



# RESPONSIBLE SHIPPING IN THE HUDSON STRAIT



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Recommendations for safe and more sustainable  
shipping in the Hudson Strait

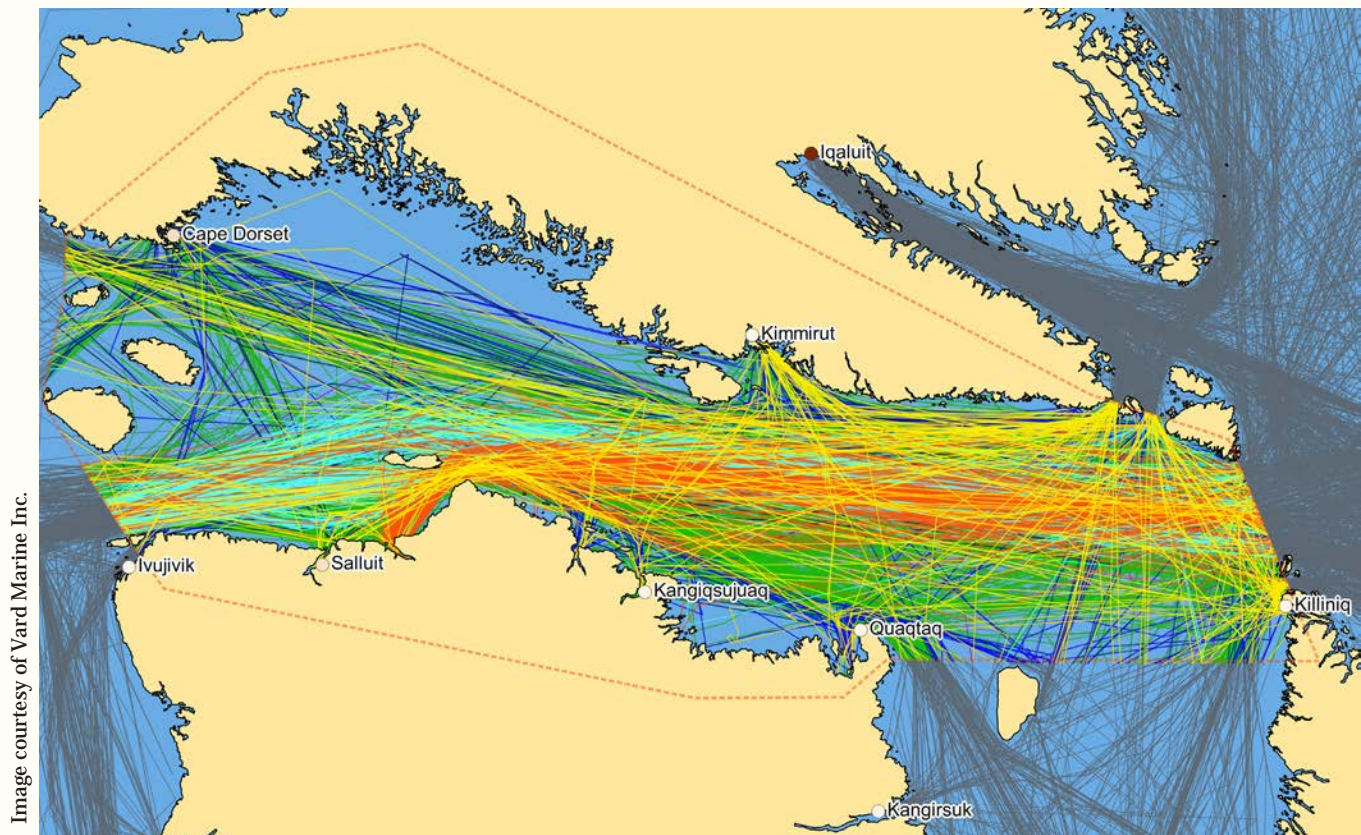


Figure 2.1 - Phase 1 Hudson Strait Study - Vessel Traffic

A gateway between the North Atlantic and Hudson Bay, the Hudson Strait sees several dozen ships from bulk carriers to tankers pass through its waters on a yearly basis. It is also home to Inuit communities and numerous Arctic species and is a destination for many tourists. Environmental incidents have remained low in the Strait due in large part to experienced operators navigating its hazardous waters. As the number of new or occasional operators rise, the risks also increase and threaten the safety of crew and health of this northern ecosystem.

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The rocky shoreline of Cape Dorset, Nunavut, at the north-western edge of the Hudson Strait.

Though the Hudson Strait is well travelled by Canadian Arctic standards, it still has a very low level of shipping activity; and this is confined mainly to the summer season. This Inuit homeland is an environment in which the influences of shipping have been quite limited in comparison with most other parts of the world, and one which represents a “baseline” condition for future observations of impacts. Gaps in current research on shipping and its effects on local

whale populations as well as the need to adopt critical best practices made for the conditions in the Hudson Strait make a powerful case for engaging resources now while activity levels remain low.

The level of future shipping traffic and its impacts are dependent on local factors, Inuit land claims, and also on the development of ports, communities, mining, tourism, and fisheries throughout Hudson Bay and the Arctic. This makes maintaining the health of the ecosystems particularly challenging and requires a sharing of responsibilities amongst multiple stakeholders, especially the engagement of Inuit.

The Hudson Strait offers an opportunity for Inuit, government, industry, northern communities, and environmental stakeholders to work together to protect and responsibly develop this fragile and remote Arctic environment. Through an understanding of the risks and impacts to the communities and ecosystems of the Hudson Strait, and by adopting best practices and recommendations for further research, we can work together to maintain ecosystem health, sustainably develop, and safely operate in this northern sea to benefit both the economy and local communities.

# Shipping Traffic and Study Area

Figure 2.1 depicts shipping transits in the Hudson Strait between 2007 and 2013 for all ships larger than 300 gt and tug/barge combinations with a total size larger than 500 gt. Data was sourced from NORDREG reports and other public reports within the public domain or held by Vard Marine Inc.

The dotted line represents the study area covered for shipping analysis. Notably, the Hudson Strait was identified in 2011 with guidance from Fisheries and Oceans Canada as an Ecologically and Biologically Significant Area (EBSA) to be eventually specially managed with high levels of conservation.



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## Low and Steady Shipping Numbers

The waters of the Hudson Strait remain relatively undisturbed, for now. In 2015, WWF commissioned Vard Marine Inc. to study the socio-economic, cultural, oceanographic, and ecological impacts and risks of shipping through the Hudson Strait. The shipping numbers show an average 59 vessels entering the Strait annually – more than half of which are for domestic supply. Grain from Churchill, ore products via Deception Bay, petroleum products, and general cargo make up the main freight shipped through the Hudson Strait.

The level of future shipping traffic and its impacts are less certain as they are heavily dependent on local factors and also on the development of ports, communities, mining, tourism, and fisheries throughout Hudson Bay and the Arctic.

Regardless of unknown future developments, traffic in the Hudson Strait is likely to at least continue at its current pace, accompanied by risks and impacts neither shipping industry nor Inuit homeland can afford.



# Hudson Strait Traffic Assessment by Industry Sector Between 2007 - 2013

SECTOR	% of TRAFFIC	TRAFFIC ASSESSMENT
Domestic Supply	54%	Domestic resupply/sealift operations make up over half the traffic in the Hudson Strait based on distance travelled. Sealift operations occur at a number of communities directly accessible via the Strait or used as access to all communities in Hudson Bay, as well as almost all communities in the Eastern Arctic – most of which are entirely dependent on sealift operations for their consumer, commercial, and construction needs.
Mining and Mineral Extraction	14%	Mining traffic consists of supply to and export from the Raglan and Nunavik mines in Deception Bay. Mine sites such as Baker Lake receive supply, but do not export their product by ship. Traffic includes bulk carriers for exports and a mix of tankers, tug and barge, and general cargo ships for supply. Inbound bulk carriers will sometimes carry supplies into mine sites.
Oil and Gas Exploration	1%	No oil and gas development is occurring in the Hudson Strait. However, a few vessels have occasionally used the Strait to access Hudson Bay and to enter/exit from the interior Arctic Archipelago and the Northwest Passage.
Shipping	15%	The port of Churchill is served by direct rail transshipment of grain products from central Canada. The dissolution of the Canadian Wheat Board may affect levels of future traffic in and out of Churchill, while to date, it sees frequent bulk carrier exports of grain to foreign destinations on a condensed season.
Fishing	1%	There is no licensed commercial fishing in Hudson Strait, however, a limited number of fishing vessels pass through its eastern limits in transit between NAFO fishing zones and their home ports.
Government Activities	9%	Government vessels (primarily Coast Guard icebreakers) frequently transit the Hudson Strait to perform research activities, navigational assistance, community visits, and other activities.
Tourism	5%	Passenger vessels use the Hudson Strait to both access the interior Arctic and Hudson Bay and to visit communities within the Strait.
Other	1%	Scientific research and ocean survey vessels performing research in the area as well as tugs assisting with towage or transiting home make up the other types of traffic activity in the Hudson Strait.

**Source:** Vard Marine Inc. *Hudson Strait Shipping Study Phase 1 for WWF-Canada*. March 2015.

*Domestic resupply/sealift operations make up 54% of the traffic in the Hudson Strait based on distance travelled.*



© Jim Leape / WWF

# Vessel Types and Traffic in the Hudson Strait Between 2007-2013

Vessel Type	Average Annual Vessels	Average Annual Transits
Bulk Carrier	17	27
General Cargo	13	71
Fishing Vessel	3	5
Tanker	8	34
Tug	6	14
Passenger Vessel	5	9
Government Icebreaker	6	11
Other	2	3

**Source:** Vard Marine Inc. *Hudson Strait Shipping Study Phase 1 for WWF-Canada*. March 2015.

# Overview of Life in the Hudson Strait



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*Several narwhal breaching the surface*

The Hudson Strait is home to Inuit and a variety of Arctic nature. The Strait is characterized by a deep middle channel, relatively strong currents, and high tides. It is mostly covered by ice in the winter season: ice coverage is dynamic, with numerous leads, cracks, polynyas, and other features occurring predictably each season.

Inuit communities along the Hudson Strait are currently experiencing modest population and economic growth. Key economic drivers in the region are mining and mineral extraction, fishing, and tourism. Supplies for these communities are exclusively imported via ship delivery during the summer and fall seasons. There are a number of local airports adjacent to the Strait. Most serve as the sole access to the community when ship visits are not possible. Airports in the region are generally smaller, using packed gravel runways.

Both the northern and southern borders of the Hudson Strait have and continue to be used as traditional resource areas for activities including shore and boat-based fishing, hunting, and whaling. Several communities in the Strait are heavily dependent on fisheries as a key food source and perceive increased vessel activity in these regions as a risk to the productivity of their harvesting activities.

As for the ecosystem, the mixing of Arctic marine water in the Hudson Strait enables a considerable diversity of species to live and breed in or migrate to this area.

The Hudson Strait is considered an important overwintering area and migration zone for cetaceans in the Arctic including bowhead whales, beluga whales, and narwhals. The species assumed to be impacted most by marine traffic are marine mammals, seabirds, and commercially important fishes, crustaceans, and mollusks.

# Closing Critical Data Gaps



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Scientists attach satellite-tracking tags to a Beluga whale in Cumberland Sound

Gaps identified by Vard Marine Inc. as having the highest priority for closure include a lack of accuracy for vessel transit records in terms of fidelity and georeferencing; a lack of detailed understanding of the effects of both noise and collisions on cetaceans; and a lack of detailed data on the spatial and temporal distribution of cetaceans in the Hudson Strait.

Better data will significantly improve confidence in future risk assessments for ship operators, Inuit, government, and NGO stakeholders at a modest cost and level of effort.

## Leading Responsible Arctic Shipping

Fednav and WWF have a shared vision of an Arctic where a strong consideration of the environment and people underlie development decisions and responsible business practices are the norm. To achieve this, Fednav and WWF are working together to identify and advocate for the implementation of best practices in Arctic shipping. Most recently, Fednav provided funding for research into impacts and risks of shipping in the Hudson Strait. Looking ahead, Fednav and WWF are committed to a continued partnership around responsibly managing vulnerable species and ecosystems and working to lead the shipping industry to operate more safely and sustainably in our northern waters.

### Recommendations related to vessel traffic and manifest data include:

- Encourage vessel operators to share Automated Identification System (AIS) tracking data for their operations, and an appropriate government department or agency to acquire detailed satellite AIS data for the region from a third-party provider.
- Encourage vessel operators to share representative records of the types and quantities of cargo carried into the Hudson Strait.

### Recommendations addressing vessel noise include:

- Perform a range of studies of the underwater acoustic properties of vessels in the Hudson Strait.
- Provide support to studies assessing the hearing abilities, behaviour, and potential impacts of noise on different species of marine mammals in the Hudson Strait, with an emphasis on cetacean species.

### Recommendations related to cetacean interactions include:

- Encourage government and other data holders to make their research public, while integrating available spatial and temporal data for cetacean activity in the Hudson Strait.
- Develop a system for allowing crews to record cetacean sightings and key behavioural traits while at sea.

# Promoting Best Shipping Practices

WWF commissioned Vard Marine Inc. in 2014 to identify key measures to mitigate safety and environmental risks for all future operations in the Hudson Strait. As it stands, current Canadian requirements and the future Polar Code (scheduled for implementation in 2017) provide good guidance for open water conditions, however, there is a clear need for Arctic shipping crews to have specific guidance related to shipping operations in ice.

## The following actions are crucial for safer shipping operations in the Hudson Strait:

1. In consultation with Inuit, industry, government, and the scientific community, WWF should support and facilitate the development of a “Hudson Strait Polar Waters Operational Manual (PWOM)”, to be supplemented with a software or web-based training program for masters and deck officers.

2. WWF should compile a listing of best practices for safe operations on ice, which would be provided to authorities when considering the approval of new operations in and through the Hudson Strait.

## Mitigating higher risks in the Hudson Strait

Based on the risk assessment conducted by Vard Marine Inc., the highest risks identified pertained to vessel types and/or to particular types of operations. The following measures address both risks to the vessels involved and impacts to the environment:

1. Government, industry, WWF, and other stakeholders should encourage the preparation and dissemination of improved forecasts of hazardous weather conditions by Environment Canada, Transport Canada, and Canadian Coast Guard.

2. Government, industry, WWF, and other stakeholders should encourage the development of the Corridors initiative and its expansion to consider emergency response capability as an important component of infrastructure. Transport Canada and the Canadian Coast Guard should provide additional information on their websites and by other means to assist in voyage planning and the use of best practices in coastal operations.

3. All winter operations should instruct lookouts in the need to identify cetaceans and deck officers to adopt appropriate procedures to avoid strikes. Ships should use reduced speeds to mitigate the consequences of any strikes. Bridge crews should be aware of best practices.





# Conclusions

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*Aerial view of the Louis S. St.-Laurent, an ice-breaker research ship*

The level of future shipping traffic in the Hudson Strait remains difficult to predict as it depends on local conditions and development factors of the surrounding region. What we know now, though, is that we are missing critical data from current shipping operations in the Strait and its impacts on local whale populations. By filling this knowledge gap, we can focus our future course of action, design new practices for operators to address uncovered issues, and implement additional best practices to highlight key habitats and species at risk.

The work of protecting and sustainably developing the Hudson Strait cannot be done in silos. We must work together – Inuit, government, industry, northern communities, environmental organizations, and more – to achieve protection and sustainable development for this precious Arctic waterway and the communities that call it home.



# Hudson Strait Shipping Summary Report 2015



**Why we are here.**

We are creating solutions to the most serious conservation challenges facing our planet, helping people and nature thrive.

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**Special thanks to Fednav for supporting WWF-Canada's Hudson Strait shipping research.**

For more information, please visit [wwf.ca/arcticshipping](http://wwf.ca/arcticshipping) or contact us at [arcticshipping@wwfcanada.org](mailto:arcticshipping@wwfcanada.org).