

Industry Leadership and Collaboration for Responsible Arctic Economic Development

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New Arctic Opportunities and Responsibilities

The Arctic is attracting increased private sector attention as receding sea ice opens access to new oil and gas deposits, shipping routes, fishing opportunities and tourism. Though Arctic economic development prospects are significant, their temporal and spatial patterns remain uncertain.

Leadership and collaboration by the diverse, international Arctic business community is essential to addressing ocean sustainability issues and maintaining industry access and social license to responsibly use Arctic space and resources.

Shipping

Although much attention is focused on potential trans-Arctic shipping with the decline of sea ice coverage, destination shipping in the region already has a long history of exporting extracted natural resources and bringing in supplies. In 2004, 6,000 vessels, many making multiple voyages, traveled Arctic waters, roughly sixty percent being bulk carriers, container, or general cargo ships. Most traveled either across the North Pacific and Bering Sea, along the coast of Iceland and the Norwegian Sea, or along the northern coast of Norway and in the Barents Sea (1).

In North America, destination shipping has been increasing along the Beaufort Sea and Northwest Passage. Vessels traveling through the Bering Strait nearly doubled from 2009 to 2010, reaching 430 vessels per year (2). Tugs and barges currently make about 22 resupply trips between Canada's Northwest Territory and the U.S. Beaufort Sea coastline from mid-July through the end of October (3). Vessels carrying goods to U.S. Arctic ports sail to Point Barrow or Prudhoe Bay through the Bering Strait and along Alaska's northern coastline (4). Traffic will increase in the summer of 2012 with offshore oil and gas exploration in Alaskan waters.

Growing demand for goods by Arctic communities, increased exploration for oil, gas, and minerals, and associated infrastructure development will increase destination shipping in the North American Arctic. These activities are constrained, however, by the limited number of deep draft ports in northern and northwestern Alaskan and Canadian Arctic. For example, most U.S. ports near the Bering Strait are less than 10 m deep, although the U.S. Army Corps of Engineers recently began examining the feasibility of a deep draft port (5). Arctic safety concerns and limited search and rescue capabilities also constrain increased destination shipping.

On an Arctic Ocean scale, trans-Arctic shipping continues to capture the headlines that refer to the Northern Sea Route (NSR) - the 2,600 nautical mile route along Russian's northern border - and the Northwest Passage (NWP) - the multiple routes through the Canadian Arctic Islands, from Baffin Bay to the Beaufort Sea (6).

Currently trans-Arctic shipping occurs only via the NSR for two to four months during the early autumn, and requires Russian icebreaker escort and the payment of transit fees. Since 2009, large tankers and bulk carriers have travelled the NSR to Northeast Asia from Russia and Norway. Beginning in 2009 with two vessels, NSR traffic doubled to four vessels in 2010, transporting 110,000 tons of cargo to China,

including gas condensate from Russia and iron ore from Norway (7). In 2011 the number leaped to 34 NSR voyages carrying more than 820,000 tons of cargo over a five month period. Most vessels sailed from Murmansk and through the Bering Strait to Asia, often with iron ore or gas condensate cargo. Russian officials estimate that 1.5 million tons of cargo will transit the NSR in 2012, with new carriers, ports and cargos being added (8).

Trans-Arctic shipping via the NWP is currently not viable as the Canadian Arctic Archipelago is one of the last parts of the region to still have significant ice cover in the summer. In addition, warming conditions often allow icebergs from northern latitudes to be swept down to NWP routes. Seasonal variability, the complexity of NWP routes, depth restrictions, lack of adequate charts, limited infrastructure, high operating costs for icebreaker escorts and high insurance rates also inhibit use of the NWP (9). Major jurisdictional questions may affect NWP traffic, as Canada maintains that the NWP is an inland waterway that is subject to national surveillance, regulation, and control.

Overall, Arctic shipping will be subject to important new legal regimes, such as the IMO Polar Code, with mandatory requirements for ship design, construction, equipment, operating, training, safety and response, and environmental measures to come into effect in 2014 (11).

Offshore Oil and Gas

North of the Arctic Circle are an estimated 90 billion barrels of undiscovered, technically recoverable oil, 1,670 trillion cubic feet of technically recoverable natural gas, and 44 billion barrels of technically recoverable natural gas liquids. These reserves comprise roughly 13 percent of the world's undiscovered oil, 30 percent of undiscovered natural gas, and 20 percent of undiscovered natural gas liquids. Nearly 84 percent of these hydrocarbons are offshore (12).

Oil deposits lie predominantly near North America while natural gas reserves lie adjacent to Eurasia. The Alaskan Arctic is also estimated to hold 30 billion barrels of oil, the largest portion of the undiscovered deposits. While Alaska and Alaskan Arctic alone holds nearly 1,700 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquids, pipeline infrastructure is not in place to transport these valuable resources (13).

Currently operating oil fields in Arctic Alaska are located in the North Slope, where oil production has occurred since 1967. Prudhoe Bay is the nation's largest oil field, with an estimated 13.6 billion barrels of recoverable oil, and 2 billion left to produce. Most Alaskan Arctic oil production to date is onshore or close to shore and is transported south by the trans-Alaska pipeline. Nearshore fields operate on artificial gravel islands, generally located from 3 to 5 miles offshore in 1.5 to 12 m depths. They are either connected to the shore by causeways or pipelines, and there are no offshore platform facilities currently in operation.

Offshore oil and gas exploration is moving carefully forward in the U.S. Arctic. One company has Arctic offshore leases in the Chukchi and Beaufort seas, and expects to begin drilling five wells and operate floating rigs in August 2012 (13), with eventual production of 500,000 barrels per day anticipated (14). More Arctic leases are expected in U.S. waters as the national strategy to promote energy exploration, development and conservation proposes to make further Alaska offshore areas available. Additional leases for the Chukchi Sea will likely begin in 2016 and the Beaufort in 2017.

Internationally, several major oil companies are involved in offshore exploration and drilling in other parts of the Arctic. For example, a number of companies have licenses to explore off Greenland, although exploratory wells failed to discover hydrocarbon reserves in Greenland waters in 2011 (15). Elsewhere, several companies have leases to drill near Tuktoyuktuk, Canada, where oil production is expected by 2025 (16). Strategic cooperative agreements have been developed between Russian and western companies to jointly develop Russia's Arctic oil fields near Western Siberia and establish the Arctic Research and Design Center for Offshore Development (17).

The pace and location of Arctic oil and gas exploration and development depends upon profitability, jurisdictional issues, and regulatory arrangements. For example, in the Barents Sea, offshore oil and gas development is on the rise as a result of the 2010 political boundary agreement between Norway and Russia that provides for joint development of hydrocarbon resources that straddle the boundary (18). Infrastructure will also need to be in place to transport the natural resources extracted. Changes in the regulatory systems in the U.S. are moving towards performance based regulatory standards and oil spill guidelines are to be drafted by the Arctic Council.

Fisheries

Arctic fisheries constitute about 10% of the world catch and are an important part of Arctic state economies, generating billions of dollars per year in revenues (19). Arctic fisheries represent 90% of the export earnings of Greenland, 33% of those of Iceland, approximately 6% of Norway's and less than 1% of the export earnings of the United States and Russia (20). Norway's Arctic region accounts for 37% of the country's fisheries production, with \$1.8bn of Norwegian cod exports in 2011 (21). In Alaska, \$1.3 billion of fish and shellfish were harvested in 2009 (22). At the same time, individual Arctic communities are almost wholly reliant on fisheries and fish processing for their economic survival.

The Arctic Ocean includes a range of ecosystems, fish stocks and fisheries, with significant differences between the Atlantic and Pacific sides of the region. Fishing activity has recently expanded significantly in some areas. For example, the Greenlandic shrimp catch has grown by half again over the last decade (23). In the Canadian Arctic, fishing ship voyages expanded from 30 in 2005 to 221 in 2010, making the fisheries by far the largest component of vessel activity (24).

Arctic fisheries are governed by national, bilateral and multilateral management arrangements that will affect future levels and patterns of fishing activity. Where fisheries take place in EEZs, such as the North Atlantic, national regulations cover most state jurisdictional capacities. As diminishing ice coverage creates new fishing opportunities where management is not in place, Arctic states will have to develop regulations to discharge international obligations. For the U.S. Arctic waters north of Alaska's Bering Strait, the government has decided to close the area to commercial fishing until information is available to assess ecosystem health and develop sustainable fisheries management (25).

For transboundary and migratory fish stocks, bilateral arrangements exist between the relevant Arctic coastal states for some of the shared fisheries. Other areas are not covered, e.g. among the states with jurisdiction for portions of the Beaufort Sea and the Chukchi Sea. While a considerable number of regional fisheries management organization (RFMOs) and arrangements apply explicitly or implicitly to parts of the Arctic, especially on the Atlantic side, a large portion of the region is not covered, other than for tuna. At a regional scale, the Arctic Council has not focused on the management of targeted fishery species and lacks an express mandate for addressing fisheries.

Warming ocean temperatures and shifting sea ice conditions are lengthening fishing seasons and allowing stocks to migrate north - potentially creating entirely new commercial fishing opportunities. The relative importance of species in abundance will change, but new fishery opportunities may occur differently on the high seas and within coastal state maritime zones. However, the unpredictability of changes to temperature, currents, nutrient availability and salinity make it difficult to forecast precisely how Arctic fisheries will be affected.

Moderate warming of Arctic waters will likely improve the conditions for some of the world's largest and most valuable fisheries, such as cod, herring and Pollock, which occur in the sub-Arctic. Much of the initial change would come predominantly from the North East Atlantic in the form of species invasions as relatively warm water occurs further north. However, bottom dwelling species, such as cod, haddock and Greenland halibut may not expand very far north because the waters of the Central Arctic Ocean would be too deep for them. Also, fisheries would likely not take place in the Central Arctic Ocean as it would be more profitable to continue to harvest in more southerly areas, closer to ports and markets.

Tourism

The cruise ship industry is already by far the most economically significant tourism sector for Arctic states. With increased access to the Arctic, the ability for cruise ships to transport large numbers of passengers to various locations throughout the area is expanding. More and more tourists are eager to see the far North on a growing variety of regular routes being offered during summer months. Cruise tourism possibilities now also include trips to the North Pole itself, once the most formidable challenge of Arctic exploration.

Overall, Arctic marine tourism has grown explosively by 500% between 1994 and 2009 (26). The trend is accelerating, with the number of Arctic cruise ship visitors doubling between 2004 and 2007, from 1.2 million to over 2.4 million (27). Cruise ship tourists often participate in many shore-based activities such as buying souvenirs, eating at restaurants, going on excursions, etc. Through this multiplier effect, the cruise industry generates significant revenue for Arctic countries and for local Arctic economies.

The majority of cruise tourism activity is along the coast of Norway, along both coasts of Greenland and along the Canadian portions of the Northwest Passage. In 2007, Norway received 1.13 million cruise ship passengers and in 2008 that the number of cruise ship passengers visiting Greenland was increasing by about 30 percent annually (28). The number of cruise ships visiting northern Canadian islands in 2006, such as remote Ellsmere and Baffin Island, doubled to 22 ships, up from 11 ships in the previous season (29). In contrast, on the Pacific side, there are limited excursions through the Bering Strait into the Chukchi Sea.

Despite the popularity of Arctic cruises, northern waterways remain dangerous and emergency response is a major challenge. From 1972-2007, twenty-seven polar cruise ships ran aground, from 1979-2007, eight polar cruise ships sank and 28 suffered disabling incidents caused by collisions, propulsion loss, or fire and from 1992-2007, there have been 42 pollution and environmental violations (30). In August 2010, a cruise vessel carrying 128 passengers ran aground in the Northwest Passage after hitting an uncharted rock. While no one was harmed, it took the Canadian Coast Guard two days to reach the stranded vessel (31).

Catalyzing International Ocean and Arctic Business Leadership and Collaboration

Industry leadership in “Corporate Ocean Responsibility” is essential to navigating this critical juncture and ensuring the long term health of both the Arctic and responsible industry use of marine space and resources. Responsible industry performers are well positioned to develop and drive business-oriented solutions to marine environmental challenges and collaborate with other ocean industries and stakeholders in ensuring the health and continued economic use of the Arctic.

Many of the policy, practical and reputational aspects of Arctic industry activities are now affected, if not dominated, by environmental concerns. These issues are affecting all industries that may use Arctic space and resources, e.g. oil and gas, shipping, fisheries, aquaculture, ports, tourism, renewable energy, submarine cables, seabed mining, dredging, etc. This is creating important needs and opportunities for collaboration, synergies, and business benefits among the ocean business community. There is business value in ocean industries engaging in a coordinated systematic approach to addressing the challenges affecting the future of Arctic business, creating opportunities for collaboration and economies of scale in developing solutions.

To address the ocean and Arctic sustainability issues and opportunities critical to business, the World Ocean Council (WOC) was established to create an unprecedented global, cross-sectoral industry alliance. The WOC is catalyzing proactive, collaborative efforts towards “Corporate Ocean Responsibility” by bringing together the diverse mix of ocean industry sectors. Cross-sectoral leadership and collaboration can result in significant business value for the operators committing to the vision of a healthy and productive ocean that supports sustainable use by the responsible ocean business community.

Making Progress in Corporate Ocean Responsibility

The WOC) is harnessing this potential for global leadership and collaboration in ocean stewardship by responsible ocean companies that are well placed to develop and drive solutions. Many companies do want to address marine environmental issues, differentiate themselves from poor performers, collaborate within and across sectors, and engage other ocean stakeholders – and now there is a structure and process for companies to work on complex, intertwined, international ocean sustainability issues.

A multi-sectoral and multi-stakeholder approach can result in cost-savings (e.g. collaborative research to develop best practices in sustainability and find science-based solutions to shared issues) and reduce the risk of costly, unplanned and unnecessary restrictions to responsible business operations in the marine environment. Protecting the seas to protect your business makes good business sense, e.g. through the economies of scale that can be achieved in joint research on shared problems. Identifying problems and developing solutions must be based on good science, credible risk assessment, performance monitoring and the best available technology - and must be tackled at the scale at which the impacts are accumulating.

Companies with a long-term view of their ocean business are looking to collaborate within and between industries on solutions through participation in the WOC. This not only applies to the companies that directly operate use marine space or resources, but also to the wide range of industries linked to, or dependent on, those direct ocean users.

A growing number and range of companies share the WOC vision of a healthy and productive global ocean and its sustainable use and stewardship by responsible companies. They are distinguishing

themselves by becoming WOC Members and are calling on others to join. WOC Members to date include over 70 leadership organizations from a wide range of ocean industries: oil and gas, shipping, fisheries, seafood, mining, seabed mining, offshore renewable energy, ocean technology, maritime law, marine environmental services and other areas. In addition, the WOC has created a network of almost 34,000 ocean industry stakeholders worldwide.

The WOC has created an international, multi-sectoral structure and process for leadership companies from the diverse ocean business community to work together shared challenges. This unique composition and scope makes the WOC different from national or sectoral industry associations and makes the WOC uniquely positioned to serve as a portal for the ocean business community to work with other clusters and research institutions and consortia.

Ocean business representatives at the SOS identified priorities to advance ocean industry leadership on key marine environmental issues. The WOC is forming cross-sectoral industry working groups to address priority in the five thematic program areas that have emerged:

- Ocean policy and governance, e.g. Convention on Biological Diversity (CDB), Law of the Sea (UNCLOS), etc.
- Marine spatial planning (MSP), including marine protected areas (MPAs).
- Operational/technical issues, e.g. invasive species, marine debris, marine sound, marine mammal impacts, etc.
- Smart Ocean-Smart Industries, i.e. voluntary collecting of ocean, weather and climate data from “ships of opportunity”.
- Adaptation of ports and coastal infrastructure to sea level rise/extreme weather events.
- Regional needs for industry collaboration, notably for the Arctic

Corporate Arctic Responsibility

The WOC has developed the only multi-industry leadership group on responsible use of the Arctic and continues to build an ongoing working relationship with the Arctic Council and other Arctic stakeholders in order to advance Arctic sustainable development for WOC Members and the broader ocean business community. The WOC is involved as a partner, co-organizer and speaker at numerous Arctic events and Arctic Industry events

In 2011-12, the WOC developed a close working relationship with the Chair of Arctic Council senior officials and was invited to develop the first-ever “Business Dialogue” with the Arctic Council’s Sustainable Development Working Group (SDWG). In September 2012, WOC convened a workshop on developing the Arctic Business Leadership Council, which attracted over 30 industry participants to begin developing a multi-industry leadership group on responsible Arctic development. The next day, the first-ever “Business Dialogue” with the Arctic Council was co-chaired by the WOC CEO and the Chair of the Arctic Council’s SDWG.

Through these efforts, the WOC has begun the development of a circumpolar, multi-industry business network to help lead the way to responsible and sustainable development of Arctic areas/resources. WOC is interacting with current Arctic Council Chair (Canada) in advancing these areas of mutual interest in the country’s role as the new chair of the Arctic Council and its SDWG. The WOC efforts to initiate an Arctic Business Leadership Council have been credited with being a significant trigger for the Arctic Council’s development of an “Arctic Economic Council”.

At the WOC's 2013 Sustainable Ocean Summit (SOS), Washington DC, WOC convened a session dedicated to the Arctic entitled, "The Arctic: Challenges and Opportunities for Responsible Industries" which had the following Terms of Reference Questions:

- How can the responsible, sustainable development of the Arctic area and resources be ensured and enhanced through cross-sectoral industry leadership and coordination?
- What are the priorities for industry leadership and coordination on Arctic use, sustainability and development?
- What structure and process will best assist leadership companies in the Arctic in developing business collaboration and engaging with governments, the Arctic Council and other stakeholders?

The WOC is also developing a solid working relationship with a range of the institutions critical to the future of safe and responsible Arctic operations. For example, the WOC is in regular contact with the US Navy and US Coast Guard regarding industry activities in the region.

The WOC Arctic efforts in the near term are also focused on the priorities identified in the WOC events and activities outlined above. Since 2012 the WOC Arctic Working Group (WG) has brought together WOC members that represent a range of ocean industries and affiliated organizations.

The growing ranks of WOC Member companies are finding direct business benefits in the synergies and economies of scale in collaborating with like-minded peers in other companies on these shared Arctic industry challenges. As a result, an increasing number and range of companies from around the world are distinguishing themselves as leaders in "Corporate Ocean Responsibility" by joining the WOC and by working to address the challenges of "Corporate Arctic Responsibility".

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