

City Manager
John K. Handeland

Port Director
Joy Baker

Harbormaster
Lucas Stotts



Nome Port Commission
Jim West, Jr., Chairman
Charlie Lean, Vice Chairman
Derek McLarty
Shane Smithhisler
Scot Henderson
Russell Rowe
Gay Sheffield

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**NOME PORT COMMISSION
REGULAR MEETING AGENDA
THURSDAY, AUGUST 15, 2019 @ 7:00 PM
COUNCIL CHAMBERS IN CITY HALL**

- I. ROLL CALL**
- II. APPROVAL OF AGENDA**
- III. APPROVAL OF MINUTES**
 - 19-06-20 Regular Meeting
- IV. CITIZEN'S COMMENTS**
- V. COMMUNICATIONS**
 - 19-06-24 UFA Alert – Vessel Registration Update
 - 19-07-02 New US Senate defense bill requires Arctic Port – Arctic Today
 - 19-08-08 As sea ice melts, momentum grows for Nome's port – Arctic Today
 - 19-08-08 Port of Nome 2019 Ship Schedule
 -
- VI. COMMISSIONER UPDATES**
- VII. HARBORMASTER REPORT**
 - Update on Operations, Repair & Maintenance
- VIII. PORT DIRECTOR REPORT/PROJECTS UPDATE**
 - 19-07-12 Port Director/Projects Status Report
 - 19-08-08 Port Director/Projects Status Report
- IX. OLD BUSINESS**
 - Fiscal Plan for Funding Major Asset Repair/Replacement & Capital Improvements for Recommendation to Council
- X. NEW BUSINESS**
 - Northwest Arctic Transportation Plan – Draft Section
 - Arctic Shipping Trends
- XI. CITIZEN'S COMMENTS**
- XII. COMMISSIONER COMMENTS**
- XIII. NEXT REGULAR MEETING**
 - September 19, 2019 - 5:30pm
- XIV. ADJOURNMENT**

**MINUTES
NOME PORT COMISSION
REGULAR MEETING
June 20th, 2019**

The Regular Meeting of the Nome Port Commission was called to order at 7:00 pm by Acting Chairman Smithhisler in Council Chambers at City Hall, located at 102 Division Street.

ROLL CALL

Members Present: Smithhisler; Henderson (telephonically); Sheffield; McLarty;

Absent: Lean; West; Rowe; (all excused)

Also Present: Lucas Stotts, Harbormaster; Joy Baker, Port Director

In the audience: Sandra Medearis, Arctic News; Randy Harper; Andy Lehto; Andrew Lee;
Anita Parlow

APPROVAL OF AGENDA

Chairman West asked for a motion to approve the agenda:

Motion made by McLarty to approve the agenda, seconded by Sheffield, with an amendment moving the New Business discussion on the West Gold Dock Repair to immediately follow the agenda approval:

At the Roll Call:

Ayes: Henderson, Sheffield, McLarty, Smithhisler

Nays:

Abstain:

The motion **CARRIED**.

New Business item Discussion:

West Gold Dock Damage Update – Repair Plan/Estimate (handout)

PD Baker opened the discussion with a status of what had transpired since the damaged wye was discovered, and the Administration's decision to move forward with a permanent repair. Sheet pile has been purchased from the Port of Anchorage, and shipping has been arranged with Alaska Marine Lines with arrival in Nome anticipated for early July. An RFQ was sent out to 3 large marine contractors working in the region, with two responding it was out of their wheelhouse, and the third, STG, indicating they had the equipment, manpower and capability to do the work in a mid-July to mid-August window – prior to demobing their crew and equipment to a job up north.

Bryan Hudson with PND, proceeded to describe the repair plan, which will remove the detached tail wall, the damaged wye and a few sheets within cells #5 and #6. New sheets would be driven off each existing cell face, wrapping back into the dock face and eliminating the need for the wye.

Discussion:

Some back and forth ensued between the group and the engineers on schedule, potholing for permafrost and anticipated location of the existing armor rock slope. Costs for sheets, shipping, engineering and construction were discussed, but more information is needed to estimate project. Questions were raised about why a local crane and contractor were not considered for this work, how old the dock damage is, and why it needed to be done right immediately. PD Baker replied that due to the short term need to conduct the repair, contractors working the Western Alaska region with known experience and qualifications were considered. PND indicated the strength of their patented design is based on the integrity of the wye's and how the secure each tail wall to a cell joint. Allowing this weakened/detached wye to remain, threatens the longevity and strength of the dock, especially when loads are put on the dock face by barges and ships.

APPROVAL OF MINUTES

May 16, 2019 Motion was made by Sheffield, seconded by McLarty to approve with one
Regular Meeting amendment requested by Sheffield regarding tours of the Sikuliaq.

At the Roll Call:

Ayes: Henderson, Sheffield, McLarty, Smithhisler

Nays:

Abstain:

The motion **CARRIED**.

CITIZENS' COMMENTS

Randy Harper asked how deep the piling were being driven, looking at the drawings, the pile tip elevation is -35' feet.

Andrew Lee said he's seen screw tip piling being used as an option during construction, but not sure if it's feasible.

COMMUNICATIONS

- 19-05-22 Ponant to offer North Pole cruises in 2021 – Arctic Today
- 19-05-23 New rules for mining operations in Norton Sound – ABM
- 19-05-26 Corps publishes draft Nome Port Study – Petroleum News
- 19-06-02 Bering Sea survey could provide insight on cod finds – ADN
- 19-06-06 Nome eyes significant port expansion, is it enough? – Arctic Today
- 19-06-07 Mayor Beneville to National Science Foundation (Polarctic)
- 19-06-07 Interim City Manager Handeland report
- 19-06-14 Polar Code may be applied to smaller vessels – Nunatsiaq News

Discussion:

PD Baker highlighted a few of the items as of specific interest, and Smithhisler commented that he was glad to see an update from the Interim City Manager.

COMMISSIONERS' UPDATES

Sheffield – received a request (as did Charlie) to review a letter of support for an NSF proposal.

HARBORMASTER'S REPORT *(Verbal)*

Assistant Harbormaster Schuneman gave an update on activity around the harbor and at the docks, in the absence of Harbormaster Stotts who is out of town.

Discussion:

None

PORT DIRECTOR REPORT (19-06-07 Written Report)

PD Baker highlighted first, that she commends Misty Lecesse, a teacher at Nome Elementary, has spent two summers bringing her class out to the harbor to clean the facility which is appreciated.

Second, the Alaska District Operations & Maintenance section had a small contingent in town to show the project to new staff members and get a visual on the sediment build up under the bridge.

Next, the Alaska Corps District held a public meeting last week in Nome to get more input on the Modification Feasibility Study (port expansion). Also, on 22 July, the Council will hold a work session in which our newly hired P3 attorney will present on Public, Private Partnerships on large infrastructure projects, how they are formed and how the function.

Discussion:

There was some discussion on the mechanics behind the sediment build up and why the bridge can't be closed off (essentially to allow fish passage and sediment transport).

Legislative Consultants – Special Session Report

No comments

P&H Priorities Update

No comments

OLD BUSINESS

Fiscal Plan for Funding Major Asset Repair/Replacement & Capital Improvements for Recommendation to Council

PD Baker pointed out a few new items on the strategy memo, one of which is a breakdown of utility costs, showing garbage to be the most expensive.

Discussion:

Sheffield asked if there was discussion on the head tax fee. Henderson did not recall such that any specific fees were discussed. A consensus was reached to further investigate the head tax issue before any decisions are made in that arena.

Motion was made by McLarty, seconded by Sheffield to table this issue until all Commissioners are present:

At the Roll Call:

Ayes: Henderson, Sheffield, McLarty, Smithhisler

Nays:

Abstain:

The motion **CARRIED**.

NEW BUSINESS

(discussed earlier in meeting)

CITIZENS' COMMENTS (None)

COMMISSIONERS' COMMENTS

S. McLarty – good discussion and long meeting. Thanks to the folks who show, and Scot for calling in, also appreciate Chris for joining today.

C. Sheffield – apologies for missing the last meeting. Also, Rick Thoman is coming to Nome in October to do a Strait Science edition, and has offered to have him speak to the Commission. Just realized that some of the cruise ships that are coming are actually fairly large, can we get a list?

C. Henderson – long meeting but good discussion. Thanks to Anita for coming to Nome and sharing the initial findings. I found it very informative to learn about what other countries are doing. The recent damage discovered at the West Gold Dock is a clear reminder of having a fiscal plan for addressing these types of infrastructure repairs. How does the City isolate the economic benefits brought on by these different types of vessels? That info would be useful. Last comment, I'm very sorry I missed getting an up close and personal view of Shane chairing his first meeting!

C. Smithhisler – no comments.

SCHEDULE OF NEXT MEETING

The next meeting is SCHEDULED to August 15th, 2019.

ADJOURNMENT

Motion was made by McLarty and seconded by Henderson for adjournment.

APPROVED and **SIGNED** this 19th day of September 2019.

Shane Smithhisler, Acting Chairman

ATTEST:

Joy Baker, Port Director

Hi All,

As you are aware, AAHPA took a leading role with the ADV Task Force and in helping to move through SB92, Alaska's Derelict Vessel Act, last year.

One of the many changes under the law was the creation of a TITLE system for undocumented boats, and an expansion of the REGISTRATION requirement to include documented vessels and barges.

This law went into effect Jan 1, 2019 however the State of Alaska didn't do any outreach to the newly regulated community.

See the message below from the Dept. of Administration Commissioner via UFA. The State is willing to use discretion in enforcement of the registration & titling requirements, and it will be helpful for our Harbormasters to be outreaching to their customers as well.

Feel free to reach out to myself or other AAHPA members as well.

Thanks, Everyone! Happy summer!
Rachel

PS. Don't forget to register for the AAHPA Fall Conference in Juneau!
PPS. Membership renewal notices will go out in August!

Rachel Lord
Executive Secretary
Alaska Association of Harbormasters & Port Administrators
907-299-9000
info@alaskaharbors.org

June 24, 2019

Derelict Vessel Law Update

United Fishermen of Alaska received a response from the Department of Administration's Commissioner Kelley Tshibaka. They will *not* be delaying implementation on the Derelict Vessel law, but recognize there has not been sufficient time for vessel owners to comply with the new law. The commissioner stated “*we will exercise discretion in the near-term in enforcement while we work together to get all Alaskans compliant with the law” * and that “*law enforcement officers generally will issue warnings to vessels out of compliance; however, I still encourage all Alaskans to whom SB 92 applies to register their vessels with the DMV as soon as possible.”*

UFA will continue to help fishermen and encourage you to let us know if you have any issues or questions. You may read Commissioner Tshibaka's response below.

Frances
Executive Director
United Fishermen of Alaska

E-mail response from Commissioner Tshibaka, Department of Administration: *Thank you for your email. I understand your concern and your experience with the DMV, which is faced with implementing the federal requirements for REAL ID for all Alaskans as well as the requirements for SB 92.*

*The intent of this Administration is to help Alaskans, not penalize them.
We are implementing SB 92 as passed by the legislature, Alaskans' elected representatives. But I also recognize your concerns—there has not been sufficient time for law-abiding Alaskans to become compliant with this law yet.*

*I appreciate your efforts to get the word out about the new requirements.
Please continue to partner with us in ensuring compliance with the law passed by the Legislature, and we will exercise discretion in the near-term in enforcement while we work together to get all Alaskans compliant with the law. This season, law enforcement officers generally will issue warnings to vessels out of compliance; however, I still encourage all Alaskans to whom SB 92 applies to register their vessels with the DMV as soon as possible.*

Thanks,

Kelly Tshibaka

Commissioner

Department of Administration

You are here: DMV Home /Registration/ Boat Registration



Photo: Kerry Howard

BOAT REGISTRATION

What's New?

Attention boat owners! Changes to Alaska boat ownership and registration laws initiated by [SB 92, the Derelict Vessels Act](#), took effect January 1, 2019.

Here's what you need to know:

- Registration
- Title
- Security Interest
- New Process

From registration to ownership

- Recognizing that Alaskan boat owners have not historically been required to prove boat ownership when registering at DMV, a tiered system exists to help qualifying boat owners' transition towards obtaining a boat title in addition to registration, depending on the owner's documents.
- If ownership cannot be established a boat title cannot be issued, and the boat registration must be marked "No Title Issued (NTI)".
- If after three years the "No Title Issued" registration remains uncontested and there is no undisclosed security interest in the boat, a certificate of title may be issued.

Forms and Fees:

Fees

- \$24 for powered boats
 - Note: If power source is removed the owner may wait until renewal to change to a non-power class
- \$10 for non-powered boats
 - Note: If auxiliary power is added the power boat class registration & fees apply immediately
- \$75.00 for barge registration
- \$5 for replacement of registration and/or lost decals
- \$20 for a boat title or duplicate boat title
- There is no additional charge to record a lien

Forms

- **Boat Title and Registration Application**

What documents are required?

Documents accepted to prove boat ownership to obtain a title and registration:

- The original manufacturer's certificate of origin (MCO)
- The original manufacturer's statement of origin (MSO)
- The boat title and registration from the previous state of ownership
- Completed CG-1261 Builders Certification

Documents accepted for registration only* include:

- Any of the documents listed in the ownership section, above
- A copy of the current Certificate of Documentation issued by the U.S. Coast Guard
- The boat registration from the previous state of ownership, when the owner does not have the title because:
 - the previous state does not issue boat titles
 - the boat has an active lien
 - the previous state title or MCO/MSO is lost or destroyed
- A bill of sale from a boat dealer or the previous owner
- An affidavit of ownership ([found on the boat application](#))

When registration only applies:

- **A boat title will not be issued, when the registration is marked "No Title Issued" (NTI)**
 - The boat is documented with the U.S. Coast Guard ([exempt from titling](#))
 - The boat is undocumented and 24 feet or less in length (titling optional)
 - Ownership documents cannot be presented

- If ownership cannot be established a boat title cannot be issued, and the boat registration must be marked “No Title Issued (NTI)”.
- If after three years the “No Title Issued” registration remains uncontested and there is no undisclosed security interest in the boat, a certificate of title may be issued.

Registering or titling

How do I register or title my boat?

- Please bring the following to your local DMV Office:
 - Boat Application (Form B1)
 - Proof of ownership/registration
 - Fees

How do I replace a lost registration or boat tabs?

- If information has changed since the last registration:
 - Boat Application (Form B1)
 - \$5.00 Fee
 - Mail to the DMV main office

Attn: Correspondence
1300 W. Benson Boulevard
Anchorage, AK 99503-3696

- If no changes since the last registration:
 - Get a duplicate registration online
 - Call 907-269-5551 for a duplicate tab by phone. No form needed!

Definitions:

"Boat"

- means a watercraft used or capable of being used as a means of transportation on water

"Barge"

- means a boat that is
 - motorized or nonmotorized
 - designed to be towed; and
 - used for carrying freight

"Undocumented Boat"

- means a boat that does not possess a valid certificate of documentation issued by the U.S. Coast Guard under 46 U.S.C. 12101 - 12123

Exemptions:

Exempt from registering in Alaska

- The following do not need to be registered:
- Non-boats

The following are not considered boats and are not required to be registered:

- a ship's lifeboat
 - a seaplane
 - an inspected passenger vessel; and
 - single air mattress, single inner tube, or other water toy
- Non-powered boats

Unless a boat has an auxiliary power unit or is used as a sport fishing guide's boat, non-powered boats are not required to be registered.

- Registered elsewhere

A boat with a valid registration from another state or country that is not operated more than 90 consecutive days in Alaska.

- Owned by a government

A boat owned by the United States or an entity or political subdivision of the United States, or a boat owned by a state or an entity or political subdivision of a state. PLEASE NOTE: Under FEDERAL law, recreational type public vessels must still be state registered. [33 CFR Subpart B Sec. 173.11(b)]

- A foreign documented boat
 - PLEASE NOTE: Boats that are not principally used in Alaska must be registered in the state where they are used. Alaska residents, such as military members or college students that live outside of the state cannot register their boats in Alaska. This is required by federal law and there is no exemption for any group.

Exempt from titling in Alaska

- The following boats do not need to be titled:
 - An undocumented boat 24 feet or less in length
 - A boat of any length documented with the U.S. Coast Guard
 - Note: A documented boat is also exempt from state numbering, however, the State of Alaska registration decal must be displayed.

General Information

- On January 1st, 2001, the Division of Motor Vehicles assumed the boat registration program from the U.S. Coast Guard. House Bill 108, passed in the 2000 legislative session, authorized this registration program and a comprehensive boating safety program.
- Prior to January 1st, 2001, the Coast Guard has registered powered boats that are used on navigable waterways of the state. When the USCG issued registration expires, boat owners must renew the registration with us.
- Prior to June 4th, 2004, non-powered boats 10 feet or greater in length used on any water of the state were required to be registered. These boats are no longer required to be registered; however, you may register a non-powered boat if you wish to.

Boating Safety Program

Revision Date: 07/02/2019

New U.S. Senate defense bill requires Arctic strategic ports, attention on Russia and China

The legislation directs defense agencies to designate one or more Arctic strategic ports within six months.

By **Melody Schreiber** - July 2, 2019



The guided-missile cruiser USS Normandy (CG 60) navigates through an ice field in Arctic waters north of Iceland on June 12, 2007. The Senate version of the latest National Defense Authorization Act calls for the establishment of one or more U.S. Arctic strategic ports. (Lt. J.G. Ryan Birkelbach / U.S. Navy)

Last week, the U.S. Senate passed its sprawling National Defense Authorization Act, appropriating \$750 billion in national defense spending for 2020. The legislation includes language to designate one or more strategic ports in Arctic to evaluate

growing Russian and Chinese influences in the region.

Six months after the NDAA is enacted, the Department of Defense and other partners must submit a report evaluating potential sites “for one or more” strategic ports in the Arctic. These partners include the Chairman of the Joint Chiefs of Staff, the Commanding General of the United States Army Corps of Engineers, the Commandant of the Coast Guard, and the Administrator of the Maritime Administration.

Currently, the strategic ports nearest to the Arctic are found in Anchorage and Tacoma —located some 1,500 and 2,400 nautical miles away.

A strategic port would need to accommodate “at least one of each of type of Navy or Coast Guard vessel,” including a Navy Arleigh Burke class destroyer as well as a Coast Guard national security cutter and heavy icebreaker. The port would also need to include infrastructure for other military and civilian uses.

Three months after that report, the DoD and others must designate one or more ports as “Department of Defense Strategic Arctic Ports.”

This NDAA does not, however, authorize funds to construct one or more such ports.

The legislation also requires the Department of Defense to submit a plan by March 1, 2020 to implement its newly updated Arctic strategy.

This joint force plan with the Army, Navy and Air Force will focus on implementing the new strategy as well as the December 2016 report to Congress on the strategy to protect United States national security interests in the Arctic region.



This plan must also include a report on the “current and projected Arctic capabilities” of Russia and China, as well as an analysis of U.S. capabilities to respond to geopolitical threats in circumpolar north.

The amendment to evaluate Russian and Chinese activity in the Arctic was introduced by Alaska Sen. Lisa Murkowski, a Republican. Murkowski highlighted rapidly changing geopolitics in the Arctic, as well as the need for the United States and its allies to understand and respond to Russian and Chinese activity in the Arctic.

“I’ve been pressing the Defense Department to articulate its strategy for defending U.S. interests in the Arctic for years,” Murkowski said in a statement. “We are beginning to see the Pentagon take our Arctic role seriously, but we need to know what it is that we are up against with both Russia and China increasing their interest and activity in the region.”

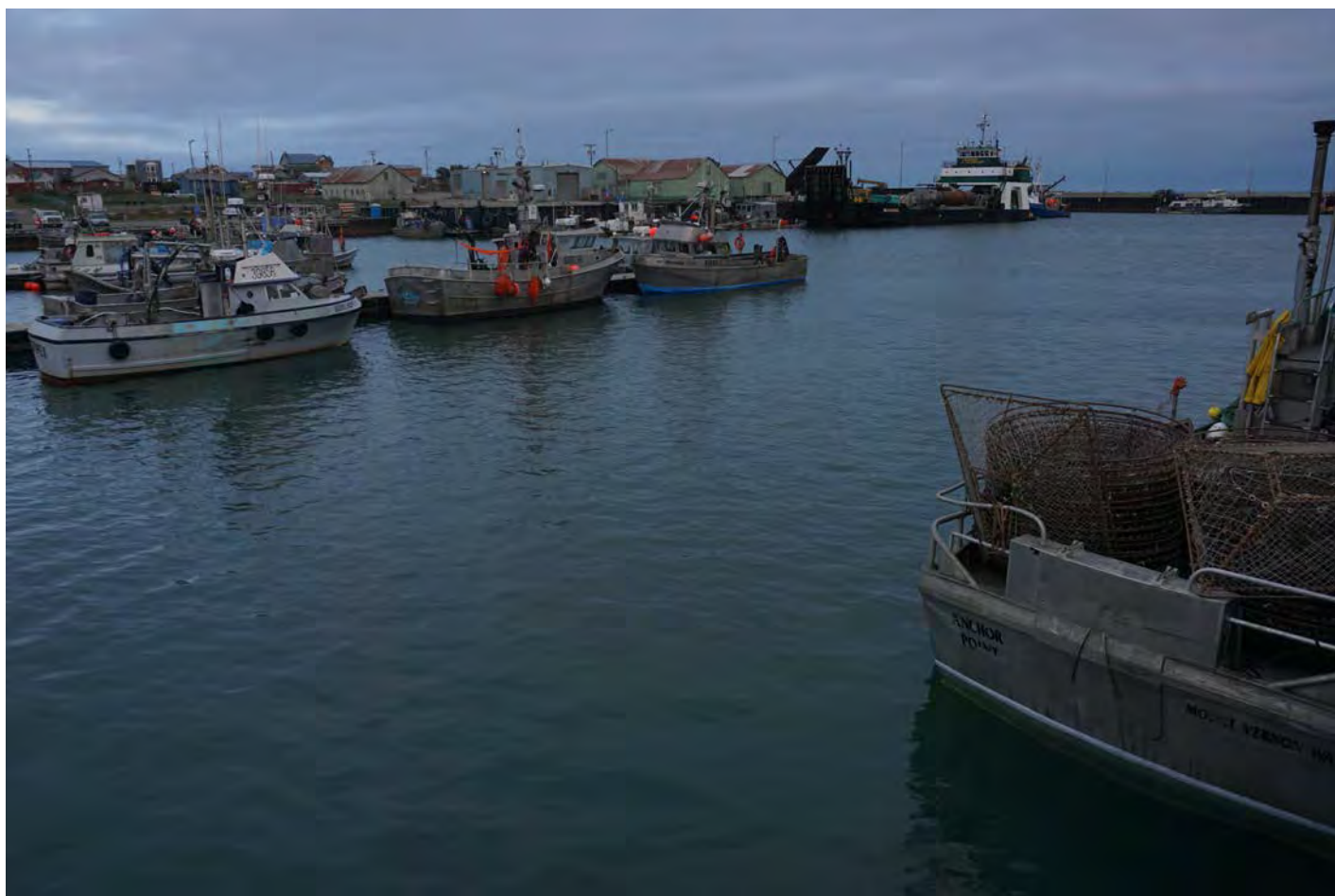
The House released its [version of the bill](#) in mid-June. Differences between the House and Senate versions of the legislation will be ironed out in a conference committee. But this negotiation may be complicated by recent efforts to include an amendment on Iran that would limit President Donald Trump’s ability to authorize military action without Congressional approval.



As sea ice melts, momentum grows for Nome's Arctic port plan

The Western Alaska port is already busy — and climate change means it will keep getting busier.

By **Yereth Rosen** - August 8, 2019



The Port of Nome's inner harbor is already the bustling home to many small vessels — and poised to grow busier still. (Yereth Rosen)

The Bering Strait has been a crossing point for millennia.

In past geologic eras, it was a land link that allowed animals and people to migrate between Asia and North America. Since the end of the last Ice Age, its waters have been the passageway between continents and between the Pacific and Arctic oceans.



Now, as sea ice diminishes and interest in Arctic commerce intensifies, the Alaska city of Nome plans to be at the center of what is expected to be a far-north shipping boom. The city is bidding to expand its existing regional-focused port into what would be the only deepwater port in the U.S. Arctic.

[Nome eyes a significant port expansion — but critics wonder if it will be enough]

Nome Mayor Richard Beneville sees shipping as key to a sustainable future for the city that was born out of a spectacular but brief early 1900s gold rush. The port, he believes, can make Nome the full-service support center for traffic passing through the narrow strait.

“There’s a wonderful word in the English language: chandlery,” he said. The word, which traces back to Medieval candle-sellers, has come to mean a supplier of all sorts of materials, provisions and services for the nautical trade.

Climate change brings havoc to the natural environment, Beneville said, but it also brings a silver lining: the opportunity for Nome to become the chandlery of the U.S. Arctic. “In everything, there is good and bad,” he said.





Nome Mayor Richard Beneville is an enthusiastic backer of efforts to expand his town's port to serve the Bering Strait and U.S. Arctic. "Finally, finally, the awareness of the public is there, is beginning to understand the importance of the Arctic and how vital it is to us and how we are so far behind." (Yereth Rosen)

Technically, Nome is south of the Arctic Circle, but only barely so. It is certainly a lot closer than the full-service deepwater U.S. port that is, for now, the nearest to the Arctic — the port of Dutch Harbor at the Aleutian Island community of Unalaska, 1,000 miles south of the Arctic Circle.

"Putting a deepwater port in Nome is a critical piece of the existing opportunities in the Arctic, in my opinion, because there's no deepwater port north of Dutch Harbor," said Joy Baker, Nome's port director.

[[Alaska senator calls for a system of U.S. Arctic ports](#)]

Nome may be best known as the finish line of the Iditarod Trail Sled Dog Race, but it has other important attributes. Located on the Seward Peninsula, a point

of land that juts out toward Russia, it is the biggest U.S. community in the Bering Strait region, with about 3,800 people. It has an airport, hospital, commercial center and numerous other amenities that make it a regional hub. It is located in one of the fastest-warming parts of the world, with [an ecosystem that is transforming](#) as sea ice vanishes.

Its port already serves steadily growing vessel traffic, including ships heading in and out of the Arctic through the chokepoint between Alaska and Russia. And it has been identified by the U.S. Army Corps of Engineers, through a winnowing process that [started in 2008](#), as the most logical site for what would be the first deepwater U.S. Arctic port, something that government officials argue is needed to help safely manage ship traffic.



A photo shows Nome's outer harbor, including the existing causeway and breakwater that would be extended under a U.S. Army Corp of Engineers plan. (Yereth Rosen)

The [specific plan](#), as detailed in [a draft report issued by the Corps in May](#), is for an existing causeway that stretches about 3,000 feet into Norton Sound to be more than doubled, and bent at the end into an L to shelter the space within. A second road-topped causeway would extend out to the same distance, replacing the rocky breakwater that currently curves into what is now the outer harbor. The seafloor would be dredged at the new outer docks, lowering it from its current depth of 22.5 feet down to 40 feet, deep enough to accommodate the biggest ships traveling the region.

The Corps is expected to release a final version of the port study. If all the pieces subsequently fall into place — including Congressional action and appropriation and some kind of financing from the city to help pay a cost that, for now, is estimated at roughly \$500 million — construction could be underway by the mid-2020s.





Fishing boats already crowd Nome's inner harbor — and more are likely to come as climate change drives some commercial species north from their current habitats in Alaska waters further south. (Yereth Rosen)

Even without port expansion, traffic in and out of Nome has increased dramatically as ice has melted. In 1990, there were [just 34 vessel calls at the port](#). Now about there are about 750 a year, Beneville said. And that number does not include the deep-draft ships that have to anchor outside of the existing port, activity that has also boomed over the past decade.

The fleet calling on Nome comprises a wide mix: fishing boats targeting salmon, crab and other commercial species; research ships; Coast Guard vessels; barges and cargo ships hauling everything from groceries to gravel; cruise and tour ships; and an eclectic assortment of boats carrying dredging equipment for the only-in-Nome business of offshore gold dredging. Nome serves as a destination for a select group of adventure tourists, a hub for dozens of far-flung villages and a staging ground for industrial materials heading to the North Slope.

Increasingly, Nome is hosting hefty Arctic-bound vessels, like the luxury cruise ships that have pioneered the once-impenetrable Northwest Passage. For now, those big ships have to anchor far from the harbor, where water is sufficiently deep, and ferry passengers into town in small boats — a difficult task if waters are choppy.



A fuel tanker lies at anchor offshore from Nome, where it serves as a "floating gas station." With a deeper draft port at Nome, fuel tankers could offload their cargo and leave, while cruise ships could deposit passengers directly on a dock, rather than ferrying them to and from town in small boats. (Yereth Rosen)

The expansion, as envisioned, would provide dock space for vessels like the [Maasdam](#), a 719-foot Holland America cruise ship that stopped in Nome on July 21. A community celebration to greet the Maasdam was called off because seas too rough that day to offload passengers into the small boats. If the expansion had been in place, passengers could have stepped onto the dock and come town, Baker noted.

The expansion would also make it possible for tanker vessels to dock, discharge their cargo into a pipeline system and depart within hours. Today's situation is quite different: A chartered tanker full of fuel sits for months offshore, just beyond the three-mile state territorial boundary, to serve as a "floating gas station," as Beneville puts it, for smaller ships that sail up to it.

Climate change squeezes the existing port

Climate change has other effects: As ice arrives later and melts earlier, the shipping season is lengthening.

"It used to be when I came on in April we have 100 percent cover of ice," said Nome Harbormaster Lucas Stotts, whose annual work contract starts on April 1. "We would never receive vessels prior to June 1," he said. And vessels were quick to depart in the fall.

But with freeze-up delayed and melting starting earlier, the ship pattern has changed. Last season, some vessels were in the port in October and even November, Stotts said. This year, the first vessel came in on May 23, and ships could have arrived earlier; by mid-May, the outer harbor was completely clear of ice, he said.





Nome Harbormaster Lucas Stotts says the port's ice-free season has grown longer during his tenure. The Corps of Engineers predicts nearby waters could soon be navigable year-round for some ice-classed ships. (Yereth Rosen)

The Corps document warns that the shipping season is on target to expand to 240 days in the near future, and if all multiyear ice disappears, the remaining winter ice will be so thin that year-round operations are viable for “appropriately designed vessels.”

For Stotts, the improvements envisioned in Nome’s harbor expansion would address a lot of current problems. He is most enthusiastic about the promise of greater protection from the waves that sweep in from the south, and now do so for longer periods of the year.

“Having more dock space, having more docks, having deepwater areas, that’s all very good stuff and it’s all needed. But the biggest thing for me is protection from the weather,” he said.

When winds blow from the south, ships in the port have to play a musical-chairs-like game to avoid being smashed against the existing docks or against each other. They have to “jog” around the open waters outside the harbor until things settle sufficiently to make docking safe, he said. More exposure to open water also increases the need for maintenance and repairs, he said.

Warming has other implications.

As fish stocks shift north, more vessels might use Nome as their base of operations. The king crab harvests, for which Norton Sound is famous, have been “abysmal” this year, Stotts said, but Pacific cod and pollock, species normally found in more southern parts of the Bering Sea, have moved in. Stotts said he has been fielding inquiries from major fishing companies seeking information on Nome’s services and amenities.

Last year, the last fishing vessel in the port was a cod catcher-processor, the Northern Leader, that arrived on Nov. 8 and left a day later, Stotts said. The ship, homeported 630 miles to the southeast in Kodiak, was in Nome for an unusual assignment: the filming of a dog-food commercial. Locals suspect it might also have spent some time in the region scouting possible far-north cod-fishing sites, Stotts said.

Worries about expansion

Not everyone is excited about port expansion.

Kawarek Inc., a Nome-based nonprofit representing villages and tribes, advocates for better marine safety in the increasingly busy Bering Strait waters. It has also made some pointed critiques of city leaders’ gung-ho port-expansion boosterism.

Negative impacts of port expansion and the expanded shipping that would accompany it, Kawerak has [said in its official comments on the plan](#), could include

more oil spills and marine wrecks, chronic water and air pollution, industrial noise that could disrupt marine mammals, construction and erosion damage to archaeological and grave sites and a combination of those and other effects. Kawerak has challenged the Corps' conclusion that port expansion would create "no significant impact."

[With marine traffic growing, international shipping agency approves US-Russia plan for Bering Strait shipping lanes]

There has been one important step taken to addressing concerns about impacts of increased vessel traffic. The International Maritime Organization's last year established designated Bering Strait-area shipping routes and buffer zones protections for environmentally sensitive areas, a victory for environmentalists and the indigenous peoples on both sides of the strait.





A map from a joint U.S.-Russia proposal on shipping lanes to the International Maritime Organization shows the proposed new lanes, overlaid with shipping traffic from 2014-2015.



But there is unfinished business when it comes to [chronic marine pollution](#), like vessel discharges of oily bilge and sewage, and various ship-animal conflicts.

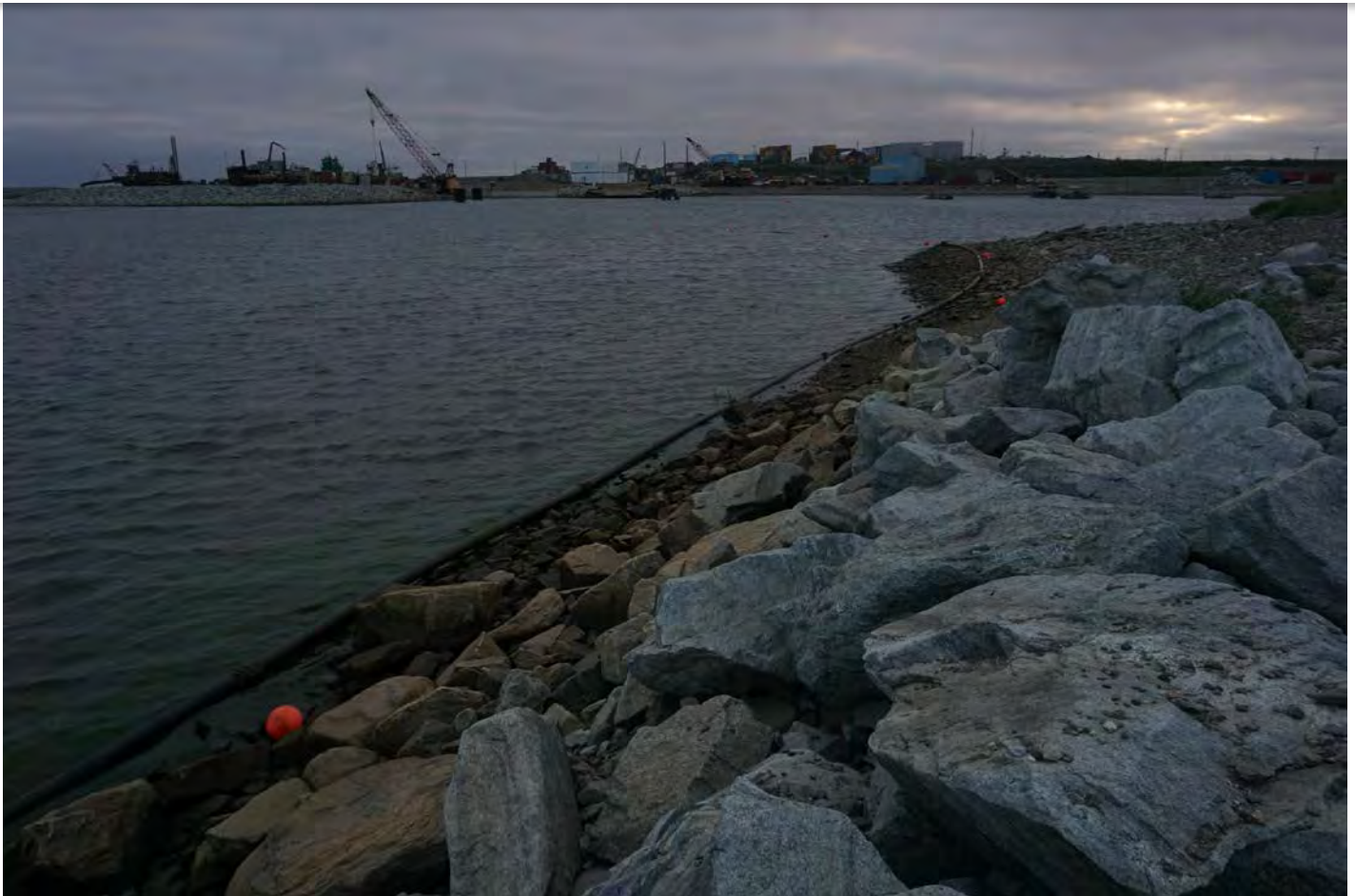
The IMO has yet to ban the use of [heavy fuel oil](#) in the Arctic, though [it is moving to enact such a ban](#), similar to the one that already exists in Antarctic waters. When spilled, heavy fuel oil is much more environmentally damaging than are lighter petroleum products; when burned, heavy fuel oil produces large amounts of black carbon that pollutes the air and darkens snow and ice, setting up even faster melt.

[\[The push to phase out heavy fuel oil in the Arctic continues\]](#)

Underwater noise in the region is not yet well understood and is the subject of ongoing study, but projections are for more conflicts as [both ships and marine mammals move north](#) into the narrow strait and beyond.

There are hints that underwater noise is becoming a problem. A deep-diving [beaked whale found dead](#) in 2013 at St. Lawrence Island at the southern edge of the Bering Strait may have been a victim. The necropsy revealed masses of air bubbles in its brain, a sign that it had shot up from the depths too quickly, possibly after being spooked by noise.





A part of the causeway that makes of Nome's existing outer harbor. The causeway would be extended under an Army Corps of Engineers plan. (Yereth Rosen)

For Austin Ahmasuk, there are plenty of reasons to oppose Nome's port expansion.

Speaking for himself (not for Kawerak, where he works as a marine specialist) Ahmasuk has a list of complaints about not only the expansion plan but the port as it exists today.

Located at the mouth of the winding Snake River, the port developed in bits and pieces over the past century, with plenty of mistakes made along the way, Ahmasuk argues. Native people were evicted from a traditional living space called *sansipik*, meaning "place on the side," and his own family home was destroyed as the port grew, he said in his four-page comment letter to the Corps. "The port of Nome has destroyed Alaska Native people and history and may significantly change Nome," he said in his comment letter.

An expanded causeway will force small subsistence boats far from shore and into dangerous currents, harm essential fish habitat and put Native historic and cultural sites at further risk, he said in his letter, which pleaded for a full environmental impact statement. He characterized claims of potential benefits as exaggerated or baseless, and questioned the need for the project, which he called “port development for the sake of port development.”

Shipping booms past and future

Bering Strait history suggests a cautious approach might be advisable on maritime matters. While climate change-caused ice loss is new, occasional waves of ship traffic into this part of the world are not.

In the mid-19th century, when commercial whaling in Alaska waters was at its frenzied peak, hundreds of ships poured into the Arctic through the Bering Strait. The ecological toll was steep. Whale populations were [hunted to near-extinction](#). When whales became scarce, whalers hunted masses of walruses, [killing an estimated 140,000 of them](#), according to experts John Bockstoce and Daniel Bodkin.

Whalers came despite the dangerous freeze, and “few ships returned from these regions without showing heavy scars and wounds as the result of their contests with the ice, while many vessels laid their bones in these desolate seas or in the rock-bound coasts,” wrote author Alexander Starbuck in his famous 1876 [history of the American “whale fishery.”](#)

After gold was discovered in late 1898, thousands of people inundated Nome, temporarily making it Alaska’s biggest city. Ships unable to navigate Norton Sound’s shallow depths anchored far offshore, forcing hordes of fortune-hunters to wade through the waters to reach the “golden sands of Nome.”

A 1900 U.S Geological Survey [report](#) describing the Seward Peninsula mineral potential bemoaned the dearth of harbor facilities in Nome. Considering that the town handled more than 5,000 passengers and thousands of tons of freight in a single year, “the lack of harbor facilities at present at Nome is embarrassing,” said the report.

Even then, there were visions of a sophisticated port.

“Realizing the great need of harbor facilities here, it is reported that a number of enterprising men have organized a company and are negotiating to construct at Nome and extensive deep-water pier or wharf, to extend nearly a mile from shore, to a point where ocean vessels can discharge their cargoes into it, when they will be brought ashore by tramways to warehouses along the beach,” said the USGS report, titled “Preliminary Report on the Cape Nome Gold Region.”

It may have taken more than a century, but now the ambitions are realistic, Nome port boosters argue. U.S. government and business leaders, they say, are paying serious attention to Arctic shipping and to Nome’s role in meeting U.S. Arctic needs.

“You don’t have to re-sell it every time,” Beneville said. “Finally, finally, the awareness of the public is there, is beginning to understand the importance of the Arctic and how vital it is to us and how we are so far behind.”



2019 SHIP DATES

July

7/3-8	Fairweather	(NOAA)
7/8-9	Orion II	(Cruise)
7/31	RV Alaska Knight	(NOAA)

August

8/1-2	RV Alaska Knight	(NOAA)
8/1-3	RV Vesterallen	(NOAA)
8/9-10	Silver Explorer	(Cruise)
8/11	Orion II	(Cruise)
8/23	Orion II	(Cruise)
8/24	Ocean Star	(NOAA)
8/27	Bremen	(Cruise)

September

9/4	Orion II	(Cruise)
9/8	Northwest Explorer	(Research)
9/10-11	The World	(Cruise-Anc)
9/10-11	Roald Amundsen	(Cruise)
9/14	Ocean Star	(NOAA)
9/15	L' Austral	(Cruise)
9/18	Le Boreal	(Cruise)

November

11/5-7	UAF Sikuliaq	(Research)
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UPDATED 08/09/19

Dates Subject To Change



Memo

To: John K. Handeland – Interim City Manager
From: Joy L. Baker – Port Director *JLB*
CC: Mayor & Common Council; Nome Port Commission
Date: 7/18/2019
Re: Port & Harbor Report/Projects Update – July 2019

Administrative:

The F19 Port Operating Budget at 30 June showed 81.6% revenue and 54.1% expended, with closeout expenses and journal entries remaining to wrap up fiscal year accounting, but all revenue has been billed. Harbormaster Stotts and staff have been busy coordinating vessel launches/cargo transfers at the concrete ramp, doing minor maintenance, and juggling dock space to account for harbor congestion and integrating all port traffic into the two functioning Causeway docks. In addition, and with the help of Public Works, they've been performing fuel transfers, cruise ship line handling and security, tire curtain upgrades, and improving roads, pads and docks surfacing. Office and field staff have just completed an audit of all port & harbor storage to align with user accounts and closing fiscal billing.

The Port Commission held a work session on 11 June 2019 to further discuss the long-term fiscal health plan for the Port & Harbor. A variety of ideas were discussed, and scheduled for consideration at the regular 20 June meeting. However, that meeting was lightly attended so the issue was tabled for a follow up meeting with the full group.

The 20 June meeting also included a work session with Anita Parlow presenting the draft Commercial Arctic Shipping report she is under contract to provide. Ms. Parlow highlighted elements of the draft and answered questions from Commissioners to inform the final document content due by 31 July. The draft report drew a citizen's concerns expressed at the 8 July Council meeting regarding what was interpreted as negative connotations implied within the report. A few City staff and the author each reviewed the document thoroughly, and were unable to locate the source of the interpretation, but efforts continue to address the concern.

The Port Commission's 18 July meeting was cancelled for lack of a quorum, but on 15 August there will be a 5:30pm joint work session with the Planning Commission to resume discussion of long-term onshore port development. This coordinated planning effort will assist to inform the updates to the 2020 Nome Comprehensive Plan and the 2019 Port of Nome Strategic Development Plan, as well as a strategy to connect offshore and onshore development needs.

Mr. John Smolen with Nossaman, will be in Nome on 22 July to present at the Council's 6:00pm work session, to be joined by the Port Commission. Mr. Smolen is a D.C. attorney that specializes in Public, Private Partnerships (P3) for large infrastructure projects. He will outline a variety of P3 options and how they can be used to fund public projects. The intent is to provide knowledge to assist the City in planning for the cost-share of the potential port expansion.

Additionally, our lobbyists, Jay Sterne (federal) and Wendy Chamberlain (state) will be present to give legislative updates to the Council.

Causeway:

Arctic Deep Draft Port – Modification Feasibility Study (MFS):

The Corps Project Delivery Team held their monthly meeting on 11 July 2019, with the following updates:

- The public meeting was held on in Nome on 18 June and reflected a reasonable turnout. Comments from that meeting and those submitted electronically on the Draft Integrated Feasibility Report and Environmental Assessment were received through 21 June 2019. The team is presently evaluating comments to determine whether report changes are necessary.
- The team recently discovered that adjustments to material quantities had become necessary to address the anticipated sea level change during the 50-year study life of the project. This will the breakwaters/causeways to be elevated another half-foot, adding rock quantities. The adjustments will be transmitted to cost engineering to update project estimates, and forwarded to the economics team for updated the benefit/cost calculations. Results should be ready by 31 July.
- The environmental section is still evaluating dredge disposal options but is presently assuming that costs for offshore disposal are likely to be similar to costs to dispose of in-water near the beach.
- The Vertical Team (District, Division and HQ) are still trying to reach a final decision on the legal authority that will be used to justify this project. Numerous complicating factors remain in play that impact that decision - discussions continue with the District and within the VT.

West Gold Dock Sheet Pile Repair Project:

STG has mobilized crew and remaining equipment and materials to the site, with the fabricated template scheduled to be flown in on July 19th or 20th. The remaining excavation of the starting cell has been completed and sheetpile removal is anticipated to begin Monday after the silt curtain is installed and the PND inspector arrives. STG will be working 7-12 hours shifts, weather permitting, in an attempt to expedite the project to return the dock to service, and, and enable STG to meet their next scheduled project. (see attached dock repair schedule)

Concerns were expressed about having an archaeologist on site during excavation to ensure artifacts would not be disturbed, but considering all of these soils/gravels were sourced from washed dredged tailings, both the City and the State Historic Preservation Office found no reason to put restrictions on the project. Additional concerns have been expressed about the costs of the project following the 18 June Port Commission meeting estimates. At that stage of the planning, there were still many unknowns in the scope of the project that ultimately escalated the cost of the work, such as; extent of the sheet pile removal/replacement, rolled template fabrication in Anchorage, Corps confirming the NFMS requirement for a Protected Species Observer (PSO) during al vibratory hammer work, and unknowns associated with removal of 30-year old sheet piling. Each of these contributed to higher project costs.

Cook Inlet Tug & Barge (CITB) – Assist Tug:

CITB has decided to place a 64' shallow-draft River-Class tug called the *Kavik Wind* in Nome for the 2019 season to serve the needs of the maritime industry as an assist and rescue tug. This fills an operational gap that existed in Nome for many years, and we are hopeful there is sufficient demand that CITB can sustain operations for many season to come. Once the season ends, CITB plans to haul the vessel out on air bags, and winter in Nome for the 2019/2020 season. The Port sincerely appreciates CITB taking this bold step. (See attached spec sheet-photos)

Harbor:

Inner Harbor Deepening to -12.5' MLLW (Section 107 Corps CAP Program):

The Corps held the first Project Delivery Team meeting on 14 June 2019. Based on the determination of federal interest, an updated Letter of Interest from the City was requested as the original was from 2017. The Project Manager is preparing an information package that will contain the budget, scope, and the official determination letter. Once the City and Corps concur on these items, a project cost-share agreement will be drafted to consider.

Concrete Launch Ramp Replacement Project:

The additional information requested by EDA for the pending grant application was submitted on 28 May 2019. It is possible additional information may be needed, but otherwise we are hopeful that official award may be received sometime in July 2019. (All matching funds remain available and await award of federal funds).

Snake River Moorage & Vessel Haulout Facility:

In coordination with Cordova Consulting, the City submitted an application for funding to the U.S. DOT BUILD program on 13 July 2019 to fund the Snake River Moorage & Vessel Haulout Facility Project. Grant awards are anticipated to be announced in December 2019.

Port Industrial Pad:

West Nome Tank Farm (Property Conveyance):

After submitting another complaint on the continued delay of property transfer, a supervisor responded via email to indicate that several folks within the Real Estate Department have been assigned the task of expediting the transfer document, including the step-by-step breakdown of each party's responsibility in the transfer.

External Facilities:

Cape Nome:

The City still awaits the final two funding reimbursements from DHS/FEMA. Alaska DHS/EM staff has advised that delays are still due to document processing for last year's earthquake. In expressing our frustration in the form of yet another complaint, the DHS agent promised to spend time over the weekend processing Nome, but was unable to provide any type of timeline for processing beyond her department.

Italics reflects information with no change from last report. Additional information is available on request.



Kavik Wind

VESSEL SHEET



OFFICIAL #: 526289

ABS #:

LR / IMO #:

HULL #:



DIMENSIONS	
REG. GT.	105
REG. NT.	50
ITC GR TONS	
ITC NT TONS	
REGULAT. GT	
REGULAT. NT	
OPERATING DRAFT	3'5"
REG. LENGTH	64'
REG. BREADTH	27'
REG. DEPTH	5'7"
LOA	
MAX BREADTH	
MIN HEIGHT	
MAX HEIGHT	
DISPLACEMENT	

REGULATORY	
ABS LL	
ABS CL	
REGISTRY	
COASTWISE	
TITLE XI	
CCF	
SOLAS	

VESSEL DESCRIPTION	
VESSEL TYPE	Triple screw Shallow draft
SERVICE	tug
CALL SIGN	
HAIL PORT	
OLD NAMES	Kavik River
DATE BUILT	1970
REBUILT	
BUILDER	Colberg Co. – Stockton, CA

TANKS [# / TOTAL CAPACITY]	
FUEL	11,482 gal
HYDRAULIC	100 gal
FOAM	
BALLAST	
LUBE	100 gal
WATER	400 gal

ENGINE ROOM EQUIPMENT	
MAIN	3 CAT 343D
AUX	2 Detroit Diesel, 35 KW
PROPULSION	2-stainless steel 5-blade 44" x29"
REDUCTION GEAR	Twin disc MG 514, 3:1
FIXED SYS	
FUEL TRAN	
STEERING	

MACHINERY	
CONFIG	
ME [#, TYPE]	
RED. GEAR	
PROPELLER	
TAIL SHAFT (S)	
ME COOLING	
MAX ME RPM	
RATED HP	1,095 maximum continuous BHP
CBHP	
BOW THRUSTER	
BOLL PULL	
GENERATOR	
AUX #1	
AUX #2	
AUX #3	

DECK GEAR	
ANCHOR GEAR	
PUSH WINCH	
PUSH WIRE	
BOW WINCH	
BOW WIRE	
TOW WINCH	
TOW WIRE	
TOW WIRE #2	
DECK CRANE	
DK CRANE #2	

ELECTRONICS		
AUTO PILOT		
GYRO COMP		
RADAR #1	FURUNO	
#2	SSB MOTOROLA T20	
#3		
LORAN #1		
#2		
SAT NAV #1		
#2		
WEATHER FAX		
GMDSS		
FATHOM	Furuno LS 6000	
VHF #1	Icom	
#2	Icom	
#3		
PORTABLE VHF		
UNF/PRIVACY		
CITIZEN BRAND		
SSB #1		
#2		
CELLULAR		
MARINE RADIO		
ALARM PANEL		
LOUD HAILER	Ray 350	
GYRO	Sperry	
AUTOPILOT	Comnav 2001	
INTERCOM		
MAG COMPASS		
GPS	Trimble NT 200	
RECREATION		
EPIRB		

REMARKS		
GMDSS:	SAT Phone:	AIS Unit:
Bow thruster:	Sister vessel:	Sag Wind, Kuparuk Wind
Designer:	SAT Phone:	



Memo

To: John K. Handeland – Interim City Manager
From: Joy L. Baker – Port Director *JLB*
CC: Mayor & Common Council; Nome Port Commission
Date: 8/9/2019
Re: Port & Harbor Report/Projects Update – August 2019

Administrative:

The F19 closeout process continues with final expenses being obtained and submitted to finance. Impacts from the latest storm were minimal around the facility, with only moderate flooding of Belmont beach and the Low Dock in the Small Boat Harbor – a structure that was designed to overtop in such events. Port and Public Works crews continue to coordinate on fuel transfers, line handling and port security as needed – we do appreciate their assistance. Building Maintenance has been replacing the windows in the older sections of the Port Office (which date back to the original Sandspit structures).

On 15 August, the Port Commission will hold a 5:30pm joint work session with the Planning Commission to resume discussion of long-term onshore port development. This coordinated planning effort will assist to inform the updates to the 2020 Nome Comprehensive Plan and the 2019 Port of Nome Strategic Development Plan, as well as a strategy to connect offshore and onshore development needs.

Causeway:

Arctic Deep Draft Port – Modification Feasibility Study (MFS):

The Corps Project Delivery Team held their monthly meeting on 8 Aug 2019, with the following updates:

- Project quantities have been adjusted by the H&H section and submitted to the Cost section for updating. The team discussed final assumptions for the 3 remaining plans during this PDT meeting that will assist in finalizing the cost changes. Once those are complete, they will be forwarded to the economics team for recalculating the benefit/cost ratios. Results should be done by 31 August.
- The team has discovered that the environmental consultations did not include dolphin installations so will need to re-consult with the agencies to accommodate pile hammer construction. This then allowed them to reconsider using sheet pile docks versus caisson. Based on estimates provided by PND, the Costs section produced a \$45M cost-savings on construction. The project will now show sheet pile docks as the preferred dock type.
- The Alaska District has received a waiver denial for an Independent External Peer Review (IEPR), based on total estimated cost of the project. The IEPR has been issued to a Corps subcontractor which has 90 days to provide comments to the team. We now have a 30-month study schedule.

West Gold Dock Sheet Pile Repair Project:

STG has successfully removed the affected tail wall sheets, placed the template for the new layout of cell 5, and began driving new sheets into that cell on Tuesday-6 Aug (see attached 8 Aug report). Weather impacted the project during the storm on 2-3 Aug, but work continued on equipment inside the contractor's shop, and field-work resumed on Sunday-4 Aug. Weekly project calls continue with the contractor, inspector, design engineers and port staff for addressing questions on site work, schedule impacts, personnel rotations and weather forecasts. The last schedule adjustment for the weather/equipment delays currently shows a 26 Aug completion date.

Harbor:

Inner Harbor Deepening to -12.5' MLLW (Section 107 Corps CAP Program):

The Corps held the first Project Delivery Team meeting on 14 June 2019. Based on the determination of federal interest, an updated Letter of Interest from the City was requested as the original was from 2017. The Project Manager is preparing an information package that will contain the budget, scope, and the official determination letter. Once the City and Corps concur on these items, a project cost-share agreement will be drafted to consider.

Concrete Launch Ramp Replacement Project:

An additional piece of information for the pending grant application was requested by EDA on 5 Aug 2019, and immediately provided. We anticipate an official award may be received sometime in August 2019.

Snake River Moorage & Vessel Haulout Facility:

In coordination with Cordova Consulting, the City submitted an application for funding to the U.S. DOT BUILD program on 13 July 2019 to fund the Snake River Moorage & Vessel Haulout Facility Project. Grant awards are anticipated to be announced in December 2019.

Port Industrial Pad:

West Nome Tank Farm (Property Conveyance):

After submitting another complaint on the continued delay of property transfer, a supervisor responded via email to indicate that several folks within the Real Estate Department have been assigned the task of expediting the transfer document, including the step-by-step breakdown of each party's responsibility in the transfer.

External Facilities:

Cape Nome:

The City still awaits the final two funding reimbursements from DHS/FEMA. Alaska DHS/EM staff has advised that delays are still due to document processing for last year's earthquake. In expressing our frustration in the form of yet another complaint, the DHS agent promised to spend time over the weekend processing Nome, but was unable to provide any type of timeline for processing beyond her department. New information received on 8 August 2019 indicates that additional personnel are being assigned to close pending projects, as well as some new management has rotated in for the DHS Disaster section.

Italics reflects information with no change from last report. Additional information is available on request.

CONSTRUCTION OBSERVATION REPORT

Nome West Gold Dock Repairs

Page 1 of 4

PND Job #:	191107	PND Observer:	Logan Imlach	Title:	PND Field Engineer
Client:	City of Nome	Client Contact:	Joy Baker	Title:	Port Director, City of Nome
WEATHER		TEMP		WIND	HUMIDITY
Overcast		45-55° F		0-5 mph	90%
CONTRACTOR		Contact		Title	Phone No.
STG Incorporated		Shane Oyster		Project Manager	(907)-644-4664
Non-Manual		Manual		<u>Note(s) regarding Contractor:</u>	
-		-		Work occurs outdoors – approx. 8am to 7:00 pm	

NOTES, FIELD ACTIVITIES & EQUIPMENT

Notes:

- Vibratory hammer work began at 11:50, Protected Species Observer on-site and in place during vibratory hammer operations.

Field Activities:

- On site at 8am.
- 08:00 – 11:50: Stab, set and weld to template sheets 5-10 (see sheet summary below)
- 09:30 – Crew decided to install plywood sheets on template for safe working platforms
- 11:50 – 14:45: – decide to pick up hammer to incrementally drive sheets 1-9 (see sheet summary below)
- 14:45 – 16:30: – Stab, set and weld to template sheets 11-16 (see sheet summary below)
- 16:30 – 19:00: – Pick up hammer to incrementally drive sheets 1-15 (Sheets 1-3 driven to final tip elevation, see sheet summary below)

Sheet #	Tip Elevation #1	Tip Elevation #2	Tip Elevation #3
1	-22'	-29'	-33.5'
2	-17'	-24'	-33.5'
3	-16'	-24'	-33.5'
4	-16'	-19'	-29.5'
5	-8.5'	-19'	-29.5'
6	-6'	-14'	-24.5'
7	-5'	-14'	-24.5'
8	-4'	-10'	-19'
9	-4'	-10'	-19'
10	-4'	-4'	-17'
11	-	-4'	-17'
12	-	-3'	-12'
13	-	-3'	-12'
14	-	-2'	-8'
15	-	-1'	-8'
16	-	0'	0'

Equipment On-site:

- (1) Kobelco CK2500, 250TN crane
- (1) 345B CAT excavator
- (1) Volvo L150E loader with forks

- (1) 980G CAT loader
- (1) Lincoln electric vantage welder
- (1) JLG 660SJC Man Lift

- (1) Spandeck 6010, 30 TN crane
- (1) CAT 236 skid steer with forks



Photograph #1

Welding sheet #7 to template



Photograph #2

First round of incremental driving,
driving sheets 8 and 9 as a pair



Photograph #3

Sheets 1-16 before second round of incremental driving



Photograph #4

During second round of driving



Photograph #5

Sheets 1-3 driven to final elevation



**ARCTIC DOMAIN
AWARENESS CENTER**
A DEPARTMENT OF HOMELAND SECURITY CENTER OF EXCELLENCE



**Sandia
National
Laboratories**



**University of Alaska's Arctic Domain Awareness Center
(In partnership with Sandia National Labs)
Spring 2019 Arctic Related Incidents National Significance
Workshop (Arctic-IoNS)
Final Report 11 July 2019**

**Arctic IoNS 2019 Alaska Native & Rural
Arctic "Insights" Community Workshop
University of Fairbanks NW Campus
Nome, Alaska
18-19 April 2019**



Arctic IoNS 2019 Workshop Planning Collaborators (including the advance consulting workshop in Nome)

Executive Summary

The storytelling element of the Insights workshop uncovered several overarching general concerns/observations and 4 gap themes:

1. General Observations
2. Communication Technologies and Related Issues
3. Ice Effects and Extreme Weather Conditions
4. Near-Coast Infrastructure Resilience
5. Preparedness and Integrated Emergency Incident Response Effectiveness
 - a. Tools, Technology, and Training
 - b. Planning and Policy

General Observations

Alaska Native and rural communities are concerned about an array of emergencies, with most residents placing a higher priority on issues such as disaster- and weather-related food shortages, supply and transportation system interruptions, and pandemics from virus and infectious disease. Experienced local emergency managers stressed the importance for any solutions to work broadly across the spectrum of possible risks, including multi-faceted domain awareness (i.e., both inland and seaward domain awareness) and ensuring all response solutions are flexible enough to address a broad set of incidents specifically in an Arctic environment. Similarly, the response framework and forces should be flexible and adaptable. Native and rural Alaskans are ready and willing to be a trained and resourceful component of the incident response command structure.

Other concerns arose including the need to record baseline critical environmental conditions, such as currents, temperature, ice conditions, and wildlife, as they are vital for rural regional understanding and illustrating the true magnitude of future climate changes. Related to these issues is the need to protect sensitive information. While not a part of this exercise, as always, oil spill solutions remain a top concern.

As subsistence living is challenged by loss of traditional hunting and fishing areas (such as sea ice declination), it was noted that crisis tipping points can occur much more rapidly. Participants relayed a common desire for more cooperative research with Alaska Natives and other rural residents and more rural outreach leading to local-community developed ideas and solutions.

Communication Technology and Related issues

Consistently available and effective communication is not available. Western

Alaskan residents have to combine a variety of different technologies and systems - VHF radio, In-reach, satellite phones, etc. for different conditions. These ad-hoc systems are not always reliable, cannot be integrated, and are too costly for most residents. The participants stated that lives were being lost due to the of lack of small, portable, affordable, communications systems that anyone can use without licensing requirements. To be truly effective, new methods of communication may need to leverage social media. Finally, any communication electronics need to work and be workable in extreme cold.

Ice and Extreme Weather Conditions

Ice conditions are becoming increasingly unpredictable. Younger individuals are not gaining traditional survival knowledge concerning normal ice behavior and human physical effects in extreme conditions. This issue is compounded by changing ice and weather conditions that may challenge traditional assumptions and knowledge. Thus, the inherent risks inherent in traveling greater distances now necessary to successfully conduct subsistence activities are substantially increased.

Near-coast Infrastructure Resilience

Storms and conditions are increasing in frequency, unpredictability, and severity. 100-year storms are no longer unusual, and most infrastructure was only built to withstand much less challenging wave and storm surge conditions. To make conditions even more challenging, sea walls no longer stand at their expected height due to coastal erosion and sea wall degradation. Timely flood warning systems are needed at night and in bad weather when visibility is low - including in homes where people are sleeping and for people in remote areas. Current evacuation locations are likely to be flooded; so large scale evacuation centers are needed in areas above storm surge.

Preparedness and Integrated Emergency Incident Response Effectiveness

Tools, Technology, and Training

Resources for managing the effects of an extreme event in the Arctic need to be in place. Not only tools and medical supplies, but expertise as well. Training and exercises are usually conducted in good weather, but bad weather is where proper training and/or equipment is most necessary, and also where gaps in proper training and/or equipment will be most apparent. Means to train for harsh Arctic conditions, as well as methods to collect, integrate, disseminate, and collaborate are needed in advance so distributed resources and responders are able to both be informed and to anticipate and respond to the larger event as it unfolds. Affordability is a critical element; as long as emergency response technology is unaffordable, it is irreplaceable. Participants highlighted that strategically placed oil spill response equipment with trained community residents is key to reducing the environmental impacts of Arctic spills.

Planning and Policy

The view of the current formal response framework is that there is a gap in having a realistic and comprehensive Incident Management Systems that includes locals and private sector, in addition to government. There also seems to be a shortfall in understanding and bridging the differences between larger communities like Nome and small rural locations. There may be specific areas in which events are most likely to turn sour, which should be identified and have prior planning put into place. It was suggested that investments in “big ticket” response capability should be prioritized through informed analysis of existing response capabilities. If local experts are incorporated into larger scale response, they too will need training and resourcing.

Alaska Natives and rural communities are concerned that they are not the highest priority compared to entities *in extremis* in the region. This is exacerbated by the policy of not deploying USCG year round, although some of the worst conditions are now experienced with storms in their off season.

Delphi Prioritization Voting

The Delphi prioritization voting results revealed that participants were concerned about a multitude of topics. Many of these topics were reflected in the storm-related storytelling portion of the workshop as well. Participants voted on a variety of topics that answered a series of 11 questions which were posed to three separate breakout groups. The answers to these questions were grouped into generalized themes, since some voted-upon responses were either redundant or very similar. However, because the context of these voted-upon responses matters greatly, the voted-upon responses to the questions themselves are given in the Breakout Group Voting Results section.

In terms of generalized theme, participants noted that the two paramount topics were Technology/Material Solutions and Food/Food Security. Both of these were tied for the most-voted theme, with 23 votes each. The next most important theme was Need for Increased Clarity/Communications Pathways, with 15 votes. After that, Culturally-informed Triage/Disaster Response was the next most voted-upon theme, with 14 votes. Finally, Training was also a commonly discussed and voted-upon theme, with 12 votes. The single response (not generalized theme) with the most votes was Integration of Local Knowledge into Systems, which signals that there is a very clear need for this to occur. These were not the only topics voted upon by workshop participants, but voting revealed that these themes were the most important.

As mentioned before, these generalized themes reflect the needs expressed from the storm-related storytelling. Workshop participants are extremely aware of, and concerned for, the vulnerability of the ecosystems that they rely upon for subsistence. In addition, participants know that their ability to protect these valuable ecosystems is largely dependent on their ability to respond quickly, which in turn is directly tied to having the necessary resources and training. In a slightly longer-term scope, participants wish to have better and clearer communication pathways with state and federal agencies. When an outside response assets arrive (i.e., state

and federal on-scene crisis response), workshop participants want the outside response assets to be aware of and protect the ecosystems that the workshop participants rely on.

Conclusions and Acknowledgements

The Arctic IoNS Nome “insights” workshop provided incredible insights that are useful to support the subsequent Arctic IoNS workshop held at UAA in late May 2019. This “advance” Arctic IoNS workshop successfully engaged Alaska Native and rural Alaskan perspectives in order to understand gaps in capabilities needed to support effective crisis response during and after a scenario in which multiple significant challenges present themselves at once. The substance of the preceding report is not only useful for driving much of the preparation for the Arctic IoNS Ma 2019 workshop, it actually is well positioned to serve as a stand-alone knowledge product.

ADAC and the University of Alaska extends our sincerest appreciation and most profound “thank you” to a remarkable team of professionals who supported this workshop...starting with workshop partner’s Sandia National Labs. Their individual and collective investment in this workshop has provided an immense amount of insight concerning the improvements needed to aid the USCG and community in responding to a complex crisis in the Arctic region.

Accordingly, ADAC and Sandia NL Labs are very appreciative of the efforts of the following workshop planners, organizers, supporters and collaborators:

- Headquarters U.S. Coast Guard Arctic Advisor to the Commandant;
- Headquarters U.S. Coast Guard Office of Emerging Policy—“Evergreen;”
- U.S. Coast Guard District 17 Arctic Planners;
- U.S. Coast Guard Academy Center of Arctic Study and Policy (CASP);
- Sitnasuak Native Corporation;
- Kawerak Incorporated;
- City of Nome;
- The University of Alaska Fairbanks Northwest Campus;
- University of Alaska Fairbanks Sea Grant;
- Bering Straits Native Corporation;
- U.S. Arctic Research Commission;
- National Oceanic and Atmospheric Administration;
- National Weather Service;
- Trent University;
- Pacific NW National Laboratories.

Workshop organizers will follow-up with the subsequent Arctic IoNS 2019 Anchorage report.



Arctic IoNS 2019 Workshop Planning Collaborators (including the advance consulting workshop in Nome)

Appendix: All Vote-able Responses to Questions

Question 1: What are the concerns in preparedness and response to a severe weather event in participant "local areas of concerns?"

Communications -local, offshore, regional -deal with remoteness -deal with distance between communities -help neighbors help each other
Need centralized locations and ability to get people there in cold, wind, rain -transportation, equipment, generators, comms
Early notification of progress of an incident (for example, "taken care of," "getting worse") to responders to prioritize resources
Plan for contingencies, interdependencies - understand what to do with unexpected failure, or chains of failure
Deal with skill gaps or scarce experts (for example, the doctor is injured)
How do we make drills and exercises more realistic and stressing (without killing participants)
Rescue tug or other good Samaritan measures: awareness/resources
Crew rescue and SOLAS (safety of life at sea)
Local info with respect to cargo manifest
Ship AIS tracking within Bering Sea
Rescue Capacity reduction for SAR/crew
"Peace time" communications between local, state federal government resources
First response assistance/preparation/training
Rural Alaska resiliency via redundancy

Weather forecast/monitor
Proximity of support from outside
Emergency ops manual or Youtube
Training -translated into local dialects for one-pager -include one-pagers in area contingency plans

Question 2: What are the local “incident coordination” practices and expectations for responding crisis support teams?

Self sufficiency
Knowledge, skills, abilities
Relationships/liaisons
NGB capability/integration
Disaster declaration for inbound teams/remove funding burden from local government
Coordination pathways for local knowledge
National response center, #1 call to make
Call Nome
Facebook messaging and other social media
Text
EOC at Ft. Rich (JBER)
Laminated call list and flip book (and training)
First response assistance/preparation/training
Rural Alaska resiliency via redundancy
Weather forecast/monitor
Proximity of support from outside
Emergency ops manual or Youtube
Training -translated into local dialects for one-pager -include one-pagers in area contingency plans

Question 3: How would local regional response teams seek to communicate with vessel masters, local mariners and rural/coastal communities in crisis?

Multiple ways to communicate? -VHF, Satcom, CB radio? -Internet? Speed?
Integrating response from outside of local area to local incident command?
VHF (due to range)
Cell phone
Social media (messenger, Facebook)
Landlines
Satellite phones (for some organizations and commercial fishers, too expensive for many)
In-Reach (great capability, new, expensive and requires subscription)

Question 4: How might local populations communicate and create force multipliers in terms of communication, situational awareness, and response?

Traditional knowledge not as broadly shared
Who local resources are via regional team -Know your team
Tribal liaison
Need a known face
Drones for situational awareness
Commercial mariners could cause more chaos as they come to shore - more stress -but might be helpful for detecting pros won't take on hazardous material -could be comms repeaters to extend message range
Ham operators are a thing of the past
Increase/expand networks locally to give ground truth, predictions, and create broader situational awareness -so need a way to identify Persons of Contact
USCG training for community resilience in village, on the ground, start in schools, weather service training, other providers. Integrated training
Targeted community, prioritized

Question 5: Outline current abilities in differing regions to communicate under crisis conditions (voice and data). How effective/reliable are these communication systems?

Rural Alaska reliability of telecoms
Universal limiting factor: speed and bandwidth
VHF/HF/Ham radio relays
Satellite phones provided
Hardline/pots
Local residents commonly face communications issues; resiliency until overwhelmed
Local understanding and local language and terminology
Snow and ice named by region: how do we capture this?
Local - great weather application "with precision"
Weather from weather apps, NOAA weather forecast, calling other locals for current conditions or predictions
Facebook or other social media
Radios
"Looks good, I am just going... by myself." (mostly younger folks)
Understand that different communities use different approaches and have different levels and types of capabilities

Question 6: If hazardous materials come ashore (assuming chemicals and materials that are non-explosive), what would be the local concerns and response?

Need to figure out where hazardous materials could enter into marine or freshwater
Limit access to area and only use trained response individuals
Education and communication about dangers
Concerns of impacts to wildlife (contamination, entanglement, ingestion)
Where to store, dispose, sequester
Ideas: 1. tracking devices on containers, 2. Phone numbers of who to contact (ADF&G, USFWS, ADEC, etc.)
Training, communications, money, and equipment
Re-allocation of taxes, OPA-90, etc.
Human exposure
Beach cleanup. Use of drones to identify particular beaches which collect debris -have to clean every year -likely candidate for oil spill "collection point" -surface current -CFOS, Bering surface current
Big data - what makes it big?
Education about resources
1. Knowledge of local knowledge -into systems/algorithm -local knowledge integration -repository? -"8 years of collection onto the beach" -Mapping -Arctic ERMA shore data -All-Hazards? -Disconnect -what's important -Common user-defined situational awareness
2. Geographic response strategies -endangered species consideration

3. State's community response network
4. Small community emergency response plan
5. ERMA training
6. Kawerak local current traditional knowledge base
Subsistence fisheries threatened
Coordination with local responders to monitor orphan containers
Isolate or redirect to mitigate threat
Public notification/awareness
General aviation - spotters
Community authorities provide security
CST/State regional hazmat team capacity

Question 7: As a result of the storm severity, what subsistence issues, should response personnel understand?

Impact on fisheries/food security -hazmat risk to fisheries -impact of response on fisheries and closures -rookeries/shoreline wildlife activity
All marine wildlife, macro algae, shellfish, invertebrates, fishes/seabirds and eggs
Food
Public health
Food security/subsistence crash prevention
Agency management responsibilities
Help for loss recovery
More proactive closures of fishing/crabbing areas (need)
Make sure response personnel understand how intertwined subsistence/economics/food security/spiritual health are
Questions 7-10 are not separable!

Question 8: If the storm caused substantial damage to specific ports, harbors, or airfields, what priority of response would participants expect or request?

Food and water, shelter and food, fuel paths
Food security issues will persist
Effects on the shoreline impact interior communities due to supply chain
Spill response as a result of storm damage
Boom response - to contain then recover oil from the water. Proven technology matters.
Withdrawal of oil within ice environment
New technologies for collection?
Herding and burning? Congealing?
Oil spill response equipment

Question 9: A severe storm along coastal regions could cause longer enduring economic issues. What areas of concern due participants see as most pressing? (E.g. mines, fisheries, movement of commerce, other?)

Food security as a result of pollution resulting from storm damage
"Leaking oil" - a pressing concern
Knowledge of what happened? Knowledge of responding agencies (and what they are doing)
Effects of oil pollution to animals and people who eat them
Subsistence crash prevention i.e. economic disaster declaration
Resident public health
Power
Communications
Livelihood recovery
Economic drivers (primary)

Question 10: A severe storm could impact/damage important cultural sites or perhaps culturally relevant processes. What insights can participants provide to help identify important or priority culturally relevant sites or processes to increase understanding for response personnel.

Identify contaminants
Protect shores, bird habitats; areas can only access eggs or meat at certain times of the year (needs to be in plans to prioritize response)
Could be "proprietary" sensitive data communities don't want to share
State historical/cultural protection office
Local elders/AK natives with SME (subject matter expertise)
Whaling captains
Regional corporation archives
Tribal governments
Accountability
Regional responsibility
Tribal research protocols
Proximity place-based research, economy, and study

Question 11: Describe crisis response decision context needs and priorities in wake of a regional-wide disaster.

Standard crisis/recovery, triage of priorities (culturally informed)
Life and safety
Stabilize property and environment
Cultural/subsistence recovery
Communities and agencies need to understand what each offers -cross entity communication
Prioritize precious resources
1. PAH's (Poly Aromatic Hydrocarbons) - compare oiled wildlife to non-oiled wildlife to show impact and establish baseline
2. marine spill response research
3. Indigenous research component - exception bonus turned into requirement
4. "Technology bias?" -reduce the bias -research centered in the Arctic? -knowledge co-production - it is key
5. Give the information back? -Communication and communication gaps
6. More buoys

PORT & HARBOR
FISCAL HEALTH STRATEGIES

Per discussion at the Port Commission Work Session on Tuesday 11 June 2019, the following options are being presented for discussion at the 6/20/19 Regular Meeting:

EFFECTIVE 2020 OPERATING SEASON:

1. Annual CPI Adjustment:

- Tariff rates to be adjusted annually per the applicable Anchorage CPI (2% today)

2. Asset Repair/Replace & Capital Improvements Fee:

- a. Setup new account to set aside funds annually and authorized for specific use

- A flat rate amount to be booked as an expense (\$100K suggested)
- A % of closing gross revenues or % of net surplus
 - F19 gross revenues are presently projected at \$1,833,760:

3.5%	5%	10%
\$64,182	\$91,688	\$183,376

STAFF RECOMMENDATIONS

A. Establish New Account:

- a. Upon F19 final closing figures, determine amount of Port Fund Balance (available cash) and use at least 25-40% of that as basis to start new asset repair/replace account.

B. Increase for Targeted Rates:

- Evaluate specific rate adjustments for increased labor, utilities, insurance, taxes

OTHER CONSIDERATIONS

Cruise Ship Passenger Fee:

- As mentioned in the Cordova report, we could establish a cruise pax head tax, but it is recommended that some research occur before that decision is formalized to become familiar with the mechanics of the state-assessed fee, and how exactly what specific projects would be targeted for avoid misperceptions of the purpose of the fee.

PORT FISCAL HEALTH
WORKSHEET

EXPENSE	FY16	FY17	FY18	% INCR./DECR.	FY19 - 5.16.19	DRAFT FY20	Notes
LABOR	\$ 601,089.36	\$ 676,355.76	\$ 663,942.44	10.46%	\$ 634,607.11	\$ 623,033.00	
UTILITIES	\$ 34,496.95	\$ 50,822.55	\$ 50,679.33	46.91%	\$ 60,650.00	\$ 60,650.00	
SUPPLIES	\$ 55,134.41	\$ 41,851.02	\$ 59,686.01	8.26%	\$ 41,800.00	\$ 36,400.00	
INSURANCE	\$ 46,329.00	\$ 54,000.00	\$ 53,069.00	14.55%	\$ 52,950.50	\$ 59,430.00	
PROF SERVICES	\$ 269,422.80	\$ 248,012.91	\$ 263,786.09	-2.09%	\$ 301,550.00	\$ 397,250.00	Proj \$\$ moved to Capital
REPAIRS/MAINT	\$ 143,251.25	\$ 40,525.62	\$ 9,590.75	-93.30%	\$ 75,000.00	\$ 145,000.00	Proj \$\$ moved to Capital
BAD DEBT	\$ 3,076.62	\$ (28,012.77)	\$ 8,744.92		\$ 3,000.00	\$ 5,000.00	
NOAA INTEREST	\$ 159,524.23	\$ 154,799.26	\$ 149,883.01	-6.04%	\$ 146,500.00	\$ 155,656.00	
OTHER/MISC	\$ 37,653.00	\$ 40,187.23	\$ 27,981.77	-25.69%	\$ 36,651.00	\$ 41,900.00	
PILOT	\$ 33,946.55	\$ 32,834.45	\$ 55,624.50	63.86%	\$ 55,625.00	\$ 59,774.00	
SUBTOTAL	\$ 1,383,924.17	\$ 1,311,376.03	\$ 1,342,987.82		\$ 1,408,333.61	\$ 1,584,093.00	
TRANSFER OUT*	\$ -	\$ -	\$ 204,217.79		\$ 425,423.23	\$ 128,103.00	
TOTAL EXPENSE	\$ 1,383,924.17	\$ 1,311,376.03	\$ 1,547,205.61		\$ 1,833,756.84	\$ 1,712,196.00	
TOTAL REVENUE	\$ 1,509,041.96	\$ 1,930,039.35	\$ 1,790,552.79		\$ 1,719,055.00	\$ 1,735,555.00	
SURPLUS/DEFICIT	\$ 125,117.79	\$ 618,663.32	\$ 243,347.18		\$ (114,701.84)	\$ 23,359.00	
NOAA PRINCIPAL	\$ 129,899.00	\$ 134,624.00	\$ 139,540.00		\$ 142,923.00	\$ 133,767.00	
DEPRECIATION	(including deprecation would generate significant loss for each fiscal year - standard practice would be to set aside deprec \$\$)						
CAPITAL EXPENSE*	(see next page for capital projects by fiscal year - these are tied to Transfer Out category as of FY18)						

UTILITIES BREAKDOWN

UTILITIES	FY15	FY16	FY17	FY18	FY19 - 5.16.19	CATEGORY TOTAL	% of Total
Electric	7,138.68	5,464.42	10,486.48	10,605.97	14,300.00	47,995.55	24.08%
Water Meter	2,735.36	3,520.43	3,290.09	3,617.33	3,850.00	17,013.21	8.54%
Sewer	4,838.00	6,655.76	5,666.00	5,773.04	7,200.00	30,132.80	15.12%
Garbage	14,359.52	14,205.31	19,268.89	21,130.37	22,000.00	90,964.09	45.64%
Heat	2,541.98	2,010.19	2,565.46	2,274.88	3,800.00	13,192.51	6.62%
subtotal	31,613.54	31,856.11	41,276.92	43,401.59	51,150.00	199,298.16	
Utilities - Resale	1,838.43	2,640.84	9,545.63	7,277.74	9,500.00	30,802.64	
Total	33,451.97	34,496.95	50,822.55	50,679.33	60,650.00	230,100.80	



Northwest Alaska Transportation Plan

Arctic Shipping: Conditions, Issues and Trends

Draft Technical Memorandum

Prepared for:

Alaska Department of Transportation and Public Facilities

Prepared by:

HDR

Anchorage, Alaska

May 16, 2019

Contents

Arctic Shipping Analysis: The Arctic Defined.....	1
1 Introduction	2
2 Northwest Passage	2
3 Current Arctic Shipping Activities	3
4 U.S. Coast Guard Arctic Program.....	6
5 Vessel and Operational Requirements	6
6 Challenges	7
7 Summary	8

Figures

Figure 1. AMAP Arctic Boundary	1
Figure 2. Arctic Northwest Passage Routes	2
Figure 3. Tanker MANHATTAN (left) and Cruise Ship CRYSTAL SERENITY (right)	3
Figure 4. Current Ice Coverage (left) and Predicted Change in Ice Pack with Predicted New Routes (right)	4
Figure 5. Russian Icebreaker Escorting Cargo Ships through the Northern Sea Route (left); Container Vessel VENTA MAERSK (right)	5
Figure 6. MS SILVER EXPLORER (left) MS ROALD AMUNDSEN (right)	5
Figure 7. Geographic Challenges Associated with Effective SAR Capability for the United States	8

Arctic Shipping Analysis: The Arctic Defined

The Arctic extends across the northern regions of North America, Europe, and Asia and includes eight countries and the marine features in between. The Arctic is often defined as the area above the Arctic Circle. A second broader definition is often used to account for the commonalities of various environmental factors. The Arctic Monitoring and Assessment Program (AMAP) has defined the Arctic region as the region that encompasses both High Arctic and sub-Arctic areas¹ (see Figure 1). The AMAP definition accounts for physical, geographical, and ecological features such as climate, vegetation boundaries, permafrost areas, and oceanographic elements. Both definitions are provided for context in the discussion of Arctic issues.



(Source: John Walsh, International Arctic Research Center)

Figure 1. AMAP Arctic Boundary

¹ AMAPS, <https://www.amap.no/about/geographical-coverage>

1 Introduction

Retreating and thinning sea ice has the potential benefit of opening Trans-Arctic Sea Lanes that will allow more direct commercial passage of vessels between Asia and Europe. Two primary routes have been navigated in recent years: the Northwest Passage and the Northern Sea Route. The Northwest Passage, the primary concern of this memorandum, enters the Arctic through the Bering Straits between Alaska and the Russian Federation, and then heads east along Alaska, Canada, and Greenland's Arctic Coasts. The Northern Sea Route, which has experienced more shipping activity, enters from the Bering Straits and then heads west along the Russian Federation's Arctic Coast to Norway. This memorandum provides an assessment of current conditions relative to shipping in the Arctic. It discusses the developments and actions that will encourage future shipping operations in the Arctic as well as the limitations.

2 Northwest Passage

The Northwest Passage is considered to be various ocean routes between the Atlantic and Pacific through the Arctic Region (see Figure 2). It connects Asia and Europe along the northern coast of North America following Alaska's Arctic Coast, through the Canadian Arctic Archipelago, and enters the Atlantic Ocean beyond Greenland. There are several route options through the Canadian Archipelago which would be utilized based on existing environmental conditions and the amount of open or limited ice bond water.



(Source: IAMPE)

Figure 2. Arctic Northwest Passage Routes

Arctic sea ice historically covered more than 2,100 nautical miles of ocean. The shorter distance between the Atlantic and Pacific oceans has long been considered a possible ocean-going route for vessels; however, the ice has been a significant physical barrier to developing the waterway as a global trade route. No commercial cargo ship has crossed the central Arctic Ocean over the North Pole, although there have been trans-Arctic voyages during summer along the Russian Federation's Northern Sea Route and the Northwest Passage. Vessel transits have normally required assistance by modern icebreakers, which led merchant ships with reinforced hulls in a convoy.² The amount of ice present has declined in

² Arctic Marine Shipping Assessment. 2009. Challenges of Trans-Arctic Navigation

recent years which has reignited interest in using the route for commercial activities. In 2007, the ice had sufficiently thinned to allow for passage without the aid of an icebreaker.³ Depth along the route is near 50 feet along the surveyed areas, which is sufficient for the safe passage of large commercial vessels.⁴

Sovereignty along the Northwest Passage is contested. Canada considers many of the waterways as Canadian Internal Waters, and maintains that ships entering the passages must report to the Canadian Government.⁵ The United States, as well as several European nations and Russia, consider the area to be in international waters, and transit by any vessel of any flag is permissible.

The tanker SS MANHATTAN was the first commercial ship to transit the Northwest Passage, in August 1969 (see Figure 3). The 115,000 deadweight tonnage ship was modified and equipped with a special icebreaker bow and structurally enhanced. Several German-based commercial ships made the passage in 2009. The 69,000-gross-ton cruise ship CRYSTAL SERENITY (see Figure 3) sailed from Vancouver, Canada, to New York in 28 days, and carried 1,500 passengers. It was the largest cruise ship to make the transit to date.



(Source: Lazerone)



(Source: Crystal Cruises)

Figure 3. Tanker MANHATTAN (left) and Cruise Ship CRYSTAL SERENITY (right)

3 Current Arctic Shipping Activities

Changing Arctic ice conditions are making the opening of new potential transit routes for cargo and shipping possible. These routes are expected to open even farther if sea ice continues to retreat, as is predicted by many scientists.⁶ Immediate use of this potential new passage is estimated to be costly, and higher utilization may not occur until mid-century.⁷

Routes directly over the North Pole could open for ice-breaking cargo ships by 2030 if the current climate warming trend continues. These specially built, ice-classed vessels have the ability to operate in sea ice up to 4 feet thick. It is also estimated that if the current warming trend continues, by 2045 to 2060, further reduction of Arctic sea ice could allow standard built and operated cargo ships to journey directly over the North Pole as well as to traverse the northernmost Northwest Passage routes (see Figure 4).⁸ A passage between Europe and Asia over the North Pole could average between 22 and 25 days compared

³ Britannica, Northwest Passage and the Arctic Region

⁴ Arctic Voyage Planning Guide, Fisheries Canada

⁵ *Ibid.*

⁶ Patel, J.K., and H. Fountain. May 2017. As Arctic Ice Vanishes, New Shipping Routes Open

⁷ *Ibid.*

⁸ *Ibid.*

to almost twice that amount of time when made through the Panama (45 days) or Suez (55 days) Canal. There could also be transits into the region to provide supplies to communities and resource developments, as well as cruises designed for tourists.

Although there is increased interest in commercial transit from Asia to Europe via the Arctic Ocean, the primary goal of transport throughout the region is anticipated to be destination-based traffic related to natural resource development and regional trade. New economic linkages in the Arctic to global markets are influenced by commodities prices for scarce natural resources, including oil and gas, nickel, zinc, palladium, copper, platinum, and high-grade ore. Existing and expanded Arctic marine transport systems and commercial ship traffic are primarily tied to the global demand for these resources.⁹



(Source: National Oceanic and Atmospheric Administration)

Figure 4. Current Ice Coverage (left) and Predicted Change in Ice Pack with Predicted New Routes (right)

Navigation has its challenges and limitations. Icebreakers, oil and gas exploration vessels, several cruise ships, smaller Chinese cargo ships, and a Maersk Line container ship have used the Northern Sea Route off the Russian Federation's coast in the last several years.

In September 2018, the Maersk Container Ship VENTA MAERSK arrived at the Port of St. Petersburg, Russia, after successfully completing a trial passage of the Northern Sea Route (see Figure 5). The VENTA MAERSK is one of Maersk Line's new Baltic feeders. The vessel began its voyage in August 2018 from the Port of Vladivostok, Russia. The route took the VENTA MAERSK through Bering Strait on the way to Bremerhaven. The vessel arrived in St. Petersburg 37 days after the voyage began. The ship has a capacity of just over 3,500 Twenty-foot Equivalent Units and is the fourth of seven ice-classed vessels built by

⁹ Arctic Knowledge Hub, Challenges of Trans-Arctic Navigation, 2018

Maersk for Baltic trade. These vessels are designed in a manner to operate effectively in cold ambient air temperatures and environmental conditions including wind chill down to -25 degrees Celsius.¹⁰



(Source: IAMPE)



(Source: Maersk Lines)

Figure 5. Russian Icebreaker Escorting Cargo Ships through the Northern Sea Route (left); Container Vessel VENTANA MAERSK (right)

Silversea Luxury Cruises has developed a number of Arctic itineraries for 2019. The luxury cruise line will operate exploration-style cruises for passengers using its 6,072-gross-ton, 144-passenger vessel MS SILVER EXPLORER (see Figure 6). The line is also refurbishing the MS SILVER WIND, which is similar in size to the SILVER EXPLORER, for Arctic and Antarctic cruises. Silversea also operates a similar vessel, MS SILVER CLOUD, in those regions. Hurtigruten is planning on operating three new 350-passenger ships in the Arctic region. These include the MS ROALD AMUNDSEN, launched in 2018 (see Figure 6), the MS FRIDTJOF NANSEN, which is under construction, and an additional new ship that is planned for construction. The vessels will be ice-classed, with a length of 459 feet, beam of 79 feet, gross tonnage of 20,889 mega tons, and speed of 15 knots. The vessels are designed with hybrid propulsion, which uses both electric and conventional fuel-based systems.



(Source: Courtesy Silversea Luxury Cruises)



(Source: Hurtigruten Cruises)

Figure 6. MS SILVER EXPLORER (left) MS ROALD AMUNDSEN (right)

¹⁰ Maersk Line Press Release, September 25, 2018

4 U.S. Coast Guard Arctic Program

The operational U.S. polar icebreaking fleet currently consists of one heavy polar icebreaker, the Polar Star, and one medium polar icebreaker, the Healy. The Polar Star entered service in 1976 and is now well beyond its originally intended 30-year service life.

The U.S. Coast Guard (USCG) is currently in the process of developing its Arctic Program under the Office of Arctic Policy. This includes the USCG Polar Security Cutter (PSC) program, previously known as the polar icebreaker program. The intent is to acquire three new heavy polar icebreakers, to be followed later by the acquisition of up to three new medium polar icebreakers.¹¹

In February 2019, Congress passed a funding bill that was signed into law that included a total of \$675 million for the PSC program—\$655 million to fully fund the first PSC and \$20 million for long-lead-time materials for a second PSC. The Department of Defense Contracting Office announced in April 2019 that VT Halter Marine, Inc., of Pascagoula, Mississippi, has been awarded the contract to build the nation's first new heavy PSC in more than 40 years.¹²

To address Canada's territorial claims Arctic governance concerns, the USCG has signed an agreement with the Canadian Government to undertake passage in the claimed territorial waters. Proposed transits by U.S. Navy vessels would most likely require a similar agreement.¹³

5 Vessel and Operational Requirements

Vessels intended for use in Arctic waters must be ice-classed based on international requirements. These requirements are delegated to vessel classification societies that certify that construction standards are met when vessels are designed and built. In addition to construction, standards include operational requirements related to shipboard systems designed to handle cold weather environments.

Vessels are constructed and outfitted according to internationally standardized rules for one of seven Polar Classes ranging from Polar Class 1 for year-round operation in all polar waters to Polar Class 7 for summer and autumn operations in thin, first-year ice. Standards are contained in the Unified Requirements for Polar Class Ships, which are developed and maintained by the International Association of Classification Societies. These internationally standardized rules ensure that the classification societies from other nations are consistent in their requirements for vessels operated in polar waters. The International Maritime Organization has developed requirements that are published in their Guidelines for Ships Operating in Arctic Ice-covered Waters. Fisheries Canada publishes the Arctic Voyage Planning Guide for vessels making the transit. The Swedish Maritime Administration, Finnish Transport Safety Agency, USCG, Transport Canada, and several other maritime nations have various forms of navigation guides and construction standards available for vessels. The American Bureau of Shipping, Russian Maritime Registry of Shipping, and Det Norske Veritas are some of the classification societies that certify

¹¹ *Congressional Research Report, Coast Guard Polar Security Cutter (Polar Icebreaker) Program, February 2019*

¹² Press Release from the Office of Senator Lisa Murkowski, "Alaska Congressional Delegation Welcomes Progress on Icebreaker: Contract Awarded for New Polar Security Cutter," April 23, 2019.

¹³ U.S. Coast Guard Office of Arctic Policy, March 2019.

ice-class vessels. Canada has also established the Canadian Arctic Shipping Pollution Prevention Regulations to address pollution issues in Canadian territorial waters.

6 Challenges

In addition to the need for ice strengthened vessels and cold weather operating systems, there are a number of identified challenges that impact safe navigation in Arctic waters, especially through the Northwest Passage. Arctic conditions can change rapidly, and navigation requires as close as possible to real-time awareness of ice conditions, including ice coverage, thickness, and drift. Satellite navigation, which is heavily used by vessels, experiences degraded coverage at high latitudes. Atmospheric phenomena (e.g., Aurora Borealis) can also degrade the general accuracy and availability of satellite positioning. Overall visibility is often poor, radio communications coverage is inconsistent, and maps and nautical charts are not accurate in all surveyed areas.¹⁴

Multiple global satellite navigation systems exist, including Global Positioning System (United States), Global Navigation Satellite System (Russia), Galileo (European Union), and BeiDou systems (China). Each has limitations associated with satellite signal degradation, geo-spatial positioning, and deployment.¹⁵ Systems are undergoing upgrades in anticipation of Arctic navigation. For example, Galileo modernization includes the addition of Advanced Receiver Autonomous Integrity Monitoring, an emergency warning service, and an ionosphere prediction service, which will make it possible to quickly react to sudden signal degradation.¹⁶

Rapid modification of radio waves by small-scale structures in the ionosphere is an important concern in the Arctic region, primarily for service availability and continuity rather than signal integrity. Dual-frequency global satellite navigation (e.g., Global Navigation Satellite System) offers a possible solution, as it would allow users to estimate ionospheric delay, and would provide the ability to correct positions.¹⁷ The deployment of High Earth Orbit satellites would provide expanded and more accurate coverage of navigation in the Arctic region.

Finally, search and rescue (SAR) capability is a key issue. In addition to the difficulties encountered by users of satellite navigation systems for accurate positioning, the deployment of SAR assets is a significant concern. Effective SAR capabilities involve the pre-positioning of vessels and aircraft that allow for quick response coverage in a geographic area. In 2011, the United States signed the Arctic Search and Rescue Agreement, which is a treaty that gives the United States responsibility for conducting SAR in the territory that surrounds Alaska and stretches to the North Pole. In general, the United States has the technical capacity to respond to Arctic SAR scenarios, but not without encountering challenges that may impede successful operations (see Figure 7).¹⁸

Challenges facing the United States in conducting SAR include:

- Overcoming Arctic weather conditions

¹⁴ ARKKI PROJECT (Finland), Challenges in Arctic Navigation, International Conference Survey, April 2018.

¹⁵ Marine Radionavigation and Communications, Monroe, Cornell Maritime Press.

¹⁶ European Global Navigation System Agency Workshop Report, April 2018.

¹⁷ *Ibid.*

¹⁸ Search and Rescue in the Arctic, Smith, Rand Graduate Program, 2016.

- Deploying assets and geographic capabilities
- Supporting survivors
- Overcoming a lack of medical services
- Coordinating SAR responses between multiple organizations and nations

Overall, these issues will have to be addressed by the United States (agencies and the military) and by cooperating agencies in various nations within the region.



(Source: Rand/Smith)

Figure 7. Geographic Challenges Associated with Effective SAR Capability for the United States

7 Summary

The variability of sea ice and the uncertainties associated with transit times make predicting the use of Arctic sea routes by marine operators, certain vessel types, and trades highly speculative. It remains uncertain how long the ice-free period will last during late summer, or exactly when it will occur in any given year. It could be as brief as a few days or weeks, or nearly ice-free conditions could last considerably longer in the central Arctic Ocean. However, most of the potentially navigable spring, summer, and autumn months should remain covered with ice that may be thinner, but more mobile and navigable than in previous decades.¹⁹

The year-to-year variability of sea ice in coastal seas and straits is uncertain. This will impact the evaluation of risk for insurance purposes and determination of the overall reliability of Arctic marine

¹⁹ Search and Rescue in the Arctic, Smith, Rand Graduate Program, 2016.

routes. The length of the navigation season in all Arctic regions remains uncertain, posing a significant challenge to the prediction of actual navigational routes.²⁰

For example, large liquefied natural gas carriers and oil tankers may not be used for trans-Arctic trade routes. Future oil and natural gas pipelines built from sources to transship locations may compete with oil and gas carriers to bring Arctic resources to market by reducing the demand for vessels on northern routes.²¹ Transport through pipelines is more cost-effective over time than by ship; however, the initial high cost of pipeline infrastructure investment and the permitting requirements are significant challenges. Ships offer more flexibility, particularly with changing market demand.

The challenges for container traffic and carriers using trans-Arctic routes are significant, including schedule reliability due to transit and voyage variables, and tight supply chain and logistic requirements. The potential impacts on the safety of ships, personnel, and cargo, as well as the actual fuel costs and time savings—given that ice navigation is required on at least a portion of various routes—are significant. The costs associated with investment in ice-class ships would also be a major issue, since their operation in non-Arctic trades would not be cost-effective if year-round Arctic operations could not be achieved.²²

Other trade options may be more viable. Several types of dry-bulk and break-bulk carriers could conceivably use seasonal trans-Arctic routes. Bulk metal ores and concentrates, which can be stockpiled at a mine or destination port similar to Red Dog Mine's current operations, could be shipped along Arctic routes and across the central Arctic Ocean. Suitable ice-class ships would have to be built or be readily available for charter. Break-bulk carriers of forest products and pulp might use the Northern Sea Route to trade from northern Europe to Pacific and North American ports. It is reasonable to assume that experimental voyages of a commercial ice classed vessel to test the operational and technical challenges associated with trans-Arctic navigation could take place within the decade.²³ Such vessels may or may not require escorts depending on ice conditions.

Observations and measurements of Arctic sea ice indicate a decrease in coverage areas and thickness during the past 50 years. Various global climate models for ice coverage and thickness predict that areas of the coastal Arctic Ocean with partial ice coverage or open water will continue to expand. Although currently no credible scientific source indicates that there will be a complete disappearance of the Arctic sea ice, some models indicate a strong possibility that large portions of the Arctic Ocean will be ice-free for a short period of time in late summer if current trends continue.²⁴

Global satellite navigation systems coverage, SAR capabilities and response, territorial challenges, and the environment make Arctic navigation challenging. While it is not anticipated that the Arctic routes will replace current primary logistical pathways and supply chain routes, the use of Arctic routes, particularly in certain bulk commodity trades, will likely continue to expand.

²⁰ Search and Rescue in the Arctic, Smith, Rand Graduate Program, 2016

²¹ European Global Navigation System Agency Workshop Report, April 2018

²² *Ibid.*

²³ European Global Navigation System Agency Workshop Report, April 2018

²⁴ Arctic Knowledge Hub, Challenges of Trans-Arctic Navigation, 2018

The critical near-term actions by Arctic nations and industries need to focus on improving safe navigation, vessel safety, SAR response, and environmental protection, and on implementing necessary governance requirements and programs to make Arctic shipping more viable.