

Bering Strait Voices on Arctic Shipping

Workshop Report

*September 16-17, 2014
Nome, Alaska*



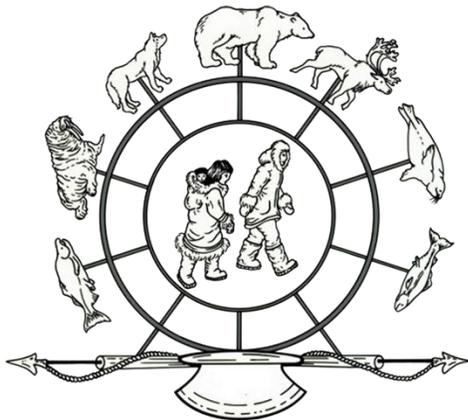
*2014 Workshop Participants
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Marine Program
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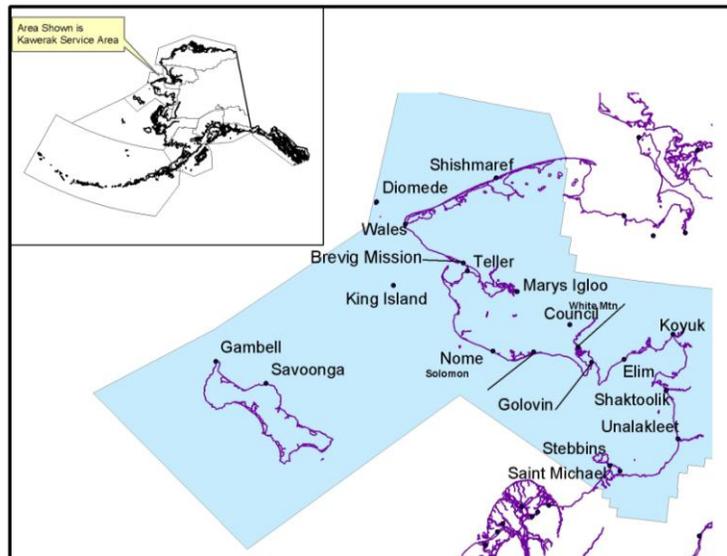


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Preface

This report documents the proceedings of a regional gathering hosted by Kawerak on September 16-17, 2014 in Nome, Alaska. The regional gathering called Bering Strait Voices on Arctic Shipping was held to convene as many Bering Strait leaders and ocean policy professionals in one place to discuss the potential impacts from increased shipping. This report was drafted by a workshop planning committee and includes numerous local leadership perspectives that are relevant to the issues of increased Arctic Shipping. As you read this report Kawerak hopes you will conclude that the Bering Sea, Bering Strait, and Chukchi Sea are tremendously important to its first inhabitants, and that the future of its residents will be tied directly to actions that are taken to address an ice free Arctic Ocean, and climate change. Kawerak will utilize this report and future advocacy efforts to harmonize local opinions with state, federal, and international policy decisions that affect the Arctic. The regional gathering, this workshop report and Kawerak's advocacy efforts are made possible by funding from *The Oak Foundation* and *PEW Charitable Trusts*.



Map courtesy of Kawerak shared files

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SECTION 1: INTRODUCTION

People have persevered as an important part of the marine and terrestrial ecosystems in the Bering Strait region for thousands of years. Today, natural resources continue to play a pivotal role in a subsistence way of life shared across the region. The Bering Strait region is experiencing rapid environmental change; as a result, the health and well-being of communities are at risk. Climate change is impacting marine and terrestrial ecosystems. Changing sea ice conditions are influencing marine mammals, making it more difficult to predict migratory movements during important subsistence harvesting seasons. Warming waters have resulted in a longer fall open water season. A longer open water season is accelerating coastal erosion. Changing sea ice conditions with longer periods of open water also create favorable conditions for increased vessel traffic. There are numerous risks to both the ecosystem and indigenous communities brought about by increased vessel traffic. For example, some of the risks include but are not limited to: pollution from discharges of oil, waste, and ballast water that may contain invasive species; noise pollution that could interfere with marine mammal communication; light pollution from ships that could act as an attractant to some species; the potential for ships striking marine mammals, such as the slow-moving bowhead whale; and the potential of interfering with subsistence activities and/or compromising the safety of hunters, where some may travel far from shore in small boats.

Increased vessel traffic creates a potential stress on the ecosystem and its people. Minimizing the risk of environmental damage or loss of life due to accidents is a priority. Central Yup'ik, St. Lawrence Island Yupik and Inupiaq residents in the Bering Strait have valuable knowledge about their home and its resources. Their experience, passed down through untold generations, has given them great knowledge of their environment and the species within. This knowledge can help inform decision-making. It will be crucial for scientific and traditional knowledge systems to work together to inform policy makers when decisions about the Arctic are made.

Why this workshop was held

Kawerak Inc. is concerned about the impact of increased Arctic shipping on the Bering Strait region and has been proactive in seeking funding and weighing in on policies to help address this issue. This workshop held by Kawerak was a first step to obtain input and guidance from the 20 tribes and 16 local governments in the region. Melanie Bahnke, President of Kawerak Inc., opened the workshop and provided context to how this workshop fits in with a longer term process initiated in the region by Kawerak. She noted that at both Federal and State governance levels, people living far away are making plans about the Arctic, often without input from the people who live in the Arctic. Furthermore, there is not one single plan about the Arctic; rather multiple plans developed by different agencies and entities. These plans are often developed without input from the region, and then agencies provide a public comment period during which they expect the indigenous community (including tribes and Kawerak) to provide written comments. Melanie noted that following this workshop, Kawerak should request agencies to comment on this workshop report during a 90-day comment period. Further impetus for the workshop provided by Melanie was that many of the reports don't have the benefit of telling the story through the lens that people living in the region can provide. Melanie noted: "It is time for us to make sure our story is being told. If our story is not told, we will be in the position where WE will be placed on the endangered species list. Food security is a cornerstone of our identity as a culture. Threats are real and imminent. Yet we need to find economic opportunities and find balance."

Over the past 100 years indigenous peoples living in the region have experienced significant change that includes a history of assimilation. Arctic shipping could bring added change; to be prepared for this change means being active participants in decision-making processes. Community leaders can't afford to be quiet. Instead they should demand a seat at the table, and be active participants when decisions are being made about the region. Future generations and survival of the unique culture in the region will depend upon it.

Melanie also noted that workshop participants come from a long line of people who have survived and thrived in a challenging environment. To survive meant being adaptive and using new technologies. "We rely on air, seas and land to sustain us. Not just physically, but emotionally, mentally and spiritually. Yes, we do have challenges, but our region is so blessed with the way we are able to live off land and sea."

Climate change is another challenge the region has been dealing with – erosion, fall flooding, and changes in sea ice patterns and winds. More recently, the region has been on the forefront of responding to unusual mortality events and oiled marine mammals; people are seeing things they have not previously witnessed. Melanie noted that with all of these changes, there is a need for baseline information. It is difficult to track changes without a common baseline.

Melanie further stated that communities need to be sustainable; so it is important to be mindful of economic opportunities. Alaska Native Corporations have succeeded in a business model, many of the top businesses in the state are owned by the Alaska Native Community. Melanie recounted a resonant story about comparing a fleet of buses with a fleet of fisheries/boats. She stated that "...we used to have to ask for a seat on the bus, we then learned how to drive the bus, then we owned a bus, and now we own a fleet of buses. Additionally the economic benefits from the model of owning a portion of the fisheries quota (CDQ programs) have provided benefits to the communities. When provided with opportunities, we do rise to the top. We don't want to miss out for our kids. We don't want to miss out when we are bearing the most risk."

Melanie closed her opening remarks by challenging workshop participants to engage, and to be an active part of the decision-making process to protect natural resources for future generations through thoughtful and deliberate actions. And, this workshop would be a first step in this process. "No one else can do it for us. Decisions will be made that will affect us for a long time moving forward. We are writing chapter two. We can no longer afford to have people living thousands of miles away make decisions for us, without our input."

SECTION 2: WORKSHOP EXPECTATIONS

Expectations from Kawerak's perspective

Kawerak convened this workshop for representatives of the 20 tribal and 16 city governments in the Bering Strait region to help identify local priorities, resources and research gaps to help address and mitigate impacts from increased Arctic marine vessel traffic on subsistence resources and local subsistence users in the Bering Strait region. The workshop and report summary are intended to help lay out the foundation for a detailed plan of work to guide staff to implement priorities and identify gaps in information which could be obtained using scientific research and gathering of local and traditional knowledge. This workshop provides the basis to develop local solutions and policy measures that address the impacts of increased arctic marine vessel traffic at the national and international level. In years one to three, a Marine Advocate will help implement appropriate activities.

Workshop format: Round Table Discussion and Focus Questions

The workshop was designed to gather information on three major themes that included: Protection of Natural Resources; Safety and Security; and Economic Development and Infrastructure. These themes were chosen because of their importance to the region and specifically to help Kawerak inform a holistic long-term planning process on how to address the impacts of Arctic shipping in the Bering Strait region. A workshop planning committee was formed to develop the agenda based on the themes identified by Kawerak (Appendix 1).

The workshop planning committee decided that the workshop format should include smaller focus groups that reported out to the larger convened group. Smaller focus groups would ensure that all voices were considered. The agenda is provided in Appendix 2.

Prior to the round table discussions, overview presentation(s) on each of the three topics provided a common ground for focus group discussions. These short presentations provided a baseline overview by experts within each field. Within each of the three focus areas, participants were provided with two questions. The first question centered on the First People-First concept of the primary concerns about impacts to the region's residents as a result of increased Arctic shipping.

The second question in the focus group asked for participants to start thinking about the solutions to address some of their concerns. Solutions could be in the form of policies, advocacy, projects, or programs.

The workshop was facilitated by Pearl Mikulski, Vice President of Community Services Division for Kawerak.

Workshop invitations were sent out to all city and tribal offices in the Kawerak region. Attendees from the workshop included 39 participants from 15 villages and Nome. Participants are identified in Appendix 3. Community representatives from Savoonga were unable to travel to Nome due to weather conditions. Participants from Wales were unable to attend on Day 1 due to weather conditions. A second teleconference was held on November 3 to ensure that those city and Tribal offices that did not participate had an opportunity to provide feedback and comments. A draft of the workshop report was sent out to both City and Tribal offices. A teleconference to review the report workshop w/ participants was held on November 18th with written feedback on the workshop report open until December 18th.

People first, First people

The planning committee recognized the importance of people in the region. The value and place in society for elders and children. The knowledge and information attained by traditional knowledge holders. And, notably the continuation of practices by people, shaped by the environment and resources in the region. All of these concepts contributed to identifying the concerns important to the people in the region at the beginning of each of the sessions (on Protection of natural resources, Safety and security, and Economic development and infrastructure). People in the region's communities live at "ground zero," bear the burden of the risk, and stand to lose an important way of life.

Expectations from Participants and General Concerns

The workshop facilitator, Pearl Mikulski asked the workshop participants to think about why they attended the meeting, in particular, what did they expect or hope would be accomplished over the course of the two days. Secondly, workshop participants were asked to think about some of their most important concerns with regards to increased shipping in the Arctic as it pertains to the Bering Strait region. And, lastly, they were asked to think about what they foresaw as a major opportunity with increased vessel traffic. The following list of bulleted points contains both the workshop expectations and largest concerns identified by the workshop participants.

- Obtain knowledge and take action on Arctic shipping in our region.
- Produce our own plan to ensure protection of our environment.
- Regionally developed policies and procedures for/by people are needed.
- Regional policies for and by the people.
- Impacts in the ocean can be limited by our people managing resources and monitoring activity.
- Will we be able to continue practicing our subsistence way of life?
- Create shipping regulations in the Bering Strait for migratory routes of marine mammals during spring and fall.
- Fear of (small subsistence boats) becoming too regulated while regulations for big boats are lax.
- Local regulations to protect land and sea.
- Expectation: develop Bering Strait region Arctic shipping strategy document with priorities about shipping
- How does Arctic shipping affect our subsistence way of life?
- Depletion of resources is a concern.
- How much pollution will there be?
- Pollution is a concern.
- Contamination of our food is a concern.
- Effect of vessel traffic on wildlife is a concern.
- Demands on, and competition for resources is a concern.
- Concern regarding depletion of resources.
- Demands and competition on resources is a concern.
- Major concerns are waste and bilge dumping – and how it affects sea mammals.
- To protect our way of life.
- Health of subsistence resources is a concern.
- How will all the ships affect our hunting season?
- Hunting and hunting areas, especially for the bowhead whale.
- Oiled animals, especially beluga and seals.

- With more ships/boats passing through sea mammal and fish migratory routes, will sea life disappear due to increased traffic?
- How will increased shipping affect sea mammal migration routes?
- Interference with subsistence activities at sea is a concern.
- How will shipping impact migration of marine mammals?
- How can hunters monitor ship traffic near and around subsistence areas?
- Will we know who is in our waters?
- Understand who is traveling through the region, why they are traveling, and what are they transporting.
- Concern regarding piracy.
- Who are the vessels traveling our waters and what are they carrying?
- What will the result of ocean activity be on our resources in our ocean?
- Ships are coming and going; what can we do in the event of an accident; what happens to our wildlife; are our villages capable of providing aid?
- Local oil disaster in the region is a concern.
- Safety plans in place – oil spills emergencies/evacuations; infrastructure requirements (fuel and accommodations); safe harbors are both needed.
- Cooperation between Russia and USA is needed.
- Lack of integrated communication and infrastructure to respond to maritime problems.
- Would like to know more about rules/regulations about waste and bilge dumping (expectation).
- Jobs and marine transportation and tourism as a potential major opportunity.
- What are the trade-offs with regards to benefits and risks (e.g., cost of living and price of food and other items versus loss of subsistence items and loss of practices associated with hunting).
- Will this (increased vessel traffic) help our people with decreasing cost of living expenses?
- Improved infrastructure is needed.
- Opportunities for jobs in marine transportation.

SECTION 3: ARCTIC SHIPPING OVERVIEW

The workshop started with overview presentations meant to provide a baseline of common knowledge for all Tribal and City representatives meant to help inform dialogue. Not everyone in the region has the same level of information and understanding on the topic of Arctic shipping. Three perspectives were presented to help build knowledge and to identify the areas where more information was needed. Proceedings started out with a presentation by Vice Admiral Roger Rufe (Ret.) that provided a global viewpoint of Arctic shipping and the characterization of vessel traffic in Bering Strait waters (Appendix 4). The second presentation by Joy Baker from the Port of Nome focused on how increased traffic is impacting infrastructure and activity from a port, on-land perspective (Appendix 5). The final presentation was by Wesley Okboak. Wesley's presentation provided a community perspective and tied together how all of these cumulative impacts associated with increased Arctic shipping are felt locally (Appendix 6).

SECTION 4: FOOD SECURITY

Carolina Behe, Traditional Knowledge and Science Advisor, ICC-Alaska presented on the research project, "How to Assess Food Security from an Inuit Perspective: Building a Conceptual Framework on How to Assess Food Security in the Alaskan Arctic" (from here on referred to as the food security project). The project aims to define and identify the causes of food in/security from an Inuit perspective. The threats identified from increased shipping to food security have been a resonant theme in previous meetings and research conducted by Kawerak. Taking a food security (from an Inuit perspective) lens was an important perspective recognized by the planning committee. The presentation and discussion are included in Appendix 7.

Workshop participants discussing food security related issues with Arctic shipping



Photo Credit: Julie Raymond-Yakoubian

SECTION 5: PROTECTION OF NATURAL RESOURCES

Natural resources are central to the livelihood and well-being of the people of the Bering Strait region. They contribute to sustenance, social, cultural and economic well-being. They are important to the identity of the Inupiaq, Yup'ik, Saint Lawrence Island Yupik people. For these reasons, the protection of natural resources was one of the most important themes for this workshop. Julie Raymond-Yakoubian, Social Science Program Director at Kawerak presented on the protection of natural resources in the Bering Strait region and provided workshop participants with an overall summary of the type of information those traditional knowledge holders within the Bering Strait region share and provide. Her presentation can be found summarized in Appendix 8. Gay Sheffield from the University of Alaska Fairbanks Marine Advisory Program talked about some of the changes that are happening in the region and some of the new efforts addressing many of the newly rising biological and ecological questions. Her presentation can be found summarized in Appendix 9.

Natural Resource Concerns:

The following section summarizes the natural resource issues and concerns identified by the workshop participants from a Bering Strait perspective as they pertain to increased Arctic marine shipping. The bulleted items were individual concerns captured on cards by the participants. Similar and related concerns were grouped to include some of the context of the concerns as discussed in the breakout groups. The list appears in no particular order of importance as all issues and concerns are important.

The breakout question was framed as:

“What are the primary concerns about impacts to our people and our natural resources when it comes to increased arctic shipping?”

Overall concern about impacts from increased shipping. There was general concern expressed about increased vessel traffic overall. Workshop participants were concerned about potential impacts affecting both the environment and people. Workshop participants also desire further information and education on specific topics. One area that workshop participants wanted more information about was how other regions of the globe have dealt with similar issues (learning from other experiences).

- When you see the numbers of ships (that transited the Bering Strait detected by AIS), it is shocking. We can't all see the ships (AIS technology has its limits). We need to educate our people about what is happening.
- Shipping is an accident waiting to happen- as activity increases it is inevitable that something will occur eventually.
- How do you minimize the impact of shipping?
- What are the lessons learned from the *Exxon Valdez* oil spill that could be applied here? (For example, how to be prepared for impacts to both environment and people.)
- What are the lessons learned from other areas dealing with new/increasing vessel traffic? For example, the Panama Canal.
- What does pollution look like from increased vessel traffic – we need to learn how to recognize this.
- Education of youth on the issue of increased shipping is needed. Also, needed is getting their ideas on how to deal with (mitigate and monitor) increased shipping in the future.

Protect our subsistence way of life. Ensuring the protection of a subsistence way of life was a very important concern shared by the group. “Protection of our subsistence way of life is important given an increase in Arctic shipping.” Being connected with the land and sea are important values that need to be maintained. Natural resources provide more than physical benefits (such as food or nutrition); they meet emotional, cultural, spiritual and other needs that provide overall well-being. “What impacts the ocean and resources impacts the people,” both physically and socially. Workshop participants recognized the connectivity between the health of the environment and the well-being of people. Because of this connection, workshop participants believed that many aspects of a subsistence way of life cannot be compensated for monetarily; therefore, measures should be taken to ensure that the environment is protected. Concerns that were brought up related to this include:

- Our ocean is like our savings account. Our salmon (in the ocean) is like having money in the bank, it will feed our families in the long run.
- Animals are irreplaceable, if animals are impacted there is no way they could be replaced.
- Concerned about a loss of a subsistence way of life.
- If an accident (vessel or oil spill) was to happen that results in a loss of access to sea mammals; how are we compensated for the disruption to our sea mammals? And, then how do you compensate for the loss of subsistence use/time?
- If sea mammals are impacted by increased shipping such as being disturbed by noise or pollution they will become less accessible. Then people will have to depend more on store-bought foods.
- How can communities be compensated for a loss of subsistence way of life? Who is responsible?

Social and cultural impacts should be considered. Important yet often unrecognized (by outside agencies and entities) are the social and cultural aspects of a subsistence way of life. There was a need expressed to consider the social impacts from increased shipping. Direct impacts to natural resources are usually considered singly in policy making; however, indirect impacts such as social and spiritual are often overlooked. As one participant expressed, being connected with the land and sea are important, and provide more than physical benefits (such as food) but meet emotional and well-being needs important culturally.

- New people coming into communities with another world-view and cultural perspective influence what happens in the village.
- Social concerns need to be better linked with natural resources.

Consultation is needed. Consultation during any regulatory development phase regarding the management of increased vessel traffic in the Arctic is important. Both city and tribal officials present at the workshop have had poor experiences in the past with governmental and regulatory agencies (even within line offices of the same agency). In some cases, there has been no consultation on regulatory processes affecting people in the region. People are worried about their lack of engaged involvement or their voice being able to inform regulatory processes. These past experiences are a concern to workshop participants in effectively having their voice heard in the regulatory frameworks involved in Arctic vessel traffic. It was not clear to participants exactly by whom and at what governmental level (state, federal, international) regulations concerning Arctic shipping/vessel traffic are created. The regulatory process is confusing (e.g., Table 6 in Appendix 4 that shows some of the different agencies and policies governing arctic shipping); therefore, knowing the level at which to effectively engage can be confusing. As such, consultation is needed by agencies that directly engage with Arctic shipping policies and regulation. Furthermore, government to government consultation is required by law, but it

does not always happen, and the form it takes is not consistent. Often, agencies will only take input from tribes and communities in a public forum.

- Consultation is needed and required by law. But often consultation comes in the form of public testimony during proceedings such as the North Pacific Fishery Management Council. In these situations, you are given three minutes to tell your story. They want to know why this action is affecting you versus how much you depend on (a resource or the environment being impacted by the action). Most of us in the communities don't think about issues like this in places where decision are being made.
- The Environmental Impact Study (EIS) at Port Clarence was conducted nine years ago; yet we did not have input nor were consulted on this EIS.
- Consultation with tribes is needed by all levels of governments.
- Just because we attended a meeting doesn't mean that we give consent. We need feedback (about how input was/or not considered) and better communication. Consultation should include a dialogue versus information only going one-way.

Need for self-empowerment and lack of decision-making power. Related to consultation was the concern over the lack of decision-making power and the ability to engage in policy-making processes. There is a need to have access to decision-making processes. Because regulatory agencies are distantly located and notices and rules for regulation are highly complex it is difficult to effectively propose ideas to mitigate impacts from increased shipping. Participants were also concerned about effectively communicating their needs. Workshop participants expressed that they have to figure out where/how the regulatory processes are occurring. While it can be challenging, they work within the existing system as best as they can. However, people located distantly in places where decisions are made, such as Washington DC or Juneau, do not have a good understanding of what village life is like, or how culturally different the villages are from urban areas, even in Alaska. There is a need for decision-makers to understand that these differences exist, and that the same principles applied in most urban and suburban areas cannot be applied to indigenous Arctic communities.

- We have a long history of people from different value systems deciding what is best for us without understanding our values and resources. We need to make decisions using our values and what is important for us.
- If communities don't have experience dealing with different shipping agencies, what can they do to learn where/how to engage? How do you empower communities to deal with this?
- One of the problems is that people in Washington DC don't seem to understand or comprehend what village life is like. They don't understand the conditions in the village. They apply their standards. They use terms that we don't understand and may not exist here. The Department Of Transportation and Senator Begich tour of villages in the region helped to educate decision-makers about village conditions. We need more of this type of connection.

Noise and sound impacts on marine wildlife. Noise from vessels was a concern brought up at most of the tables. One person noted that sound travels further and faster under water, and the impact of noise on subsistence resources is a major concern. Many people talked about personal and learned experiences with marine mammal hunting over time. They also shared some their knowledge of the impact of noise on belugas, seals and walruses. They suggested that we should learn from these experiences as well from as the Traditional Knowledge of hunters to ensure that marine mammals are protected from impacts of underwater noise.

- Beluga whales are extremely smart and learn over time. Belugas have adapted to changes in the region due to anthropogenic activity on the water, and as a result hunters, too have adapted to changes in beluga movements.
- Beluga whales used to be an important subsistence resource in the Teller area; however, they left the area likely due to the Loran Station. Once the Loran tower was removed, beluga whales have returned. Hunters are worried that the (noise from an) increase in vessel traffic in the area will drive the whales away again.
- Concerned about increased noise from increased vessel traffic and impact on ugruk and walrus. This (increased vessel traffic and introduction of 2-cycle engine) has happened in the past, driving seals further away and could happen again.
- Walruses used to haul out on Stuart Island; however, due to steam boat and traffic, they disappeared.
- Barges are really noisy, and I could not hear the water when I was sitting on the beach, and have concerns about that noise being introduced into the environment.
- Concerned about seismic activity and its impact on marine mammals. (NOTE: the Bering Strait region is a major migratory pathway for marine mammals that travel to the Chukchi and Beaufort Seas.)

Cumulative impacts of shipping over time and space. Increased Arctic vessel traffic may have impacts on both land and sea. Impacts may not only occur at the site where the ships travel. One participant recognized that marine resources are shared across the region and overlap spatially. This was repeatedly pointed out during the meeting from maps Kawerak produced for walruses and ice seals from Stebbins to Diomedea that were taped on the walls during the workshop. Anthropogenic activities in the ocean can have spatially widespread impacts. Communities that may not be adjacent to the origin of anthropogenic activity could be indirectly impacted. For example, impacts (as a result of vessel traffic) to walrus while they are feeding may make walrus less accessible to hunters from communities that may not be adjacent to an area of high volume of vessel traffic. Concern was also expressed about the potential for cumulative impacts of all the new activity on the marine natural resources in the region important for subsistence. For example, natural predators that follow marine mammals, like killer whales (or sharks) following Steller sea lions, and whether these predators would be more frequent in Bering Strait region waters. With these (predatory) species coming to the area, there was concern that they would impact other species like bearded seals or beluga that are important foods to subsistence coastal communities. There was also concern that these new species could introduce more and/or new sicknesses to regional marine wildlife. Participants wondered whether we should be prepared for these scenarios, and how all of the cumulative impacts including shipping would have on essential marine resources. There was concern because elders in the area talk about potential sickness coming that could bring about starvation.

Impacts of increased shipping on seabirds. Several people expressed concern about the impacts to birds from increased vessel traffic. Direct impacts such as ship strikes, or other (indirect) impacts such as effects through the food web from pollution. Specific seabird species mentioned included eiders. Direct impacts were related to seabirds being attracted by lights on vessels. Questions were raised as to whether it was feasible to look at whether vessel lighting could be proactively mitigated depending on season or location.

Pollution. There was significant concern about pollution from increased Arctic vessel traffic impacting the Bering Strait region. Concerns about pollution were paramount, because all Bering Strait

communities obtain their food from the ocean. What goes into the ocean could impact the food web that provides sustenance. There were different types of pollution discussed in the workshop that included (but not limited to): oil spills, ocean dumping of harmful waste, grey water, garbage/trash, and food discards. There were also concerns about wastes and pollutants being abandoned on shoreside locations/facilities without adequate containment. There was also concern about pollutants being dumped or abandoned on shoreside facilities without knowledge by locals. There was also concern about unseen contaminants and how to recognize/monitor for those (e.g., radioactive pollution, pollutants ingested by animals and entering the food web).

- What does pollution from ships look like? How can we recognize/monitor pollution? Who is responsible for monitoring, who is responsible for cleaning it up, and who is responsible for notifying us about the pollutants?
- Some villages receive more contamination than others. They should have readily deployable equipment in place particularly near sensitive areas and subsistence areas .
- If a shipping accident occurred, could the resulting pollution impact our food, and our subsistence way of life?
- What kind of contaminants will we be exposed to through passage (food-web) through the waterways or passage through the air? E.g., aerial deposition, nuclear capabilities?
- What can we do as a community to make sure that the situation that occurred in Shaktoolik and Golovin does not happen in other communities? A company left super-sacs containing contaminated soil from Shaktoolik in Golovin, a storm was approaching, and the community members had to take it upon themselves to contain the mess, after some of the sacks leached contaminated soil into the local watershed. How do we inform communities who may not be aware of the potential hazards with increased activity and development?
- We don't have the capabilities of identifying contents of transiting ships. Or what may be contained in submarines transiting under the water. Our concern about not knowing contents is if in the event of an accident (and contents of the ship spill/sink), what would be the impact on the subsistence resources? We would better know how to respond if we knew what was contained in the ships (in event of an accident).
- Is there an increase in garbage in our waters, as we observe more glass rocks (polished broken glass) on the beaches today then there used to be.
- Concerns about spills impact on crab and fish and not just marine mammals.

Firsthand pollution observations. There were several observations of recent and increased pollution in the marine environment. This concern generated questions about future increases in pollution and its impact on marine resources. There was also much consternation about the ice seals observed with oil fouling in their fur, and concern about the inability to determine the source of the oil. These concerns also lead to discussion about current impacts of pollution in the marine food web (i.e., how are they currently impacting marine species). Then, how you recognize or monitor for those types of impacts that are not easily observable by the naked eye.

- Salmon caught in the Teller area had a "gassy" taste (2014).
- Increased observation of fresh fruits and vegetables washing ashore (concurrent to the presence of large vessels anchored nearby).
- There were more glass rocks washing ashore, indicating dumping at some point that reaches the shoreline.
- Concerned about the seals with oil (fouling), and what is the source of the oil.

Military activity. Concerns were expressed about military activity happening in Bering Strait waters as the region shares a marine border with Russia. Participants expressed previous familiarity and experience with the repercussion of military activity during the Cold War era. Several people wondered whether the relationship between the U.S. and Russia could return to cold-war era dynamics as this would have a direct impact on the people and ecosystems in the Bering Strait region. There was also expressed concern about the impact of these larger, political issues on the local maritime subsistence hunting traffic in the event of an accident in Russian waters.

- Are other countries developing military bases in the north? What type of cargo are they carrying within their ships to these bases?
- Vessels under the water – with increased tensions between the US and Russia, cold-war dynamics are a valid concern. There were stories about submarines in the area during World War Two passed on by elders. There have been recent observations of submarine activity in the region.

Intangible values, different value systems. People with different world views value resources differently, and a number of concerns came out around this issue. For example, different perceptions of the value of extractive resources (e.g., gold and oil) and natural resources (e.g., seals and fish). The value of natural resources is intangible and impossible to assign a dollar value because of the many (almost infinite) different types of benefits it provides culturally and socially. Participants want to ensure that natural resource value is considered within any regulatory or policy action. Someone noted that there is an abundance of natural resources in the region, both natural marine resources (e.g., fish and mammals) as well as extractable resources (e.g., gold and graphite). They are concerned that the presence of these (extractable) resources could become known to the larger public/outside and attract people (for development). Hunting and fishing are more important than gold and we want to keep our subsistence livelihood and traditions. So there is concern about people from cities and urban areas making money off of lands and waters which are important to subsistence living. An example presented was the commercial fishing industry. Another concern was the associated development with terrestrial resource extraction such as port development and roads. Another related issue was the difference in access and activity permitted with regards to land rights.

Cost of living. Concerns came out about cost of living, with potentially both positive and negative outcomes that could be associated with increased Arctic vessel traffic. For example, with increased traffic, would there be a lower cost to store-bought goods coming to the region? Lower cost could be a potential benefit if traffic included those vessels that also delivered goods. However, there was caution expressed, as prices for other items such as the cost of oil has not gone down, even with changes in how oil was delivered. At the same time that there could be the potential for a lower cost of living associated with increased traffic, there was concern that impacts from increased vessel traffic could negatively affect subsistence resources. There was a need identified to examine what type of traffic would be associated with changes in cost of living in the region. And another need to identify what the potential impacts are of increased vessel traffic on marine resources.

- On the positive side, there could be helpful changes for people in villages with cost of living. Now items at the store are cheaper today than when we were young. Will this change with increased arctic shipping? But if natural marine resources change, they will be gone if we don't protect them. Food prices may drop, but we may not have enough of our natural marine resources (culturally important).
- Why aren't fuel prices going down when ships are lightering fuel oil (versus high cost with other transportation means).

Cross-border communication and collaboration. There was concern about the lack of communication between Russia and the United States on planning for increased vessel traffic. Participants recognize that the waters are shared, and if something happens in the ocean on one side of the border, it will impact the other side of the border. There will be cross-border effects. We need to work together with the Russian side to plan and prepare.

- There is a lot of attention on the U.S. side, but, oil drilling on the Russian side is already happening – whatever happens on the Russian side will ultimately affect us. It is a trans-boundary issue, whatever runs into the Bering Strait on the Russian side runs into US waters, too. We have more freedom with better (environmental) policies, but this is not the case on the Russian side. It is not a question of “when” it (activities/exploration/vessel traffic) is happening but it is already happening. So, plans (for preparedness) need to be accelerated.
- What are the Russian policies, we need to know what they are doing, and how they are prepared in the event of an accident?

Tourism. The idea of promoting/increasing tourism produced discussion on both concerns and opportunities. There were many stories shared about cruise ships stopping and providing a head tax to communities in exchange for permission for tourists to disembark in villages for cultural experiences. This type of activity could provide economic opportunities for those communities with little local economic development. However, there was also uncertainty, as some vessels do not inform communities of their arrival, and do not inform communities that they are coming ashore. Unannounced visitor could impede subsistence activities (e.g., time away from subsistence activities during the summer months, or diverting subsistence resources by visiting/disembarking near communities). Some people expressed the need for guidelines.

- People came off a cruise ship wandering around town, and then they began to look through windows. There was concern about having people walk around the community and then the judgments they make without understanding the culture.

Self-determination and local control. Concern came up about how resources are being developed. If development was under local control/authority, several workshop participants expressed that they would be developed in culturally appropriate ways. Many participants recognized that development would happen, but it could be conducted in a more environmentally and culturally protective manner if it was done locally. Local communities understand the natural cycles and important subsistence activities, and would better account for development to consider these impacts. There was concern expressed over the increased commercial marine fisheries harvests and seasons due to longer open water. And there was also a concern about increased influx of research vessels.

- We need to develop our resources on our own terms rather than outside/foreign companies. If we are developing them, it would be conducted in a manner safer for our communities.
- The priority of industry is money and not the environment.
- Money is a priority for industry ... how do you get the subsistence voice to be heard?

SECTION 6: SAFETY AND SECURITY

People in the Bering Strait region have traveled on Bering Strait waters for millennia. Their knowledge and experience navigating these waters are of paramount value in establishing safety and security measures moving forward in light of increased Arctic marine vessel traffic. As such, safety and security was an important theme identified by Kawerak to focus on during this workshop.

Sudie Hargis, tribal coordinator for the USCG talked about what the USCG is doing with regards to maritime safety and security. The summary of her presentation can be found in Appendix 10. Vera Metcalf from the Eskimo Walrus Commission (EWC) presented on efforts that she is working on at EWC as well as with the Arctic Marine Mammal Coalition (AMMC) that address both planning and hunter safety issues. The summary of her presentation can be found in Appendix 11.

Safety and Security Concerns

The following section summarizes the maritime safety, security issues and concerns that impact the Bering Strait region because of increased Arctic marine vessel traffic that were discussed during the break-out session. The bulleted items were individual concerns captured on cards by the participants. Similar and related concerns were grouped to include some of the context of the concerns as discussed in the breakout groups. The list appears in no particular order of importance.

The break-out question was framed as:

“What are the primary concerns about the [maritime] safety and security when it comes to increased shipping?”

Protect subsistence way of life and food security. The potential impacts from increased Arctic marine vessel traffic and development on a subsistence way of life was a major concern voiced during the safety and security session by workshop participants. Community leaders want to know how best to protect a subsistence way of life, and to ensure that both current practices and future opportunities were protected. A subsistence way of life included not only physical aspects, but social cultural aspects as well. This would entail knowledge of potential impacts from vessel traffic on both environmental and social aspects.

- Main concern is subsistence
 - What are the impacts of shipping on the ice and water
 - Loss of natural habitat for our subsistence animals
 - Loss of food sources
 - Reduced food resources
 - Loss of traditional lifestyle
 - Ability to continue subsistence activities
 - Protect ability to pass on traditional ways to our children
 - Protect inlets leading into lagoons, which are important for subsistence (for placement of response equipment)
 - Primary concerns about the loss of passing on traditions that are also important to a way of life, such as processing and cleaning animals

Need more information and education. People have differing levels of knowledge on the topic of increased Arctic vessel traffic. Several participants were grateful for the level of information presented and thought that this type of information should be shared more widely within the region. More

information and knowledge is needed and wanted. For example, information about the impacts of vessel traffic on both natural resources and people (e.g., impacts of vessel traffic on marine mammals such as noise, disturbance, altering migratory patterns and opportunities for subsistence). Another type of information wanted was the characterization of the vessel traffic (e.g., what are vessels carrying, where are they coming from and where are they traveling to). A third type of information needed was the nature of regulatory framework for marine vessel traffic. Particularly, who was creating the regulations, and to whom would the regulations be directed. This concern came about because of experience with recent regulations aimed at protecting marine mammals due to increased global climate change interest by the general public. This also is a concern because of recent increased development interests in the Arctic. There were several topics that required follow-up and education:

- More knowledge about the ships that are going through our waters and what they are doing
- What will all the impact of increasing regulation have on our hunters and on the resources?

Impacts of vessel traffic on natural resources. Participants were concerned about the impacts of increased Arctic marine vessel traffic associated with increased Arctic shipping on marine resources important to the Bering Strait region. For example, the impacts of vessel strikes on local marine wildlife, the potential effects of vessel traffic on diverting marine mammals from their daily activities during important yearly life stages like pupping, feeding, and molting, the impact of vessel traffic on migratory patterns, and the impact of noise from vessels on marine mammals. They were concerned that increasing vessel traffic will have long-term impacts that could affect the food web and the subsistence way of life interlinked with the ecosystem. These concerns are based on a long history of experience and knowledge about marine mammal behavior, biology and ecology passed from generation to generation.

- We are concerned that large vessels could strike whales and other sea animals and disrupt feeding and breeding seasons
- Will the ship traffic:
 - Change the migration patterns of our animals?
 - Disrupt the food chain?
- Loss of natural habitat of animals
- How will shipping affect migration routes – whale, seal, migratory birds, fish?
- Change in migration patterns
- Noise pollution – will the sea mammals leave their regular areas?
- We do not know what damage the noise of increased vessel traffic is doing to the animals in our waters. Could it cause the sea animals to move away from our communities?
- Want to make sure that our resources are not going to be depleted after one generation (due to impacts from increased vessel traffic)

Lack of decision-making power. There is widespread concern over the lack of tribal decision-making at the federal and state levels where decisions about the region are made. There is also very little communication between agencies and tribes about proposed and on-going activities. People are concerned that without providing input in agency processes, their voice will not be heard and concerns not accounted for to protect marine resources important to a subsistence way of life. Workshop participants that have been engaged by an agency feel that they are not informed about how decisions are made; agencies fail to report on how/why or why no Tribal feedback was incorporated into a decision. There is an overall lack of transparency.

- The State needs to communicate with local governments as we don't know what is going on
- Lack of decision-making power

- We feel far behind, we should have had input 20-years ago
- If we don't say something now, we will not be heard
- Quiet tribes will be impacted
- Don't have faith that our voices will have an impact. We need to be part of the decision-making process.

Oil spills. There was much concern discussed across the workshop participants about the potential for an oil spill and the impacts of an oil spill on the region's marine and terrestrial ecosystems and commensurate effects on people. Participants were concerned that an oil spill would negatively affect a subsistence way of life. Industry and government often portray oil spill occurrence in terms of likelihood or probability. The likelihood and probability is always greater than zero, due to the inherent likelihood of human error. While the risk of an oil spill may be low statistically from an industry perspective, the perception of this risk from a subsistence perspective is catastrophic. To adequately protect opportunities for subsistence, this risk needs to be addressed.

- Increased Arctic shipping will increase the risk for a serious oil spill in our region which could damage our subsistence resources and harm the environment.
- If there is a major oil spill, will our children, elders, and residents be eating contaminated foods?
- Will pollution (from oil spills) disrupt the food chain?

Social issues – people expressed concern about the social aspects that could come with increased Arctic vessel traffic and associated development. In particular workshop participants were concerned about the influx of outside people with different value systems and different views, and how that might impact the communities. With current levels of increased interest in the Arctic, the region is experiencing an influx of people from western society. Many villages live by traditional value systems different than those of a typical western community. There was concern that there would be misinterpretation by outsiders who first experience indigenous communities in the region. There was also concern that some of these values in the communities could change as a result of increased contact.

- While the USCG is a positive presence in the region, there was concern about temporary resident males (and not just USCG personnel) dating teen-aged girls (13-14 years old)
- Concerns over visitors to the communities, and negative interactions with young children
- Concern over people appearing in remote communities unannounced (yachts and cruise)

Safety. There were several related marine safety needs that the workshop participants identified as being very important for safe local maritime vessel travel for all mariners (both local and transient). These included having accurate weather and forecasting, knowledge about larger vessel traffic patterns, and an emergency response presence (e.g., by USCG or some other agency response capability). Local mariners have extensive knowledge about Bering Strait waters as they travel widely offshore across the Bering Strait region. There was also concern about fast moving, large vessels that could pose a safety hazard to small boats and marine mammals in the region.

- Funding from federal government for USCG base/presence
- Improved and accurate weather forecasting for locals and shippers
- Will the safety of our hunters be at risk as bigger and more frequent ships come into our waters?
- We are worried that large vessels could strike small boats, strike whales and other sea animals

Response equipment and infrastructure. Workshop participants were concerned about protecting sensitive habitats nearshore from accidental spills resulting from a vessel traffic accident. It was not a

question of whether there should be pre-staged response equipment (debatable from an agency perspective), but a question of where to place response equipment. Infrastructure and equipment needed to respond to an accident or pollution event should be strategically placed (i.e., where to put equipment). Locations for equipment caches would need to be informed by communities, as they have the knowledge about the sensitive areas important for subsistence resources (e.g., marine mammal concentrations, sensitive coastlines, clam beds).

- Place safety equipment in rural villages – especially to protect inlets leading into lagoons, which are important for subsistence
- Booms and other equipment in villages because we will be the first ones to respond to any incident
- We need more emergency response capability at the local level

Tyler Ivanoff from the City of Elim presents some of the policies, projects and activities their group thought were important for the Safety and Security session.



Photo credit: Julie Raymond-Yakoubian

Response training. Again, similarly to pre-staged response equipment (paragraph above), the need for training was not a question, but a necessity. Emergency response training is needed in each community as communities will be the first to respond to an incident. As a result, communities need to know what to do and how to respond in the event of a spill or accident. Workshop participants have been witness to many near-misses that are not widely reported in the news. People in the region have also witnessed and experienced marine mammals with oil on their fur coats. So, they recognize the need to be prepared for the next near miss that could turn into a disaster. Workshop participants also noted that securing funds is important to provide for both equipment and training.

- Emergency response training is needed in each community
- Kawerak can help tribes get money for training and equipment
- Will we have the skill and ability to respond quickly if a massive cleanup operation were needed offshore?

Preparedness and planning. Planning and preparedness in the event of a disaster was something the workshop participants identified as a concern. Planning and preparedness for a disaster included both where to place emergency response equipment and how to respond to a spill or accident. Improved communication infrastructure was a key piece of information needed for how to respond. Communication infrastructure that included who to contact in the communities (e.g., Phone tree) – such a plan would identify who has training, who is a part of the Search and Rescue team, etc. that would be important for agencies to know. Information needed for communities would include correct agency contact information in the event of an accident. People were also concerned about the lives of the people on the vessel in distress. They recognize that they will be the first responders and would also be first on scene to save lives. Communities need to be prepared in the event of a disaster with a cruise ship or vessel carrying large numbers of people that could place a strain on small communities with little space to house and feed people.

- Policies should advocate for the prevention of a crisis
- We worry about the impact of a grounding or sinking of a vessel carrying large numbers of people and what impact that might have on the community
- Need improved communication infrastructure and equipment to be more effective in emergency response at the local level

Hazardous materials. Workshop participants were concerned that with increased Arctic marine vessel traffic and development, there would be more occurrences of unknown dumping, or materials/“garbage” with unknown contents left in communities. Hazardous materials could leak into the environment and harm natural resources.

- Leaving behind connexes that contain garbage/contaminated/unknown material
- Introduction of hazardous materials in the water (either by accident or deliberately)
- Will vessels leave behind contaminated material in our communities?
- More dumping violations, and no enforcement, cleanup and compensation.

Invasive Species. The topic of invasive species was also a concern that was brought up during the discussion by several workshop participants. There were concerns about species being introduced into seas and waters through hulls as well as through ballast water. People were also concerned about invasive species being introduced by garbage and (food) discards from vessels (e.g., spiders).

- Invasive species on ship hulls and ballast
- Invasive species (Plants, insects, rodents)
- Musk-ox (are) present and can be dangerous

Capacity building. Workshop participants expressed concern for and the need to plan for capacity building. For example, in planning for future development there could be properly trained tribal members that could fulfill future technical and skilled positions. Ensuring that tribal members had the first opportunity for these positions would also better prepare communities to find opportunities such that they would not need to be dependent upon the government for funding.

- Skilled and trained personnel are needed in the communities
- Worried about becoming dependent on government aid

There were some very specific recommendations presented during the session on issues and concerns that included:

- More safe harbors and local staff and resources to assist vessels in distress
- Port Authority for Brevig Mission and Teller
- Close the Northwest Passage – ships can go the other way
- Double hulled ships – influence the technology to minimize accidents.

Workshop participants providing feedback on Safety and Security issues



Photo credit: Julie Raymond-Yakoubian

SECTION 7: ECONOMIC DEVELOPMENT AND INFRASTRUCTURE

Given changes in climate and geopolitics, the Arctic has become a focus for potential investment and development. The question for the region is to decide whether to or how to take advantage of opportunities that are consistent with indigenous values. As a result, this theme was identified as having a prominent role to consider.

Nils Andreassen from the Institute of the North presented about opportunities for economic development and infrastructure needs with increased Arctic shipping, pertaining to the opportunities specifically in the Bering Strait region. His presentation summary can be found in Appendix 12.

Economic Development and Infrastructure Issues:

The following section summarizes the economic development and infrastructure issues and concerns as they pertain to the Bering Strait region due to increased Arctic marine shipping. The bulleted items were individual concerns captured on cards by the participants. Similar and related concerns were grouped to include some of the context of the concerns as discussed in the breakout groups. The list appears in no particular order of importance.

The breakout question was framed as:

“What are the primary concerns about the possible impacts to our people and our community’s infrastructure and about economic impacts to our community when it comes to increased arctic shipping needs?”

Preparedness and planning based on previous experience. Some communities in the Bering Strait region have experienced increased marine vessel activity and associated development in the past. As a result of past experiences, they have questions about what form increased vessel traffic will take in the future, and they want to be prepared for what may come. Past experiences have important lessons learned that could be applied for future increases in vessel traffic in the Bering Strait region due to an increase in Arctic shipping.

- Baranov was at St. Michael, and there was a safe harbor here, as well as big steamships. More than 20,000 people used to live in the area. This is what shipping brought in the past. Will it be like this again?
- Economic development whether we like it or not is coming. Each community needs to be prepared as we are not ready.

Correlation of development and vessel traffic. There are some questions and concern about the correlation between increased and proposed development in the Arctic and the potential for increased vessel traffic. Will development of specific projects lead to an increase in vessel traffic? And, then, first, how do you take advantage of such opportunities. That is, not having the boats pass by, but provide some sort of service that they will dock/refuel/etc. And, second, how do you mitigate these activities which impact a subsistence way of life.

- What is the implication of an Arctic pipeline? Will it increase vessel traffic?

Self-determination and rights. There were a number of concerns brought up surrounding rights, including both elements of governance and land/water access when it comes to development. Some of these concerns came about with specific examples of international companies who may obtain

subsurface rights with little knowledge from the community in close proximity to the planned activity. Another concern was about the passage of laws and action distantly without input from the region that could enable these activities to happen. There was concern that Cities and tribes were being left out of these decision-making processes about land use and development.

- We should exercise our right to ensure our sovereign rights before any development.
- Worry about international companies like the graphite mine in the Teller area, it is owned by a family from Denmark who bought a parcel of land and the right to go to graphite area to extract the mineral. Our land is at stake, but we can't do anything about it. Family in Denmark owns a right to dig out graphite without the people having any say about their mining.
- Concerned about bills (with direct negative impacts for the region) at the state and federal level that are drafted/passed without input from local communities.
- It is always better for Corporation boards to keep land in their title and not to sell the rights.
- Need to ensure sovereign rights across all scales of governance, including tribal corporations.

Self-determination and local control. If economic development is going to happen, it is best developed by the local corporations or tribes. During discussion, people often referred back to Melanie's story about the fleet of buses. There was concern about how outside companies would proceed with regards to standards and care of the environment. Participants thought that if they had a say and control over how development happened, the environment and resources would be better cared for and a subsistence way of life better protected.

- Development is going to happen, it is better that we have some control in how it is done.
- We will not be the ones making the money, outside interests will profit while we potentially lose our resources.
- We should profit from it.
- We should be the owners.
- (We) need to be the suppliers.
- If communities/region needs something in response to increased activity such as a larger store, a hotel, etc. Tribes and corporations should build these things or outside entities will come in and do it – it will be a lost opportunity.
- Need funding and support to become owners. Bring our own goods up, deliver our own food/groceries.

Development guidelines. Given that development would most likely occur, some comments reflected the thought that the region should specify how the development should occur. Participants suggested that there should be guidelines for development that protect what is important for the region. Ultimately, a subsistence way of life is considered to be most important.

- What is the capability of tourism? A recent ship in trouble resulted in a rescue by locals. They ended up depleting/stressing resources in the village store. There are no guidelines for tourism. Guidelines are needed.
- Our land is open and rich. By building infrastructure you are protecting our food security. The best medicine in life is food from the land. The premise of this whole thing should be based on this. When a disaster occurs, everyone will be impacted, including the companies (developing resources).

Outside interest. Workshop participants recognized that there are significant outside interests in developing the region's natural resources. Communities want to be prepared – to both take advantage of opportunities as well as to mitigate the impacts from development. At the same time, they want to

proceed cautiously, particularly when it comes to evaluating both impacts and benefits promised/portrayed by outside interests.

- Governor Murkowski wanted to build a road to develop this area, there is outside interest to utilize these resources.
- We've been provided with promises that have not followed through, and are concerned about false promises from industry and resulting impacts.

Social impacts. People were concerned about the potential for negative social impacts that could come along with increased activity and development. Workshop participants thought that social impacts should be considered when evaluating development plans proposed for the region. They also thought that social impacts should be an important consideration in any planning by the region. These types of impacts are rarely considered in the decision-making context for proposed development and are a concern with proposed future activity.

- Concerned about the influx of drugs/alcohol into dry communities due to shipping.
- Increased population could also put a strain on subsistence resources in the region – outsiders hunting/fishing could decrease access – already occurring to some extent.
- They came and took our language, then they came and took our culture and now they are taking our environment. We had no resistance to sickness when they came. We had no say-so when they came in and said we could not speak our language. Now they are doing that for our environment. So, now we say that you need to, to protect our way of life, in part by building infrastructure to respond (to an accident).

Protect food security and subsistence way of life. Protecting a subsistence way of life remained a priority concern throughout the discussion of issues associated with economic development and infrastructure. However, people also thought that infrastructure could also protect a subsistence way of life. For example, the ability to respond to a spill – infrastructure is needed along sensitive areas along the coastline to be ready for response. Additionally, trained people from communities should also be a part of that infrastructure and preparedness.

- Our land is open and rich. By building infrastructure you are protecting our food security. The best medicine in life is food from the land. The premise of this whole thing should be based on this. When a disaster occurs, everyone will be impacted, including the companies (developing resources).
- In order to protect our way of life, in part, building infrastructure to respond (to an accident) is important and needed.
- There will be no more welfare – food stamps – so those that don't have access to subsistence foods and gathering will be hurting. Assimilation in modern times forced young families to rely on federal aid and hand-outs. Sad to watch process of families go through starvation. You have to help your extended family to make sure they are okay. And that is what we do. We look out for one another.
- Need to ensure animals will always be there (with increased development)

Capacity building and funding. Some participants thought that one of the largest roadblocks to being prepared is the combined lack of both funding and capacity building for tribes. Funding is needed to help provide infrastructure needs, such as spill response equipment. Funding is also needed to advance ideas for sustainable development in the region's communities (e.g., funding Search and Rescue teams and plans). Tribes need funding to fully carry out their governing roles. Tribes also need trained tribal

members to fulfill important roles such as responders, scientists, etc. Capacity building will also empower local tribes.

- Lack of funding for implementing many local/Tribal ideas
- Capacity building for tribal governments is always an issue

Pollution. Contamination of land and water is a major concern that workshop participants have with increased development and infrastructure. For example, regular or indirect pollution such as contamination from roads and runways, oily discharge from vessels, and run-off from air strip runways. People were also concerned about major pollution events from accidents such as major oil spills impacting marine resources important to a subsistence way of life.

- Contamination from de-icing of aircrafts
- Oil pollution – how to clean up water & shore

Protect important cultural areas. There was some discussion about protecting important cultural areas, including places with supernatural significance. Some important areas such as those with supernatural associations may not be appropriate for development from an indigenous value system, and should be protected.

- I have concerns about mining in waters with historical connections to other bodies of water and potentially supernatural connections. These lakes also contain supposedly extinct species.

Tourism. There were concerns about increased and proposed tourism that included cruise ships and private pleasure crafts (e.g., yachts). Some concerns included knowing when people could be expected to arrive in communities; knowing to be prepared if vessels needed re-supply; and also being prepared in the event of a major accident to be able to accommodate people. There were also concerns about whether people are authorized for entry into the U.S., as there are no passport/entry personnel in the region. Additional concerns were for the disturbance of marine wildlife (i.e., walruses/seals/polar bears on ice floes) due to cruise ships wanting wildlife viewing experiences for their paying customers.

- When we want to go to another country we need to get immunizations, passports, and when outside travelers come we don't know whether they have visas/passports (if they are allowed into the country). They come often unexpected.
- If cruise ships are storm-bound, can communities accommodate them? How do you resupply resources
- Can we meet the needs of ships in the area such as cruise ships and tourists?

Preparedness – response. There was concern about capacity to deal with a crisis, and not just limited to cruise ships, but to any vessel accident or mishap. Capacity issues such as: medical care, number of beds, food and potable water for large numbers of people. People want to be prepared and notified (communication/information pathway). If the weather was inclement, then the community in closest proximity would need to provide all of this type of care for stranded people until air or water rescue was possible.

- Can we meet the needs of ships in distress and people who need to be rescued and brought ashore?

Climate change effects. There was discussion and worry about what future climatic changes may occur, as these have a strong effect on infrastructure. For example, fluctuations in the timing of freeze up could mean that delivery of fuel oil could be impacted. Delivery of fuel oil could also be missed if freeze up occurs earlier in one year. Another example was if the event of an early break-up, early traveling

vessel traffic could face quick-changing conditions that bring ice with a change in predominant wind patterns. Another example of climate change impacts could be increased flooding that could impact infrastructure. Weather in recent years has been highly variable and unpredictable, future infrastructure development would need to account for this.

- Early freeze-up resulting in barge not making it in; may need to ration fuel/propane
- More flooding already observed
- Early break-up, change in wind. Vessels (which) move slowly could take a beating.

Semantics – in the region when you use the term “shipping” it is often known as sending freight or other items (e.g., village store supplies, school supplies). Some people suggested referring to it as “large vessel traffic” as people will know that we are talking about large ship traffic on the water. Vessel traffic will encompass the container ships, tugs, adventurers, research, tankers, etc.

- We should be using the term “vessel traffic” versus shipping as if you say the word shipping people think you are talking about freight and mail/sending items versus on water vessel traffic.

Solid Waste Management – there were some concerns about supporting infrastructure to improve water and sewage in the communities. If the region would be seeing increased activity and people, this seems like a basic need that should be addressed. Protecting the environment from sources of pollution from solid waste would be important to thoughtfully consider.

- Currently use honey buckets

Local-hire. Hiring and training practices were emphasized as a concern with potential increased development and hiring for construction. Some companies currently use the term “local hire” to encompass hiring over all of Alaska. This means that people from outside the region (with different value systems) may come into a community and get preference over local Bering Strait region community members. The concept of in region local hire should be considered in future development.

- Job training to certify people to do specific things, and then local hire to put that training to use. People often get training, but then don’t ever get hired and non local people are brought in.

Ports – some participants thought that to facilitate infrastructure and development, additional port sites would be needed. This is something that would need consultation and communication across the region.

- Need to develop more ports

Invasive Species – with the increase in vessel traffic, people worried that along with the ships there would be more occurrence of non-native species. One individual remarked seeing a huge, weird spider on the beach that may have been discarded from a passing ship. People are concerned also about ballast water and species that may be released locally that come from other places in the world.

- Concerned about ships bringing in invasive species through animals like barnacles on the hull, through their cargo, or through dumping of ballast water

SECTION 8: RECOMMENDATIONS FOR POLICIES, PROJECTS AND ACTIVITIES

Following the identification of concerns that tribal and city leaders had for each session within the Protection of Natural Resources, Safety and Security, and Economic Development and Infrastructure; workshop participants were asked to think about specific policies, advocacy, projects and activities that they might consider as solutions to address their concerns about increased Arctic large vessel traffic as it pertains to the Bering Strait region. Workshop participants were also asked to consider and include specific projects that could be achievable at the community level. In total, there were 177 ideas that were recorded on note cards across all of the sessions. The note cards were placed visibly on the walls of the room, by session topic, so that they were visible to all of the participants.

Round Table Discussion Focus Questions

The ideas provided by the workshop participants were prioritized at the conclusion of each session (Protection of Natural Resources, Safety and Security, and Economic Development and Infrastructure). Workshop participants were asked to think about which policies, advocacy, projects and activities that they believed were the most important. At the conclusion of each session each participant placed a colored tab by the note cards that contained the policies and projects that they believed were important. The following section provides the focus question that was presented to the groups, and lists those policies and projects that were considered most important by the participants.

Protection of Natural Resources

The Protection of Natural Resources session round table discussion focus question, as presented to the group was:

What are policies and projects that could or should be focused on in the Arctic that would:

- Protect the environment from harm to the land, sea, air, and wildlife?
- Protect the breeding grounds and feeding grounds of marine mammals, polar bears, birds and marine wildlife?
- Protect the subsistence lifestyle of Native communities?

The ideas for policies and projects that were identified as being most important to protect natural resources in the region included:

1. Request the Coast Guard to ensure that there are zones where traffic should not go during peak hunting seasons, for example: 20 mile buffer between traffic and hunting areas
2. Ensure strict enforcement of the Polar Code, and continue to work for other measures that strictly regulate/prohibit discharge such as waste, grey water, oil discharge & bilge.
3. Involve EPA/IGAP to help protect sea, air, and land from pollution of vessels entering Bering and Chukchi Seas
4. Each community should have their own harbor or port commission
5. Get youth involved in data collection & planning
6. Each community should have a "response ready team" – and have partnership agreements
7. Advocate for increased USCG presence in Arctic
8. Tribal game warden is needed to protect our subsistence lands
9. Money should not be an issue when it comes to protecting our environment, our livelihood and marine natural resources

10. Unify Bering Strait communities through partnerships and communication
11. Be involved so we have a voice in any new policy development
12. Find a way to allow shipping to safely pump liquids (e.g., sewage, grey water, ballast etc.) on the way in/out of the Arctic
13. Push for speed restrictions
14. No discharge zone for Bering Strait
15. Train membership in disaster response (land or water) including a depot to store & dispose
16. Someone needs to be our eyes and ears to critique legislative bills and translate them for the people
17. Create or follow a policy with USCG, deep sea fisheries, federal government, oil companies - an MOA to abide by regulations to preserve natural resources
18. We value elders input, it is critical and we need them. They are left out and currently not informed/consulted due to language barrier
19. Develop research format to document baseline information

Safety and Security

The Safety and Security round table focus question as presented to the group was:

What are policies projects that could or should be focused on in the Arctic that would:

- Prevent crisis situations in Arctic waters?
- Improve the ability to respond to emergency situations and reduce the strain on rural communities?
- Protect the environment from harm to the land, sea, air, and wildlife?
- Preserve law and order in Arctic waters?
- Protect national security?

The ideas for policies and projects to address safety and security issues in the region that were identified as being most important included:

1. Emergency response training in the communities
2. Build seawalls in Shishmaref, Unalakleet, Shaktoolik, Teller, Golovin
3. Testing for contaminants in food sources and water
4. Regional Search and Rescue coordinated planning & exercises
5. Have REAL spill response emergency equipment on hand: rescue boats
6. Need for local emergency planning
7. Staging areas in communities to respond to spills (boom skimmers)
8. Educate the community on safety and security issues
9. Safety plans in place that consider: oil spills (for food security protection), emergencies: evacuations; accommodations; fuel/hotels/etc.; safe harbors
10. Planning & communication: what to do during high water and storms
11. Depot/personnel in strategic locations
12. Involve the State in our planning
13. Improve telecommunications for weather and weather forecasting
14. Teller & Brevig Mission to start a new Port Authority
15. Training, education on shipping regulations or laws; prepare now for future infrastructure needs; ensure local input

Economic Development and Infrastructure

The Economic development and infrastructure session round table discussion focus question as posed to the group was:

What are the policies projects that could or should be focused on in the Arctic that would:

- Increase responsible development of infrastructure to meet the needs of Arctic shipping
- Reduce the stress on local resources in rural communities due to increased shipping
- Provide job opportunities to rural residents in relation to Arctic shipping
- Provide new business opportunities in relation to increased Arctic shipping
- Promote responsible development of local resources
- Improve access to goods and services in rural communities
- Reduce the cost of living and improve rural living conditions

The ideas for policies, advocacy and projects to address economic development and infrastructure issues in the region that were identified as being most important included:

1. Train villagers to be first responders, until State level responders arrive to help with an incident
2. Get AIS systems out to all the communities
3. Train locals for jobs that would come from building infrastructure
4. Monitoring air, water, sea life, ocean for pollution
5. Limit vessels in/around high subsistence use areas
6. Build light houses on Diomedede, King Island and Wales to navigate during night shipping
7. Develop (but first understand) ordinances on taxing to build infrastructure and maintain it
8. Have a low-cost business to run eco-tourism in our villages
9. Integrate local knowledge during engineering and infrastructure planning
10. Locate new sources of rock to reduce the cost of building Arctic ports, harbors or barge landings
11. Develop research guidelines that are transparent and understandable to communities. These should include returning information and reports to communities. Research that results in an EIS or that deals with endangered species - should be comprehensive and look at cumulative impacts.
12. Need a larger vessel that would be able to handle a rescue effort in a bad storm (tug)
13. Build multi-purpose storage facilities
14. Plan and coordinate cruise ship landings to be best prepared, for example, offer handicrafts, local guides, etc.
15. Define "local hire" as "Bering Strait" local hire, not state-wide
16. Use traditional knowledge to monitor marine life
17. Install VHF repeaters for emergencies and communication
18. Monitor wave and tide patterns
19. Technological expertise is not local/regional, need local expertise



Photo Credit: Julie Raymond-Yakoubian

Summary and grouping of policies, advocacy, and projects

Many of the recommended actions suggested by community leaders over the two days of the workshop were related, overlapped, or were sequential in that one action could precede another. Furthermore, some of the recommendations within the same session, but discussed in different focus groups were alike. In addition to identifying what participants thought were individually important solutions, all of the policies and projects were grouped, to help prepare for the next steps. These groupings combined similar recommendations that apply to similar policy or project frameworks. Every recommendation proposed by the participants was retained and included in this analysis. The individual recommendations follow a brief discussion of each of the major categories.

Area-based measures informed by Traditional Knowledge

The participants acknowledged the importance of the mapping work and traditional knowledge work that Kawerak has conducted. They thought this research was important and could inform policies pertaining to safe shipping, particularly when it comes to protecting subsistence resources. Someone noted the overlap and interconnectivity between the communities – not only with regards to subsistence use areas, but with regards to where the species travel and the habitats used by the species. They also talked about previous experiences with on-water activity impacting marine mammals. One

participant noted that previous ship traffic impacted walrus foraging habitat – and wanted to protect current foraging habitat.

Area-based measures informed by Traditional Knowledge suggested policies, advocacy, projects and activities:

- Request Coast Guard to ensure that there are zones where traffic should not go during peak hunting seasons, for example: 20 miles near shore
- The seasonal activities from each village should inform/restrict sea traffic
- Create shipping regulations for wildlife; for example the Bering Strait migratory routes during spring and fall should inform regulations
- Limit vessels in/around high subsistence areas
- Regulated traffic lanes
- Shipping lanes (with traffic separated right/left)
- Close the Northwest Passage
- Enter villages concerns into the Coast Pilot, for mariners to be aware of
- Require Traditional Knowledge inform ship navigation about hazardous areas and areas to protect

Bering Strait Region plan that protects subsistence way of life

“Our ocean is like our savings account. Our salmon is like having money in the bank, it will feed our families in the long run as 16 communities rely on the ocean to eat.” During the course of the workshop, a principal theme was that mitigation measures should be enacted that protect a subsistence way of life. This included not only protecting natural resources, but also preservation of the social aspects tied with centuries old traditions. Several participants proposed a Bering Strait Strategy on Arctic Shipping that includes policies identified by the region, for the region. Participants also noted that they were not necessarily opposed to development, but wanted to ensure that activities were conducted that protected values important to the region.

Bering Strait Region Plan that protects subsistence policies, advocacy, projects and activities suggested:

- Safely create local regulations and laws of the sea that do not disrupt local values and subsistence gathering and protect the animals at land and sea
- We need to produce our own plan to ensure protection of our environment
- Create a policy or MOA with USCG, federal government, fisheries industry, and oil companies to abide by regulations that preserve natural resources
- Develop a Bering Strait Region (BSR) Arctic Shipping Strategy
- Develop regional policies, procedures by the people for the people
- Ships are coming/going; we need a plan that protects our wildlife and describes what we can do to help when an accident/incident happens
- Obtain knowledge and take action on Arctic shipping in our region
- Unify Bering Strait communities through partnerships and communication
- Develop a safety and security policy with other local governments or nearby villages
- Endangered species consideration
- With increased shipping, there is a need for increased protective measures for migratory birds on ESA list

- Get youth involved in data collection & planning
- Our sea is like our money in the bank. It is what we have.
- Funding/money should not be an issue when it comes to protecting our environment, our livelihood and natural resources
- Social considerations for activities/development: Consider increase in drugs in our communities

Consultation and self-determination

The workshop participants recognized that decisions about the activities permitted in ancestral waters and lands are made far away. Decision-makers and policy-makers don't necessarily understand village life or comprehend how culturally different the region is. Regulators and decision-makers often apply their standards to the region, use terminology that is difficult to understand, or concepts that are not translatable. Furthermore, the advocacy process can be challenging and difficult to understand, with many different agencies being responsible for permitting/processing one activity. Participants had many solutions to address and overcome these challenges.

First, there is a need for increased communication and increased collaboration with tribes and cities by governmental agencies. The State of Alaska was one entity with which the group felt more collaboration was needed. One successful example provided was a tour sponsored by Senator Begich with Department of Transportation officials. They toured the region to see and hear people firsthand. This was an effective way to help with understanding the challenges for transportation in the region. So, finding the opportunities where the region can help inform and share their perspective would help outside managers and decision-makers make better decisions.

Second, participants thought that in the development of policies, they needed to have their voices heard, and this meant to have a seat at the table. Rather than just being consulted, it was important to be a part of the decision-making process. This also meant being involved during the early stages when policy is being formulated. For example, when defining what it meant to have "local hire", this should be something that the region should have a stronger voice in defining rather than other regions in the state.

Third, not all agencies follow the similar protocol or processes. In some cases the only opportunity for input is through a public process such as providing public or written testimony with other stakeholders. When providing information, it is important to know how to get your message across clearly. What tribes and community members will need, would be training on how to deliver the message effectively to influence the decision, whether in written or verbal form. Workshop participants received a copy of Kawerak's Tribal Advocacy Toolkit that includes suggestions on how to deliver your message and who to deliver it to.

A fourth theme was that workshop participants believed that economic development was coming whether or not they wanted it. One way to overcome some of the challenges associated with this was to have more direct control in managing how activities were carried out in the region. For example, developing guidelines for ecotourism, defining "local hire" to include the specific region the company is operating in, and a direct role in industry's analysis of environmental impacts from their activities, with suggestions or requirements from local residents to reduce those impacts.

Lastly, it was important to have someone or a group to monitor legislation at the state and federal level for potentially harmful bills that could impact the region.

Consultation and Self-Determination policies, advocacy, projects and activities suggested:

- Advocacy process is costly and complex; but we need our voice heard
- Be involved so we have a voice in new policy development
- Involve local residents before policies are made or changed
- We say that the elders input is critical - we need them. They are left out and not informed/consulted due to language barrier
- State and Feds should consult with land owners and tribes about where vessels can go - mining/shipping
- State level consultation with local government about what happens in state waters, e.g., mining, barge mooring, etc.
- Have the state involved in our plans
- The State needs to be very involved with preparing ports, coastal protection, infrastructure
- Local involvement in EIS planning and preparation
- Limit impact on resources by our residents managing the activity (related to jobs)
- Fear of boating becoming too regulated for local people, but not for bigger vessels or traveling boats
- Need someone with an understanding of the region to monitor and critique the legislation/policy that would impact the region/way of life and translate to the people
- Monitor legislation to protect our rights
- Our region should benefit from shipping to lower costs (fuel, food, building material)
- When development occurs, there should be a policy of 60% local hire
- Define local hire to mean "Bering Strait" local hire, not state-wide

Eco-tourism and guidelines for tourism

Eco-tourism and tourism was seen as both a potential benefit as well as a potential impact. Participants had some really good ideas about how to take advantage of tourism opportunities that could promote their community. However, there was some concern. Participants felt they were not prepared. They felt that guidelines would be helpful. For example, guidelines that included appropriate time and place recommendations so as not to interrupt with subsistence activities. Furthermore, other preparations were needed such as: to identify infrastructure needs, from a community perspective (e.g., what type of buildings would be needed to house tourists); what are they attracted to (e.g., birds, marine mammals); can we build our own museums for tourists?

Eco-tourism and guidelines for tourism policies, advocacy, projects and activities suggested:

- Educate tribes about tourism business opportunities; what they are and how to do it
- Get back our artifacts from museums and build our own museums for tourism to come to our communities
- Promote low impact tourism in village that want ecotourism
- Have a low-cost business to run eco-tourism in our villages
- Coordinate cruise ship landings - in advance to be best prepared re: handicrafts, local guides, etc.
- Need training on expertise and facilities to do business with tourists

Education & regional outreach

Throughout the two-day workshop the idea about engaging youth and elders was repeated across all of the topics. Community leaders recognize the value that both elders and youth provide to the communities, and they want to identify opportunities to engage both groups of people. One of the first steps was to increase education on the topic of Arctic marine shipping more broadly across communities. There was a need to educate community members about the changes that are happening, and how to be prepared for change that may come with increased vessel traffic and development. Also, local awareness and education of youth was needed as they could prepare to take the specialized roles and jobs that come with increased infrastructure and development.

Education policies, advocacy, projects and activities suggested:

- Educate public regarding ships - USCG public relations
- Be informed about international shipping regarding military actions
- Local awareness and educate youth on changes and what we have to look forward to, so our youth-future will be skilled to run our own developments
- Hunter safety classes for ocean hunters
- Hold more workshops at the village level to share information (on this topic)
- Education to communities of children, adults, elders
- Educate our people about tsunamis
- Educate the community (about this topic)
- Training to learn regulations and laws; prepare now for infrastructure needed in the future; local input

Infrastructure

Infrastructure was discussed in the context of three main themes: infrastructure needed for response to protect important areas along coasts in the event of an accident; infrastructure needed to protect communities because of a changing environment; and infrastructure to support development due to increased Arctic shipping. Participants felt that infrastructure to protect the coast in the event of an accident or due to environmental change was needed, and however costly, money should not be an issue. The region should invest in infrastructure as it would be investing in the continuation of the culture for future generations. There was also a need to work together on these issues, to have collaboration among the city, tribe and village corporations. One person said “we need to work together like our elders taught us.”

Infrastructure policies, advocacy, projects and activities suggested:

- Planning for Infrastructure, include consideration of increasing ship traffic in LEDPs
- Improved infrastructure
- Build infrastructure, fire department
- Build hotels
- Look for funds to build arts/crafts building in Nome (for surrounding villages)
- Build multi-purpose storage facilities
- Build meeting facilities, rooms, lodging, restaurants
- Improve road systems to transport heavy items safely
- Locate new (in-region) sources of rock to reduce the cost of building Arctic ports, harbors or barge landings

- Develop high capacity utility systems
- Build seawalls in Shishmaref, Unalakleet, Shaktoolik, Teller, Golovin
- Some villages are at sea level with utilities reachable by high waters
- Build lighthouses on Diomedea, King Island and Wales to navigate during night shipping
- Evacuation roads & means (floods)
- Mitigate floods, erosion with local resources like Shaktoolik IS

Monitoring vessel activity

One of the immediate needs the workshop participants identified was to know, from a community perspective, “who is traveling in our waters” and what are they transporting. Having this information will help with local boat and subsistence traffic and planning. It will also help communities, in the event of an emergency, for response tactics to know the contents of a vessel (e.g., hazardous, oil). In this context, monitoring in this sense pertains to monitoring ship traffic on the waters and then secondly, identifying contents of transiting vessels. Having the ability to monitor on-water traffic will also help land-based local authorities in anticipating potential land-based trespassers (with water access only).

There are several options currently available to answer the questions of what vessels are traveling in Bering Strait waters. AIS technology can help with knowing what ships are coming and when they are coming. Gay Sheffield from the UAF Marine Advisory Program provided some options during her presentation for AIS access.

Knowing contents of ships is a little more difficult. You can get an idea of what a ship is carrying based on the type of vessel (e.g., cruise ship versus tanker), or whether individual boats report their contents via AIS. So, knowing what contents are may not always be available. This is something that may need more follow up and research on how to accomplish this, through a regulatory or voluntary process.

Communities should also think about the best way to share information (i.e., a communication network) about vessel traffic with on-water users, and one suggestion was to develop a board of villages to help figure this out. A board of villages could help determine a communication network from a small scale level within a community that could be scaled up to sharing information regionally.

Monitoring vessel activity policies, advocacy, projects and activities suggested:

- How can hunters monitor ship traffic near/around subsistence hunting areas?
- We want to know who is traveling in our waters
- Know who is traveling in our waters, why, and what they are transporting
- Local monitoring of boat traffic and boats
- Get AIS systems out to all the communities
- Develop coastal board of villages to monitor vessels & migratory sea life movements
- Arctic Coast Guard base that can monitor and police traffic, due to increased Arctic shipping
- Piracy
- Tribal game warden to protect subsistence lands/waters
- Use membership to monitor lands held to prevent trespass and damage control

Pollution

Pollution was a key concern identified within each round table session, and there were many suggestions provided by the participants on solutions to minimize/limit pollution. Suggestions included creating a zero discharge zone in the Bering Strait region, among other regulatory mechanisms. This means informing and advocating for regulations at both the federal and international level. In recognition of the need for vessels to offload wastes safely, some solutions were introduced for shore-side facilities for disposal. Participants also suggested that monitoring was important – monitoring both for illegal dumping as well as for the health of resources. These activities could also be undertaken in coordination with the EPA IGAP program. Health of resources can also be considered as part of a research and Traditional Knowledge program to help identify the baseline (see Research below).

Pollution policies, advocacy, projects and activities suggested:

- No discharge zone for Bering Strait
- Limits on where dumping can take place
- Stricter regulations on what can be dumped from vessels
- We need enforcement of Polar Code, on dumping, waste, grey water & bilge
- Rules and regulations concerning waste and bilge dumping
- Involve EPA/IGAP to help protect sea, air and land from pollution of vessels entering Arctic Passage
- Information about what is being dumped, right to know for communities
- Put observers on boats to monitor discharge of waste
- IRA research lands available for waste storage or discharge
- Demand that in an emergency situation that subsistence resources be tested for contamination
- Mitigation to help with waste/debris washed up in community

Preparedness

One of the most important needs identified in the workshop was that communities wanted to be prepared in the event of a maritime accident. They wanted to be prepared to help protect areas utilized for subsistence; they wanted to be able to help people in need. They recognize that they will be the first responders and they want to be prepared. There were three main categories that fall under preparedness; they are: planning, equipment, and training. Planning includes identifying resource people and who is responsible for certain tasks, who to contact outside of the region, and where local response resources are located. Equipment is necessary for responding to an emergency and people must be trained to use it, including practice using equipment and working together. All three of these categories need to be met in order to be effectively prepared in the event of an accident.

Meetings, discussion and decisions about preparedness usually happen outside of the region. Workshop participants wanted more of these activities to occur within the region. They also echoed the importance that funding shouldn't be an issue with securing infrastructure, ports, and building capacity. Protecting coastlines and resources was important and worth the monetary cost of protection. Participants thought that given a shipping lane, there would ultimately be impacts, we need to be prepared.

Preparedness policies, advocacy, projects and activities suggested as they pertain to planning for an accident:

- Emergency Plans - KNOM radio, evacuation plans, Facebook news with photos, response plan

- State and emergency response plans
- Response organizations need to learn and use existing communication networks (protocols) in villages and the region
- Need for local emergency planning
- Bering Strait communities will be the first responders: need equipment and training
- Staging areas in communities need to be identified in order to respond to spills (boom skimmers)
- Safety plans in place that consider: oil spills (for food security protection), emergencies: evacuations; accommodations; fuel/hotels/etc.; safe harbors
- Oil spill response team should be located at Port Clarence for the Wales area
- Emergency planning and communication plan for high water and storms
- Communication is a must for safety (Communication network)
- Kawerak can help tribes get funding for training and response equipment
- Preparing communities in close proximity to shipping traffic
- Regional SAR coordinated plan & exercises
- Communities have disaster/emergency plans & exercises

Preparedness policies, advocacy, projects and activities suggested as they pertain to response equipment needs:

- Obtain proper equipment in villages to clean up oil spills
- Emergency Gear needed in communities: VHF, cell phone, satellite phone, ham radio, repeaters
- Install VHF repeaters for emergencies and communication
- Place safety equipment in rural villages to protect inlets from oil spills
- Place proper equipment in/near communities
- Have REAL emergency equipment on hand: rescue boats, oil spills
- Satellite phones (SPOT)
- Float coats & maritime safety equipment are needed
- Shelters: fully supplied with first aid, water, food, extra generators, etc.
- Sirens in the event of tsunami - fast flood
- Build Search and Rescue spill response kits
- Ensure life jackets are worn at all times in waters, have emergency equipment ready at all times for unexpected events in the ocean and waterways
- Use vessels of opportunity to respond to spills
- Provide community with oil spill equipment and safety gear
- Depot/personnel in strategic locations
- Response equipment to rescue people in distress are needed. Nome has a rescue boat but every community should have one
- Need a larger vessel that would be able to handle a rescue effort in a bad storm

Preparedness policies, advocacy, projects and activities suggested as they pertain to training needs:

- Train people to maintain oil spill material; place oil spill material in each village along coast
- Train membership in disaster response (land or water) including a depot to store & dispose of waste
- Train villagers to be 1st responders, until state level responders arrive to an incident

- Train search and rescue
- Hazwoper classes and 8-hour refresher courses for responding to potential oil spills in arctic shipping emergencies
- Emergency response training in the communities needed at local level
- Train community members on oil spill clean up

Research and Traditional Knowledge Needs

Workshop participants identified additional research that would be important for decision-making when it came to mitigating effects from increased Arctic shipping in the Bering Strait region. They thought that research from both a western and traditional knowledge lens could help inform a baseline from which impacts from future activity could be compared. In addition to continuing the traditional knowledge research that Kawerak conducts, additional research from a western science perspective was needed that is important to the region. This could be done by Kawerak in an in-house program (e.g., North Slope Wildlife Department), or through partnerships with other agencies.

Research and Traditional Knowledge policies, advocacy, projects and activities suggested:

- More underwater sound studies
- Watershed committee that partners 2-4 communities that could test tides, water sampling, water life sampling. If communities partner we probably could cut down on costs
- Develop research format to document baseline info
- Monitoring for changes in air, water, sea life, ocean for pollution
- Use traditional knowledge to monitor marine life
- Provide statistical data, at the regional level, regarding subsistence routes such as fish, mammals birds
- Demand that in an emergency situation that subsistence resources be tested for contamination
- Testing for contaminants in food sources and water

Safe harbor/Ports

The idea of safe harbor was important in the event of storms. The communities wanted to have control about where ships may travel in bays and inlets, and the ability to monitor and enforce regulations (e.g., no-dumping). A potential solution to help give more control to communities and the ability to monitor vessels would be to create local port authorities or commissions.

Safe harbor/Port policies, advocacy, projects and activities suggested:

- Develop local ordinances regarding approval of harbor/port shipping
- Deep sea port to provide shelter for boats from rough seas or for maintenance
- Infrastructure of Port Harbors in Natural Safe Harbors
- Set mooring balls for ships that break down
- Establish a harbor master
- Each community should have their own harbor or port commission
- Teller & Brevig Mission create a Port Authority
- Teller & Brevig Mission start a new Port Authority

Shipping policies

During the workshop round table discussion, there were some specific shipping policies that people suggested as potential solutions to help mitigate the impacts of increased vessel traffic. The level of governance would need to be researched for some of the suggested policies (e.g., double hull requirement or invasive species requirements).

Shipping policies, advocacy, projects and activities suggested:

- Develop policies beyond jurisdictional limitations - better international policies
- Expedite the Polar Code
- Brain storm on how to get rid of invasive species (e.g., Cargo and hull)
- Require ships passing through the Bering Strait to have double hulls
- Push for speed restrictions

Tariffs and Fees

One of the concepts that workshop participants suggested was a tariff or tax on vessels. The proceeds of which could go back to the communities for compensation, or to maintain ports. This is a topic that requires additional research on how something like this could be implemented.

Tariffs and Fees policies, advocacy, projects and activities suggested:

- Tariff for shipping vessels to handle or compensate costs if an accident occurs
- Develop (but first understand) ordinances on taxing to build/maintain infrastructure
- Enforce Port fees
- Villages/towns have permitting process for ships in harbor, carrying hazardous material, or storage of materials on shore
- Surcharge vessels that come into our bays or future ports

Job Training and Capacity Building

In preparing for the future, one of the most important challenges to overcome will be to ensure that economic benefits (including jobs) will go to local communities and local people. One of the important considerations will be capacity building and technological training for youth. Planning for infrastructure and development should include, at the forefront, education and training of youth.

Job Training and Capacity Building policies, advocacy, projects and activities suggested:

- Train locals for jobs that would come from building infrastructure
- Training for LOCAL hire
- Technological expertise is not local/regional, need local expertise
- Take advantage of jobs in marine transportation & tourism - locally
- Include Native corporations regarding economic opportunities and infrastructure development
- Need locally trained people

Transborder Planning and Cooperation

The issues of trans-border planning and cooperation were another important topic, given the shared border of Russia and the United States. The border is recognized only politically. The animals, ecology,

culture, and language knows no border. The participants at the workshop would like to see more consideration of a shared environment and culture be included in planning.

Transborder Planning and Cooperation policies, advocacy, projects and activities suggested:

- Transboundary planning and cooperation needed (to plan, mitigate, respond) for spills
- Coordinate with Russian communities in the Strait on: response and planning, protection of the environment and important areas
- Emergency planning with Russian Bering Strait Communities
- Mutual Cooperation between USA/USSR

USCG Presence and Icebreaker Needs

The workshop participants acknowledged the role that the U.S. Coast Guard (USCG) plays in managing safe waterways. They hope that the USCG will continue to be a close partner in managing safe waterways in the Bering Strait region into the future. They also recognized the need for icebreakers, not only for security and safety, but for emergency situations, such as the event in Nome where winter fuel supply was scarce, and a Russian icebreaker assisted with fuel delivery.

U.S. Coast Guard Presence and Icebreaker Needs policies, advocacy, projects and activities suggested:

- Direct more funding for Coast Guard efforts in the Arctic
- Advocate for increased USCG presence in Arctic
- Need for more USCG Ice breakers
- More ice breakers for Alaska capable of water rescue and clean-up. Quick response to emergencies

Weather and Mapping for Safe Travel

Tools to increase safe travel on the water are an important need identified by the workshop participants. These include weather forecasts, monitoring on-water conditions and mapping hazards. Some of the “Area-based measures informed by Traditional Knowledge” from above could also inform these efforts.

Weather and Mapping for Safe Traveling policies, advocacy, projects and activities suggested:

- Monitor wave and tide patterns
- More accurate weather forecasting
- Improve telecommunications for weather and weather forecasting
- Need accurate bathometric data in our ocean/area
- Ocean floor mapping by locals
- Enter village concerns into the Coast Pilot, for mariners to be aware of

Questions and Follow-up Needs

There were several questions and areas where participants needed further information. During the discussion participants also recognized that other people in other locations may offer advice and experience. There is a need to learn from what has occurred elsewhere and where other lessons learned could be applied in the Bering Strait region.

Questions and Follow-up Needs policies, advocacy, projects and activities suggested:

- Can oil spill booms work on rough waters?
- What is the effect of the barge-based gold miners on subsistence hunters and animals? Will they expand mining to the ocean?
- What are plans and policies by other countries such as Canada? What can we learn from them?
- How does transboundary drilling impact US waters?
- What are the impacts of vessel traffic to wildlife?

Nome and Saint Lawrence Island dancers



Photo credit: Julie Raymond-Yakoubian

SECTION 9: MOVING FORWARD, WHATS IS NEXT?

In order to effectively address this issue, a concerted effort will include action and effort regionally by Kawerak and the Marine Advocate, as well as action at the village level. Working together, communities and Kawerak can come up with long-term solutions that work for the region.

What will Kawerak do?

Kawerak will be hiring a Marine Advocate to help with the education and training of individuals from 16 communities in the Bering Strait region, based on the priorities identified in the workshop. These efforts will enable proactive responses that promote marine conservation and safety, and build local capacity. The next step will be completion of a regional strategic plan in consultation with the communities that include specific recommendations about how to address impacts of increased industrialization in the region. This plan will be used to inform federal and international efforts to mitigate direct threats to marine mammal and fish species posed by increased vessel traffic. And, this plan may include recommendations for monitoring marine mammals (under the authority of FWS and NOAA) in light of increased arctic marine vessel traffic.

The Marine Advocate will develop an organizational plan that will ensure engagement and education on issues related to reducing the risk of vessel disturbance and oil spill contamination for both marine mammals and hunters. This organizational plan for Kawerak, completed by December 2015 will identify key staff necessary to carry the 'Bering Strait Marine Program' forward and a funding plan to support the work of the program. Another important need identified by the workshop participants was to engage village corporations. The Marine Advocate will also consider this in the plan going forward.

Marine Advocate (MA) role:

- Distribute the final workshop report to participants
- Develop a calendar of shipping related meetings, events, conferences, etc. The MA will need to monitor them and attend when possible, submit written comments when opportunities arise, and write white papers/summaries for Kawerak and tribes.
- Orient MA to all marine/coastal-based social science data we have so that it can be integrated into the above and below. In order to achieve this, the Marine Advocate will need to work with the Social Science Program and communities to use the marine mammal and other maps to formulate mitigation measures in more detail.
- Have MA follow up with each tribal council/city council to introduce themselves. The MA should host a joint city/tribal council/community meeting in each community within the first eight or so months of hire – so people can get to know the person and the MA can review specific concerns from the report, and develop contacts in the communities.
- Have the MA meet with USCG staff in Juneau – in person. They should meet specifically with the Tribal Liaison, and Commander Houk, among others. They need to get to know the key USCG staff, and develop good working relationship with them.
- Have a several year plan for the MA with topics they should be focusing on: these are the major concerns that came out of the workshop and would include things like ballast water, black carbon, time/location restrictions, etc.

Identify some of the gaps?

One of the important questions for Kawerak and the MA to follow up on will be to start to identify what some of the gaps are in order to effectively protect a subsistence way of life. The use of gaps here refer to: what information is needed

Some of the gaps and information needs that need to be addressed in order for an effective strategy to come forward include the following:

- There is still a lot of traditional knowledge to document regarding the marine environment. Currently, there is only detailed information available for a handful of species through work with Bering Strait region communities conducted by the Social Science Department. This work takes time and is expensive. There is an expressed need for more funding and sources of money to design projects, hire more Nome/village staff, and produce results and products.
- A gap, or a next step, for both Kawerak and tribes is a need to put more effort into facilitating Tribal engagement with documenting Traditional Knowledge of the marine environment.
- Communication between State/Feds/IMO and the tribes/communities.
- Community capacity to monitor and communicate with vessels.
- Russian/U.S. communication, and communities have very little info about what is happening in Russian Bering Strait waters, or in/to Chukotka communities.
- Funding for training of community members for response-type activities, and funding to get response materials deployed in communities.
- There is no real 'watch-dog' organization that is focused on tribes (and shipping). Kawerak is attempting to fill this gap through the workshop, hiring of a Marine Advocate, and our planned work over the next few years.

What can I do in my community?

Some of the examples that participants brought up during the closing session about what they can do individually in their own communities included the following suggestions:

- Go to the www.marine-traffic.com website and share it with people in my community
- Start building infrastructure with having the Search and Rescue and Fire Department back up and running in my community.
- Golovin is working on small community emergency response plan
- Educating people, especially youth to get an education so we can be more prepared so we have expertise and skills within our own communities; produce a list of volunteers for Search and Rescue who are willing and able to help when need arises; re-establish Search and Rescue
- Ask our tribe to write a letter to support the USCG station in the Arctic to both state and federal leaders
- To become more involved in arctic shipping in the communities.
- Tribal community game-warden

SECTION 10: CLOSING COMMENTS

In closing, Melanie Bahnke recited Kawerak’s vision statement: “Building on the inherent strength of our cultural values, we shall assist our tribes and residents to create a positive future.” She noted that this gathering was a prime example of Kawerak’s efforts to work towards a positive future. Melanie noted that everyone in the room knows what happens when we are not included in the decision-making process. This is chapter two of western influx. We are at point where we know about intergenerational trauma and assimilation. We have an opportunity to re-write this chapter. “We are finding our voice, having dialogue, and not just talking for three minutes, but coming together to have dialogue. Arctic shipping could potentially be genocide; it could put us, people, on the endangered species list. It could also be key to what sustains us into the future. This is step one of articulating our message. It will take hard work, it will take working together. Our region is very unified, we are not afraid to work together to identify solutions.”

Workshop participants looking at maps of natural resources and traditional knowledge from the Social Science Department.



Photo credit: Julie Raymond-Yakoubian

APPENDIX 1: WORKSHOP PLANNING COMMITTEE

A number of organizations and individuals came together in support of and to assist in planning for the Gathering. These included: Kawerak, regional tribes, regional city governments, Inuit Circumpolar Council of Alaska, Institute of the North, Seagrant, the US Coast Guard and The Pew Charitable Trusts.

A planning team came together to help plan and prepare for the workshop. The planning team members included the following:

Kawerak:

- Rose Fosdick
- Pearl Milkulski
- Freida Moon-Kimoktoak

Institute of the North:

- Karlin Itchoak (until leaving for a new position)
- Nils Andreassen

ICC-Alaska:

- Carolina Behe

The Pew Charitable Trusts:

- Raychelle Daniel
- Melissa Prior-Parks

Rose Fosdick addressing the workshop



Photo credit: Julie Raymond-Yakoubian

APPENDIX 2: WORKSHOP AGENDA

Bering Strait Voices on Arctic Shipping Agenda September 16-17, 2014

Day 1

8:30 am - Sign-In and Continental Breakfast

9 am - Prayer

9:05 am - Welcome

9:10 am - Opening Comments

9:30 am - Brief Introductions

9:45 am - Session Guidelines

10 am - Participant Concerns or Future Opportunities Regarding Increased Arctic Shipping

10:30 am - Break

10:45 am - Arctic Shipping Overview

12:00 pm - Lunch Break

1:00 pm - Resource Materials Summary

1:15 pm - ICC-AK Food Security Project

1:45 pm - Break

2:00 pm - Safety and Security Session Overview of Issues

2:15 pm - Safety and Security Round Table Discussion

3:30 pm - Wrap up of Safety and Security Session

3:45 pm - Review and Closing Remarks

4:00 pm – Nome St. Lawrence Island Dancers

4:00 pm - Dismiss

Day2

8: 30 am - Sign-In and Continental Breakfast

9:00 am - Infrastructure Overview of Issues

9:15 am - Infrastructure Session Round Table Discussion

10:00 am - Wrap up of Infrastructure Session

10:15 am - Break

10:30 am - Economic Development Session Overview of Issues

10:45 am - Economic Development Session Round Table Discussion

11:45 am - Wrap up of Economic Development Session

12 pm Lunch

1:00 pm - Protection of Natural Resources Session Overview of Issues

1:15 pm - Protection of Natural Resources Session Round Table Discussion

3:00 pm - Wrap Up of Protection of Natural Resources Session

3:15 pm - Review

3:30 pm - What Next?

4:30 pm - Closing Comments

APPENDIX 3: LIST OF WORKSHOP PARTICIPANTS

Gilbert Tocktoo, Brevig Mission Traditional Council
Tommy Teayoumeak, Jr., City of Brevig Mission
Edward Soolook, Native Village of Diomed
Tyler Ivanoff, City of Elim
Sheldon Nagaruk, Native Village of Elim
Edgar Campbell, City of Gambell
Iver Campbell, Native Village of Gambell
Kathy Punguk, City of Golovin
Carol Oliver, Chinik Eskimo Community
Tracey Kimoktoak, Native Village of Koyuk
George Sookiayak, Sr., City of Shaktoolik
Mary Carter, Nome Eskimo Community
William Jones, Sr., City of Shishmaref
Bobbi Ann Andrews, City of Saint Michael
Edna Savetilik, Native Village of Shaktoolik
Pius Washington, Native Village of Saint Michael
Robert Tokienna, Jr., City of Wales
Thomas Kirk, Stebbins Community Association
Wesley Okboak, Teller Traditional Council
Jacob Ivanoff, Native Village of Unalakleet
Ralph Anungazuk, Native Village of Wales
Peter Buck, Native Village of White Mountain
Julie Raymond-Yakoubian, Kawerak
Art Ivanoff, Bering Sea Coalition
Gay Sheffield, UAF Marine Advisory Program
Caroline Behe, Inuit Circumpolar Council
Nils Andreassen, Institute of the North
Lucas Stotts, Harbormaster, Port of Nome
Sudie Hargis, US Coast Guard
Raychelle Daniel, Pew Charitable Trusts
Denise Michels, Mayor, City of Nome
Marilyn Heiman, Pew Charitable Trusts
James Houck, US Coast Guard
Roger Rufe, The Ocean Conservancy
Melissa Parks, Pew Charitable Trusts
Vera Metcalf, Eskimo Walrus Commission
Katya Wassillie, Eskimo Walrus Commission
Rose Atuk-Fosdick, Kawerak
Freida Moon-Kimoktoak, Kawerak
Melanie Bahnke, Kawerak
Joy Baker, Port of Nome

APPENDIX 4: OVERVIEW OF ARCTIC SHIPPING, WHAT IS BEING SEEN ON THE WATERS

Vice Admiral Roger Rufe (Ret.) presented an overview of Arctic shipping. Vice Admiral Rufe (Ret.) is a retired Vice Admiral from the USCG, a former captain of five USCG cutters, and he was also in charge of District 17 that includes this region. Vice Admiral Rufe (Ret.) acknowledged that the people in the room are more knowledgeable about this topic as people who live along the waters have first-hand experience and know what is happening on the water. The figures and numbers presented on vessel traffic were information obtained from the USCG and the Marine Exchange. The estimates of vessels traveling north, south, and in total may not add up mathematically. This difference in figures is due to the technological and physical ability to track and detect vessels by AIS technology. However, the numbers of ships transiting this area is relatively similar and provides a good indicator for overall patterns.

It is important to get a good characterization of the traffic in order to determine what would work to mitigate impacts from vessel traffic. Characterization of vessel traffic refers to number of vessels, what kind of vessels, where and when are they traveling. Knowing this type of information will help in setting regulations, policies and programs that can help alleviate the impacts and help better take advantage of the benefits of increased vessel traffic.

Arctic Shipping Routes

There are three routes in the Arctic, the Northern Sea Route which travels along the Russian side of the Arctic, the Transpolar Route which goes straight across the polar ice cap, and the Northwest Passage Route which comes from Canada and travels along the Arctic Slope of the U.S. In the Bering Strait, traffic from all three routes converges at the Bering Strait chokepoint (Figure 1). Residents in the Bering Strait region will experience traffic coming and going from all three routes.

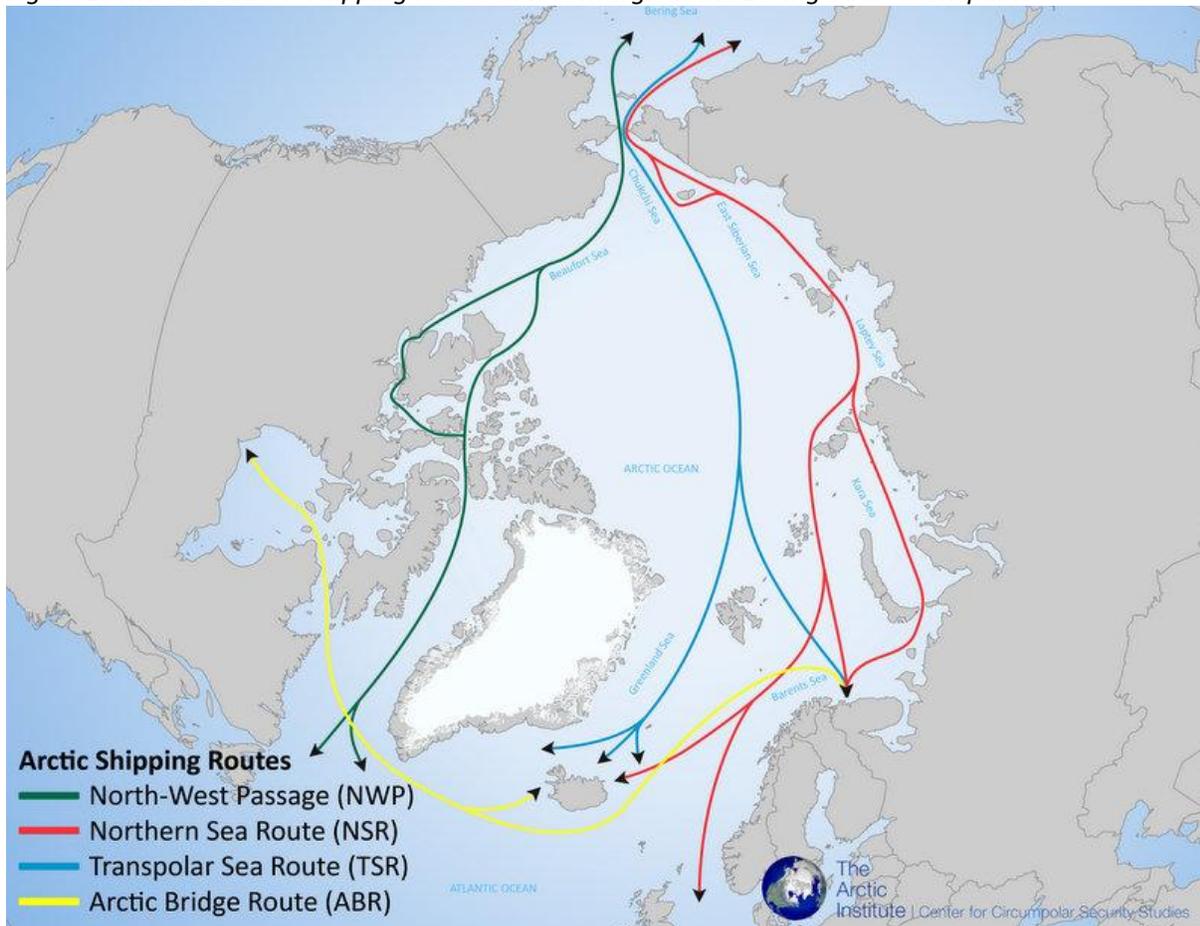
Bering Strait Traffic

How do you see or track vessels? An overview of the Automatic Identification System (AIS)

Note that on the second day Gay Sheffield, from the University of Alaska Fairbanks, Marine Advisory Program (MAP) presented an overview about Automatic Identification System (AIS). For clarity and understanding of how we “see” vessels, this section was included here in the report rather than with the “Economic Development and Infrastructure” section within which she presented.

The Automatic Identification System (AIS) is a method of broadcasting shipboard information to others. It is designed to increase maritime safety for ships by electronically broadcasting the identity, position, and course of a vessel, thus helping other ships prevent collisions and assisting port authorities to better control maritime traffic. Since 2004, the International Maritime Organization, the group that develops and maintains regulations on international shipping, has required all vessels more than 300 gross tons and all merchant ships with passengers, regardless of size, to carry an AIS transponder. Other information can be included, but is not required to be included. For example, what type of contents the vessel might be carrying. AIS transponders on vessels include a GPS receiver and a VHF transmitter which broadcast information to other ships that carry AIS on board - as well as to base station receivers.

Figure 1. The three Arctic shipping routes that converge at the Bering Strait chokepoint



Anyone with an AIS receiver can receive signals. Some base stations link several receivers and transmit the information they receive to a larger base station which then can sell access to the AIS signals they are receiving at their smaller base stations (e.g., The Marine Exchange). The Northwest (NW) Campus voluntarily takes care of an antenna and receiving station (via NWC internet) and transmits information received to marinetraffic.com. This is a publicly accessible site which allows the public access via the World Wide Web to what their freely distributed antennas are receiving. If you purchase a subscription to marine traffic.com you can get more detailed coverage (including satellite coverage, etc.).

Figure 2. University of Alaska Fairbanks, AIS unit installed on Northwest Campus (Nome) is small and compact. For size reference, the detection unit is located on the front of the building on the upper right column



Photo credit: Gay Sheffield

How much traffic is there and is the traffic increasing?

Vice-Admiral Rufe (Ret.) presented information about vessel traffic based on AIS. Most shipping activity in the Arctic happens in July, August, September and October. The greatest traffic volume occurs in October when sea ice is at its minimum. Recorded vessel traffic transits have basically doubled over the time period from 2008 to 2013 (Table 1). In 2008 the numbers of vessels transiting the Bering Strait was closer to 200 and today that estimate is over 400. This report includes the figures and estimates that were immediately available at the time that the workshop occurred.

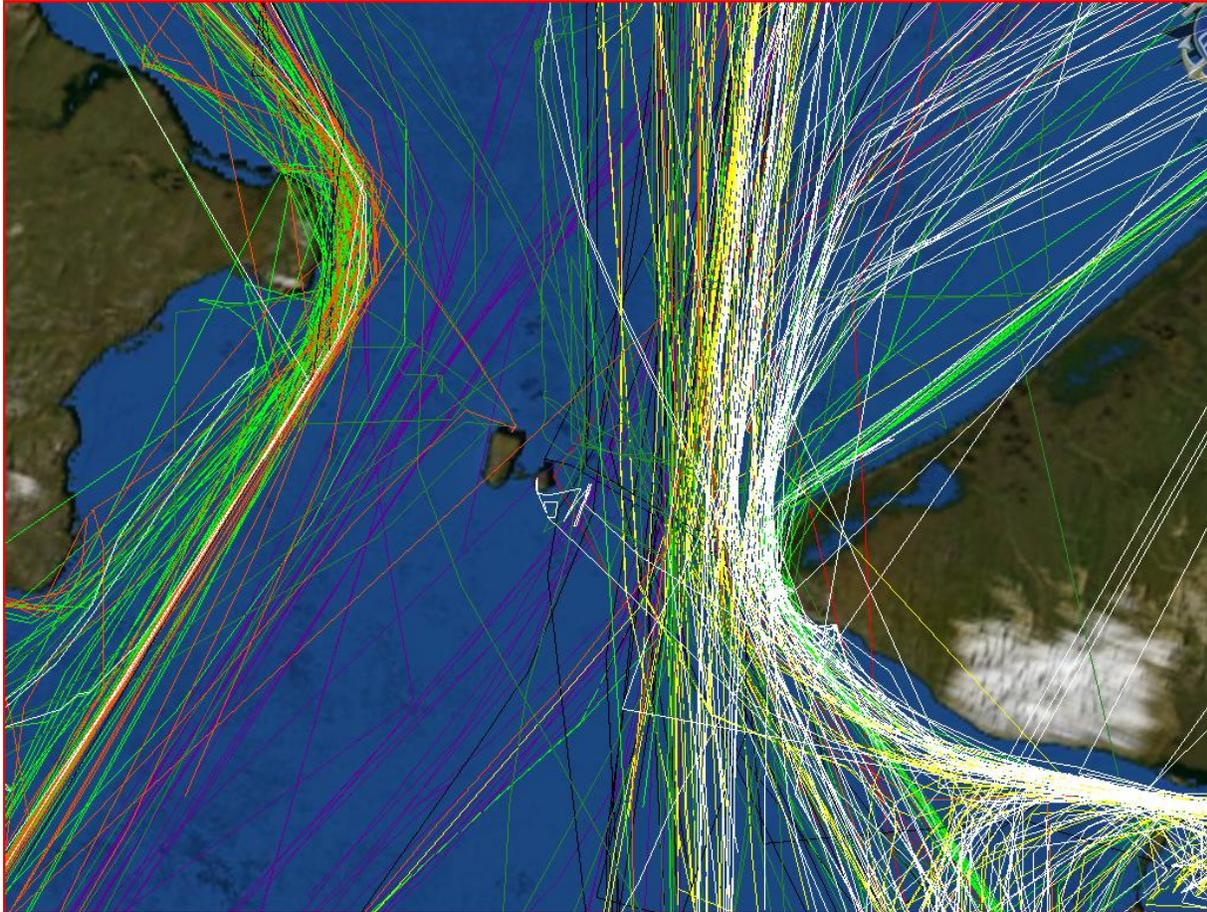
Table 1. In 2009 the Marine Exchange of Alaska commenced monitoring and recording marine traffic transiting through the Bering Strait. The Marine Exchange used the recording feature in its vessel tracking software PACTRACS to monitor this traffic. AIS signals from vessels transiting the strait were monitored by receiving antennas in Gambell and Savoonga on Saint Lawrence Island in the Bering Sea and the village of Wales on the Alaska mainland. A summary of the traffic recorded is shown in the table below.

YEAR	NORTHBOUND TRANSITS	SOUTHBOUND TRANSITS	TOTAL TRANSITS
2009	136	126	262
2010	128	114	242
2011	124	115	239
2012	154	162	316
2013	171	173	344

Where is the traffic located/where is the traffic traveling?

Another valuable type of information is geographically “where” vessel traffic is transiting. Figure 3 provides a sense of where the traffic is going, spatially as it transits the Bering Strait. Note that much of the traffic for this particular year (2012) occurred on the U.S. side of the Bering Strait. It is possible that there could be more traffic on the Russian side of the border than is currently recorded from the receiving antenna located on the Alaskan side of the Bering Strait region. This is a possibility because there is not sufficient tracking (AIS) equipment shoreside to capture/detect all of the traffic traveling on the Russian side of the Bering Strait. We think this is likely, due in part to the difference in estimates reported from the Northern Sea Route Information Office and the USCG obtained through monitoring traffic by AIS technology. Another reason that these numbers of vessels may seem smaller to communities who can easily observe boats as they transit is due to the fact that not all vessels are required to carry AIS tracking equipment. But the vessel carriage requirement may not apply to vessels that seem relatively larger than vessels used by subsistence maritime traffic.

Figure 3. Traffic from the 2012 Shipping season. In general vessels stay closer to the coast, Russian traffic is on the Russian side and U.S. and Canadian traffic on the U.S. side. Vessels travelling to Red Dog mine (in purple) are mostly going to Asia and they cross from the Russian side to the U.S. side and the occasional mining resupply ship that comes from Seattle to Pevek mine in Russia.



Credit: USCG

Who are the vessels and where are they going?

AIS technology provides access to the ship's name, the type of ship, its origin, its course, speed, and its destination. This information provides you with some of the details about the ship, which could be useful information for a small boat engaged in maritime subsistence activities. However, you will not always know what the vessel is carrying as that type of information is not required. Tables 2 and 3 list the breakdown of traffic by vessel type transiting the Bering Strait over one season (2013). The majority of the traffic in 2013 consisted of bulk carriers and towing vessels traveling northbound. Note that the numbers do not mathematically add up as the same vessel may have transited several times during one season (e.g., barge, resupply vessels).

Table 2. Breakdown of Vessel Traffic by Type – Northbound. The 2013 navigation season observed by the Marine Exchange extended from 11 June 2013 through November 5, 2013, a period of 147 days. During that time approximately 344 vessels were tracked through the Bering Strait. Industry Trade magazines indicated that Russia had granted as many as 530 licenses to transit the Northern Sea Route during this period. Nothing of this magnitude was observed by the Marine Exchange. That does not mean that the transits did not take place; it simply means that all of the traffic was not captured by the Marine Exchange’s current tracking system.

Type of Ship	Number of Transits	Remarks
Bulk carriers	26	23 ships bound for Red Dog; 1 bound for Denmark via the Northwest Passage and 2 bound for Europe via Northern Sea Route
General cargo	14	12 ships bound for Pevek; 2 for Europe via Northern Sea Route
Fisheries Research	1	Japanese ship
Fishing Vessels	5	4 ships
Icebreakers	14	9 ships
Landing craft	5	3 ships
LNG Tanker	1	ARCTIC AURORA ship to Norway via NSR
Buoy tender	1	USCG ship
Ocean Research	11	4 ships
Unspecified	11	9 ships
Passenger	7	2 ships (BREMEN, HANSEATIC) and 4 other smaller ships
Pleasure	2	2 vessels (MICHAELA ROSE, OCTOPUS)
Reefer	1	1 ship (BEREG MECHTY)
Roll on Roll off cargo ships	1	1 ship (VASILY GOLOVNIN)
Tankers	18	12 ships
Towing	49	30 ships

Table 3. Breakdown of Vessel Traffic by Type – Southbound

Type of Ship	Number of Transits	Remarks
Bulk Carriers	26	25 ships; 1 from Europe VIA NSR
Fishing	6	5 ships
General Cargo	16	All Russian ships
Icebreakers	11	8 ships
Landing Craft	4	2 ships
LNG Tanker	1	1 ship (ARCTIC AURORA)
UNKNOWN	6	4 ships
Ocean Research	14	10 ships
Passenger	10	6 ships (BREMEN, HANSEATIC and 4 small ships)
Sailing	2	2 small vessels
Tanker	18	14 ships; 1 ship from Europe via NSR
Towing Vessels	50	U.S. & Canadian vessels
UNKNOWN	8	2 vessels
Buoy tender	1	USCGC ship (SPAR)
Yacht	1	1 small vessel

Seasonal patterns of vessel traffic transits

The heaviest months of vessel traffic occurs from July through October. The southbound traffic in 2013 (from the information presented in Table 2) during the open water season is broken down by month in Table 4. This table shows the different types of vessels and the months during which they made transits through the Bering Strait. In this year the first ship transiting the Bering Strait occurred in early June. Transits through the Bering Strait generally cease in November, due to the quick onset of the sea ice. Table 5 shows details over the course of the summer for northbound traffic in 2013. Note that northbound traffic peaked in July and August while southbound traffic peaked during August and September. This difference in timing likely reflects the difference in the origin and destination of the traffic. The traffic bound to Alaskan waters usually occurs earlier while the traffic coming through the Northern Sea Route and from other arctic destinations usually peaks later in the season.

Table 4. Southbound traffic, 2013, by month and type.

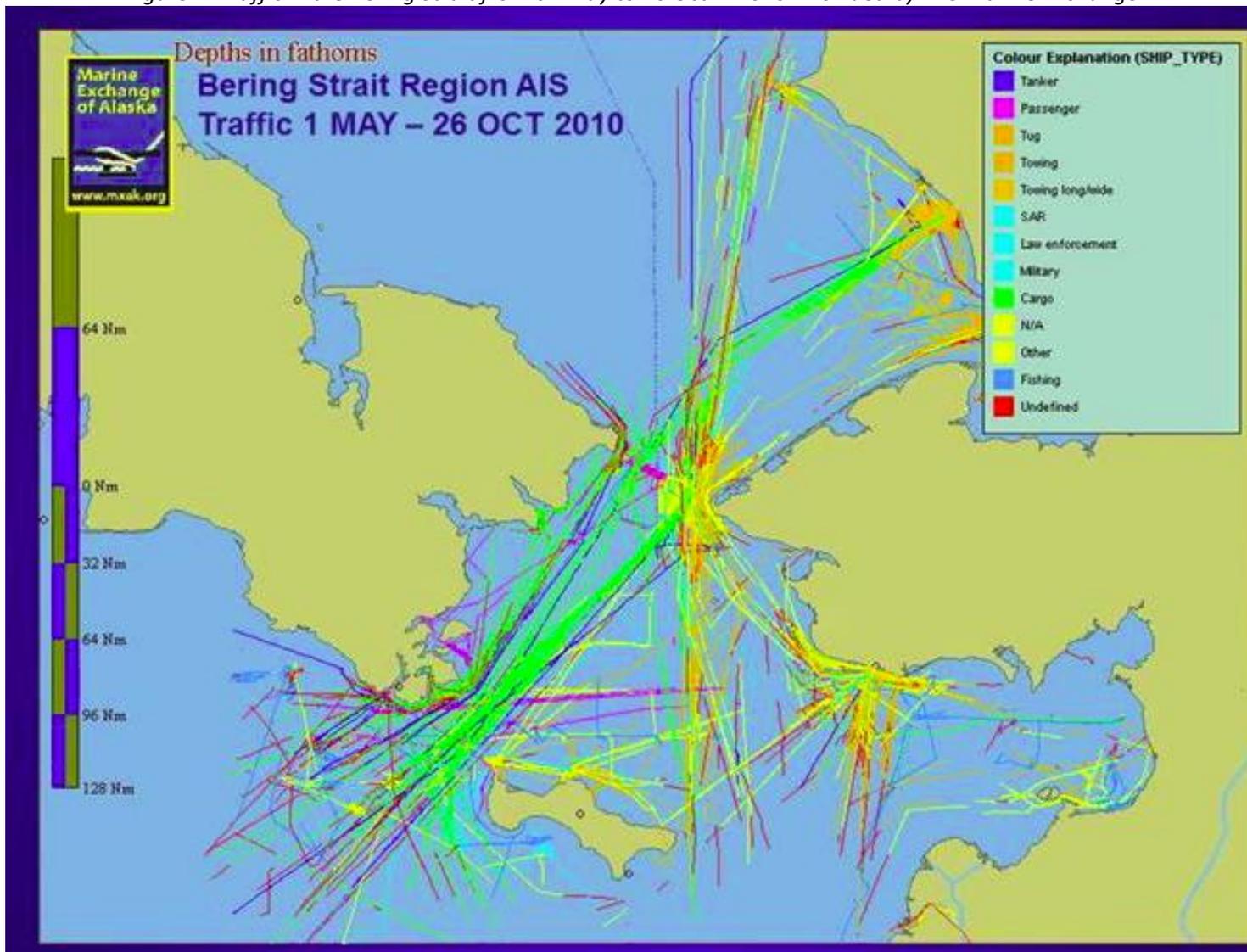
Vessel Type	JUNE	JULY	AUG	SEPT	OCT	NOV	TOTAL
Bulk carrier	-	9	9	3	4	-	25
Fishing	-	-	1	5	-	-	6
General Cargo	-	-	6	6	2	2	16
Icebreaker	-	1	3	5	2	-	11
Landing craft	-	2	-	2	-	-	4
Liquid Natural Gas Carrier	-	-	-	-	1	-	1
Passenger	-	1	4	4	-	-	9
Research	-	6	1	-	6	-	13
Tanker	-	2	7	5	4	-	18
Towing	-	10	24	18	8	-	60
US Coast Guard Ship	-	1	-	-	-	-	1
Unknown	4	-	-	-	-	-	4
Training vessels	-	-	-	1	-	-	1
Yacht	-	-	-	3	-	-	3
Monthly TOTAL	4	32	55	52	27	2	172

Table 5. Northbound traffic, 2013 by month and type

Vessel Type	JUNE	JULY	AUG	SEPT	OCT	NOV	TOTAL
Bulk Carrier	1	9	6	5	4	-	25
Fishing	-	2	3	-	-	-	5
General Cargo	-	2	4	6	2	-	14
Icebreaker	-	6	4	1	3	-	14
Landing Craft	-	5	-	-	-	-	5
LNG Tanker	-	-	1	-	-	-	1
Passenger	-	3	2	2	-	-	7
Reefer	-	-	-	-	1	-	1
Research	-	6	3	-	2	-	11
Roll on Roll off cargo ships	-	-	-	-	1	-	1
Tanker	-	3	8	4	1	2	18
Towing	5	20	23	9	1	-	58
Training	-	-	11	-	-	-	1
USCG	-	1	-	-	-	-	1
Unknown	3	-	-	-	-	-	3
Yacht	-	-	1	1	-	-	2
Monthly Total	9	57	56	28	15	2	167

Where are these vessels traveling? Figure 4 shows northbound and southbound traffic combined (Figure 2 and Table 2 and 3) on one map. This figure shows, spatially, where the different types of vessels are transiting the Bering Strait. Note that there is a lot of traffic between Gambell and Provideniya in the Strait of Anadyr. Traffic going north towards Red dog mine as well as to Prudhoe Bay and Barrow are also easily seen on the eastern side. The western traffic is primarily traffic from the Northern Sea Route regulated by Russia through the Northern Sea Route Information Office. Russians are intent on improving the Northern Sea Route for economic development and have established Federal legislation based on the UN Convention on the Law of the Sea to enact a tariff and permitting system for transit.

Figure 4. Traffic in the Bering Strait from 01 May to 26 Oct in 2010. Provided by The Marine Exchange



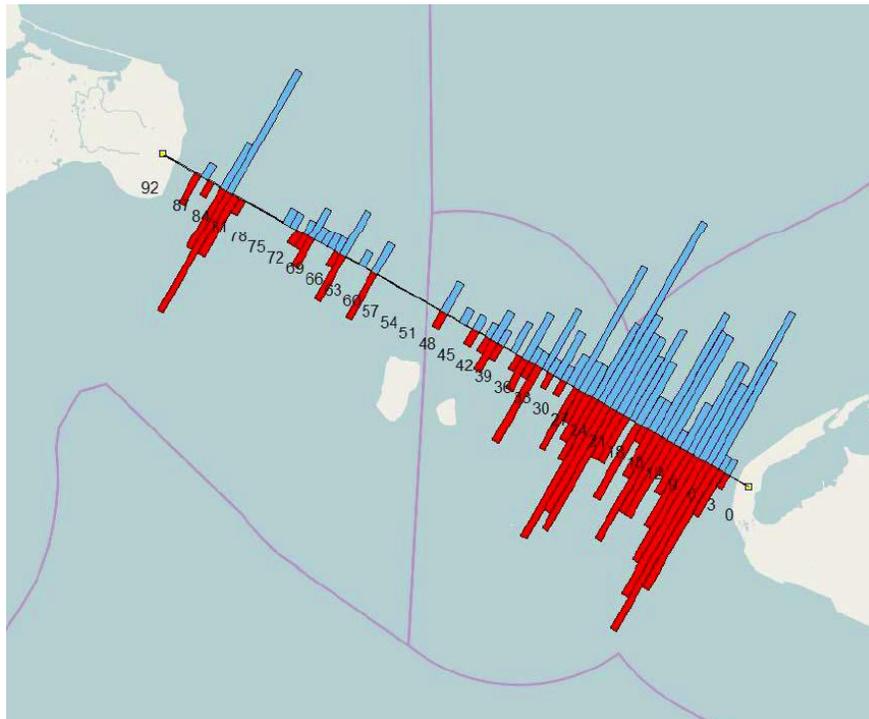
Risks due to vessel traffic in the Bering Strait

The numbers of vessels transiting the Bering Strait have been increasing; however, relative to other narrow maritime chokepoints the numbers of transiting vessels are relatively small. The number of vessel transits in the Bering Strait not as high relative to the Aleutians or the Suez Canal. However, this difference in traffic volume is not a fair comparison because of the unique characteristics of the Bering Strait region including both people and environment. The volume of traffic should not create a sense of complacency. The risks, in the event of only one incident, posed to the people and environment in the Bering Strait region are significant.

Relative to other maritime hubs in the world, vessel traffic in the Bering Strait poses a small but heightened risk. This increased risk is due to the lack of response infrastructure and the threat to a subsistence way of life if an accident results in a pollution event. There is also the potential for a long-term threat to subsistence resources as a result of cumulative impacts of increasing traffic on resources. Cumulative impacts refer to the sum of the other effects such as noise; pollution; introduction of invasive species; marine debris; ship strikes; deflection of marine wildlife from foraging hotspots and migratory routes; etc.

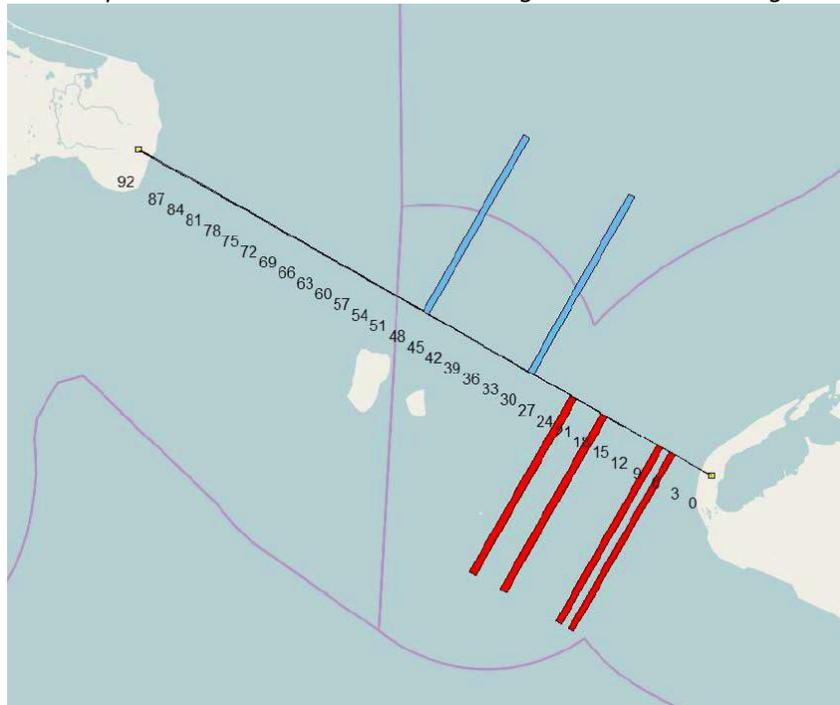
Current vessel traffic patterns help explain and show some of the potential risk. Figure 5 is a histogram that shows the density of vessel traffic across Bering Strait. Traffic concentrates closer to the mainland with less ship traffic further offshore. The closer to the shoreline that vessels travel, the more likely an accident could happen if a vessel lost power. This risk is accentuated by the fast moving waters and other hazards such as rocks or shoals – especially in areas with little or no accurate marine charts.

Figure 5. This histogram depicts traffic densities crossing the Bering Strait for the entire navigation season of 2013 which extended from 11 June 2013 through 5 November 2013.



On the busiest single day of traffic in 2013, eight ships transited the Bering Strait. Figure 6 shows where the traffic occurred spatially. This level of traffic transiting the Bering Strait provides a false sense of security; if on the busiest day of traffic there are only eight ships transiting the strait, this may not seem like very many vessels. The number of vessels transiting the Strait is a poor measure from which to characterize the risks and consequences. If an incident occurs, there are few to no resources to prevent it from developing into a much larger incident. Resources such as: equipment and trained people to respond; the capacity to tow a barge or dead ship; ability to respond to a cruise liner; and the ability to protect important shoreline and marine habitat if in the event of an oil spill. The impacts to a subsistence way of life could be catastrophic if there is a pollution event, such as an oil spill. Any incident would present an extremely difficult situation. Currently response to a pollution event in the Bering Strait region is currently untested and most certainly challenging, so prevention will be imperative.

Figure 6. Figure shows histogram of traffic taking place on 25 July 2013. As can be seen, there is a large horizontal separation between all vessels making these transits during that date



Another potential concern is if a ship loses power and drifts. Figure 7 shows the actual tracks during the 24-hour period on 25 July. The vessels are not in close proximity to one another, which reduces potential collision; however, it doesn't mean that other incidents are not possible – e.g., dead ship (Figure 6). If a ship loses power, who will be there to put a line on them to keep them from going aground? Again, that these tracks (Figure 7) cover a 24-hour period and that the time separation between transits varied anywhere between 5 hours to less than a quarter of an hour. The horizontal separation of these transits shows considerable variability in an area with only 23.6 miles between the Alaska mainland and Little Diomedede Island. This depiction of vessel tracks is for the day with the most traffic during the entire navigating season. There were numerous days when only one or two ships actually transited the area.

Figure 7. Yellow lines show actual tracks of all vessels transiting the Bering Strait during July 25, 2013. The purple line is the territorial sea out to 12 miles from the shoreline.



Bering Strait visual traffic slides – Roger Rufe showed a series of slides that included images, dates and destination of ships that have been recorded transiting the Bering Strait. Each slide described the vessel that went through in 2013, the date it transited – size, type and where it was headed. Most of these vessels are traveling slowly, less than 10 knots.

How do you prevent an accident from occurring and how do you regulate shipping in the Bering Strait?

Several questions and concerns arose during the question and answer period that focused on how to regulate shipping and what can be done to prevent both pollution as well as an accident from occurring. Admiral Rufe stressed the importance of ensuring that preventative measures were in place to reduce the chance of an accident occurring. This was an important lesson that the ocean-going community learned from the MV *Selendang Ayu* incident in the Aleutian Islands, which led to the Aleutian Islands Risk Assessment process (AIRA) that had some important recommendations. One recommendation from AIRA included a two-way traffic scheme (like a divided highway) to know where vessels should go in the water to avoid collision. Traffic routes were also placed far from shore to allow for more time to respond to a drifting vessel and to avoid having it go aground. Another preventative tool important in the Bering Strait region could be the designation of “areas to be avoided” that can be placed on nautical charts to inform mariners of places that vessels should not travel. The Coast Pilot, a maritime guide regularly used by seafarers is another tool to inform mariners to avoid concentrations of marine mammals, migration routes, or areas important to maritime subsistence activities. Luckily for the Bering Strait there is still time to ensure that preventative measures are put in place to protect what is most important to the region. These are some of the types of preventative measures needed to be established prior to complacency setting in.

Federal governance

Table 6 provides a list of existing measures aimed at improving safety and navigation and reducing the risks of an accident or environmental harm. This list also includes the main federal agency responsible for the rule or regulation. Agencies often work in coordination on some preventative measures, for example the U.S. Coast Guard and National Oceanic and Atmospheric Administration.

Table 6. Existing Preventative Measures

PREVENTATIVE MITIGATION MEASURES	DOMESTIC AUTHORITY/JURISDICTION
<p>Aids to Navigation Examples include: lighthouses, minor lights, sound signals, day beacons, lighted and unlighted buoys.</p>	<p>US Coast Guard, 33 Code of Federal Regulation (CFR) Part 62.</p>
<p>Arctic Waterways Safety Committee A coordinating group of public and private stakeholders that partner with the objective to increase communication and promote effective, safe and environmentally sound maritime operations. Also referred to in the lower 48 as “harbor safety committees” and “Port Advisory Groups”, amongst other names.</p>	<p>No official/legal jurisdiction, but membership often includes federal agencies, such as the U.S. Coast Guard.</p>
<p>Area to Be Avoided “...an area with defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and should be avoided by all ships or some classes of ships.” (NOAA Office of General Counsel)</p>	<p>National Oceanic and Atmospheric Administration (NOAA) & US Coast Guard (USCG) propose areas to the International Maritime Organization (IMO). USCG protections around deepwater ports (33 CFR § 150.9) & IMO, Safety of Life at Sea (SOLAS) Convention, Chapt. 5, Sec. 10.</p>
<p>Automatic Identification System Designed to be capable of providing information about the ship (including call sign, type of vessel, cargo, speed, destination and last port of call) automatically to other ships and to coastal authorities.</p>	<p>USCG regulations at 33 C.F.R. § 164.46 International Maritime Organization Safety of Life at Sea (SOLAS) Convention, Chapt. 5</p>
<p>Avoiding marine mammal feeding areas</p>	<p>Marine Mammal Protection Act, enforced by NOAA/National Marine Fisheries Service (NMFS) or other federal agency, makes it unlawful for any vessel under US jurisdiction to “take” marine mammals. (50 CFR § 216.11)</p>
<p>Coast Pilot Supplements navigational charts with local information such as weather, ice conditions, tides, currents, coastal features and landmarks.</p>	<p>NOAA, Office of Coast Survey; <i>see also</i> USCG; 33 CFR § 164.33(a)(2)(i) (requires vessels to carry relevant Coast Pilot).</p>
<p>Communication: Vessels and Subsistence Hunters</p>	<p>Bridge-to-Bridge Radiotelephone Act and the Safety of Life at Sea (SOLAS) Convention; this law ensures nearly all commercial vessels have VHF marine band radios. Voluntary “Security” calls could be beneficial. Vessels announce their presence at defined points along the route. USCG wants input on specific locations where this would be most helpful.</p>
<p>Community emergency response training and equipment funding</p>	<p>USCG recommends working with state government, such as AK Division of Homeland Security and Emergency Management</p>

PREVENTATIVE MITIGATION MEASURES	DOMESTIC AUTHORITY/JURISDICTION
<p>Discharge</p>	<p>EPA via the National Pollution Discharge Elimination System (NPDES Vessel General Permit/Clean Water Act) for non-recreational vessels greater than 79 feet; ballast water limits also apply to non-recreational vessels less than 79 feet and commercial fishing boats of any size discharging ballast. Note: the Clean Water Act allows for more stringent standards in state waters, Alaska not currently listed.</p>
<p>Escort Requirements for Certain Tankers This regulation requires that at least two tugs escort single hull tankers above 5,000 GT in designated areas such as Prince William Sound, Alaska.</p>	<p>USCG, pursuant to § 4116(c) of OPA 90; see 33 C.F.R. § 168.01 et seq.</p>
<p>Marine Mammal Observers</p>	<p>NMFS jurisdiction; USCG enforces (especially in regard to Marine Mammal Observers on fishing vessels)</p>
<p>Nautical Charts</p>	<p>NOAA Office of Coast Survey</p>
<p>Precautionary Areas “...a routing measure comprising an area within defined limits where vessels must navigate with particular caution and within which the direction of traffic flow may be recommended.”</p>	<p>USCG, see 33 C.F.R. Part 167, Subpart B</p>
<p>Mandatory Position Reporting U.S.-flag vessels and some large foreign-flagged vessels must report departure and arrival information in addition to periodic position reports.</p>	<p>Maritime Administration (supports the marine transportation system, focus on commercial activity), Department of Transportation; see 46 C.F.R. Part 307.</p>
<p>Marine Pilots</p>	<p>State of Alaska has its own pilotage system for vessels within 3 miles of the coast (Alaska Statute: AS 08.62) System is administered by the State Department of Commerce, Community and Economic Development; the Alaska Board of Marine Pilots manages and licenses pilots.</p>
<p>Recommended Routes In the case of the Atlantic Right Whale, the USCG conducted a Port Access Route Study to determine the best route for vessels to avoid whale strikes.</p>	<p>NOAA/NMFS (through Marine Mammal Protection Act at 50 CFR 216.11 and Endangered Species Act).</p>
<p>Regulated Navigation Areas and Limited Access Areas Defined areas issued by the District Commander to control vessel traffic in a place determined to have hazardous conditions. “RNAs usually prescribe what type or size of vessels may enter an area or in what manner they must navigate. [These] are usually created where a more permanent solution to a safety or environmental concern is required... They principally regulate the operation of vessels permitted inside the area, but may establish control of access to an area if</p>	<p>USCG, 33 C.F.R. §§ 165.10 - 165.13</p>

PREVENTATIVE MITIGATION MEASURES	DOMESTIC AUTHORITY/JURISDICTION
such controlled access is necessary.”	
<p>Reporting Systems The USCG established two mandatory reporting systems in the northeastern U.S.; one northeast system that operates year round, and a southeast system that operates seasonally. These systems are meant to help protect the North Atlantic Right Whale.</p>	USCG [Ports and Waterways Safety Act 33 U.S.C. 1230(d)]; see USCG regulations at 33 C.F.R. § 164.46.; 33 C.F.R. Part 169 (e.g. North Atlantic Right Whale reporting regulations at 33 C.F.R. §§ 169.100 et seq.)
<p>Safety Fairways Used to maintain an unobstructed approach to a port. “...a lane or corridor in which no artificial island or fixed structure, whether temporary or permanent, will be permitted.”</p>	USCG [Ports and Waterways Safety Act @ 33 USC 1223(c)]; 33 C.F.R. Part 166.
<p>Safety Management Systems “...a structured and documented system enabling Company and vessel personnel to effectively implement the responsible person’s safety and environmental protection policies.”</p>	USCG, 33 C.F.R. Part 96, Subpart B (Company and Vessel Safety Management Systems; implements SOLAS)
<p>Safety and Security Zones “A safety zone may be stationary and described by fixed limits, or it may be described as a zone around a vessel in motion. Security zones limit access to prevent injury or damage to vessels, ports, or waterfront facilities and maybe also describe a zone around a vessel in motion.”</p>	USCG, 33 C.F.R. § 165.20; Safety Zone around OCS facilities 33 C.F.R. § 147 et seq.
<p>Seasonal Management Area May include seasonal vessel restrictions on speed, routes, etc. to avoid whales.</p>	NOAA
<p>Traffic Lane “...an area within defined limits in which one-way traffic is established. Natural obstacles, including those forming separation zones, may constitute a boundary.”</p>	USCG
<p>Speed Restrictions In the case of the Atlantic Right Whale, USCG and US Navy posted speed advisories to their fleets and other US agencies that operate ships. However, voluntary measures were insufficient to avoid further ship strikes which lead NOAA to issue speed restrictions through the federal rulemaking process (these regulations restrict vessel speeds to no more than 10 knots for vessels 65 ft or greater in overall length in certain locations and at certain times of the year along the east coast of the U.S. Atlantic seaboard).</p>	NOAA – NMFS International Maritime Organization
<p>Traffic Separation Scheme (TSS) “...a routing measure aimed at the separation of opposing streams of traffic by appropriate means and by the establishment of traffic lanes.”</p>	USCG [Ports and Waterways Safety Act @ 33 USC 1223(c)]; see also 33 C.F.R. Part 167, Subpart B
<p>Movement Reporting System “...a system used to monitor and track vessel movements within a Vessel Traffic Service or Vessel Movement Reporting System area.”</p>	USCG, 33 C.F.R §§ 161.15 et seq.

PREVENTATIVE MITIGATION MEASURES	DOMESTIC AUTHORITY/JURISDICTION
<p>Vessel Traffic Services Meant to “provide active monitoring and navigational advice for vessels in particularly confined and busy waterways.” A VTS exists in Prince William Sound.</p>	<p>USCG, 33 C.F.R. §§ 161.1 et seq.</p>

Since the Bering Strait is an international strait, any binding laws that apply to all vessels must come from the International Maritime Organization (IMO). The U.S. can apply its own rules to vessels under U.S. jurisdiction (U.S.-flagged vessels, vessels going to or from a U.S. port), but in order to fully protect the Bering Strait, all ships should be following the same measures.

Important IMO International Conventions for vessels:

Safety of Life at Sea (SOLAS) specifies minimum standards for the design, construction, equipment and operation of ships.

Prevention of Pollution from Ships (MARPOL) includes regulations intended to prevent and minimize pollution from ships, including pollution that results from either routine operations or an accident.

The Polar Code is a set of mandatory and voluntary measures for ships operating in polar waters. These measures will affect every aspect of a vessel’s operation from design, construction, equipment and training to search and rescue and environmental protection.

APPENDIX 5: WHAT IS BEING SEEN FROM THE PERSPECTIVE OF A REGIONAL PORT, PORT OF NOME

Joy Baker had been the Harbor master at the Port of Nome since 1997 and is now in management, expansion and development. She is responsible for infrastructure development associated with increased vessel traffic for Port of Nome. The City of Nome owns the port/harbor facility and deals with barge commodities and ship traffic from as far north as Kaktovik in the Beaufort Sea, down to communities in the Yukon Delta region in the Bering Sea. In 2007 there were 138 ships (e.g., cargo barges, tankers, cruise ships, research, USCG ships), excluding the small boat harbor home-ported fleet, that utilized the Port/Harbor. In 2013 that number increased to 290 vessels. In six years, vessel usage of the harbor more than doubled, it increased by 110%. That increase is shown on the first slide of Joy's presentation. The golden bar is the number of vessels anchored offshore waiting to dock. In 2013 that number of vessels sitting offshore rose considerably. 15% of those vessels had hulls too deep to utilize the port so; they were either lightering equipment or fuel to shore, or using small boats for crew changes or vessel resupply.

Cargo volume (revenue by commodity) has more than doubled with a 108% increase. The number of vessels utilizing the Port/Harbor typically slows down in the fall. July and August are the busier months of the year, with as many as 2-4 larger vessels anchored offshore each day. Traffic patterns consist of both domestic and foreign flagged vessels, for example, Canadian, Korean icebreakers, and foreign fuel tankers. In the last 36 hours (leading up to the Gathering on September 16th, 2014) there were 2.4 million gallons of gas discharged into Nome from a tanker vessel. Corps Alaska District (Army Corp of Engineers) and State of Alaska's Department of Transportation are collaborating on an Arctic Deep Draft Port study regarding expanding the current maritime infrastructure in the Bering Strait region. A final draft report is anticipated by the January 2015.

The Port of Nome is actively planning and building infrastructure components in anticipation of an increase in Arctic vessel traffic in addition to increased regional traffic. Expanded infrastructure at the Port of Nome includes facilities that will complement each other and serve the projected increase in Arctic vessel traffic as well as to maintain a safe harbor at the Port of Nome. Vessels frequent Nome to take advantage of the availability of cargo/fuel /airport/hospital. Currently the City of Nome has a third c-cell dock, 240 feet in length, scheduled for construction on the causeway next year. Funding has not been an issue to date and contractor award is anticipated in late November 2014, with ground breaking in May 2015. A landing craft ramp dock was completed inside the inner harbor in 2013. The installation of lights and a fender & ladder repair project was completed at the end of the 2014 summer. There is also a towing package located at the Port of Nome; coordination is through the DEC and USCG.

The City of Nome supports responsible development of the region's resources and environment. The Port of Nome is in continuous contact and communication with the USCG, and has invited them to set up a seasonal office in Nome. The Port also hopes to be the hub for proposed offshore oil and gas development and exploration in the Chukchi and Beaufort seas. The Port participated in a marine casualty exercise with USCG in May on responding to major marine casualty. Efforts are being made to plan for the future on all fronts.

Re-supply:

The Port of Nome is able to handle supply docked vessels with fresh water as well as offloading of garbage. However, large resupply orders for fresh foods can cause a strain on the inventory of local grocery stores as well as the availability of fresh foods and other supplies for residents of Nome and the regional communities. Large ships have been alerting stores in advance when they need a resupply of food/materials so that stores do not run out of stocked items. Having sufficient dock space for the larger vessel traffic is the most immediate issue at present, and although the Port can typically accommodate most of the vessels within a few days' time to keep congestion to a minimum, there are times when vessels must wait longer so the current situation is not ideal.

Where do excess vessels go:

If a vessel can't attain dock space in Nome, tug/barge combinations will jog or "racetrack" offshore of Nome – that is they stay at sea and make continuous loops out in Norton Sound until space is available. If weather conditions are not good (e.g., the conditions experienced on 11/09/11), vessels will go to Port Clarence, St. Michael and/or Golovin Bay and wait for better weather conditions. These areas of refuge are places that vessels may find shelter from significant storms. Some vessels find shelter on the north/south side of Nunivak Island, depending on wind/swell direction. The largest vessels, 565 feet +/- and larger, will anchor into the swell, and ride out the storm. It is the smaller vessels that must seek shelter. At times of bad weather, shallow draft vessels will crowd into the Nome Small Boat Harbor and are frequently required to raft alongside each other, up to 4-5 deep.

Response Capabilities

The Port of Nome also has a small search and rescue boat for near-shore activities. Larger vessels in distress further offshore tend to rely on other offshore traffic and the local fishing and tender vessel fleet in the harbor. The current response protocol is for a vessel in distress to report to the USCG immediately. The USCG will immediately call upon any tug/barge in the vicinity or the harbor to respond. Larger fishing boats (40-50 foot and larger tenders) may respond if capable. The Oil Spill Response Organization (OSRO) for the Northwest Arctic (Alaska Chadux), who is under contract with local fuel tank farm companies in Nome, are potentially able to respond to pollution events, depending on location and weather conditions. Additionally, the USCG can charter vessels for offshore response.

Vessel discharge and monitoring

There were several comments and questions in this session alone about discharge requirements. Questions regarding discharge requirements relative to shore, seasonal ice pack, and important offshore areas (e.g., extensive/productive clam beds) were brought up repeatedly throughout the two-day meeting and require further clarification to the tribal and city representatives. There is a 3-12 mile requirement from the shoreline for discharge of organic waste. The Alaska Department of Environmental Conservation, Division of Water regulates ocean waters within 3 miles of shore through the Alaska Pollutant Discharge Elimination System (APDES) Program. . Three miles from shore meaning the US baseline, so the mean low tide mark along the entire coastline. Any illegal discharge needs to be

reported so regulators understand the amount and potential environmental damage as well as fine the vessel for illegal discharge.

Harbor Master – need for one in each village

The Harbor Master plays the role of tracking vessel activity, enforcing facility regulations and assists with the monitoring and reporting of environmental regulations. Joy suggested that if anyone was interested in learning that role, the Port of Nome would be glad to give them a preview of what is involved. There was a widespread desire to have the role of harbor master for each community to deal with issues associated with vessel traffic. Many essential marine subsistence species are located within or use the bodies of water near our coastal communities. Currently, there is no infrastructure or protocol to monitor large vessels in order to understand what they are doing on a daily basis in our waters. Furthermore, large ships continually build up waste water and sewage in tanks that eventually need to be emptied. Communities often see the vessels on the water with no authority or infrastructure to monitor them (concerns brought up regarding Grantley Harbor and Port Clarence). Occasionally people see evidence of organic trash (i.e., watermelons and oranges) that drift up to the beach, concern exists and they would like to see a harbor master for Teller and Brevig Mission to mitigate vessel issues within the two bays. Most of the marine species essential for subsistence foods are utilizing those two bodies of water.

APPENDIX 6: HOW DOES ALL OF THIS IMPACT WHAT IS BEING SEEN FROM A COMMUNITY PERSPECTIVE, TELLER, ALASKA

Wesley Okbaak, representing the federally recognized tribe of Teller provided an overview of the impacts from increased vessel traffic at the community level. He lived most of his life in Teller, his father is from Wales and his mother from Mary's Igloo. They moved to Teller for jobs and better hunting. Fishing and hunting were always the most important to his family as they provided food to survive the harsh winters. His dad taught him a great deal about resources and told him many stories about Wales and Teller, as well as Port Clarence and Grantley Harbor. The USCG installed a 1300 foot tower as part of the Loran Station on Port Spencer. After the tower was installed walruses and belugas no longer frequented the area. Elders attributed the change in walrus and beluga movements to the noise and vibrations created by the long wires supporting the tower. Walruses and beluga migrated through a small passage from point Spencer and Point Jackson. The Loran tower created loud noises, so they no longer pass through here. Today, seals are starting to use this area, and people wonder whether other species, such as beluga, will return. His dad had the ability to navigate the waters, knew the shallow areas and was employed by a barge company that traveled waters from Seattle to Port Clarence and Grantley Harbor on to Point Hope and Barrow. During one incident at sea, the barge split in half outside of Wales, and the crew perished at sea; his dad had recently debarked prior to the incident and was spared. This story was important to Wesley because it illustrated how it is only a matter of time when an accident will occur and the need to be prepared.

Wesley Okbaak presenting at the workshop.



Photo credit: Julie Raymond-Yakoubian

Wesley recognized that a safe harbor is important during the shipping months. However, we need to remember that these waters are essential breeding and birthing waters for seals as well as a safe haven also for many other types of marine life. Protecting and managing marine resources is important. During the fall season, as many as 15-20 large ships occur in the small bodies of water in the region. With increased vessels in waters, it impedes the ability to gather subsistence resources for fall/winter. Subsistence occurs year-round on waters and lands near Port Clarence and Grantley Harbor. Wesley said that they never had a chance to voice concern, never consented to disturbances happening on land and in the waters.

This summer was the first time an oil spill drill was conducted at Grantley Harbor, July 16, 2014. DEC/EPA conducted the drill under the Unified Command Plan. The exercise was not completed as planned due to poor weather that included high winds and strong currents. Although the exercise was regarded as a success, Wesley believes that many more drills need to be done, locals in Teller and Brevig Mission need to be engaged, and vessels need to be included as first responders. Many questions remain as to the effectiveness of cleaning an oil spill as it is challenging due to weather and current - both are never always the same. Port Clarence is considered port of refuge for vessels carrying 1,000s of gallons of petroleum. How to contain petroleum in the ship in event of accident? Large ships traveling the coast recognize Port Clarence as a safe harbor or a port of refuge. He said that we ask "why bring vessels into our waters, into waters we rely on for our food security?" He also said that we should be given the opportunity to reserve any development until we see fit and we see safe, until we can protect waters and land. Shipping traffic is just one of many challenges we see today. We are seeing ever rapid climate change. Late freeze up threatens hunting routes. An EIS on Port Clarence was developed with no input from our tribe on how plants and animals might be affected; there was no local input, so it is an illegitimate document. He said that they recognize the need for local development, but unless it threatens subsistence. There is a need for subsistence and development to work together to minimize impacts to plants and animals – we need to protect both resources and people. He also said that he feels like this is the first time he is sitting on the moving bus (in reference to Melanie's opening speech).

APPENDIX 7: FOOD SECURITY

ICC was founded in 1977 by Eben Hopson Sr., from Barrow. Its creation came out of the realization that Inuit needed to speak with a united voice on issues of common concern. Today ICC represents approximately 160,000 Inuit across Chukotka, Alaska, Canada, and Greenland. ICC holds consultative II status with the United Nations and is a permanent participant of the Arctic Council. The food security project was developed in answer to ICC collectively identifying Inuit food security as a top priority during the 2010 General Assembly and documented in the Nuuk declaration. Food security is a top priority for ICC-AK. As ICC-AK began to address food security at the international and national level it became clear that Inuit hold a different understanding of food security than policy- and decision-makers. It is from this understanding that the food security project was created.

While many food security definitions and protocols exist, approximately 800 definitions address food security throughout the world; these definitions do not necessarily reflect the Alaskan Arctic environment or its food webs. Current food security agendas are often defined with an objective of fulfilling a calorie or nutrient voids. In the US we often focus on purchasing power or “how much money you have to purchase food.” Overall, most definitions are based on three components: 1) the availability of food (is the food of abundance, with elements related to production, distribution and exchange); 2) the accessibility (or purchasing power, with elements related to affordability and preference); 3) and the utilization (or nutritional value). Given this perspective of food security, with these three objectives, food security is achieved.

Inuit food security is much more complex than these three pillars and describes food security to be the entire environment. An environment that includes all systems, all pieces, such as, language, culture, water, ice, plants and animals, and others. Although more work needs to be completed before a definition is constructed; it is clear that Inuit food security is synonymous with environmental health. An environment is considered healthy when all aspects of that environment fit together. A contributing author to the project, a TK holder, explained that the Arctic environment is like a puzzle, with all pieces having a place and needed to make up the entire puzzle. This includes native languages, retention of traditional knowledge, animal health, etc.

This understanding has brought to light the need to identify indicators that may be used to assess both social and physical systems; understanding that the integrity of all pieces is needed to obtain optimal health. This understanding also has implications of how research is done or how to monitor food security drivers. In an environment where food provides more than calories, issues surrounding food security are multi-faceted and require the identification of food security vulnerabilities throughout the entire food web..

The methodology behind the food security project is a crucial aspect of the project and part of what will need to be communicated in the final products. The project begins with an advisory committee made up of Traditional knowledge holders and a cultural anthropologist. Of the 95 villages that ICC-AK advocates on behalf of, the project researcher visited 15 villages. Within the Bering Straits region Stebbins, Gambell, and Wales were visited. Within these villages visits information was gathered through community meetings and interviews with Traditional Knowledge holders. Following the village visits preliminary results were pulled and presented at a regional workshop, The Bering Straits Regional Food Security workshop.

The regional workshops are made up of TK experts chosen by their tribal council, and representatives of regional organizations, such as Kawerak Inc., and the Eskimo Walrus commission. These representatives were asked to review and discuss the preliminary findings pulled from information gathered from the villages. This information included concepts and language that needs to be used in an Inuit food security definition and overarching drivers of food security and insecurity.

The information gathered will feed directly into creating the conceptual framework. The advisory committee will do a peer review of the document before submitting the document to the ICC-AK board. The methodology chosen for this project emphasized the fact that traditional knowledge has to be evaluated by traditional knowledge holders.

Ultimately, the conceptual framework will provide an overarching guidance on how to holistically assess food security, to bring Inuit knowledge into decision making, and contribute to an overall better understanding and ecosystem approach to Arctic management and research.

The group was asked to think about the relationship between shipping and food security. The connection has been made clearly by participants of the food security project and through additional meetings, such as a community meeting held in Wales to discuss concerns of increased shipping activity. Participants of the Wales community meeting stressed the need to ensure the protection of nearby clam beds in response to a vessel accident.

Some comments regarding food security:

Conversations about subsistence are happening at the international level over teleconference¹ about issues of concern (regarding shipping and subsistence). However, while we have these various conversations, decision-makers are not included in the conversation.

The use of fuel oil and propane gas are also important to villages today, and the issue of food security should integrate modern aspects and traditional aspects. Often times, coming from a western/American perspective, indigenous people are criticized to choose either one or the other (modern or traditional).

We've been told how to think and what to think (Emily said this from Gambell meeting). Agree that the term subsistence is kind of a derogatory term. But food security sounds bureaucratic as well. It might be a good idea to look to a Native community to find some term to best describe what it means.

Food security and shipping discussion:

Food Security: Anything that supports that way of life and way of knowing. Threats lead to food insecurity. Goes back to decision-making power. Threats stop if you are at the table.

Ships are going into bays and could be paying into a fund that is contributed to (protecting) food security. Early June to later this month or October, vessels are sitting on our subsistence diet on a daily

¹ This teleconference references a call recently held by the Bering Strait Messenger Network on food security

basis that is the chance we are taking with them sitting on the safe water harbors (e.g., Grantley Harbor). This is not taken into consideration into decisions about safe water ports.

This is a very big concern for all of us. But there will be economic development. Fitting it all together might be difficult. Waters can change quickly on the ocean. We do need to have a safe harbor in place that at least it would protect the environment (in event of accident).

We are hearing that next year they won't do food stamps, and yet there are no jobs for access to cash. Now they say where we can/can't go or even what we can/can't do. Yet they can come into our waters and do whatever they want to do. Do I teach my kids how to hunt or do I stress education? What's the worth going to be if land/water destroyed by pollution. What good is it for us to do to teach our kids our way of life? A person used to western world, should come to one of the villages for a month, having to eat our food and live in the conditions we live in. We feel that same way with our loss of subsistence way of life/food security.

APPENDIX 8: PROTECTION OF NATURAL RESOURCES

Julie Raymond-Yakoubian, Social Science Program Director at Kawerak, presented on the protection of natural resources in the Bering Strait region and provided the workshop participants with an overall summary of the type of information those traditional knowledge holders within the Bering Strait region share and provide. One of the questions Julie asked the group to think about during these proceedings was - Why are marine resources so important to the Bering Sea region communities? In her presentation, Julie shared with the group some of the connections and importance that resources play in everyday life.



Why are marine resources so important to Bering Strait region communities?

- **NUTRITION/WELL-BEING:** they are healthy foods, and being active in subsistence activities is important for physical and mental health
- **ECONOMICS:** play a huge role in household economy, community economies and regional economies (and beyond)
- **SOCIAL:** important part of intergenerational relationships, for knowledge transfer, for maintaining ties between communities and within communities
- **CULTURAL:** subsistence-related activities encompass important traditions related to language, dance, religion, eating, cultural values, and individual and group senses of identity

Credit: Julie Raymond-Yakoubian

Julie also noted that when we think of the marine ecosystem we often think of webs - the connections and interconnections between species and habitats and other aspects of the environment. These natural resources are also part of another web, however, the social web. They guide our relationships with each other and with the environment; they contribute to our health and well-being, and are also a part of our identities and who we are. She then asked participants to think about whom they are today and who they would be today if they had not grown up in their respective villages and how these resources and relationships play a part in that.

Julie discussed the various Social Science projects that regional communities have participated in and how there is a general agreement throughout the projects and villages that marine resources and the marine environment holds great importance because of the nutrients marine foods provide and because of their contributions to mental and physical well-being. This also includes the economic, social and cultural aspects associated with people's relationships to marine resources and the environment. Julie stressed that the work that Kawerak has been conducting (and the resultant data, reports, articles and other products) are there for all of the villages and is used by Kawerak in their advocacy efforts, and it is hoped that tribes will also use the information and products to work on behalf of their own communities.

Work Kawerak has been conducting, in collaboration with tribes, related to natural resources:

- ✓ Traditional Knowledge of Non-Salmon Fish report
- ✓ Non-salmon fish recipe and preparation guide
- ✓ Indigenous Knowledge and Use of Ocean Currents report
- ✓ Ocean Currents educational poster and map
- ✓ Ocean Currents educational booklet
- ✓ Ice Seal and Walrus Habitat and Subsistence Use Areas Atlas
- ✓ Seal and Walrus Hunting Safety booklet
- ✓ Respectful Treatment of Marine Mammals booklet
- ✓ Bering Strait Marine Life and Subsistence Use Data Synthesis
- ✓ Marine policy recommendations document
- ✓ Diomed Knowledge of Walrus report
- ✓ Diomed dialect walrus glossary and walrus prep guide
- ✓ 'We Depend on the Sea': Importance of walrus to DIO poster
- ✓ Traditional Knowledge of Salmon project (ongoing)

- ✓ Various articles related to the above projects



Credit: Julie Raymond-Yakoubian

The work that Kawerak has done in collaboration with region tribes is crucial for developing mitigation measures to address risks to our natural resources from vessel traffic-related activity. We hope that tribes will use the data we collected to think creatively about such measures and to back up their suggestions and requests for such measures.

Julie concluded by summarizing some of the ways that subsistence resources and marine resources are important to region residents - based on the work Kawerak has conducted. Perhaps the most important reason why subsistence foods are so important is because they are 'food for the soul'.



Credit: Julie Raymond-Yakoubian

APPENDIX 9: OVERVIEW OF ENVIRONMENTAL CHANGE IN BERING STRAIT REGION

Gay Sheffield from the University of Alaska Fairbanks Marine Advisory Program talked about some of the changes that are happening in the region and some of the new efforts addressing many of the new questions.

Many of the changes experienced in the region are due to the new timing and movement of seasonal sea ice and resultant impact on the timing and movements of the marine wildlife. For example, there are marine mammals that seasonally travelled to the Bering Strait region but currently are extending their range northwards (ex. Humpback whales, gray whales) and/or are extending their stay in our waters (ex. Steller sea lions). There are marine species being observed that are new to our region. For example the 2003 arrival of the Spiny King Crab/Hanasaki King Crab (*Paralithodes brevipes*) to Diomede Island– the first to be documented in US waters. Fortunately, it is good to eat – and it seems to have expanded its range to include Saint Lawrence Island and Norton Sound. Other organisms recently observed in the region include: Atka Mackerel (2009/Diomede – a favorite food of the Steller sea lion), Stejneger’s beaked whale (2013/Gambell – furthest north documented carcass), and new shark activity. Additionally, due to quick and through retreat of sea ice in the Norton Sound area during spring 2014, over 28 ice seal pups were reported hauling out on local shores, 28 reported.

Several unusual wildlife events have occurred recently. These are just some of the examples of how we are on the front line of the change. During November 2013, Avian Cholera was confirmed to be the cause of a seabird die-off near Saint Lawrence Island in which USFWS estimated 6,000 to 38,000 seabirds died. Not only was this the first time of Avian Cholera has been documented in Alaska but it was the first time it was documented in several of the seabird species involved.

A major concern across and beyond the region was the unusual seal sickness of 2011-2012, with several hundred ice associated seals were reported with symptoms that included the inability to regrow their fur/coat, sores, and lethargy. Thankfully, the worst of this event appears to be over as the numbers of reports has greatly declined. We still don’t know exactly what caused this sickness, but it is but one example of how we are experiencing widespread marine wildlife issues and underlines the regional need to deal with responding to important issues.

In 2012, 2013, and 2014 we have been observing oiled marine wildlife (ex. Seals and seabirds). We have been fortunate in the numbers each year average <5. The source of the oil fouling remains unknown. These oiled wildlife are telling us that accidents are happening – now. However, what these chronic incidents are telling us is that we still have time to figure out how to respond to a larger pollution event or oil spill. What happens and how we handle the situation with the oiled wildlife now will help us to prepare if/when a large event occurs.

Some of the on-going work addressing and/or monitoring changes in the region include:

- The National Marine Fisheries Service (NMFS) is currently working on a Marine Mammal Oil Spill Response and Disaster Plan. It is a regionally specific federal response plan. There will be a draft out this year.

- University of Washington and NMFS are currently collecting data on underwater noise levels. They are dispatching underwater listening devices and recording ambient noise levels as well as whale calls.
- There are researchers studying how seals hear. Spotted seals captured from Kotzebue Sound are being studied in captivity to understand how spotted seals might be affected by noise from large ship traffic, seismic activity, and/or oil drilling. The seal researcher's intent is to expand this hearing study to include young bearded seals.
- The North Slope Borough's Bowhead Whale Health Assessment Program is working with bowhead whalers from the Bering Strait to the Beaufort Sea to assess the health of bowheads by analyzing tissue samples collected during the harvest.
- Eskimo Walrus Commission is also collaborating with the US Fish and Wildlife Service to document the levels of contaminants in walruses by analyzing tissue samples collected during the harvest.
- There is also a ice seal biomonitoring harvest program by the Alaska Dept. of Fish and Game.
- There is also monitoring of the "Fukushima plume" involving seawater testing from a seawater sample taken near Gambell - for the presence of the radionuclide Cesium 134 (currently below detection), and Cesium 137 (current 1.3 Bequerels per meter squared a very low level detected that is a legacy of the atmospheric explosions involved with nuclear bomb testing in the Pacific during the Cold War era).

Other observations shared by workshop participants during question and answer session:

- Changes are currently underway, over the years the size of the salmon in Shaktoolik and Unalakleet has gotten increasingly smaller. For example less larger fish caught today, more like 30-40 lb vs. historical 100 lb.
- Someone observed catching a white whale with gray on the side that had teeth – this type of small whale had not been observed before.
- Steller sea lions are coming and staying around until December at SLI. Probably like caribou bring wolves, other species bring other predators with them, for example, hunters have witnessed a large shark preying on a Steller sea lion during December near Saint Lawrence Island. But we should not focus on the negative, species are adaptable and we are all still here, e.g., walruses are an adaptable animal – and we are adaptable too.
- We are ahead of other regions in the social science program compared to other areas in the state. We have the mapping project, traditional knowledge documented. We have a good/better starting base of information from our people than some of the other regions.

APPENDIX 10: USCG ROLE IN SAFETY AND SECURITY

Sudie Hargis, tribal coordinator for the USCG talked about what the USCG is doing with regards to maritime safety and security. Most of the work that USCG does is related to maritime safety and security. There is a USCG base in Anchorage known as “Sector Anchorage” that acts as the “arms and legs” for activities in western and northern Alaska. But, overall Arctic issues are addressed in District 17 headquarters located in Juneau. Every aircraft for USCG is always based out of Kodiak. USCG understands that “subsistence” is more than just food, and that it means more than just a word. So, understand where concerns are coming from and that there are cultural components.

What is the USCG currently doing:

- Spill of National Significance (SONS) exercise took place in Wainwright. This tested their ability to respond to a spill in arctic conditions.
- There is extensive community outreach, such as Arctic Shield 2014 when they visited villages in the region.
- In their marine activities they are trying not to interfere with subsistence whalers and hunters.
- They do formal and informal consultation with tribes.
- They conduct cross-cultural training for USCG staff.
- Responsibility for the clean-up of a spill in the ocean is the boat owner. The USCG is responsible for making sure the spill response and clean-up is done right
- Upcoming opportunity for input: Port Access Routing Study (PARS) that will establish large vessel routing measures through the Bering Strait. Some input gained from tribes, but more input will be needed in the next month or two.

Workshop participants talking about Safety and Security issues in the Bering Strait region.



Photo credit: Julie Raymond-Yakoubian

APPENDIX 11: ESKIMO WALRUS COMMISSION EFFORTS ADDRESSING ARCTIC SHIPPING

Vera Metcalf from the Eskimo Walrus Commission (EWC) presented on efforts that she is working on at EWC as well as with the Arctic Marine Mammal Coalition (AMMC) that address both planning and hunter safety issues.

EWC hosted a planning workshop, they wanted to be proactive, foreseeing changes and taking needed actions. They also wanted their actions to be adaptable and open to changing conditions. They wanted them to be ethical: being honest and acting in the best interest of our people. Traditional Knowledge is important; it is honoring the wisdom and ways that enable us to survive. EWC, due to the (social/environmental) changes over time, has been addressing many new issues today than when the organization started in the 1970s. These are similar themes that the group will undertake in the next two days.

Who is AMMC – it is a coalition of five arctic marine mammal hunter/co-management groups that came together in 2012 to facilitate communication and education between arctic coastal communities and the USCG and NOAA and other regulatory agencies on issues related to the expected impacts of increased ship traffic in the arctic on our way of life.

Alaska Native marine subsistence hunter groups are coming together to address a new activity that could affect the marine mammal subsistence hunting for all arctic coastal communities. The USCG asked them to come together with one voice. Hunter's voices would be given a prominent voice in many of these discussions as the arctic becomes more regulated. You don't have to apply for a grocery store to get food, get arrested for buying too much food, or buying the wrong kind of food. This is what we face every time we go to the ocean to get food.

APPENDIX 12: ECONOMIC DEVELOPMENT AND INFRASTRUCTURE NEEDS

Nils Andreassen from the Institute of the North presented about opportunities for economic development and infrastructure needs with increased Arctic shipping, pertaining to the opportunities specifically in the Bering Strait region.

As it relates to economic development, AMSA describes three types of traffic in the Arctic, all of which are fairly ice-dependent, and therefore seasonal.

- Trans-Arctic, which is shipping from Asia to Europe, for example, through the Northern Sea Route. This is rare currently, and not commercially viable on a large scale for decades to come, but these are the transits that often make the media reports. These will be “Ships in the Night,” passing Alaska by. There’s no reason for them to stop in Alaska, unless we crack the trans-shipment nut. Unalaska/Dutch Harbor is closest to doing so. In general, these ships don’t need goods or services from Alaskans, nor does Alaska have a big enough market for these ships.
- Destinal traffic – this is mining or oil and gas development, maybe fishing, where a resource is developed locally and exported. You see some examples of this as sea-lifts to North Slope fields, Shell activity, and Red Dog activity.
- Community support – this is barges bringing you and your communities the goods they need to get through the year, whether fuel, four-wheelers or food.

Nils thought that when it comes to economic development, we have to remember it is not (only) about supply. We need to keep in mind important attributes to successful economic development –

1. the need for a market (demand),
2. the need to get from supply to market (transportation),
3. the need to get to the supply (access), and
4. the need to be able to develop the resource affordably (energy).

One successful tool that Nils talked about was from Canada and it is called an “Impact Benefit Agreement.” These are negotiations between private companies and indigenous corporations or tribes. These ensure that communities nearest the activity receive monetary compensation relative to the risk to the region, which can then be used for social or environmental programs, governance, infrastructure and education.

One of the things that Nils referred to is the “Owning the Fleet” model. The idea behind this is to identify a business currently undertaken by an outside company, developing something similar that can more effectively deliver the good or service, and competing. There’s a development model this is similar to, called import substitution. Bonanza Fuel is a good example locally, ASRC Energy Services is a good example on the North Slope. Norway’s Statoil is another, but basically you’re identifying a current need addressed by someone else, standing up your own company, learning the ropes, and out-competing outside businesses.

Nils thought the Bering Strait region is incredible for the strengths it brings to the conversation of economic development. They need to be leveraged effectively, from fisheries infrastructure – where’s NSEDC in this? – resourced regional and village corporations – Bering Straits and Sitnasuak bring access to capital – and mineral resources – again, the supply side of things. There are things on the horizon – like the Arctic Fibre project – that might also be game-changer.

Alaskans are a maritime people, Inuit are a maritime people. A conversation about Arctic shipping began 10,000 years ago, and the experience and traditional knowledge you bring is invaluable. How do you translate that into a maritime workforce that complements and Arctic shipping agenda?

To successfully operate in the region, the region needs more than ships and ports – it needs people and, more importantly, people with the right skills. Unfortunately, current talk of opportunity in an increasingly open Arctic means that the level of ambition is matched by ignorance. Quite simply, maritime activity requires a support industry that has decades of experience, training, and education working with and in ice. To meet that obligation, northern regions must match technical experience with local and traditional knowledge, or combine the two – in this, the Arctic can achieve a marriage of cultures (ice and ships). Alaska can facilitate the development of competency and capability.

A draft list of potential skills, jobs and training needs exist in Alaska's Arctic: Ice Navigation; Shipboard Engineering, Repair, Maintenance; Oil spill prevention; Oil Spill Recovery and Response Operations; Hydrography & Charting; Ports Engineering & Maintenance; SAR & Emergency Response; Monitoring, Surveillance, and Data Handling; Observing Systems; Marine Mammal Observers; Naval Architecture; Environmental Management; Transportation Systems Planning; Transportation (energy, logistics); and Law Enforcement. Where's the training center for these? The Bering Straits region could be an international center of excellence.

Finally, the people of this region are entrepreneurs – what can we do to embrace that and capitalize on it? Where are our small business owners, ecotourism operations, and distance business companies? These are all individual efforts, not driven by grants or Native Corporations, but complemented and assisted by instead. What can we do to mobilize the next generation of entrepreneurs, who innovate and find success by finding a passion and developing a business around it? The region is ripe with opportunity, which might just need connecting people in the region to information about loans, insurance, and business administration.

Nils mentioned "Ships passing in the night." One of the challenges ahead is OPP – other people's property. Basically, there's a lot we don't control. The Bering Strait is an international waterway, federal agencies have equities in the region, the State of Alaska has equities in the region, we don't own international shipping companies, we don't own international mining or oil and gas companies. Nils thought that all of this makes us feel very small in all this, fearful and anxious about the future.

APPENDIX 13: LIST OF ITEMS FROM WORKSHOP BINDER

The following documents were included in a binder given to workshop participants:

1. **Workshop Agenda**
2. **Map showing vessel traffic activity in the Bering Strait in 2013**
3. **Bering Strait vessel transits by year and vessel type**
4. **Glossary of agencies and acronyms:** This glossary is available in the appendix. It includes government agencies, industry, and other organizations working in the Bering Strait. It also includes a list of commonly used acronyms and abbreviations.
5. **Kawerak's Advocacy Tool Kit.** This toolkit is intended as a guide to becoming more proactive about important issues. Rather than feeling helpless when decisions are made by various agencies that have negative effects, we can learn to be more active in the process and make sure our voices are heard. We can learn effective ways to provide input so positive changes can be implemented.
6. **Overview of federal and state agency roles and spill response experience from the Community Oil Spill Response in Bering and Anadyr Straits Workshop, hosted by the Wildlife Conservation Society in November 2013 (some content updated):**
 - U.S. Coast Guard, District 17, Sector Anchorage
 - Department of the Interior, Bureau of Safety and Environmental Enforcement
 - National Oceanic and Atmospheric Administration (NOAA), Office of Response and Restoration
 - Mechanisms for stakeholder involvement in Cook Inlet oil spill planning, prevention, and response
 - The MV Selendang Ayu
 - Spill response in Prince William Sound
 - Oil spill preparedness in the San Juan Islands, Washington
 - Deterrence of marine mammals as a spill response tool
 - Oiled pinniped readiness, treatment and care
7. **The following charts were provided to give participants more detailed information about how oil spill response is organized by the federal and state government – from the different on-scene coordinators and response plans involved to the various teams that might be involved in supporting a major response effort.**
 - Unified Command Structure from Alaska's Unified Plan
 - On-Scene Coordinator's Relationship to Plans
 - Incident Command Structure: Oil and Hazardous Substance Response
 - Northwest Subarea Plan - Emergency Response Notification List

The following materials were made available to participants to pick up if they were interested:

- **Fact Sheet on Alaska’s Small Community Emergency Response Plan (SCERP):** The SCERP is for small communities with less than 2,000 people. A toolkit available from the State’s Division of Homeland Security and Emergency Management guides community leaders through the process of producing their community-specific plan that helps guide what to do and who to contact in the first 72 hours of an emergency.

Arctic Marine Shipping Assessment 2013 Update – In 2009, the Arctic Council released its Arctic Marine Shipping Assessment or AMSA. This assessment describes the increasing vessel traffic in the Arctic, potential impacts to communities and wildlife, and makes recommendations to enhance arctic marine safety, protect arctic people and the environment, and build arctic marine infrastructure. The 2013 update included progress made towards reaching the recommendations made in 2009.