SJR 15

<TARGET><BILL>SJR 15</BILL><SUBJECT>SJR 15</SUBJECT><COMM>SSTA27</COMM></TARGET>

SENATE COMMITTEE REPORT
First Committee of Referral

DATE: 2/3/12

FURTHER:

Date of 5-Day Notice: _____
(in accordance with Uniform Rule 23)

DATE TURNED IN TO OFFICE: 2/28/12

State Affairs Committee considered SENATE JOINT RESOLUTION NO. 15

SJR 15 COAST GUARD ICEBREAKERS & ARCTIC BASE

Urging the United States Congress to fund all the facilities and vessels necessary for the United States Coast Guard to fulfill its Arctic missions, including icebreakers and an Arctic Coast Guard base.

and recommends:

[ ] be **replaced** with **CS** _____ (_____) *[ ] Same Title [ ] New Title*

[ ] adopt **previous CS** _____ (_____) *[ ] Same Title [ ] New Title*

[ ] attached amendment(s)

[ ] adopt _____Letter of Intent

[ ] further referral to _____Committee

Dept Abbr.	
ADM	LEG
CED	LAW
COR	LWF
CRT	MVA
EED	DNR
DEC	DPS
DFG	REV
GOV	DOT
DHS	UA

NEW FISCAL NOTE(S)				
Dept.	Fiscal	Indet.	Zero	FN #
S.STA			✓	

PREVIOUS FISCAL NOTE(S)				
Dept.	Fiscal	Indet.	Zero	FN #

[ ] **APPROPRIATION - no fiscal note**

SIGNATURES AND RECOMMENDATIONS:	PRINTED LAST NAME	DO PASS	DO NOT PASS	NO REC	AMEND
Gillian Kookesh	Kookesh	✓			
Joe Paskvan	PASKVAN	X			
K. Meyer	Meyer	X			
C. Giessel	Giessel	X			
CHAIR:	Wielechowski	X			

27-LS1302\B
Martin
2/24/12

CS FOR SENATE JOINT RESOLUTION NO. 15( )

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWENTY-SEVENTH LEGISLATURE - SECOND SESSION

BY

Offered:
Referred:

Sponsor(s): SENATORS OLSON, McGuire, Giessel, Dyson, Huggins, Wagoner, Wielechowski, Meyer, Menard, Egan, Davis, Thomas, Stedman, Stevens

A RESOLUTION

Urging the United States Congress to fund all the facilities and vessels necessary for the United States Coast Guard to fulfill its Arctic missions, including icebreakers and an Arctic Coast Guard base.

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

WHEREAS the purchase of Alaska in 1867 made America an Arctic nation; and

WHEREAS Alaska was admitted to statehood in 1959; and

WHEREAS Alaska deserves full recognition and assistance from the federal government like any other state; and

WHEREAS art. IV, sec. 4, of the Constitution of the United States, requires the United States to protect each of the states against invasion and does not specify a preference for protection of one state over any other; and

WHEREAS the United States Arctic Region Policy revised in 2009 calls for the protection of commerce, the protection of the environment, and improved safety, security, and reliability of transportation in the Arctic region; and

WHEREAS ice cover in the Arctic is at historic lows, and multiyear ice is decreasing;

and

WHEREAS the entire Arctic region, including the Arctic region of the United States, is experiencing increased human activity related to shipping, oil and gas development, commercial fishing, tourism, and other activities; and

WHEREAS the increased activity in the Arctic underscores a commensurate need for immediate investment in the Arctic region of the United States to enable the responsible development of resources, foster maritime commerce, safeguard the well-being of Arctic residents and ecosystems, facilitate emergency and disaster preparedness and response, and protect United States sovereignty; and

WHEREAS the Alaska Northern Waters Task Force, established in 2010, recommends that the Alaska State Legislature encourage the federal government to establish a United States Coast Guard base in the Arctic and to fund the construction of additional icebreakers and ice-capable vessels for the United States fleet; and

WHEREAS, as Northern sea routes open and foreign shippers set their sights on Asian markets, international shipping of oil and gas and other potentially hazardous cargo through the Bering Strait is rapidly increasing; and

WHEREAS the United States and its trading partners could reap economic benefits from accessing Northern sea routes with the help of modern, fully equipped icebreakers; and

WHEREAS the United States Coast Guard has 11 statutory missions, including search and rescue, marine safety, ports, waterways, and coastal security, drug interdiction, migrant interdiction, defense readiness, living marine resources, marine environmental protection, aids to navigation, ice operations, and other law enforcement; and

WHEREAS the United States Coast Guard's missions relate to protecting the public, the environment, and United States economic interests in the nation's ports and waterways, along the coast, on international waters, and in any maritime region, as required for national security; and

WHEREAS the National Contingency Plan further requires the United States Coast Guard to oversee oil spill planning and preparedness in coastal waters and to supervise oil spill response; and

WHEREAS the United States Congress and the Administration are mandated by numerous laws and policies to maintain icebreaking operations; and

WHEREAS those mandates include President Franklin D. Roosevelt's 1936 Executive Order 7521, which requires the United States Coast Guard to keep channels and harbors open to navigation by means of icebreaking operations; the Arctic Research Policy Act of 1984, which directs the United States Office of Management and Budget to build and deploy icebreakers and allocate funds necessary to support icebreaking operations; the Coast Guard Authorization Act of 2010, which requires the United States Coast Guard to promote safe maritime navigation by means of icebreaking where necessary, feasible, and effective; and the 2011 Unified Command Plan, which sets new boundaries and responsibilities for the United States combatant commands, and directed the United States Northern Command to take the lead in advocating for new resources in the Arctic; and

WHEREAS the binding Arctic Search and Rescue Agreement signed by the eight Arctic nations at the Arctic Council in May 2011 commits the United States to search and rescue response within the Arctic sector of the United States, including waters north of Alaska, Bristol Bay, and the Bering Sea; and

WHEREAS the promise to provide search and rescue operations in the Arctic sector of the United States is compromised without sufficient icebreakers and other United States Coast Guard assets; and

WHEREAS the January 2012 delivery of fuel to Nome, Alaska, by the Russian fuel tanker Renda, escorted by the United States Coast Guard's only polar class icebreaker, Healy, emphasized the need for increased United States icebreaker presence in the Arctic; and

WHEREAS, at present, the United States has only one polar class icebreaker in service, the United States Coast Guard Cutter Healy, a vessel designed for scientific research and response operations; and

WHEREAS a second polar class icebreaker, the United States Coast Guard Cutter Polar Star, is undergoing extensive repairs in Seattle, Washington, and is scheduled to return to service in 2013, at which time it is predicted it should function effectively for only another seven to 10 years; and

WHEREAS the United States Coast Guard Cutter Polar Star's sister ship, the United States Coast Guard Cutter Polar Sea, was taken out of service in 2011; and

WHEREAS Russia has a fleet of eight nuclear-powered icebreakers; China has one large icebreaking research ship supporting science in both polar regions and is building a

second, smaller but more powerful icebreaking research ship that is scheduled to be ready in 2013; Canada has committed $38,000,000,000 to a 30-year plan to build additional icebreakers and other ice-strengthened ships; and Sweden, Finland, South Korea, and Japan have added icebreakers to their fleets; and

WHEREAS the United States Coast Guard estimates that designing and constructing a new polar class ice breaker will take seven to 10 years; and

WHEREAS having a sufficient number of ice-capable vessels, including shallow-draft vessels with icebreaking capability, is vital for the United States Coast Guard to fulfill its expanding mission in the Arctic; and

WHEREAS the United States Coast Guard has very limited Arctic emergency response capabilities and no permanent bases near the Bering Strait chokepoint or on Alaska's North Slope to support the United States Coast Guard operations; and

WHEREAS the most northern United States Coast Guard base in the United States in Kodiak, Alaska, is more than 1,000 miles from possible Chukchi Sea drilling sites and nearly as far from existing Arctic shipping lanes in the Bering Strait, and that distance causes untenable logistical problems that negatively affect response times and capabilities; and

WHEREAS the United States Coast Guard should have a greater overall presence in the Arctic, with the ability to stage assets closer to future shipping, oil and gas drilling, and commercial fishing activities;

BE IT RESOLVED that the Alaska State Legislature urges the United States Congress and the Administration to fund all facilities and vessels necessary to enable the United States Coast Guard to fulfill its Arctic missions, including icebreakers and an Arctic Coast Guard base; and be it

FURTHER RESOLVED that the Alaska State Legislature urges the United States Congress and the Administration to consider all options to finance the refurbishment of our current polar class icebreakers, the acquisition of new icebreakers, and the long-term maintenance funding of the United States Coast Guard icebreaker fleet and Arctic facilities.

COPIES of this resolution shall be sent to the Honorable Barack Obama, President of the United States; the Honorable Hillary Rodham Clinton, United States Secretary of State; the Honorable Sergey Viktorovich Lavrov, Minister of Foreign Affairs of the Russian Federation; the Honorable Erkki Tuomioja, Minister for Foreign Affairs of Finland; the

Honorable Carl Bildt, Minister for Foreign Affairs of Sweden; the Honorable Jonas Gahr Støre, Minister of Foreign Affairs of Norway; the Honorable John Baird, Minister of Foreign Affairs of Canada; the Honorable Össur Skarphéðinsson, Minister for Foreign Affairs and External Trade of Iceland; the Honorable Villy Søvndal, Minister for Foreign Affairs of Denmark; the Honorable Admiral Robert J. Papp, Commandant, United States Coast Guard; Ambassador David A. Balton, Deputy Assistant Secretary for Oceans and Fisheries, United States Department of State; Rear Admiral Thomas F. Ostebo, Commander, United States Seventeenth Coast Guard District; the Honorable Sean Parnell, Governor of Alaska; the Honorable Mead Treadwell, Lieutenant Governor of Alaska; the Honorable Lisa Murkowski and the Honorable Mark Begich, U.S. Senators, and the Honorable Don Young, U.S. Representative, members of the Alaska delegation in Congress; and all other members of the 112th United States Congress.

ALASKA STATE LEGISLATURE

SENATOR DONALD C. OLSON

Session
Alaska State Capitol, Rm. 508
Juneau, AK 99801
(907) 465-3707
Fax: (907) 465-4821

Interim
716 W. 4th Ave. Ste 530
Anchorage, AK 99501
(907) 269-0254
Fax:(907)269-2031

Senator_Donny_Olson@legis.state.ak.us

Chair
Community & Regional Affairs
Member
Senate Finance Committee
Ethics Committee
Legislative Council
Northern Waters Task Force
Education Funding District Cost Factor
Finance Subcommittee Chair
Fish & Game
Health & Social Services
Public Safety
Finance Subcommittee Member
Environmental Conservation

SJR 15 – Coast Guard Icebreakers & Arctic Base

SPONSOR STATEMENT

The Alaska Northern Waters Task Force's Final Report was released January 30, 2012. SJR 15 formalizes two of the Task Force's recommendations and calls for the United States to:

1. Forward base the US Coast Guard in the Arctic, and
2. Fund icebreakers and other ice capable vessels.

The entire Arctic region is experiencing increased human activity related to shipping, oil and gas development, commercial fishing, and tourism and this increased activity leads to a commensurate need for immediate investment in the United States Arctic to enable the responsible development of resources; foster maritime commerce, safeguard the well-being of Arctic residents and ecosystems; facilitate emergency and disaster preparedness and response; and protect United States sovereignty.

The Coast Guard's mission in the Arctic is broad and it's becoming increasingly clear that the Coast Guard lacks the necessary assets to adequately complete its mission – without a corresponding increase in Arctic investment by the United States, this deficiency will only worsen over time. Having a sufficient number of ice-capable vessels (including shallow-draft vessels with icebreaking capability) is vital for the Coast Guard to fulfill its expanding mission in the Arctic.

Congress and the Administration are mandated by multiple laws and policies to maintain icebreaking operations, including:

- A 1936 Executive Order from President Franklin Roosevelt

- The Arctic Research Policy Act of 1984
- The Coast Guard Authorization Act of 2010, and
- The 2011 Arctic Search & Rescue (SAR) Agreement

Should a tragedy – such as the recent wreck of the cruise ship Costa Concordia in Italy – occur in the Arctic, the Coast Guard would be hard pressed to respond with sufficient assets in a timely fashion given their single Polar Class Icebreaker and their nearest base being in Kodiak, over 900 miles away from Alaska's Arctic coast.

Other countries fully understand the need for more Icebreakers in the Arctic:

- Russia has a fleet of eight nuclear powered icebreakers;
- Canada has committed $38 billion to a 30-year plan to build additional icebreakers and other ice-strengthened ships;
- Sweden, Finland, South Korea, and Japan have recently added icebreakers to their fleets; and
- China has a large icebreaking research ship and will have a second vessel operational in 2013

Considering it will take from seven to ten years to design and construct just one new Polar Class icebreaker, it is time critical that the U.S. fund & construct additional Icebreakers. Delay on this action will inevitably lead to undesirable consequences for the United States in the Arctic.

The Coast Guard must have a greater overall presence in the Arctic, with the ability to stage assets closer to future shipping, oil and gas drilling, and commercial fishing activities. I urge your support for this resolution.

FISCAL NOTE

STATE OF ALASKA
2012 LEGISLATIVE SESSION

Bill Version: **CS SJR 15 Version B**
Fiscal Note Number: 1
(S) Publish Date: 2/27/2012

Identifier (file name)
Title: SJR 15 Cost Guard Icebreakers and Arctic Base
Sponsor: Senator Olson
Requester: (S) State Affairs

Dept. Affected
Appropriation
Allocation
OMB Component Number

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	FY13 Appropriation Requested	Included in Governor's FY13 Request	Out-Year Cost Estimates				
OPERATING EXPENDITURES	**FY13**	**FY13**	**FY14**	**FY15**	**FY16**	**FY17**	**FY18**
Personal Services							
Travel							
Services							
Commodities							
Capital Outlay							
Grants, Benefits							
Miscellaneous							
TOTAL OPERATING	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

FUND SOURCE		(Thousands of Dollars)						
1002	Federal Receipts							
1003	GF Match							
1004	GF							
1005	GF/Prgm (DGF)							
[illegible]37	GF/MH (UGF)							
[illegible]178	temp code (UGF)							
TOTAL		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

POSITIONS							
Full-time							
Part-time							
Temporary							

CHANGE IN REVENUES							

Estimated SUPPLEMENTAL (FY12) operating costs _____ *(separate supplemental appropriation required)*
(discuss reasons and fund source(s) in analysis section)

Estimated CAPITAL (FY13) costs _____ *(separate capital appropriation required)*
(discuss reasons and fund source(s) in analysis section)

Why this fiscal note differs from previous version (if initial version, please note as such)

Prepared by: (S) State Affairs — Phone: 465-2435
Division: — Date/Time: 2/27/12 2:31 PM
Approved by: — Date: 2/27/2012
/s/ Senator Wielechowski, Chair

(Revised 1/17/2012 OMB)

Statement for the Record
The Honorable Mead Treadwell
Lieutenant Governor
State of Alaska
Before the
United States House of Representatives
Committee Transportation on Transportation and Infrastructure
Subcommittee on Coast Guard and Maritime Transportation

"America is Missing the Boat"
December 1, 2011
Washington, D.C.

Introduction

Mr. Chairman, members of the Committee, Congressman Young, for the record, I am Mead Treadwell, the lieutenant governor of the State of Alaska. Thank you for inviting me to offer some views from Alaska about the future of Arctic shipping and maritime activities, and the need to ensure we are prepared to embrace those challenges and opportunities safely.

We've said it before – in my appearance before this Subcommittee in 2006 and in Governor Sean Parnell's Senate testimony in 2009,[1] and we'll say it again, because not much has changed: it is time for the nation to act – and act now – to add new polar class icebreakers to the United States Coast Guard's fleet. With so much happening in the North today, the need is more urgent and apparent than ever. We would like to ask this Committee, and by extension Congress and the Executive Branch, to look with us at the bigger picture – the historic changes happening in the Arctic and what they portend for world commerce and Alaska's shores – and recognize three imminent needs:

First, the United States must commission new heavy icebreakers to operate in the Arctic.

Second, we need legal measures in addition to icebreakers to protect our shores from the dangers of unregulated itinerant vessels carrying hazardous cargoes near our coasts.

And third, Congress and the Administration must fulfill the legal mandates that are already in place regarding icebreakers. These mandates reflect needs in commerce, science, and protection of Americans' sovereignty, safety, and security. The State of Alaska is responding to opportunities and risks associated with the historic changes in global shipping patterns resulting from changes in the Arctic Ocean. We are eager to continue in cooperation with the nation.

I. Congress needs to act now on icebreakers.
A. Other nations have already seen the big picture.

[1] Governor Sean Parnell made the case for icebreakers in the Arctic in his 2009 testimony before the Senate Subcommittee on Homeland Security Appropriations, stating, "The Coast Guard needs to move north and improve its capability – our heavy class icebreakers are on their last legs."

The purchase of Alaska in 1867 made America an Arctic nation, yet after 150 years, the myth of Seward's Folly still lingers. It's time to quit arguing whether investment in the North is worth it and recognize the valuable people, resources and location we gained as a nation.

Arctic resources include globally significant quantities of commercial fisheries, minerals, renewable energy sources, and world-class amounts of oil and gas. A 2008 U.S. Geological Survey estimates 13% of the world's undiscovered oil, and 23% of undiscovered gas lies in the Arctic. Six of the Arctic nations are already pursuing oil and gas development offshore, and energy may soon be the primary cargo transiting the Bering Strait.

America is one of only eight Arctic nations, and one of two with territory adjoining the Bering Strait – really a "Bering Gate," the only route from the Pacific to the Arctic.

Changes in the Arctic are creating opportunities in a once remote and harsh region. Ice cover is at historic minimums, and multi-year ice is decreasing. Icebreaking technology has advanced, bringing significant new efficiencies. Northern sea routes, sought by explorers for hundreds of years, are opening up.

Several sources report that international shipping of crude oil, refined products, and other potentially hazardous cargoes through the Bering Strait is growing rapidly as European and Asian shippers see the advantages of the Arctic route. Other Arctic – and even non-Arctic – nations have seen the potential, but America is missing the boat.

Most traffic occurs under arrangements for icebreaker escort by vessels working with Russia's Northern Sea Route Administration. We understand that last year, for the first time, Norway's Tschudi Shipping Company worked a partnership with Russian maritime authorities to bring 41,000 tons of iron ore from Kirkenes, Norway to China.

Again this year, Russian ships, and ships of other nations escorted by Russia's Northern Sea Route Administration, are coming in force. Hazardous cargoes are making the backhaul as well – at least one tanker bringing gas condensate to Asia this year is reported to have returned to Europe with aviation fuel.

In August of this year, Norway's *MV Nordic Barents* was the first non-Russian bulk cargo ship to transit the Northern Sea Route in Russian waters.

Other records are being set along the Northern Sea Route, from the *STI Heritage's* fastest-ever voyage from Murmansk to Thailand, transiting in just eight days, to the *Perseverance's* latest-ever northern voyage, which ended just two weeks ago on November 18. Altogether, the Northern Sea Route saw nine tankers carrying 600,000 tons of gas condensate pass by this year.

I joined an Arctic conference in Arkhangelsk, Russia in September, where Russia's Prime Minister Vladimir Putin told the Russian Geographical Society that his country sees the opportunities in the Arctic, and they are ready to pounce. Speaking of the Northern Sea Route at the Russian Geographical Society conference, Putin told us, "We are planning to turn it into a

key commercial route of global importance. … We see its future as an international transport artery capable of competing with traditional sea routes in cost of services, safety, and quality."[2] President Medvedev, dedicating a new northern rail project in Yakutsk – headed for the Bering Strait – indicated as much last month.

Russia intends to make the Northern Sea Route as important to global shipping and commerce as the Suez Canal.

And Russia is putting its money where its mouth is, building nine new icebreakers in the next decade, and discounting tariffs on icebreaker escorts to make sure that shippers find the Northern Sea Route for distance savings of up to 40 percent. Russia's claim to new extended continental shelf resources in the Arctic Ocean under the United Nations Convention on the Law of the Sea could give Russia greater control of Arctic shipping. Cargo moving through the Bering Strait this year – from Russian and American sources – is worth well over $1 billion. Add to that a Bering Sea fishery owned by both nations worth billions each year and the situation is clear: in monetary terms, there's billions to be made and billions to protect.

At the same Arkhangelsk conference, Russia's Academy of Sciences Vice President Nikolai Laverov showed a slide of Alaska's declining throughput in the Trans-Alaska Pipeline System (or TAPS) and Russia's competitive success in attracting Arctic investment. All Arctic energy production depends on access, and Russia has it. Russia is now in the lead in Arctic oil production – and they're keen to stay there.

Meanwhile, other Arctic and circumpolar nations are investing in fleets of icebreakers. The report of exactly how many ships are being operated by other countries varies (some count polar, medium and light icebreakers, as well as ice 'strengthened' or 'capable' vessels), but all the tallies make one thing clear: other nations have seen the writing on the wall and are investing in infrastructure. Sweden has at least four vessels; Finland, at least six; and Russia over two dozen (and counting). Canada has about eight, and even the European Union is constructing an icebreaker – a heavy, polar class icebreaker.[3]

Our Arctic neighbors are leaps and bounds ahead of our position, and non-Arctic nations are in hot pursuit.

A Chinese researcher, Mr. Li Zhenfu of Dalian Maritime University, writes that, "Whoever has control of the Arctic route will control the new passage of world economics and international strategies."[4] The prospect of commercial and strategic opportunities presented by receding sea ice cover and accessibility of Arctic resources has moved the Chinese government to allocate more resources for Arctic research, and they have asked to join the Arctic Council as an observer. China's Rear Admiral Yin Zhuo has asserted that no nation has sovereignty over the

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[2] Putin, Vladimir (2011, September). Remarks presented at the second International Arctic Forum, "The Arctic – Territory of Dialogue", Arkhangelsk, Russia. Available online: http://premier.gov.ru/eng/events/news/16536/.

[3] "The World Icebreaker, Ice Breaking Supply and Research Vessel Fleet." A report commissioned by the Finnish Maritime Administration on behalf of the Baltic Icebreaker Management. Released by the Finnish Transport Agency, Helsinki, February 2011.
"Polar Icebreakers of the World." A list developed and maintained by Mobility and Ice Operations. July 25, 2011.

[4] Li, Zhenfu. *Zhonggua Hanghai*, vol. 32, no. 2 (June 2009).

Arctic, and said that China must plan to have an indispensable role in Arctic exploration as they have one-fifth of the world's population.[5]

Japan has stepped up its research in global environment, climate and marine science in the Arctic. And with China and Korea, Japan has applied for permanent observer status on the Arctic Council.

Polar air routes have characterized the jet age since the late 1950s, and Arctic air transport is now key to air cargo bound between North America or Europe and Asia. Governments and industries in Russia, Europe and Asia see the same potential for shipping. Why don't we?

B. Our national mandates are not being met.

The irony of America's present situation is painful: a staggering national debt weighs on the future of our children, while the contributions of a promising and abundant region go largely unnoticed. When we ask you for icebreakers, it's for safety, security, and American jobs. It's to serve American shipping, American exports. It's to help lower costs for Americans in regions like Western Alaska, which has a higher cost of living than anyplace in the nation. Americans lack jobs, our industries struggle with the cost of doing business, and rural Alaskans suffer the staggering cost of energy, while huge amounts of foreign energy are beginning to pass by our front door in tankers, taking advantage of game-changing shipping opportunities.

The United States is falling behind in maintaining an Arctic presence and in helping to set best practices as this region sees increasing international resource development and shipping. But more importantly, we are failing in our own national mandates, goals and policy.

In 1936, President Franklin Roosevelt issued Executive Order 7521, directing the Coast Guard, under the direction of the Secretary of the Treasury and with the cooperation of the Secretaries of War (Army), the Navy, and Commerce, to keep channels and harbors open to navigation by means of icebreaking operations. That order has never been implemented in the Arctic.

The Arctic Research and Policy Act of 1984 recognized that the United States was lagging behind other circumpolar nations even then, and it directs the Office of Management and Budget to "seek to facilitate planning for the design, procurement, maintenance, deployment and operations of icebreakers needed to provide a platform for Arctic research by allocating all funds necessary to support icebreaking operations, except for recurring incremental costs associated with specific projects, to the Coast Guard."

Last year's Coast Guard Authorization Act of 2010, section 307, implements the Arctic Marine Shipping Assessment (AMSA), mandating that the Coast Guard "shall promote safe maritime navigation by means of icebreaking where necessary, feasible, and effective..." That makes

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[5] Qtd. in Wright, David Curtis. *The Dragon Eyes the Top of the World: Arctic Policy Debate and Discussion in China.* China Maritime Study No. 8. Newport, RI: U.S. Naval War College (Aug. 2011). Page 2. Available online: http://www.usnwc.edu/Research---Gaming/China-Maritime-Studies-Institute/Publications/documents/China-Maritime-Study-8_The-Dragon-Eyes-the-Top-of-.pdf.

President Roosevelt's order the law of the land for the entire nation. We welcome this mandate as Alaska has half the nation's coastline, and likely over half of America's ice.

That act also required that a report on the comparative cost-benefit analyses of icebreaker renovation or construction be delivered no later than October 15 of this year to the Senate Committee on Commerce, Science and Transportation, and the House Committee on Transportation and Infrastructure. It moreover required a report from the Commandant of the Coast Guard on the High-Latitude Study assessing the polar icebreaking requirements for Coast Guard missions, including search and rescue, marine pollution response and prevention, fisheries enforcement, and maritime commerce. We understand that full report is embargoed still by President Obama's administration.

This past spring, the President updated the United States military's Unified Command Plan to give U.S. Northern Command advocacy responsibility for Arctic capabilities. Accompanying shifts of UCP geographic boundaries mark the military's awareness of the vital and ever-growing importance of the Arctic. Then Commander of the Northern Command, U.S. Navy Admiral James Winnefeld, Jr., recognized the implications of the changing Arctic, and noted the gaps faced by the military, including infrastructure and mobility, and search and rescue capabilities.[6] General Charles Jacoby, his successor, formerly ran the U.S. Army in Alaska. He, too, knows our challenges.

Around the same time as this spring's announcement, a report by the National Research Council on the implications of climate change on national security cited major gaps in U.S. naval forces' ability to perform their missions in the Arctic.[7] That report advised that the U.S. Navy, Marine Corps and Coast Guard take action to ready themselves for Arctic conditions. The protection of our domestic security is the fundamental mandate of the U.S. Armed Forces, and it is threatened if we remain unprepared.

This year, in response to the recommendations of AMSA, the eight Arctic Council nations signed a binding Search and Rescue Agreement. Alaska supported this, and sent experts to the first multinational exercise conducted under this agreement in October in Whitehorse, Yukon Territory. Without icebreakers and other Arctic USCG assets, major deficiencies in the region's life safety response capabilities exist – and our promise to provide search and rescue in our sector of the Arctic is compromised.

Finally, the United States Congress, in the 2010 Coast Guard Authorization Act, charged the Committee on Marine Transportation Services (CMTS) to develop an integrated Arctic shipping regime, and to coordinate the establishment of domestic transportation policy to realize the goal set by President George W. Bush of safe, secure and reliable shipping in the Arctic. The AMSA Implementation Act, additionally, encourages the Coast Guard to negotiate agreements with

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[6] Winnefeld, Jr., Admiral James A., U.S. Navy Commander, United States Northern Command and North American Aerospace Defense Command. Statement before the House Armed Services Committee, 30 Mar. 2011. Available online:
http://www.northcom.mil/Docs/2011%20NORAD%20and%20USNORTHCOM%20Posture%20Statement%20(HASC%20Final).pdf.

[7] *National Security Implications of Climate Change for U.S. Naval Forces*. Committee on National Security Implications of Climate Change for U.S. Naval Forces. Washington, D.C.: The National Academies Press, 2011.

other Arctic nations through the International Maritime Organization. Those agreements would focus on aids to navigation; marine safety, tug, and salvage capabilities; oil spill prevention and response capability; maritime domain awareness (including long-range vessel tracking); and search and rescue.

The United States has been protecting our sovereign airspace along Alaska's shores for over 50 years. The United States Coast Guard has been protecting America's coast for over 200 years. Why don't we protect our sovereign waters along Alaska's Arctic coast with the same vigor?

America has a duty to protect its citizens in coastal communities and to safeguard their way of life. Coastal Alaskans have spent thousands of years relying on the sea for their food and clothing, for the heat they create from whale oil and the shelter they derive from driftwood. The majority of Alaska Natives in the North get more than half of their meat and fish from wild, local harvests. Sixty percent of those wild harvests are from marine mammals. It is imperative we ensure that the increasing foreign ship traffic off our shores does not jeopardize the freedom of Americans to maintain a subsistence lifestyle.

Mr. Chairman, the United States has a long history of national mandates and policy that require our action. And yet we fail to act on them. Moreover, the recent decision of the U.S. House of Representatives to retire the nation's only heavy icebreaking ships without replacements is a disappointment. But to the extent that the all-or-nothing approach forces a legitimate conversation about the need for icebreakers and an opportunity to spotlight the conversation – I applaud the decision.

We should, however, be cautious about the risky "game of chicken." If it fails, it fails Americans – and Alaskans most of all.

C. The savings and benefits outweigh the costs.

We understand that the action we are asking Congress to take will require significant funds. We understand the costs, but we cannot ignore our obligations or the major opportunities we face.

In a conference recently in Juneau, University of Alaska Professor Dr. Lawson Brigham, a former USCG icebreaker captain, noted that the U.S. Navy is building 47 Littoral Combat Ships at a price of $400-500 million each. He asked, why not consider building 45 of these ships, and allocating that other $800 million to $1 billion in the budget for the Coast Guard to build one major polar icebreaker?

Some have argued we should charge for icebreaker escort services as other nations do. Ship owners pay for services in the Panama and Suez Canals. U.S. vessels pay for oil spill preparedness and insurance. A bill pending in this Congress would have the U.S. lease, rather than own, icebreakers it needs in the Arctic. Long term charter agreements are in place in the Antarctic, and it has been argued that private contractors are able to build icebreakers more quickly and less expensively, operate them more efficiently in terms of cost and maintenance, and would bear the expense of decommissioning. This is worthy of consideration if it moves us forward faster in the Arctic.

However we work out our finances, America and its trading partners could reap huge economic benefits from accessing northern sea routes. Former U.S. Coast Guard Lieutenant Commander Scott Borgerson wrote nearly four years ago about the financial advantages available to world commerce through Arctic shipping.[8] He told us how plying the Northern Sea Route from Rotterdam to Yokohama instead of traveling via the Suez Canal would yield distance savings of more than 40 percent. He told us that one container ship voyage from Seattle to Rotterdam via the Northwest Passage instead of the Panama Canal could save about 20 percent of its costs – then about $3.5 million dollars.

Borgerson envisioned a future of global Arctic shipping where "a marine highway directly over the North Pole will materialize. Such a route," he wrote, "which would most likely run between Iceland and Alaska's Dutch Harbor, would connect shipping megaports in the North Atlantic with those in the North Pacific and radiate outward to other ports in a hub-and-spoke system."

As the Arctic Marine Shipping Assessment predicted, most Arctic shipping traffic today is destinational, carrying resources out from or products in to Arctic regions. But we need to envision a time, coming soon, when products travelling to and from non-Arctic ports traverse our Arctic Ocean and Bering Sea – and we need to be ready.

II. Our lack of legal protection.

I want to make sure Congress understands there are now two classes of ships operating in the Bering Strait region – those that are under contingency planning requirements for oil spills, and those that are not. U.S. vessels are highly regulated: by NOAA, by EPA air quality controls, by the Interior Department's BOEM and BSEE oversight of exploration – in fact, over 120 federal laws regulate the use of the coastal zone and offshore areas. But ships originating outside the U.S. – such as those traveling between Russia or Europe and Asia, are not even required to have a spill contingency plan, even though they pass by hundreds of miles of U.S. coastline. We face the prospect of increasing international ship traffic through the Bering Strait – carrying anything from crude oil to aviation fuel – with minimal requirements to prepare for oil spills, maintain air quality, or care for wildlife and subsistence needs.[9]

Icebreakers can help us reduce the risks brought about by that disparity. If we are to achieve our policy of advancing safe, secure and reliable shipping as the Arctic Ocean becomes more accessible, the U.S. must operate new polar class icebreakers. Without them, little or no appropriate government capability exists to enforce prevention measures or to respond to a spill in this region. It is folly to rely on aircraft and submarines alone to protect U.S. interests. We learned that tragic lesson when we lost six lives as a helicopter crashed trying to evacuate crew from the shipwrecked *Selendang Ayu* in 2004.

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[8] Borgerson, Scott G. "Arctic Meltdown: the Economic and Security Implications of Global Warming." *Foreign Affairs*, vol. 87, no. 2.

[9] The State of Alaska has sought remedies to this situation in its comments on the USCG Port Access Route Study for the Bering Strait.

There are a range of legal ways and international agreements we might pursue to require safety measures from itinerant vessels transiting the Bering Strait. (None are quick or easy solutions, but measures that protect our national security rarely are.)

- Working on a vessel routing system to prevent collisions and groundings from increased shipping, following protocols of the International Maritime Organization, and coordinating with the Russian Federation. The State of Alaska provided comments to the USCG's Port Access Route Study for the Bering Strait regarding this approach.

- Having all Arctic nations seek ship owners' participation in an Oil Spill Response Organization with a contingency plan, perhaps as part of the upcoming Arctic Council Oil Spill Preparedness and Response Agreement. Alaska has joined U.S. delegations negotiating this agreement.

- Resolving the debate on Law of the Sea, and ratifying the Law of the Sea Treaty, which with Article 234 authorizes the extension of environmental law in traditionally ice-covered areas. As the debate on ratification continues, the State has asked for clarification of U.S. intent in implementing Article 234.

- Using existing authority in the Oil Pollution Act of 1990 to cover nontank vessels and working a reciprocal deal with Russia and Canada. The Final Rule on Nontank Vessel Response Plans and Other Vessel Response Plan Requirements Regulations is still under development within the Coast Guard and the Department of Homeland Security. Section 701 of the Coast Guard Authorization Act of 2010 directs that this final rule be issued no later than April 15, 2012.

- Forming an agreement with Canada and/or Russia similar to the 1817 Rush-Bagot Agreement, creating a mechanism like that of the St. Lawrence Seaway Development Corporation, whereby Arctic nations establish a shipping authority that administers the route, provides compliance, icebreaking, and other aids to navigation, including spill preparedness and response. (Borgerson also suggested this in his 2008 article, "Arctic Meltdown".)

III. How Alaska is helping America live up to the promise of the Arctic.

Mr. Chairman, Congress spoke last year in the Coast Guard Authorization Act of 2010 and AMSA Implementation, and charged the Committee on Marine Transportation System with this mission: to coordinate the establishment of domestic transportation policy to ensure safe and secure maritime shipping in the Arctic. I would like to say for the record now that as these processes get underway, we need to be ambitious, creative, and determined. The United States must acknowledge its responsibilities and embrace new possibilities. The Arctic needs resources, not just rules. What's happening in the Arctic Ocean and along northern sea routes has global, historic and exciting significance, and we need to take an active role. We must plan for an Arctic shipping future that could be like a new Suez Canal.

In a visit to D.C. last month, I briefed the leaders of CMTS in some activities the State of Alaska is conducting to help America move toward the new world of Arctic shipping, and how we are bringing resources to the table to help to achieve safety, create jobs, and spur exports of goods and services. We are hopeful the CMTS will mesh with the outcome of our current work with the Arctic Council, the International Maritime Organization, and the U.S. Coast Guard and Army Corps of Engineers, and Alaska's Northern Waters Task Force.

Below is a non-comprehensive list of these activities:

- **Arctic Council:** The State of Alaska actively supports the United States' work within the Arctic Council, and I serve as our state's liaison on Council issues. As we support the Council's work to implement recommendations of the 2009 AMSA, the State is active in implementing the Arctic Council's aforementioned Search and Rescue Agreement, signed at the Ministerial in Greenland this past May. We are likewise a participant in the Council's oil spill response instrument negotiations. In addition, through the Pacific Northwest Economic Region (PNWER), Alaska is bringing resources and support for the Arctic Council Sustainable Development Working Group's proposed aviation and maritime infrastructure project, which will survey the region's infrastructure needs.

- **USARC/Research programs:** Alaska is also deeply involved in Arctic research. I work closely with the U.S. Arctic Research Commission (USARC), which I chaired under Presidents Bush and Obama from 2006-2010, and served on from 2001-2010 as a Commissioner, and which is currently chaired by Ms. Fran Ulmer, former lieutenant governor of Alaska and former chancellor of the University of Alaska Anchorage. Our University is currently working hard to launch the newest ice-strengthened research vessel, the Sikuliaq (see KOO lee auk), in the nation's NSF-sponsored UNOLS fleet. Moreover, with the University vice president, I co-chair a State Committee on Research which is writing a research and development plan that assesses Alaska's research and development needs for our economy, health, safety, environment, and culture. Alaska researchers play a major role in our understanding of Arctic change and Arctic resources, Arctic engineering and methods of spill response in ice-covered waters.

- **USCG forward basing:** In Alaska we are supporting the U.S. Coast Guard's efforts to bring forward basing to Alaska's North Coast, and we're examining ways we can help provide hangars for fixed and rotary wing aircraft in Barrow and Nome. The Alaska National Guard air-refuelable helicopters and aircraft, as well as helicopters of the North Slope Borough, are America's front-line for search and rescue in the Arctic Ocean today – Coast Guard response is based much further away.

- **New and improved ports:** The State of Alaska has also joined with the U.S. Army Corps of Engineers to conduct a port study for western and northern Alaska. Our intent after the study is to foster investment to establish a deep water port in Western Alaska to serve as a port of refuge for Coast Guard vessels and itinerant traffic. The port would also meet the needs of large vessels, including fishing fleets, and resource export vessels. At the same time, we see a need to upgrade the minimal port facilities which now exist for cargo import and export in a range of Western Alaska communities.

- **Shuttle container shipping:** In 2006, the State of Alaska committed $50,000 for the first pre-feasibility study on transarctic container shipping, looking at the economics and logistics of trans-shipping containers from North America and Asia between Aleutian and Icelandic ports, thus tying North Atlantic and North Pacific shipping together through the Arctic. The results of the study are promising.[10] Recently, we have heard interest to look at this again from Aleutian, Asian and European ports that would send and receive cargo in such a system. One option to consider as we proceed would be to include this work under the Arctic Council's proposed Arctic Maritime and Aviation Transportation Infrastructure Initiative.

- **Early warning system:** The State is a major financial sponsor of the Automatic Identification System receiver network established by the Marine Exchange of Alaska, which now covers all traffic operating in the Arctic region, approaching or leaving the Bering Strait and the Aleutian Archipelago. The network provides location data and advanced warning to the U.S. Coast Guard and state emergency responders of all ships approaching state waters, and gives us – and communities – a heads-up on traffic, including stalled itinerant vessels that might be headed for a shipwreck.

- **Review of new regimes for shipping administration:** Last year, Alaska's State Legislature created the Northern Waters Task Force (NWTF).[11] This task force is charged with examining the effects of changes in the Arctic on shipping, energy and local industry and making recommendations on infrastructure and regulatory needs, mitigation strategies, and ways for the State to be involved in governance of Arctic shipping. NWTF will present their report to the Legislature in January of 2012. Early discussions indicate that international cooperation and investment in oil spill response capabilities will be among the measures recommended.

Conclusion

Mr. Chairman, members of the Committee, Alaska has and will continue to work hard on Arctic policy because we are America's Arctic – it's our home, our history, our heritage and our future. And we work hard with high hopes for outcomes.

But we ask for the U.S. to work hard with us. To reiterate, Mr. Chairman, we ask for three things.

First, we need icebreakers. Without action on this, America is putting its national security on the line, and we are going to miss the opportunities of the Arctic while watching other nations advance. Good policy only goes so far without the infrastructure to act upon it. We have mandated icebreakers more than once. We're missing the boat. Let's build them.

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[10] Niini, M., M. Arpiainen, and R. Kiili. *Arctic shuttle container link from Alaska, US to Europe.* Report AARC K-63. Aker Arctic Technology Inc., Mar. 2006.

[11] Alaska State Legislature, HCR 22, Legislative Resolve No. 54 (2010), Establishing and relating to the Alaska Northern Waters Task Force. Available online: http://housemajority.org/coms/anw/pdfs/26/Scan001.pdf.

Second, while we wait for new icebreakers, we need to take legal action to protect our coasts and prevent spills in the Arctic and Aleutians. We made this clear in our comments to the U.S. Coast Guard's Port Access Route study, and we urge the U.S. to step up the pace.

And third, the federal and state governments need to continue working together through the CMTS and Arctic Council processes to ensure that America does not miss out on the historic, game-changing opportunities in Arctic shipping. Arctic shipping presents safety challenges for sure. But for America, it is an opportunity, and one that could pass us by.

Alaska encourages America's new shipping policy to be ambitious. It should keep us safe, create jobs, help improve the quality of life in Western Alaska, and generate goods and service exports, as polar aviation does today. We need to grasp the historic opportunities of the changing Arctic. America has been an Arctic nation for 150 years. It's time we started acting like it.

Thank you.

FROM USCG AUTH. ACT OF 2010

SEC. 307. ARCTIC MARINE SHIPPING ASSESSMENT IMPLEMENTATION.

(a) Purpose- The purpose of this section is to ensure safe and secure maritime shipping in the Arctic including the availability of aids to navigation, vessel escorts, spill response capability, and maritime search and rescue in the Arctic.

(b) International Maritime Organization Agreements- To carry out the purpose of this section, the Secretary of the department in which the Coast Guard is operating is encouraged to enter into negotiations through the International Maritime Organization to conclude and execute agreements to promote coordinated action among the United States, Russia, Canada, Iceland, Norway, and Denmark and other seafaring and Arctic nations to ensure, in the Arctic--

(1) placement and maintenance of aids to navigation;
(2) appropriate marine safety, tug, and salvage capabilities;
(3) oil spill prevention and response capability;
(4) maritime domain awareness, including long-range vessel tracking; and
(5) search and rescue.

(c) Coordination by Committee on the Maritime Transportation System- The Committee on the Maritime Transportation System established under a directive of the President in the Ocean Action Plan, issued December 17, 2004, shall coordinate the establishment of domestic transportation policies in the Arctic necessary to carry out the purpose of this section.

(d) Agreements and Contracts- The Secretary of the department in which the Coast Guard is operating may, subject to the availability of appropriations, enter into cooperative agreements, contracts, or other agreements with, or make grants to individuals and governments to carry out the purpose of this section or any agreements established under subsection (b).

(e) Icebreaking- The Secretary of the department in which the Coast Guard is operating shall promote safe maritime navigation by means of icebreaking where necessary, feasible, and effective to carry out the purposes of this section.

(f) Independent Ice Breaker Analyses-

(1) IN GENERAL- Not later than 90 days after the date of enactment of this Act, the Secretary of the department in which the Coast Guard is operating shall require a nongovernmental, independent third party (other than the National Academy of Sciences) that has extensive experience in the analysis of military procurements, to--

(A) conduct a comparative cost-benefit analysis, taking into account future Coast Guard budget projections (which assume Coast Guard budget growth of no more than inflation) and other recapitalization needs, of--

(i) rebuilding, renovating, or improving the existing fleet of polar icebreakers for operation by the Coast Guard;

(ii) constructing new polar icebreakers for operation by the Coast Guard;

(iii) construction of new polar icebreakers by the National Science Foundation for operation by the Foundation;

(iv) rebuilding, renovating, or improving the existing fleet of polar icebreakers by the National Science Foundation for operation by the Foundation; and

(v) any combination of the activities described in clause (i), (ii), (iii), or (iv) to carry out the missions of the Coast Guard and the National Science Foundation; and

(B) conduct a comprehensive analysis of the impact on all Coast Guard activities, including operations, maintenance, procurements, and end strength, of the acquisition of polar icebreakers described in subparagraph (A) by the Coast Guard or the National Science Foundation assuming that total Coast Guard funding will not increase more than the annual rate of inflation.

(2) REPORT- Not later than 1 year after the date of enactment of this Act, the Secretary of the department in which the Coast Guard is operating shall submit a report containing the results of the analyses required under paragraph (1), together with recommendations the Commandant considers appropriate under section 93(a)(24) of title 14, United States Code, to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives.

(g) High-Latitude Study- Not later than 90 days after the date of enactment of this Act or the date of completion of the ongoing High-Latitude Study to assess polar icebreaking mission requirements for all Coast Guard missions including search and rescue, marine pollution response and prevention, fisheries enforcement, and maritime commerce, whichever occurs later, the Commandant of the Coast Guard shall submit a report containing the results of the study, together with recommendations the Commandant considers appropriate under section 93(a)(24) of title 14, United States Code, to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives.

(h) Arctic Definition- In this section the term 'Arctic' has the same meaning as in section 112 of the Arctic Research and Policy Act of 1984 (15 U.S.C. 4111).

Marine Transportation

Introduction

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

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

Source: Hugo AhleniUS, UNEP/GRID- Arendol

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

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

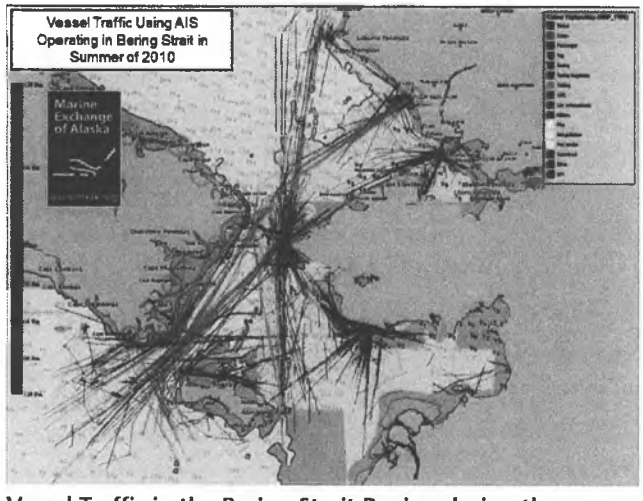
With increased shipping and marine traffic comes increased risk of vessel groundings, spills, collisions, pollutants, noise disturbances, and invasive species. This risk is particularly high due to the lack of detailed navigational charts, reliable weather forecasting, vessel traffic separation protocols,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

Based on these factors the ANWTF makes the following recommendations:

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

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

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



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

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

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

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

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

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

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

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

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

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

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

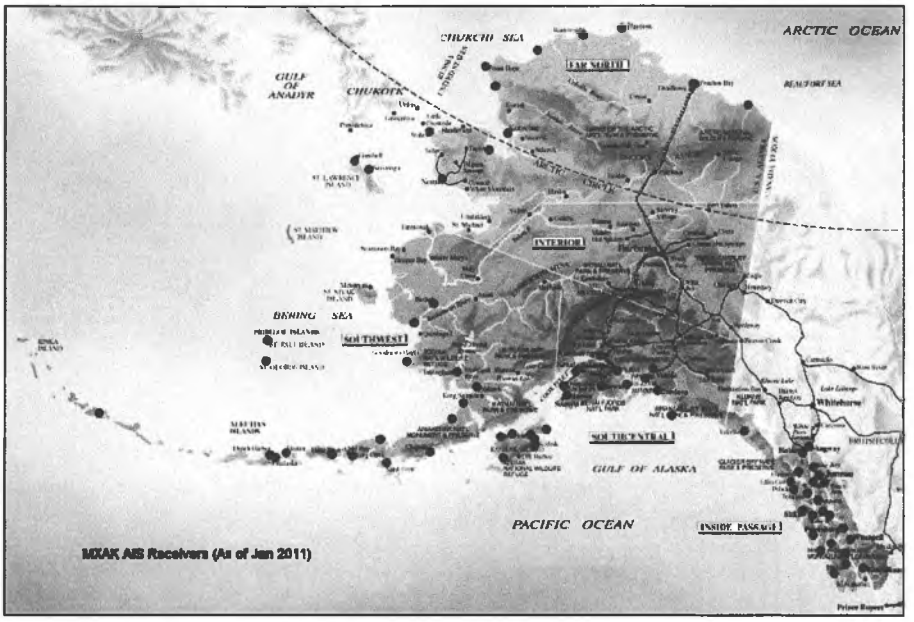
The Alaska State Legislature and the state of Alaska should continue to support the expansion of vessel tracking in the Arctic. The task force encourages the organizations and agencies involved in vessel tracking to pursue all channels of funding to increase their vessel tracking range.

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

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

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

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



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

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

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

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

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

The ANWTF sees a real opportunity for Alaska to become the U.S. center of excellence in Arctic maritime training and seafarer development. Building on the state's strong university system, institutions such as the AVTEC Maritime Training Center, and practical training opportunities in Alaska's ice covered waters, this state is uniquely positioned to become an international leader in high latitude navigation safety training.

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

Aleutian Islands Risk Assessment

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

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

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

Options for immediate implementation include:

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

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

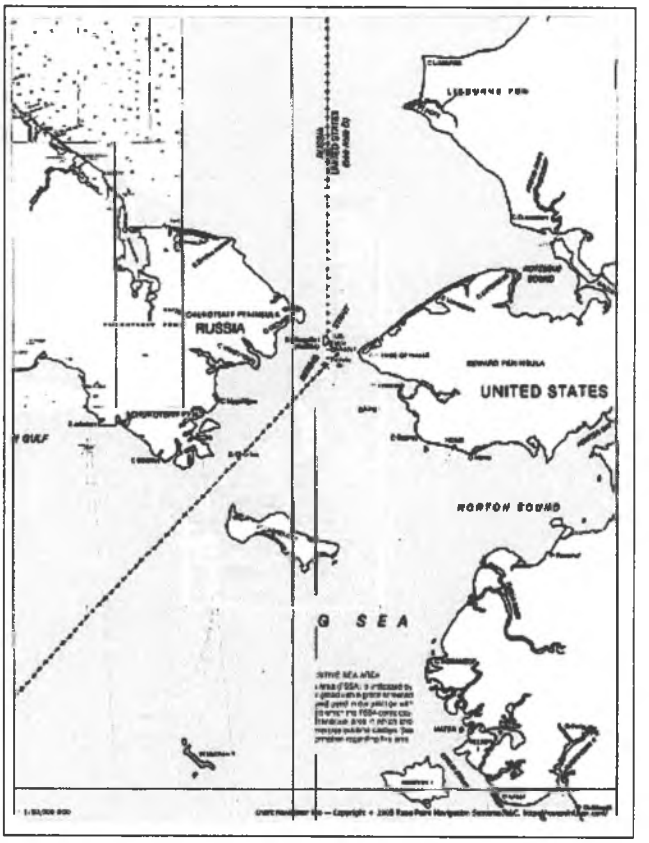
Options recommended for additional development or study in Phase B, prior to full implementation, include:

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

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

Bering Strait Port Access Route Study and Vessel Traffic Separation Scheme

The ANWTF recommends that the state of Alaska participate in and support the efforts of the USCG Port Access Route Study of the Bering Strait. Alaska should work with the USCG and Russia to bilaterally assess the risk of increased shipping through the Bering Strait and analyze the options for staging international assets to respond to that risk. The location of staging areas in Nome or other Alaska coastal locations should be considered for U.S. assets. Provideniya or other Russian coastal areas should be considered for Russian assets. This effort would contribute greatly to the development of any future IMO-led effort to establish internationally binding ship routing measures, such as a Bering Strait Vessel Traffic Separation Scheme.



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

Planning and Infrastructure Investment

Introduction

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

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

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

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

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

Increased human activity related to shipping, oil and gas development, commercial fishing, and tourism will require, at a minimum, new ports and safe harbors, equipment and facilities for oil spill response, additional Polar Class icebreakers for the U.S. fleet, and improved charting and mapping.

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

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

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

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

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

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

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

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

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

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

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

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

This limited number of icebreakers presents a major challenge to the Coast Guard mission in Alaska. Having ice-capable vessels is vital to maintain sovereignty, continue scientific research, and provide emergency and oil spill response. Overreliance on the Healy, which was not designed to meet all these challenges, poses risks for the United States and Alaska.

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

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

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

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

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

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

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

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

1. To put this distance into perspective, the distance between Kodiak and Barrow is about the distance between Los Angeles and Seattle.
2. For a list of ice breaker assets around the world go to: http://www.globalsecurity.org/military/world/icebreakers-list.htm

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

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

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

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

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

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

Locations to consider include:

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

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

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

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

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

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

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

Linking Alaska's Arctic communities to trans-Arctic cable routes would bring many benefits. Increased communications will be needed in support of the Coast Guard's mission, including search and rescue and oil-spill response operations. Better communications are also required for the safe operations of ships transiting the region and offshore oil field development activities. At the same time, broadband links would enhance economic development and distance learning opportunities for Arctic communities.

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

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

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

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

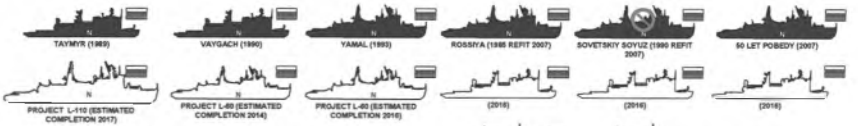
As the state of Alaska determines its priorities for Arctic infrastructure projects, the Alaska Industrial Development and Export Authority (AIDEA) should begin examining which categories of projects are likely to meet its criteria for funding and which will need additional or wholly alternative sources.

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

POLAR ICEBREAKERS OF THE WORLD

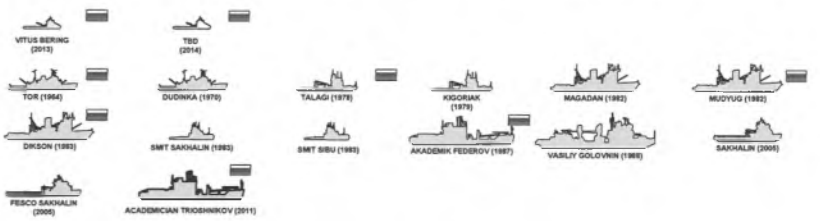
RUSSIA

6 HEAVY
+ 6 PLANNED



12 MEDIUM
+ 1 UNDER CONSTRUCTION
+ 1 PLANNED

14 LIGHT



SWEDEN

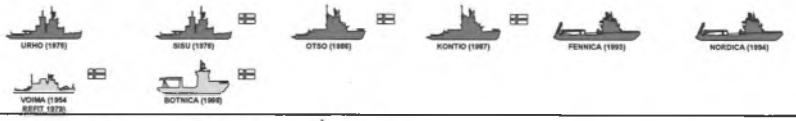
4 MEDIUM

5 LIGHT

FINLAND

6 MEDIUM

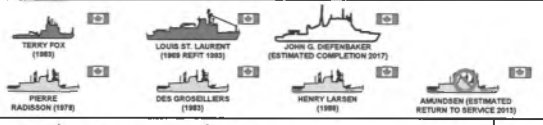
2 LIGHT



CANADA

2 MEDIUM
+ 1 Planned

4 LIGHT



UNITED STATES

2 HEAVY

1 MEDIUM
+ 1 UNDER CONSTRUCTION
+ 1 Planned

1 LIGHT

CHINA

1 LIGHT
+ 1 UNDER CONSTRUCTION

DENMARK

2 LIGHT

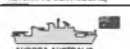
* Status Unknown. Not currently used for Icebreaking.

ARGENTINA

1 LIGHT

AUSTRALIA

1 LIGHT

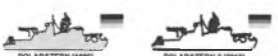


CHILE

1 LIGHT

GERMANY

1 LIGHT
+ 1 Planned

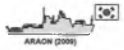


JAPAN

1 MEDIUM

KOREA

1 LIGHT



NORWAY

1 LIGHT
+ 1 UNDER CONSTRUCTION

KEY

Vessels were selected and organized based on their installed power measured in BHP. Vessels with less than 10,000 bhp were not considered to be capable of independent arctic operation. Vessel outlines reflect relative sizes.

COLOR GUIDE

HEAVY

At least 45,000 bhp

"N" Indicates a nuclear powered vessel

"Flag" Indicates a government owned, operated, or controlled vessel

MEDIUM

At least 20,000 bhp but less than 45,000 bhp

LIGHT

At least 10,000 bhp but less than 20,000 bhp

NON OPERATIONAL

Under repair or in Caretaker status

UNDER CONSTRUCTION

Being constructed currently

PLANNED

Planned for construction in the near future

Data derived from various sources.

Direct Questions and Comments to Doug Jackson – 202 372-1545/ Douglas.N.Jackson@uscg.mil

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