advance a more integrated system of communications in this region to build off investments to date. These include:

- A multilateral workshop to explore possible communications protocols, and communication timelines for reporting vessels, hazards, mammals, or conflict situations;
- A pilot program that provides equipment and training for regional subsistence hunters operating on small boats in the Bering Strait's Region to monitor the location of their subsistence hunting parties and commercial vessels in the region and communicate the presence of commercial vessels that present a risk of collision; and
- Explore the use of online tools to aid decisions and response management (Box 3).

Box 3. Online Information Tools

Two examples of online tools that were launched in summer 2012 that incorporate data from multiple sources are the BarentsWatch (Norway) and ArcticERMA (U.S.). Ideally any electronic form of information should be designed to be updated in near real-time.

- BarentsWatch collects information from a number of important subject areas in a single location including climate and the environment, maritime transport, marine resources, maritime law, oil and gas, fisheries and fish farming. The portal will contribute to a streamlined flow of operational information to make sure that critical information will reach response units if incidents were to occur.
- Arctic Environmental Response Management Application (ERMA) is an online tool to aid response to an oil spill. According to NOAA Arctic ERMA pulls into one platform data such as the location, extent, and concentration of sea ice; locations of ports and pipelines; and vulnerable environmental resources. This tool also includes cultural and subsistence resources based on traditional and local knowledge. This tool, however, does not include shipping data.

b. Coast Pilot for the Bering Strait Region

One of the greatest challenges is how to disseminate more detailed environmental, geographic and marine use information into the pilot houses of the international and U.S. ships that are navigating in this sensitive and complex region. Timely information would enhance marine safety, improve marine environmental protection and mitigate the interactions between ships and indigenous users and marine life. The U.S. Coast Pilot provides a variety of information important to navigators that may not be included on nautical charts. However, the chapters that address the Bering Strait region currently lack information on the presence of subsistence hunters or marine mammals.

Select information for a Coast Pilot in the Bering Strait region could include:

- Seasonal routes and areas of concentration of marine mammals and seabirds;
- Regional sea ice conditions and other unique oceanographic and meteorological conditions;
- Regional indigenous/traditional marine use on a seasonal basis (with highlighted regions of significant hunting and fishing activities by coastal communities);
- Seasonal ship traffic in the BSR;
- Locations of coastal communities and the areas of their hunting and fishing;
- Voluntary measures or marine routes when developed;
- Future areas designated as special areas;
- Locations of communication centers in the BSR once established;
- Coastal community contact list, if established.

Ideally the development of such a Coast Pilot would be a shared maritime effort between the Russian Federation and the U.S. The *Sailing Directions* produced by the U.S. National Geospatial-Intelligence Agency (Pub. 155, 11th Edition, 2011) also produces information on coastal and port approach, and locations of native communities, but lacks information on seasonal subsistence use and presence of marine mammals. Information generated from the Arctic Regional Hydrographic Commission (ARHC) could be of use in this effort (Box 4). Resources that may also be used for this development are the *Marine Environmental Handbook – Arctic Northwest Passage* and the *Northern Canada Sailing Directions* both of which are compiled by the Canadian Hydrographic Service. These documents provide information on physical characteristics (i.e. geographic, oceanographic, and atmospheric) of the region, ice characteristics, special areas (i.e. wildlife sanctuaries, national parks, etc), land use, traditional hunting and the annual harvest cycle, and the environmental impacts of ship operations (including various mitigation measures). Both are models for what could be developed for the Bering Strait region.

Box 4. Arctic Mariners Routing Guide / Arctic Voyage Planning Guide

The Arctic Regional Hydrographic Commission (ARHC), an initiative of the five Arctic coastal states (Canada, Denmark, Norway, the Russian Federation and the United States) and organized under the International Hydrographic Organization (IHO) was created in 2010 with the goal of increasing collaborative efforts in hydrography for the Arctic Ocean region. The Arctic Mariners Routing Guide (AMRG), a concept proposed by Denmark (and based on similar products in use in the Baltic) during the inaugural meeting of the ARHC, sought to identify information (captured in paper map and electronic formats) relevant to mariners operating in the Arctic region. In April 2012, Canada was tasked to prepare a national AMRG for consideration by the ARHC for adoption as a possible template. The renamed Arctic Voyage Planning Guide (AVPG) was designed to address previous concerns of governance, legality, dynamic information updates, and how to best package this information to ensure added-value to mariners. The ARHC is expected to consider whether the AVPG is a suitable prototype for other ARHC member states.

3.3 International Cooperation

a. Bilateral efforts

An environmental risk assessment in this area can be used as an analytical tool to aid decisions. There is currently no systematic collection of data about shipping traffic in this region and no official sharing of shipping data between Arctic states, although this was a recommendation of AMSA (see Box 5). If a collision or accident were to occur in the Bering Strait region, the impacts could be catastrophic. An assessment of environmental impact(s) in this region, including ice covered waters, would require better data about ship traffic, the cargo the ships are carrying, and socio-environmental information that may have an effect on the probability of accidents and the consequences if accidents should occur (i.e. seasonal subsistence maps).

There was broad agreement among participants that a preliminary environmental risk assessment in this region, led by governments, would be a step forward to better guide the uses of the marine and coastal environment, protect human safety and culture, and the ecological and biological diversity of this region. Such an assessment would aid decisions on location of search and rescue services, sea lanes, and emergency preparedness against oil spills, among other things. A preliminary risk assessment may also inform near-term development of voluntary measures and improve monitoring.

Box 5. Bilateral Cooperation on Arctic marine operations

Norway and Russia are cooperating on a Barents ship reporting system (SRS) that will come into force June 2013. The SRS, which was recently approved by the IMO, will contribute to early warning of traffic that requires attention, and provide vessels the necessary information to safely navigate in the area.

An effective assessment will require bilateral cooperation with multi stakeholder input. In addition, indigenous knowledge and use of the region should be taken into account during such a process. The

Bering Strait Port Access Route Study (PARS) being led by the U.S. Coast Guard provides a foundation of information essential to such an assessment. The goal of the PARS is to help reduce the risk of marine casualties and increase the efficiency of vessel traffic in the strait. In doing so, and in order for recommendations to be considered by the IMO, the study is required to evaluate navigational hazards, traffic patterns, environmental conditions, aids to navigation, and hydrography of the study region. In discussion of the PARS process, some attendees noted:

- Continued engagement with indigenous communities in the region is essential to ensure the future of subsistence hunting;
- Expanding the PARS to bilateral cooperation is a good step forward for IMO consideration; and
- Exploring opportunities for increased cooperation through the Shared Beringian Heritage program connecting parks in Alaska and in Chukotka, Russia.

A discussion on finalizing a Memorandum of Understanding (MOU) between the U.S. and Russia on a linkage between the national parks in Beringia continues. The U.S. State Department officials are working with National Park Service to consult with interested domestic stakeholders such as the State of Alaska, Alaska Native organizations, and NGOs. The American embassy in Moscow is similarly engaging communities in Chukotka to gauge their interest and support. A version of the MOU is expected to be provided to stakeholders soon. However, any MOU on Beringia will not include the marine waters of the Bering Strait region.

It was noted that a preliminary risk assessment is not necessarily a preamble to an IMO-designated particularly sensitive sea area (PSSA) but may help inform future efforts in this area. A PSSA designation can augment domestic protective measures and appears on international navigation charts. A PSSA is a long-term tool for States to regulate foreign vessels transiting in a region and includes specific associated protective measures (Table 1). The Bering Strait is an international strait and bordering States must guarantee that "all ships and aircraft enjoy the right of transit passage, which shall not be impeded"⁶. A specific risk assessment and further approval of associated protective measures by the IMO is required prior to the establishment of a PSSA (see Nome workshop report, 2012, for further discussion). Participants discussed the potential lessons to be learned from the PSSA process in other parts of the world including:

- Torres Strait - a bilateral process that considers indigenous use in the area. Two associated protective measures include a new two-way shipping route and an extension of the pilotage system that had been applied in the Great Barrier Reef since 1990, and
- Baltic Sea - a multilateral process in a seasonally, ice covered region.

⁶ UNCLOS, article 38.

Table 1. IMO PSSA as of 2012

Area	Associated Protective Measure	Year
Great Barrier Reef, Australia	* pilotage system * mandatory ship reporting system	1990
Torres Strait, Australia, Papua New Guinea	* two way route * mandatory pilotage system	2005
Sabana-Camagüey Archipelago, Cuba	* traffic separation schemes * area to be avoided * discharge prohibitions	1997
Malpelo Island, Colombia	* area to be avoided	2002
Florida Keys, United States	* four areas to be avoided * three mandatory no anchoring areas	2002
Wadden Sea, Denmark, Germany, Netherlands	* mandatory reporting and traffic surveillance * traffic separation schemes * deep water route * recommended and mandatory pilotage * MARPOL Special Area	2002
Paracas National Reserve, Peru	* area to be avoided (ships \geq 200 gt carrying hydrocarbons and hazardous liquids in bulk)	2003
Western European Waters (Belgium, France, Ireland, Portugal, Spain, United Kingdom, Canary Islands, Spain)	* reporting obligations for single hull tankers carrying heavy grades of fuel oil	2004
Canary Islands, Spain	* five areas to be avoided * two recommended routes * mandatory ship reporting system	2005
Baltic Sea Area (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden)	* traffic separation schemes (new and amendments to existing) * deepwater route * areas to be avoided * reporting and pilotage systems * MARPOL Special Areas (I, V, VI-Sox)	2005
Galapagos Archipelago, Ecuador	* area to be avoided	2005
Papahānaumokuākea Marine National Monument, United States	* six areas to be avoided * mandatory & recommendatory ship reporting system	2007
Strait of Bonifacio, France and Italy	* recommended pilotage ⁷	2011
Saba Bank, in the North-eastern Caribbean area of the Kingdom of the Netherlands	* mandatory no anchoring area * area to be avoided (ships \geq 300 gt)	2012

⁷ An IMO resolution does not provide an international legal basis for mandatory pilotage for ships in transit in any strait used for international navigation including the Strait of Bonifacio and the Bering Strait

It was stressed that the numerous reports that have been generated for this region provide a foundation of information to easily proceed with a preliminary risk assessment.

b. Multilateral efforts

IMO Polar Shipping Code

Several of the Arctic states have taken the lead at the International Maritime Organization to develop a mandatory Polar Code of Navigation; such a code at its core will include Arctic ship structural standards, required Arctic marine safety equipment, and mandatory training/experience required for the ice navigator in the pilot house. The process involves the global maritime community including key sectors of the maritime industry operating in the Arctic marine environment (for example, bulk carriers, tankers and passenger vessels). Workshop participants were encouraged to learn that measures include the development of polar operating manuals for individual vessels to operate in polar waters. The target completion date for a Polar Code is summer 2014, and work on environmental protection measures of the Polar Code began in earnest in March 2013. There was broad agreement that Arctic states collectively could engage with non-Arctic states to ensure the development of an effective, mandatory polar shipping code. The Polar Code would apply to the region of the Bering Strait.

International Convention for the Prevention of Pollution from Ships (MARPOL)

Under the MARPOL convention special areas are provided with a higher level of protection than other areas of the sea. There are no current MARPOL special areas in the Arctic designated for strict controls on discharges of oil, noxious liquid substances, sewage, garbage, or air pollution (see Table 2 for what marine regions have been designated). The recent emission control area (ECA) for the U.S. and Canada does not include the Arctic. It was noted that three special areas exist for the Antarctic. Participants discussed that with the increase in scientific data and knowledge for the Arctic and the monitoring systems in place, the Arctic states should explore designating IMO special areas in key regions of the Arctic marine environment. As the one of the most sensitive and complex Arctic marine areas, special area designation for the Bering Strait region should warrant early attention.

Table 2. IMO MARPOL Special Areas

Annex 1 -- Oil: Mediterranean Sea, Baltic Sea, Red Sea, 'Gulfs' Area, Gulf of Aden, Antarctic Area, North West European Waters, Oman Area of the Arabian Sea, and Southern South African Waters.
Annex II -- Noxious Liquid Substances: Antarctic Area.
Annex IV -- Sewage: Baltic Sea (1 Jan 2013 Entry into Force).
Annex V -- Garbage: Mediterranean Sea, Baltic Sea, Black Sea, Red Sea, 'Gulfs' Area, North Sea, Antarctic Area, and the Wider Caribbean Region (including the Gulf of Mexico and the Caribbean Sea).
Annex VI -- Prevention of Air Pollution by Ships (Emission Control Areas): Baltic Sea (SOx), North Sea (SOx), North American (SOx, NOx, and PM), and the United States Caribbean Sea Canada ECA (SOx, NOx, and PM-1 Jan 2013 Entry into Force).

Convention on Biological Diversity

Workshop participants discussed how Arctic shipping activities relate to the Convention on Biological Diversity. It was noted that Article 8(j) in the convention is relevant to the Bering Strait region as it considers *Traditional Knowledge, Innovations and Practices* stating “Subject to national legislation each contracting Party shall respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge innovations and practices.” It was noted that Russia and Canada are parties the CBD, the United States is not.

Annexes

Annex 1 – List of persons that attended all or part of the workshop

Agarkova	Elena	World Wildlife Fund - US
Arnaudo	Ray	Office of the Secretary (Policy Planning), U.S. State Department
Aubrey	David	Woods Hole Group
Bergmann	Trisha	International Affairs Specialist, Office of International Affairs, NOAA
Boda	LCDR Ken	Strategy Analyst, United States Coast Guard
Brigham	Lawson	Professor of Geography & Arctic Policy, UAF
Cohen	Harlan	Adviser, Ocean Governance and International Institutions, IUCN
Daniel	Raychelle	Senior Associate, PEW Environment Group
Duda	Al	Glocal Environment Facility secretariat
Farrell	John	Executive Director, U.S. Arctic Research Commission
Fraser	Drummond	Chief of Regulations, Compliance and Licensing, Transport Canada
Gibbons	LT Andrew	United States Coast Guard
Gofman	Victoria	Collaborative Research & Consulting
Gourley	Julie	Office of Ocean and Polar Affairs, U.S. State Department
Herr	Dorothee	Marine Research Associate, IUCN
Huffines	Eleanor	Manager, U.S. Arctic Program, Pew Environment Group
Knudson	Kip	Director of State/Federal Relations, Office of Governor Sean Parnell (Alaska)
Laughlin	Tom	Arctic Senior Advisor, IUCN
Lynch	Kristine	Government Affairs, Royal Dutch Shell
Magnuson	Gary	Senior Advisor Committee on the Marine Transportation System, NOAA
Mamaev	Vladimir	Regional Technical Advisor United Nations Development Programme
McClanahan	Elizabeth	Director, Office of International Affairs, NOAA
McConnell	Martha	Polar Programme Manager, IUCN
Metcalf	Vera	Director Eskimo Walrus Commission, Kawerak, Inc
Oppenheimer	Peter	Section Chief, International Section, Office of the General Counsel, NOAA
Page	Ed	Executive Director, Marine Exchange of Alaska
Raymond-Yakoubian	Julie	Social Science Program Director, KAWERAK, Inc.
Robards	Martin	Arctic Beringia Program Director, Wildlife Conservancy Society
Robbins	Mark	Associate Director, Office of Governor Sean Parnell (Alaska)

Robinson	LCDR Brian	U.S. Coast Guard liaison to the U.S. State Department OES/OPA
Rodionov	Sergey	Head of Division for Central Marine Research and Design Institute, St Petersburg
Rosa	Cheryl	Deputy Director, U.S. Arctic Research Commission
Speer	Lisa	Director, International Oceans Program, Natural Resources Defense Council
Stishov	Mikhail	Arctic Biodiversity Coordinator, WWF Russia
Wagner	Katie	Marine Research Associate, IUCN
Williams	Margaret	Managing Director, U.S. Arctic, World Wildlife Fund - US
Zdor	Eduard	Executive Secretary of Chukotka Association of Traditional Marine Mammal Hunters

Annex 2

Expanding Shipping and the Ecology of the Bering Strait Region Workshop II Agenda

Wednesday - October 31

Noon Lunch

- 1:00 Opening remarks and review of outcomes of Nome workshop
Tom Laughlin (IUCN)
Lawson Brigham (UAF)
Lisa Speer (NRDC)
- 1:15 Update on the Polar Code and PARS Process
Trisha Bergmann (NOAA)
LCDR Brian Robinson (USCG)
Discussion
- 1:45 Recent progress U.S. Coast Guard
LCDR Ken Boda (USCG)
- 2:00 Outcomes from the meeting “Navigating Alaskan Waters: Natives, Science, and Politics”
Martin Robards (WCS)
- 2:15 West Bering Sea Large Marine Ecosystem GEF project
Vladimir Mamaev (UNDP)
- 2:30 Advancing Communications / Outreach
Ed Page (MXAK)
- 2:45 Lessons Learned from Summer 2012 Communication Centers
Kris Lynch (Shell)
Discussion
- 3:30 Break**
- 3:45 Opportunities to implement 1) voluntary measures for shippers, 2) preliminary risk assessment, 3) improved communications/outreach, 4) Polar Code
Provocateur: Lawson Brigham (UAF)

Panel: Julie Gourley (U.S. Department of State) *tbc*
LCDR Ken Boda (USCG)
Vladimir Mamaev (UNDP)
Ed Page (MXAK)
Sergey Rodionov (Marine Research and Design Institute, Russia)

Discussion

5:30 Adjourn

Thursday - November 1

8:30 Light breakfast

9:00 Recap Day 1

Tom Laughlin (IUCN)

9:15 WWF Russia activity on Bering Sea shipping project

Mikhail Stishov (WWF Russia)

9:45 Breakout groups

Noon Lunch

1:00 Reconvene in plenary - Report from breakout groups

4:45 Summary Day 2

5:00 Adjourn to Reception

Friday - November 2

8:30 Light breakfast

9:00 Plenary discussion

Noon Workshop Adjourns

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