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Charting the Future for Cetaceans and Polar Shipping

The Arctic marine environment is transforming before the eyes of the world. Arctic temperatures are rising at twice the rate of the global average.¹ In 2016 Arctic summer sea ice declined to 4.14 million km², the second lowest extent on record.² The Arctic may be ice-free in the summer as early as the late 2030s making destination traffic along with shipping routes like the Northern Sea Route (NSR) more viable. In 2017 a total of 7,265,700 tonnes of cargo were shipped along the NSR.³ The Russian government has stated its hope to transport more than 75 million short tons of cargo along the NSR by 2025.⁴ The Northwest Passage has already attracted some attention as a cruise route. In 2016 the *Crystal Serenity*, a luxury cruise liner, traversed the route from Anchorage to New York City in 32 days with more than 1,000 passengers and 600 crew members.⁵

As ship traffic in the region increases it poses a number of threats to Arctic marine wildlife such as the bowhead whale, beluga whale, and narwhal, including disruption from ship noise and the threat of a large oil spill.

Oil Discharge

The greatest risk posed by shipping in the Arctic is a discharge of oil into the marine environment.⁶ Oil spills can be devastating for whales in the Arctic, affecting whales that come into contact with oil while swimming, inhaling fumes near the spill site, or consuming contaminated prey.⁷ Belugas can also be exposed to oil when they rub themselves in contaminated sediments during molting season.⁸ For baleen whales like bowheads, oil can foul the delicate filter of keratin the whales use to swallow and consume their prey.⁹ Spills can affect the health of individual animals, or in the event of a larger spill, can wreak havoc on entire populations and ecosystems. While great strides in emergency response have been made in recent years, in the event of a large Arctic oil spill, especially of Heavy Fuel Oil (HFO), there remains no way to effectively respond and mitigate damage.

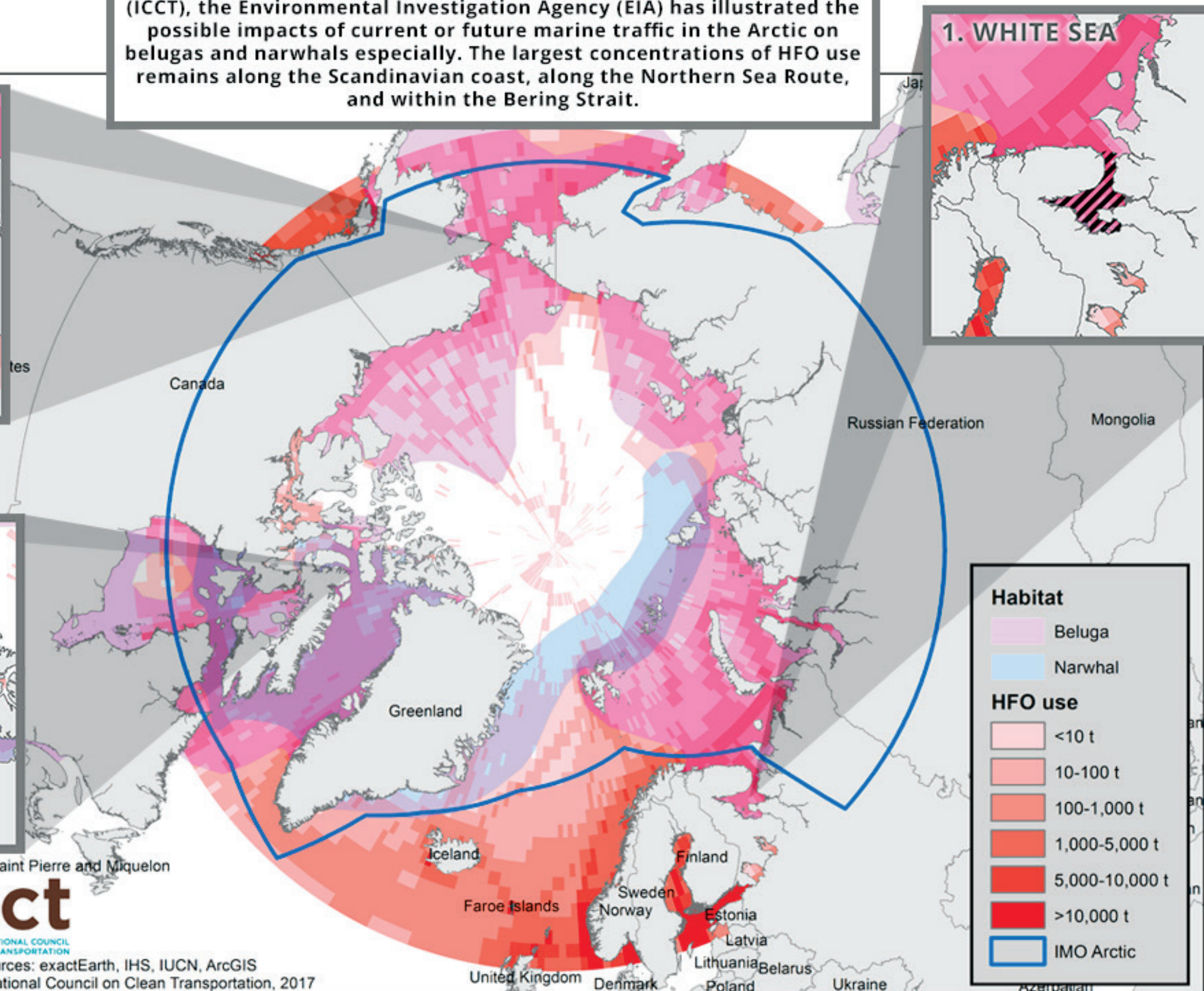
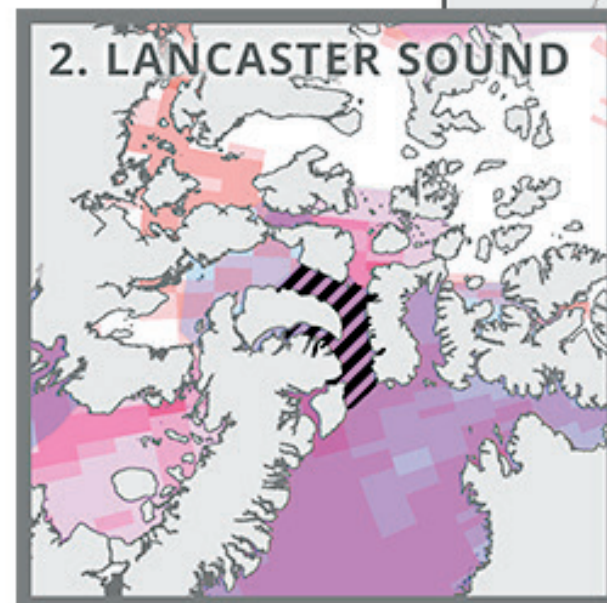
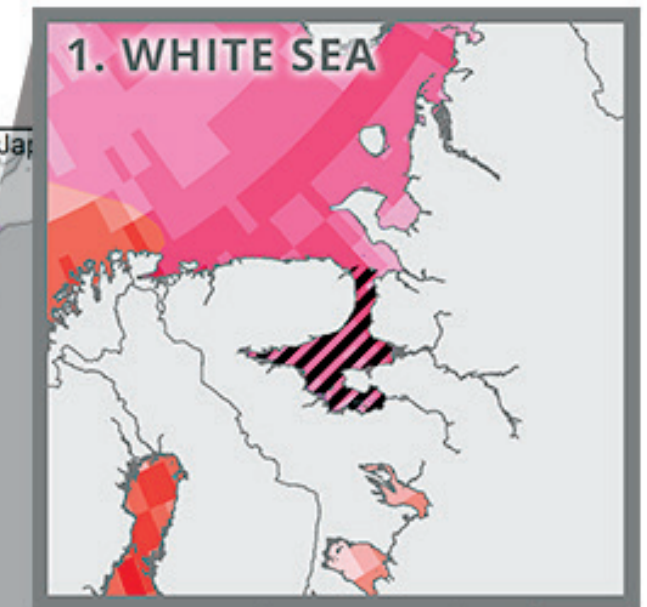
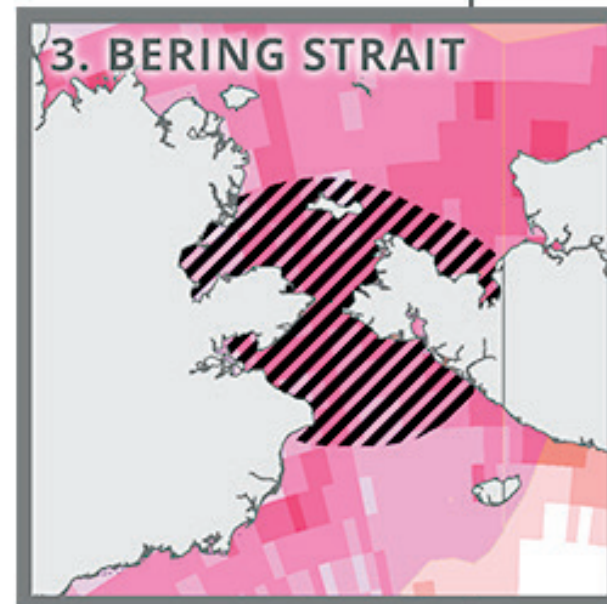
While any significant oil spill can have a major impact on the Arctic marine environment, HFO poses a unique and lasting threat due to its persistent nature and tendency to disperse throughout the water column. Especially in Arctic conditions, HFO is difficult to recover and the long term effects can be extremely damaging. Currently, HFO accounts for roughly 60 percent of ship-sourced

oil spills worldwide.¹⁰ A study of vessel traffic in the 2015 operating season within the International Maritime Organization (IMO) and United States designated Arctic by the International Council on Clean Transportation (ICCT) demonstrated that while fewer ships used HFO (44 percent) when compared to distillate (56 percent), the quantity of fuel on-board is dominated by HFO at a rate of 3:1 (see map).¹¹

Noise

Compared to other large oceans, the Arctic marine environment is quiet, but as more ships travel to the region the noise from new vessel traffic, as well as ship-based activities like seismic exploration for oil and gas or icebreaking, will affect whales in the region. Belugas, narwhals, and bowheads all rely on communication to navigate their environment and locate prey, predators, or other whales by utilizing a variety of vocalizations. Noise from ships can drown out these calls, an effect known as masking. Noise can also trigger behavioral responses, and depending on the intensity and proximity of the whale to a noise source, even physical injury is possible. Ironically, as sea ice diminishes, icebreaking activity is likely to increase, rather than decrease, as development and activity increase.

In collaboration with the International Council on Clean Transportation (ICCT), the Environmental Investigation Agency (EIA) has illustrated the possible impacts of current or future marine traffic in the Arctic on belugas and narwhals especially. The largest concentrations of HFO use remains along the Scandinavian coast, along the Northern Sea Route, and within the Bering Strait.



1. Onega Bay/White Sea

On September 1st, 2003, the bulk ore carrier Neferudovoz-57 collided with another vessel in heavy storms near Cape Gluboky of Onega Bay.^{12,13} The impact tore gouges in the hull of the carrier, spilling an estimated 54 tons (around 400 barrels) of Mazut-100 HFO, considered a moderate spill, into the marine environment.¹⁴ As a result of the spill, more than 74 kilometers of coastline were covered in oil.¹⁵ The majority of the oil (84 percent) was not recovered, and has impacted every level of the ecosystem for more than a decade. Following the spill, local observers noted that while belugas continued to use the site, their behavior changed. For example, repeated ‘spitting’ was documented as the whales ejected contaminated water, and at least one male was spotted with black splotches standing out against white skin.¹⁶ Onega Bay was previously home to a population of approximately 150 beluga whales, including calves and nursing mothers, but the population is now considered in decline and there are fewer sightings.

2. Lancaster Sound/Baffin Island

Lancaster Sound is the major eastern point of entry to the Northwest Passage and also a crucial habitat area and migratory corridor for all Arctic cetaceans. As much as 75 percent of the global narwhal population relies on Lancaster Sound.¹⁷ While traffic in Lancaster Sound is currently low, nearby destination traffic to the Mary River Iron Mine on the northern Baffin Island has increased significantly. In its final Environmental Impact Statement review of the project, Canada’s Department of Oceans and Fisheries estimated the project’s plan to ship iron ore out of Milne Port would cause disrupting levels of noise exposure (including multiple exposures of the same animal) to 425 belugas, 390,150 narwhals, and 4,800 bowheads.¹⁸ Sharp and consistent increases of noise such as this may disrupt many of the normal feeding, breeding, and calving activities of Arctic whales.

3. Bering Strait

The Bering Strait marks an area where ship traffic exiting or entering the NSR or Northwest Passage overlap with beluga and bowheads whales migrating between the Beaufort Sea and the Bering Sea. Historically traffic in the region has been shown to alter the behavior of whales near the Bering Strait. For instance, following an increase in vessel traffic and seismic activity in the Chukchi Sea in the early 1980s, indigenous Alaskan whaling captains reported that migrating bowheads deflected up to 32 km away from the shoreline, rather than following their usual migratory route.¹⁹ As traffic

in the American Arctic is expected to increase by between 100-500 percent by 2025, more mitigation measures may be needed to prevent either an oil spill or serious disruption. Currently the United States Coast Guard (USCG) is in the process of implementing a voluntary two-way routing system in the region.²¹



Conclusions

The Environmental Investigation Agency welcomes many of the measures taken thus far by the IMO member governments to reduce the impacts of Arctic shipping on wildlife in the region. As outlined in MEPC 71/16/7 and MEPC 71/16/4, the International Maritime Organization (IMO) has already taken some steps that, if implemented, may mitigate the impact of HFO use and disruption from vessel traffic of the kind illustrated in the map. With regard to environmental protection in the Arctic, EIA makes the following recommendations:

- Before Arctic shipping increases, every effort is taken to incorporate marine mammal avoidance into voyage planning in the Polar Regions. This could include both voluntary tools and notifications, and for the most at risk areas and territories, more structured mitigation measures, including traffic separation schemes, designation of Areas to be Avoided, or Particularly Sensitive Sea Areas.

- The ongoing use of HFO in the Arctic must be directly addressed; a phase-out of the use of HFO should be implemented on an urgent basis.

- Phase II of the Polar Code should be initiated as soon as possible. IMO member governments should view this second phase as an opportunity to build on the environmental framework of the first phase.

EIA hopes to engage with all stakeholders to create a strong and sustainable framework for the protection of the Arctic marine environment and endemic species like the beluga whale.

Sources

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