



Transport Canada – Marine Transportation in the Canadian Arctic

Presentation to the International Maritime Statistics Forum

Centre of Excellence in Economics, Statistics, Analysis and Research (CEESAR)
May 21st, 2014 – Copenhagen, Denmark





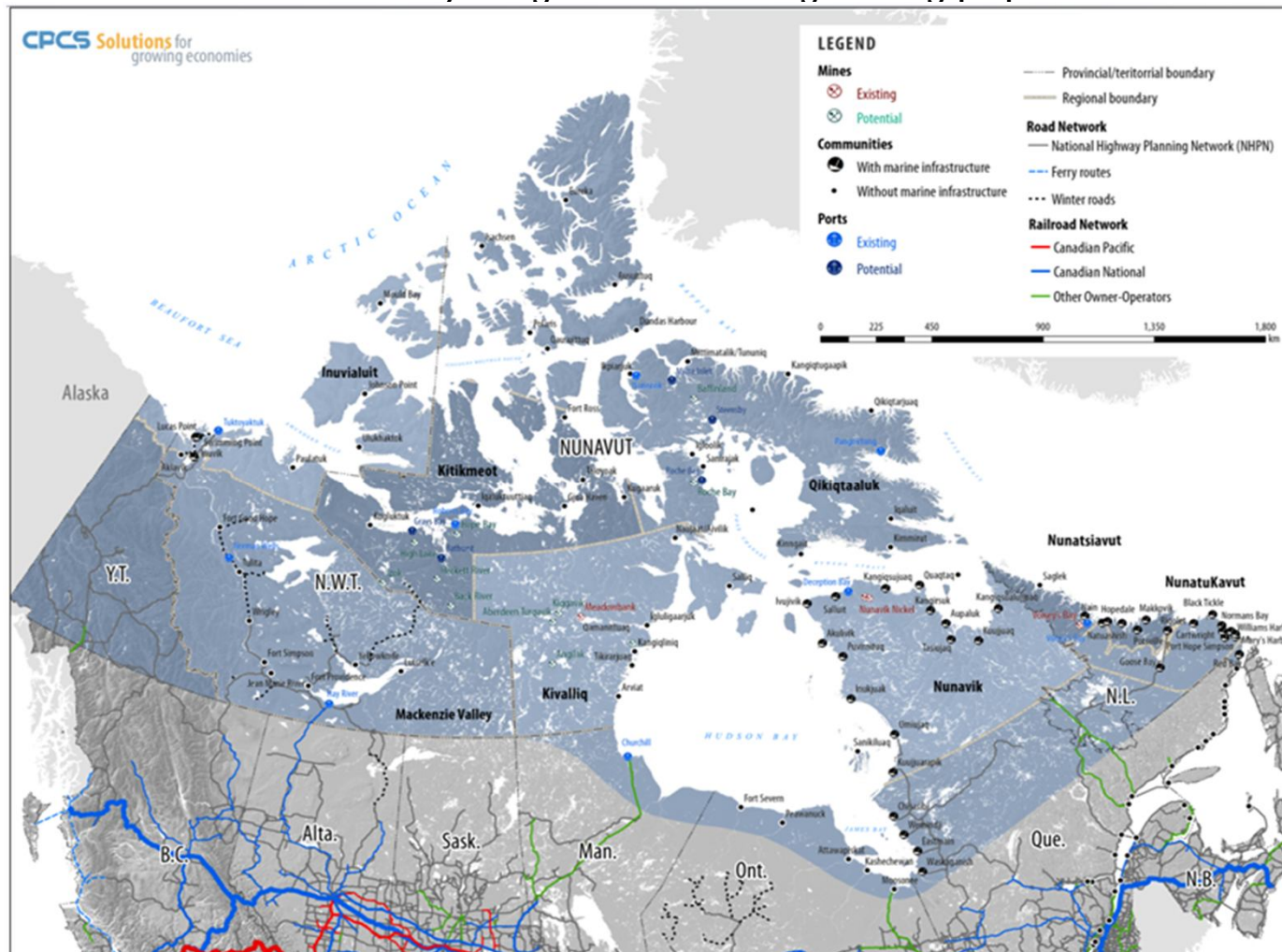
Outline of this Presentation

- Context of the Canadian Arctic
- Provide an overview of Transport Canada's role in the Arctic
- Present recent study of marine activity in Canada's Arctic
 - Objectives and scope
 - Results
 - Trends and factors influencing activity
- Data Limitations
- Next Steps



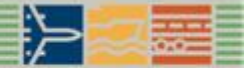
Context of the Canadian Arctic

- In 2011, the population in the study area was 162,100 individuals. Northern communities have a younger and faster-growing population in Canada.



Inuit organizations are active stakeholders in the marine transportation industry

Marine infrastructure varies in the region, supporting a variety of activities related to community resupply, fishing, and mining/exploration.



Context of the Canadian Arctic

Many proposed plans for 22 major projects in Canadian Territories



Resource development in the Canadian Arctic depends on:

- Commodity price
- World demand
- International market for capital risk
- Ownership structure
- Implementation costs



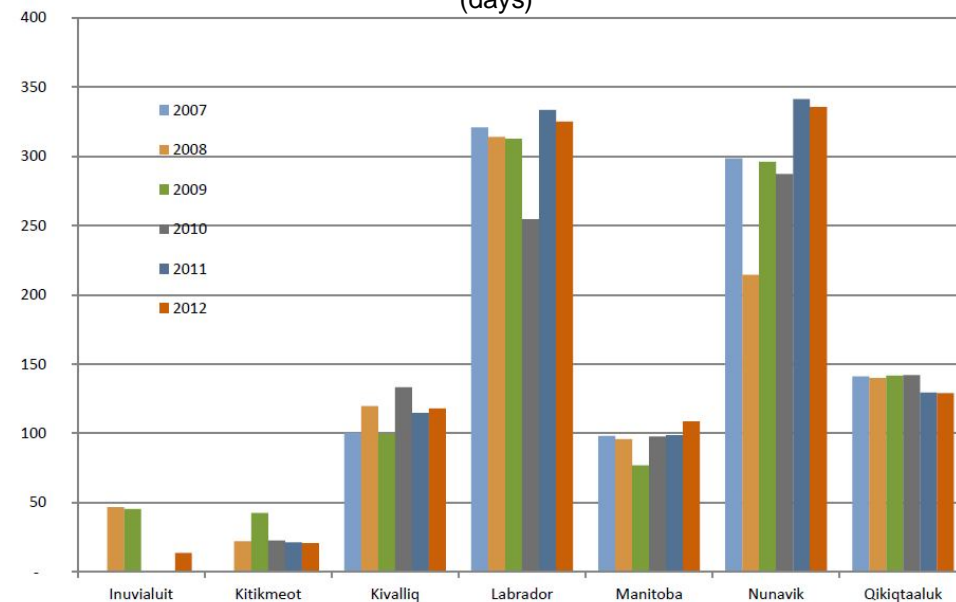
Context of the Canadian Arctic

Marine transportation sector in northern Canada is a niche

- Small market
- Lack of infrastructure
- Ice conditions
- Sailing season



Length of Cargo Ship Sailing Season in Northern Canada by Region (days)





Canadian Arctic – TC Policy Rationale

The challenges

- Increased global commercial interests in the Canadian Arctic
- Climate change and reduced predictability of the weather;
- Increased demand for safety and infrastructure;
- Sensitive northern ecosystems;
- Vast geography;

Proposed response

- A framework to guide the deployment of limited federal resources towards:
 - Improving safety and efficiency of marine transportation
 - Facilitating community resupply and responsible resource development

Canadian Arctic – TC's Roles



Northern Strategy Priority Areas

- **Promoting social and economic development**
- **Protecting environmental heritage**
- Exercising sovereignty
- Improving and devolving Northern governance

World-Class Tanker Safety System

- Analytical support to Pan-Canadian Risk Assessment (North of 60) for Tanker Safety Expert Panel (TSEP)
- Potential to focus federal resources toward enhancing Canada's prevention and response capacity for spills of oils and pollutants in the Arctic
 - Presentations to TSEP on January 22, 2014 (results will be presented in June 2014)

Northern Transportation Action Plan (TC)

- Focus Area 1: Supporting Northern Supply Chains
- Focus Area 2: Tailoring Regulatory/Policy Frameworks to Northern Realities
- Focus Area 3: Operating Within A Fragile Northern Environment

Marine Sector Review (TC)

- Northern Component
 - Adaptation to climate change
 - Regulatory review
 - **Address infrastructure and service gaps**



Marine Transportation North of the 55th Parallel Study

Objectives

- Build baseline knowledge on the economic and safety aspects of marine transportation in the North;
- Shed light not only on the “what” but the “why”;
- Leverage new GIS data;
- Identify policy issues;
- Discuss the impact of future resource development projects .

Scope

- Marine transportation only from Labrador to the Yukon;
- Examines community resupply, resource development, recreational boating, fishing and cruises;
- Analysis based on data (2007-13) and stakeholder interviews

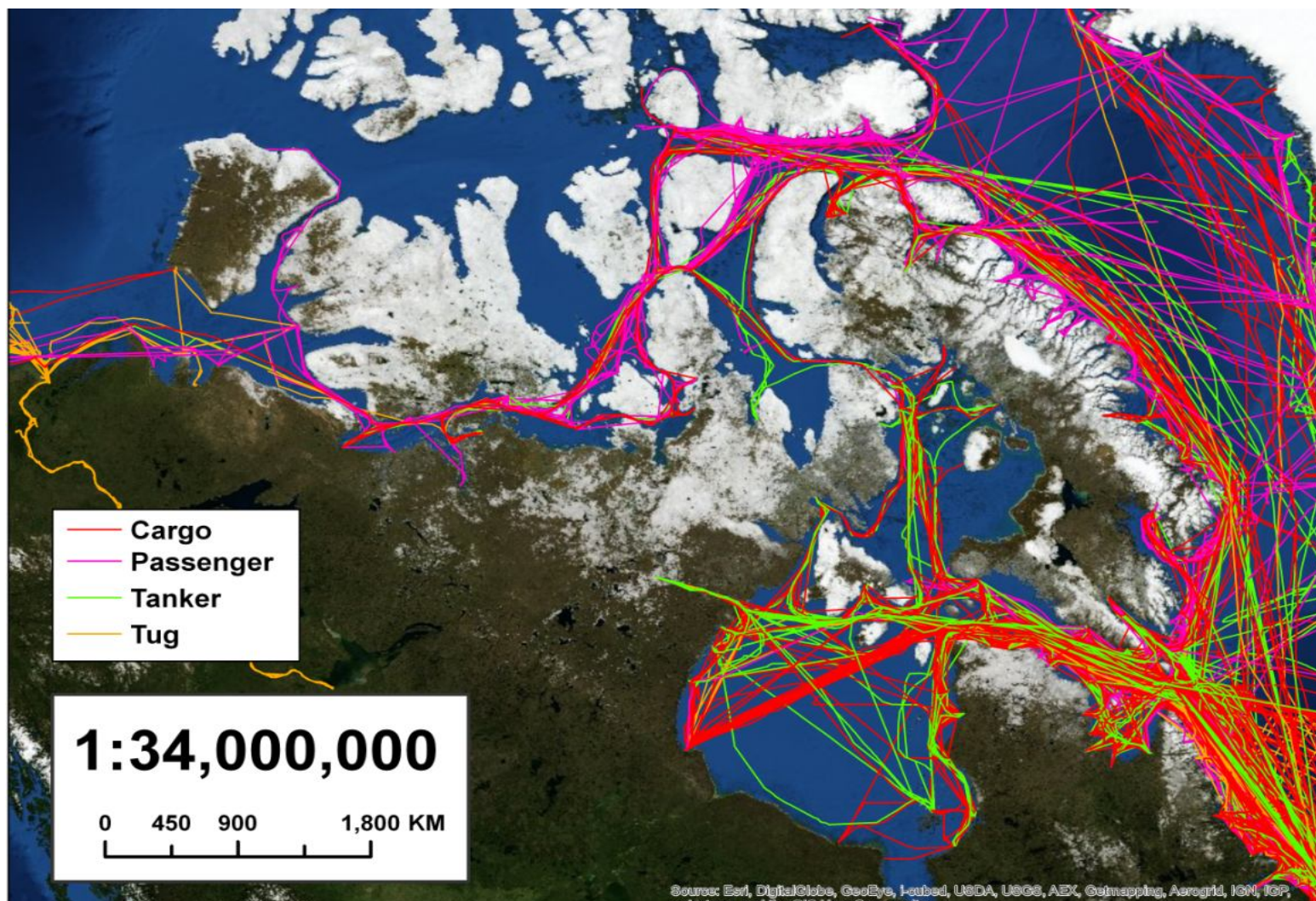
Marine
Commodity
Movement
Database

Satellite
AIS
Database

Marine
Traffic
Movement
Database



Marine Traffic 2011-2013

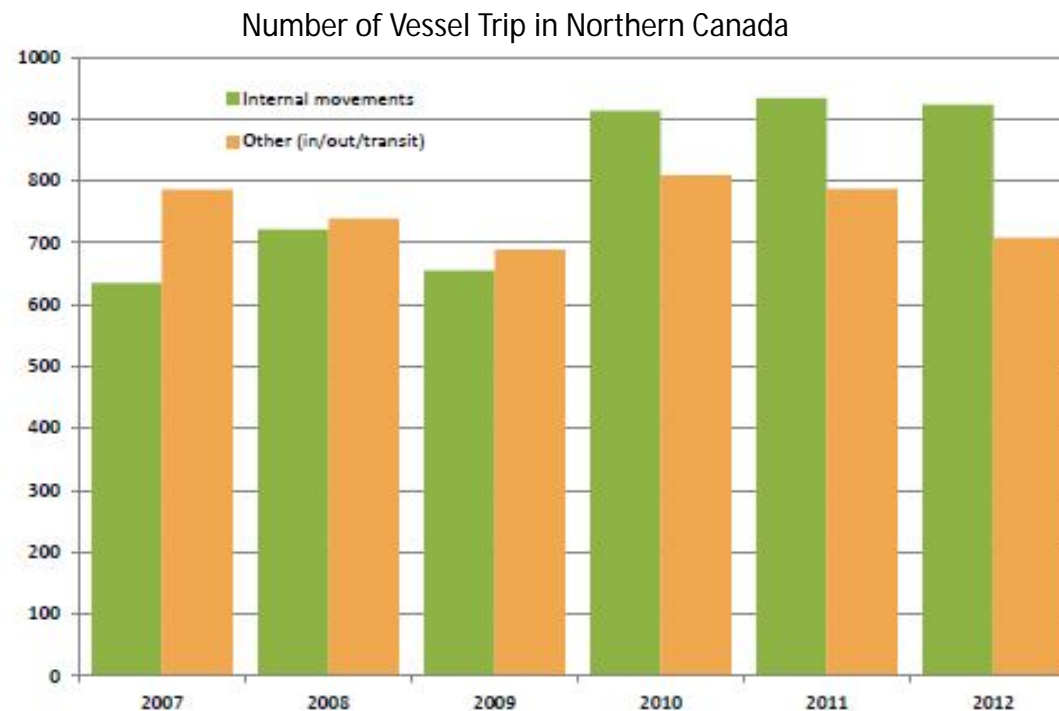


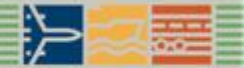


Results

- Internal vessel movements included in the study area increased by more than 25% in 2010, but remained steady to 2012 at just above 900 trips.
- However, other vessel movements (in/out/transit) have fluctuated since 2007.

- General cargo ships represent the most vessel activity in the study area, accounting for 359 voyage legs in 2012, followed by tugs (307 legs) and tankers (220 legs).

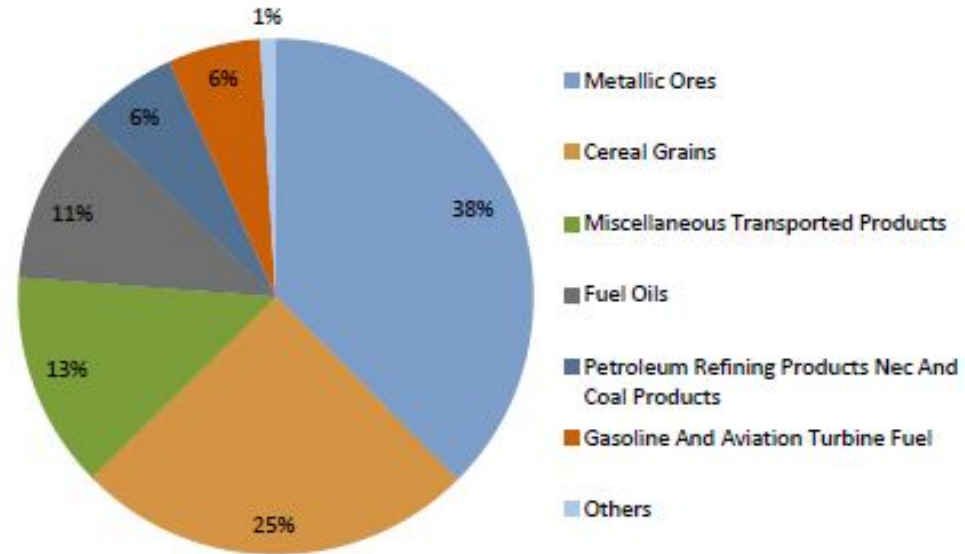




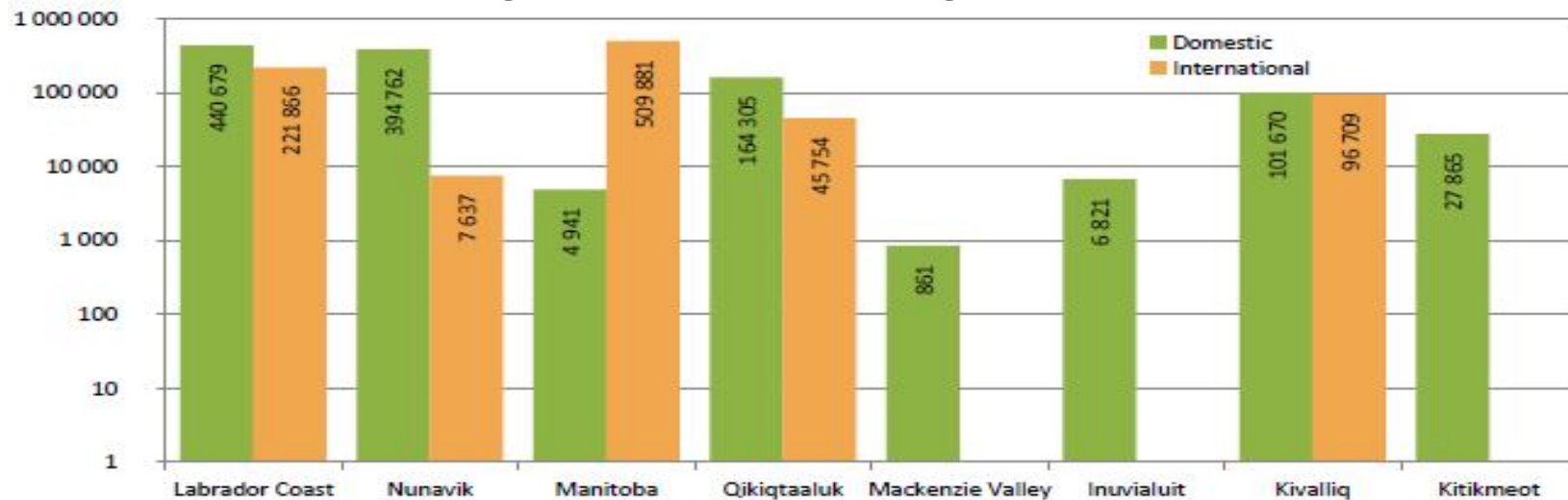
Results

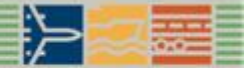
- In 2011, 2.02 million tonnes of goods have been carried to or from the northern Canada.
- 38% of the marine traffic in the study area consisted of metallic ores, which mainly originate from Voisey's Bay on the Labrador coast and Deception Bay in Nunavik.

Total Tonnage Carried To/From Northern Canada, 2011



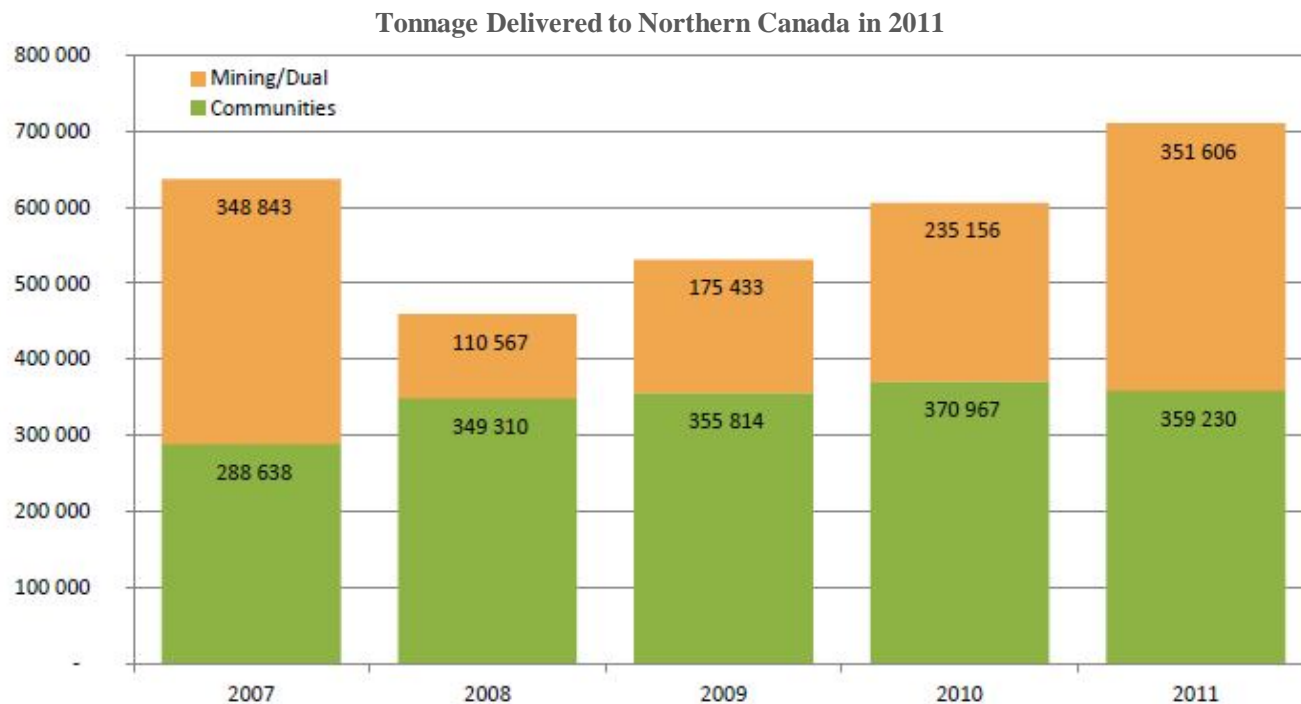
Total Tonnes Handled in Northern Canada (Origin or Destination), 2011





Results

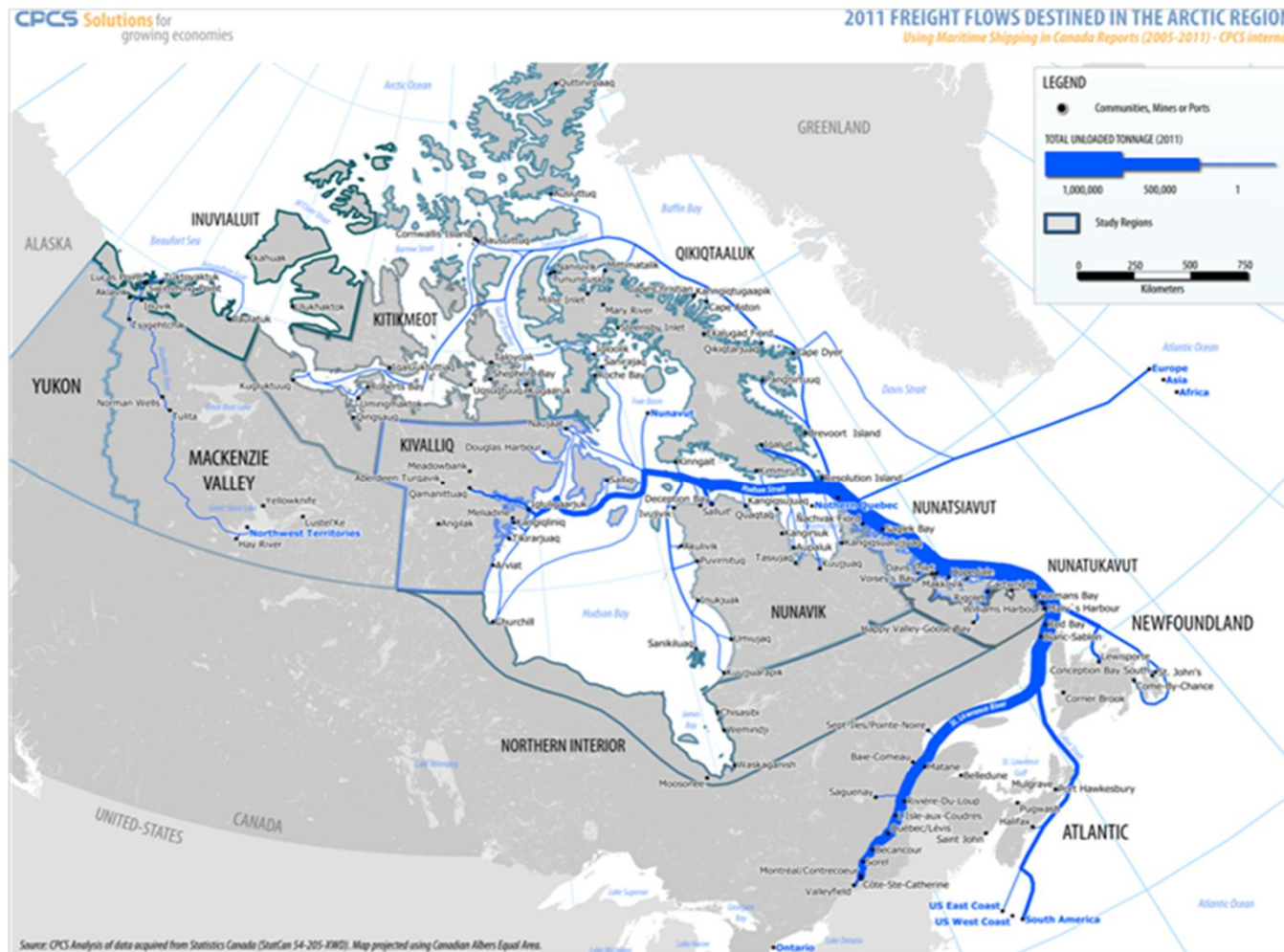
- Tonnage of marine cargo unloaded to communities remained stable from 2008 to 2011 while that of cargo unloaded at mining sites increased steadily (more than tripling by 2011).





Inbound Flow

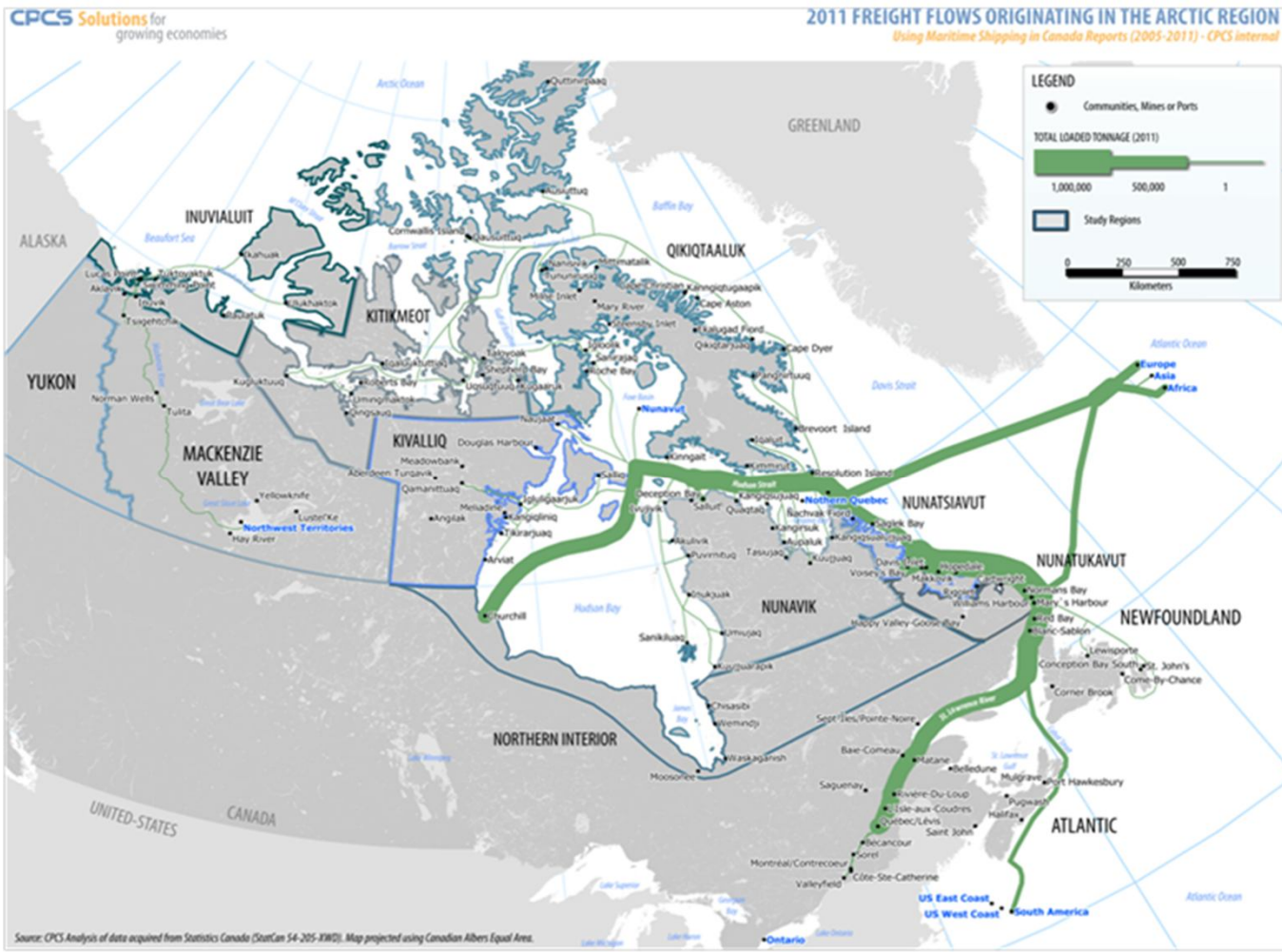
Total inbound tonnage to the Arctic was 0.7 million tonnes in 2001. Petroleum products and general cargo, respectively, represented 64% and 34% of that total.





Outbound Flow

Total tonnage moving out of the Arctic was 1.3 million tonnes in 2011. 60% of which was metallic ores (which are exclusively outbound flows).





Outlook of the Resources Development

Impact on marine traffic generated from the proposed resource development projects will depend on many factors:

- Volumes to be shipped (inbound and outbound)
- Size of the vessel
- Length of the navigation season
- Ice-class of the vessel
- Delivery commitments
- Infrastructure

Project	Product	Marine inbound	Marine outbound	Production
Voisey's Bay*	Nickel-copper	General and project cargo, diesel	Ore concentrates (500-600 kt/y)	2005-2035
Raglan*	Nickel-copper	General and project cargo, diesel	Ore concentrates (150-200 kt/y)	1997-2023
Nunavik Nickel*	Nickel-copper	General and project cargo, diesel	Ore concentrates (160 kt/y)	2013-202?
Meadowbank*	Gold	General and project cargo, diesel	Waste (containers)	2010-2017
Baffinland	Iron ore	General and project cargo, diesel	Ore (3.5 Mt/year eventually ramped up to 20 Mt/year)	2017- 20??
Hopes Advance Bay	Iron ore	General and project cargo, diesel	Ore concentrates (20 Mt/year)	2017-2040
Roche Bay	Iron ore	General and project cargo, diesel	Ore concentrates (5.5 Mt/year)	2017-2032
Kiggavik	Uranium (yellow cake)	General and project cargo (81 kt/y), diesel (57 kt/y)	Waste (containers) and limited amounts of concentrate in drums.	2019-2031
Meliadine	Gold	General and project cargo (40 kt/y), diesel (100 kt/y)	Waste (containers)	2018-2031
Izok Corridor	Zinc-copper-lead	General and project cargo, diesel	Ore concentrates (2 Mt/year)	2017-2029
Back River	Gold	General and project cargo, diesel	Waste (containers)	20?? + 10-15 years
Hackett River	Zinc	General and project cargo, diesel	Ore concentrates (500 kt/year)	2020-2035
Hope Bay	Gold	General and project cargo (40 kt/y), diesel (76 kt/y)	Waste (containers)	2015-2030



Data Limitation

- Commodity movement database
 - For the moment, the most recent year is 2011
 - Commodity description limited for general cargo movement
- Mackenzie Valley and Inuvialuit regions considerably underestimated
 - Database does not cover well the tug and barge industry
- Vessel positions information still limited
- Challenge to combine database
 - S-AIS, Coastal AIS, Vessel Movement and Commodity Movement databases



Next Steps

- Enhance the marine traffic analysis with improved data
- Support work on Canadian Arctic logistics and supply chains
 - Connectivity and efficiency
 - Resiliency
- Northern resource development and its impact on marine transportation demand
- Analysis on future marine traffic and routes
 - Northwest Passage
 - Major corridors



Links

Transport Canada:

<http://www.tc.gc.ca>

Environment Canada – Canada Ice Service:

<http://www.ec.gc.ca/glaces-ice/>

Arctic Council:

<http://www.arctic-council.org/index.php/en/>

<http://www.amap.no/>

Arctic Maritime & Aviation Transportation Infrastructure Initiatives

<http://arcticinfrastructure.org/>

Natural Resources Canada

<http://www.nrcan.gc.ca/mining-materials/mining>

Marine Transportation North of the 55 parallel Study

Available on demand



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