Introduction

Many thanks to Seattle Propeller Club and the organizers of this timely roundtable discussion for the Arctic Region, and for giving us an opportunity to share our views on Arctic transportation.

Joining with you in discussing the importance of the Arctic region and its implications on maritime transportation, and so it is, the Maritime Administration enjoys a long and close partnership with the maritime industry in furthering U.S. shipping interests around the globe.

Receding Ice Reports

Over the past few summers we saw the Northwest Passage almost completely ice free. This is something that is new and has not been seen before in our lifetime. This alone makes the Arctic the most vital place to be studying how climate change can affect the entire planet.

We have seen the reports of Russian and Canadian initiative involving the exploration and their development in the region. This alone should give us every reason to plan and develop a cohesive practical U.S. maritime transportation policy for this region before it is developed for us by others.

A Region in Transition

With climate change, the prospects for Arctic shipping are changing. The soon to be released Arctic Marine Shipping Assessment (AMSA) will

contain a key finding that “reduced sea ice is very likely and that they will expect to increase marine transport and access to resources.” Ben Ellis will talk on this later in the roundtable discussion.

Experts do not agree on how quickly the ice cover will retreat. Indeed, a researcher quoted at the National Snow and Ice Data Center’s website warns that sea ice conditions are changing so rapidly that predictions based on relationships developed from the past 50 years of data may no longer apply. But it seems that each succeeding study and article only seems to indicate a hastening pace, never a slowing pace. Others reports say as low as 5 years. I believe John Mitchiner will touch on this in his speech.

However, there are many other reports, including a recent article in Scientific American reports multi year ice (MYI) is a big problem to shipping through the Northwest passage.

From Scientific American

November 10, 2008 in Environment

Will the Opening of the Northwest Passage Transform Global Shipping Anytime Soon?

“”The fabled Northwest Passage has made headlines ever since it thawed last year for the first time. For three centuries the quest for an expedited route between the Atlantic and Pacific oceans rivaled today's space race, with European superpowers vying for the prize. Hundreds of sailors and countless expeditions ventured into Canada's Arctic waters, including such naval luminaries as Sir Francis Drake, Captain James Cook and the ill-fated Henry Hudson, who left his name—and lost his life—on the Canadian bay that marks its entrance.

Now, with the Arctic's sea ice shrinking at a rate of 10 percent per decade, this coveted shipping lane has opened for business—but shippers are not rushing to use it. The reason: as fate would have it, global warming appears to also be increasing the amount of potentially deadly multiyear ice chunks lurking in the newly opened pathway.

Sea of Ice
"The thing is, the Canadian Arctic has a totally different ice regime than the Arctic Ocean," says Stephen Howell, a climatologist at the Interdisciplinary Center on Climate Change at the University of Waterloo in Ontario.

In fact, the Canadian Arctic Archipelago acts as a "drain trap" for ship-wrecking multiyear ice, Howell says. This year, for example, when the first-year ice in the passage had melted, it opened the way for multiyear ice (MYI) from the Queen Elizabeth Islands to flow into and clog the Northwest Passage. "We call it a 'MYI invasion' and that's going to be the threat as we transition to an ice-free summertime Arctic," he says.

"The first-year ice, that's sort of like Swiss cheese and you can just plow through it," Howell says. This ice freezes over a winter and is seldom thicker than three feet (one meter). Often, first-year ice melts the summer after it's frozen, but if it doesn't, it becomes thicker the following winter and becomes multiyear ice. "The multiyear ice isn't like Swiss cheese; it's solid and trouble" for ships that collide with it, he says.

"In places it was three meters (nearly 10 feet) thick, but in other places we had a five-meter (16.5-foot) drill bit and we still did not reach the bottom," says Bruno Tremblay, an atmospheric and oceanic scientist at McGill University in Montreal, who was taking ice cores of multiyear ice in the Canadian territory of Nunavut's Viscount Melville Sound last year. "

Arctic Shipping

Despite problems with MYI, the investment in Arctic shipping tonnage is already underway. According to a recent Bloomberg article,

Norilsk, the world's biggest producer of nickel, is building its own shipping fleet to capitalize on the melting of the polar ice caps.

The company ordered five reinforced cargo vessels that can plow through the waters north of Siberia as new sea routes open. Norilsk is spending at least 320 million euros ($467 million) to buy reinforced vessels rather than rent both freighters and icebreaker escorts.

The thawing sea ``has enormous economic implications, and commerce is going to push this ecological zone to the limit," says Rear Admiral Timothy McGee, head of the U.S. Navy's Meteorology and Oceanography Command.

The shipping analysts at Clarkson report that tankers capable of sailing in ice conditions will rise to as much as 10 percent of the total fleet from 3 percent in 1992. According to Clarkson, the orderbook for ice-strengthened ships

stood at 152 as of December 2007, almost half the size of the current worldwide fleet of 352 such vessels.

According to many reports, in the Bering Sea, we are already seeing more traffic. Most observers agree that Arctic shipping will increase in the short term in the Barents Sea north of Scandinavia and Russia to meet demands generated by new oil and gas production. The Norwegian Government predicts that oil transport from Russian Barents ports will increase by 50 percent by 2020.

In addition, Rear Admiral Thad Allen reported in August that the Coast Guard recently opened two temporary stations at Barrow, Alaska, which is located at the North Slope's Prudhoe Bay, to determine the possible numbers of equipment and personnel needed to patrol the isolated region. Floating ice, heavy fog and storms routinely hound the region and pose hazards to navigation. He also announced at the luncheon that the Coast Guard was appropriated $30 million to bring the icebreaker *Polar Star* back into service.

The Maritime Administration plays a huge role in the merchant mariner work force development. The Administration has a vested interest in promoting in the Arctic region and,

- Expanding US marine transportation and infrastructure
- Enhancing domestic shipping
- Increasing the movement of goods and freight where needed
- Increasing investment in shipyards and maritime personnel

Harsh Environment

Even with substantially shorter trade routes, prospects for trans-Arctic shipping will depend on several factors.

The first of these factors is the competitiveness of alternative routes. Up to now, existing shipping networks have been able to absorb the increasing volume of world trade. The relentless growth in the movement of goods, however, is beginning to put strong pressure on critical choke points such as the Panama and Suez Canals and on inland connections.

Arctic shipping must operate in harsh conditions encountered nowhere else in the world. Temperatures plunge to extreme lows. Drifting ice creates constant navigational hazards that are sometimes more dangerous than solid ice. Thick fogs of atmospheric ice can freeze a ship's superstructure solid. Waterways near the shore are shallow, increasing the danger of grounding.

The economic challenges are hardly less daunting. For much of the year, ships transiting the region will still need either ice-strengthened hulls or ice breaking services, or both, generating substantial additional costs. The capital costs of building special ships for the Arctic make them uncompetitive in other trades. Moreover, transferring cargoes between conventional ships and ice-strengthened ships sailing exclusively in the Arctic will require heavy investments in new transshipment ports and infrastructure. Arctic ports lack air, road and rail connections to established transportation networks.

Expanded shipping activities increase the risk of serious damage to the Arctic ecosystem and the well being of indigenous peoples. Pollutants break down more slowly in the cold and food chains are particularly vulnerable to contaminants. Long distances, the lack of people and equipment, and difficult operating conditions will impede responses to oil spills and other shipping incidents.

U.S. Government Arctic Policy Developments

The United States has fundamental national security interests in the Arctic, including strategic sealift; and freedom of navigation and commerce and trade. Moreover, the Arctic is estimated to hold a very significant percentage of the world's undiscovered oil and natural gas. The region also has abundant reserves of vital minerals such as coal, nickel, copper and zinc.

If the economics are right, I am confident that industry will find the technical solutions it needs to meet many of these challenges. Of course, the government has a vital role in facilitating a safe, secure and reliable shipping regime.

Many of you are aware that we have had an interagency Arctic Policy Review which has recently completed and is awaiting the Presidents signature. The areas of policy review included: (1) governance and scientific cooperation, (2) shipping/defense/national security issues, (3) energy/environmental/economic issues, (4) U.S. government resource and asset issues. The review has involved consultation with representatives from

business, academia, environmental NGOs, and the scientific community, as well as with officials from Alaskan state, local and tribal authorities.

This policy directive when completed will establish the basis for policy objectives that take account of significant developments since the last U.S. Arctic policy statement was issued in 1994.

Relevant to shipping, we have been discussing how best to establish a response capability for an "all hazards/all threats/all weather/all seasons" Arctic environment for search and rescue.

We are working with the International Maritime Organization in the context of needing to enhance standards for maritime safety and security and for protecting the marine environment in the Arctic. (Polar Ice Code)

We are working with the IMO for the development of waterways management systems in accordance with international standards, including vessel traffic monitoring and routing, safe navigation standards, accurate and standardized charts, and timely environmental and navigational information.

Global Interest

In any event, pressure for global resources and improving technology will expand human activities in the Arctic regardless of the pace of the ice's retreat.

And since the Arctic is primarily a maritime region, this means that shipping traffic – into, out of, and ultimately through the Arctic -- will expand.

A few more statistics that speak to other factors driving this expansion:

- The price of petroleum was $50/barrel in January 2007, $86/barrel in January 2008, and $123/barrel in July, and now back down to $60/barrel.

- Fuel costs already represent as much as 60% of total ship operating costs, depending on the type of ship and service. Cost trends press industry bottom lines and impose growing cost pressures on customers and the global consuming public – thee and me.

- The Northern Sea Route above Siberia and Scandinavia could save 1,700 nautical miles or 3 sailing days between Shanghai and Halifax compared to current routes through Panama or Suez.

- The Northwest Passage could cut the shipping distance between New York and Tokyo by more than 2,600 nautical miles.

In short, for shipping, a more accessible Arctic represents potential double savings – contributing to petroleum supply and fuel price reductions, and reducing overall fuel requirements with shorter routing between key destinations.

<u>Collaboration</u>

A safe, secure and reliable shipping regime will be best achieved through reliance on existing frameworks and further cooperation by Arctic nations and others.

No single country can address all of the challenges posed by the Arctic.

In 2004, the Arctic Council asked its Protection of the Arctic Marine Working Group to conduct a comprehensive Arctic marine shipping assessment (AMSA), which will come out this year and Ben Ellis will be speaking about the Study later. The United States is one of the co-leaders of this project. The assessment will project shipping activity under different political and economic scenarios and consider environmental, safety, social and economic impacts.

Other international organizations work on Arctic issues. I have already mentioned the International Maritime Organization, which will have a critical role in establishing uniform standards and in reviewing new vessel traffic schemes for Arctic passages.

Conclusion

But on a national front, we must continue to meet and update our programs so that we keep in the forefront of these ever changing times. Roundtable discussions like this will add to our success in developing policy for a safe, secure, and environmentally friendly transportation system for the Arctic region.