

## Arctic commercial development presents opportunities and risks



Marine transport is an important component of Canada's foreign trade and economic prosperity. Canada's ocean governance provides rigorous regulation of shipping south of 60°N within its 9.3 million square kilometres of ocean space. That is not the case north of 60. This article will examine the massive Mary River iron ore project on Baffin Island and its impact on Canadian Arctic shipping.

In the Arctic Ocean Basin, sea ice is diminishing which is allowing the development of mineral and hydrocarbon projects which are made economically feasible by increased shipping access and the expected steady growth in the overall global economy. All of the new projects in the Arctic depend on marine transportation to move the product to market – whether hydrocarbons, minerals or fish.

Much of Canada's policy attention has focused on **in-transit** international shipping through the Northwest Passage and the status of these waters. There has been very little examination of **destination** shipping (to a port or facility) and its governance within the Canadian Arctic. The Arctic Council's Arctic Shipping Assessment in 2009 predicted that the largest increase in Arctic voyages would be destination rather than trans-Arctic.

The Mary River iron ore project located on northern Baffin Island will be a game changer, and will have the most immediate effect on Canadian Arctic shipping in the near future. This original \$4 billion project consisted of the mine site, railway and road links, two ocean terminals and a fleet of up to 10 icebreaking bulk carriers. The Mary River deposit was discovered in the 1960s but has not been commercially viable to date. The mineral deposit with proven reserves of 365 million tonnes is a highly pure body of iron ore (67 per cent) that is located approximately 144 nautical miles from tidewater in the Mary River drainage. It is a mountain of almost pure iron ore.

There are eight other deposits in this geological complex. Mary River was originally owned by Baffinland Mines of Toronto but was recently acquired by ArcelorMittal, the world's largest steel producer, together with Iron Ore Holdings L.P. For the project to be viable, year round shipping is required from an open pit mine. It was proposed that 21 million tonnes of iron ore would be exported yearly. There are two ports with tidewater access for movement of the iron ore by bulk carrier. A 100-kilometre road has been built to the mine from Milne Port which is located at the upper end of Milne Inlet at the north end of Baffin Island. How-

ever, because of the high density of narwhals in Milne Inlet, Steensby Port in Foxe Basin on the west coast of Baffin Island was proposed for year-round shipping to minimize the impact on marine mammals.

The Mary River project may ultimately involve the construction of a 144-kilometre railway to move the large volume of ore from the mine to a loading facility at Steensby Port. The world's most northern railway, if constructed, will take four years to complete and 2,800 workers will be required for all elements of the project. Steensby Port, if built, will have a dedicated deepwater two-berth loading facility allowing the self-dumping of the railcars, stockpiling and vessel loading year round. If and when completed, ten dedicated ice-strengthened bulk Cape Size carriers (160,000-190,000 dwt) will operate year-round, making 102 round trips (204 transits) from the proposed Steensby Port in Foxe Basin to Antwerp, Belgium, a 20 day voyage. During the period of open water, additional tonnage would be chartered to move the iron ore. A ship movement will occur every 1.8 days. For half the year, there will be 24 hours of darkness with ice cover. Fednav of Montreal, long experienced in Arctic shipping, would operate these vessels under charter. Additionally, 60 vessel move-

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ments from Milne Port would occur during open water along with re-supply of fuel and dry cargo to the mine site. The Mary River project would have a total of 184 vessel voyages per year and 4,350 voyages during the 25 year lifespan of the first mineral deposit.

At present, there are fewer than ten summer voyages in Foxe Basin yearly. Foxe Basin is the site of another major iron ore deposit at Roche Bay on the east side of Foxe Basin. Chinese interests have invested \$1 billion to secure these mineral rights. The Roche Bay iron ore deposit is only a few kilometres from tidewater. Both these mineral deposits are located near pristine and biologically diverse marine environments. In these shallow tidal waters are large walrus and bowhead whale populations, and two large Arctic seabird colonies. These waters have seen very little marine traffic and no year-round shipping.

Virtually all of the necessary approvals for mine development have currently been obtained, and the first sealift of materials and equipment was organized in July of 2013. Hiring and training of personnel has commenced and is proceeding in earnest. However, in January of 2013 the company

announced that it will pursue its original plans in stages. During the first stage, production would start at the rate of 3.5 million tonnes annually in 2016, with ore trucked to the port at Milne Inlet, and seasonal shipping only between July 15 and October 15, conducted through approximately 70 voyages to northern Europe. Phase I would result in a capital cost of \$740 million, as opposed to the original \$4 billion plan. No timetable was announced for the project's eventual ramp-up to original projections.

During the environmental review process, a number of concerns concerning shipping were expressed by both residents and federal government departments. One issue is the lack of any comprehensive environmental baseline data for the marine or land environment. There is very little in terms of existing science and data to examine the impacts of year-round shipping (for example, ice edge and hydro acoustics). As well, there is no requirement for a permit or license, nor is it necessary to undertake a risk assessment under Canadian marine legislation for the marine shipping component of this project. There is no statutory requirement for analysis of the marine infrastructure for additional aids

to navigation, search and rescue, charting or vessel assistance. Vessel transits would occur on an almost daily basis with no requirement for a Canadian licensed marine pilot. There is no compulsory pilotage regime in the Canadian Arctic, only an ice navigator is required. How will continuous shipping affect the environment and the Inuit communities who rely upon the sea ice to obtain food? Moving the project further in phases will allow further analysis in due course.

If these questions are answered and Canada keeps a close eye on resource developments, it may well be that iron and ice will be a good mixture for Canada's Arctic development, and Mary River can be a model for other Arctic states to regulate Arctic shipping. Mary River is an ore deposit that needs to be mined to strengthen Canada's Arctic ocean infrastructure and economy

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