Arctic shipping: Recent activity, future trends

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Presentation to Last Ice Area workshop

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OUTLINE

• Recent shipping activity
• Future trends (by sector)
• Potential concerns
• Planning for best shipping practices
ARKGIS: MAPPING THE CHANGING ARCTIC

Web-based mapping system

Combines maps of natural features …
  – Physical oceanography
  – Sea ice concentration
  – Marine mammals

... with development activities
  – Ship traffic
  – Oil & gas developments

Users can customize maps to meet their needs

Developed by WWF, available to everyone!

www.arkGIS.com
ARCTIC SHIPPING DENSITY, 2011

Legend
- CAFF definition of the Arctic
- Ship traffic density in 2011

Data Sources: Automatic System (AIS) data, provided by The Norwegian Coastal Administration / www.havbaso.no (2012) and further processed by DNV and WWF.
## VOYAGES BY CLASS (CANADA)

<table>
<thead>
<tr>
<th>Class</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishing</td>
<td>144</td>
</tr>
<tr>
<td>Cargo</td>
<td>38</td>
</tr>
<tr>
<td>Pleasure craft</td>
<td>34</td>
</tr>
<tr>
<td>Tugs/barges</td>
<td>33</td>
</tr>
<tr>
<td>Tankers</td>
<td>30</td>
</tr>
<tr>
<td>Bulkers</td>
<td>24</td>
</tr>
<tr>
<td>Government</td>
<td>20</td>
</tr>
<tr>
<td>Research vessels</td>
<td>11</td>
</tr>
<tr>
<td>Cruise ships</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>347</strong></td>
</tr>
</tbody>
</table>
# 2012/2011 Comparison

<table>
<thead>
<tr>
<th>Class</th>
<th>2011</th>
<th>2012</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishing</td>
<td>144</td>
<td>122</td>
<td>-15.3%</td>
</tr>
<tr>
<td>Cargo</td>
<td>38</td>
<td>33</td>
<td>-13.2%</td>
</tr>
<tr>
<td>Pleasure craft</td>
<td>34</td>
<td>53</td>
<td>+55.9%</td>
</tr>
<tr>
<td>Tugs/barges</td>
<td>33</td>
<td>35</td>
<td>+6.1%</td>
</tr>
<tr>
<td>Tankers</td>
<td>30</td>
<td>31</td>
<td>+3.3%</td>
</tr>
<tr>
<td>Bulkers</td>
<td>24</td>
<td>25</td>
<td>+4.2%</td>
</tr>
<tr>
<td>Government</td>
<td>20</td>
<td>28</td>
<td>+30.0%</td>
</tr>
<tr>
<td>Research vessels</td>
<td>11</td>
<td>24</td>
<td>+118.1%</td>
</tr>
<tr>
<td>Cruise ships</td>
<td>11</td>
<td>10</td>
<td>-9.1%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>1</td>
<td>-50.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>347</strong></td>
<td><strong>362</strong></td>
<td><strong>+4.3%</strong></td>
</tr>
</tbody>
</table>
FUTURE TRENDS

• Study carried out for WWF by Mariport Group Ltd
• Identify potential developments in the Canadian Arctic and the ship traffic to support those developments
• Projections to 2020 and 2030
• Based on publicly available information, e.g.:
  – Declared intentions from sectors
  – Industry analyses
  – Statistical projections
• Scope limited to Canadian Arctic
NORTHWEST PASSAGE TRANSIT

- Seasonal window via Peel Sound was 46 days in 2011
- Will not exceed 150 days in the foreseeable future
- Charting in NWP remains too poor to support deep draft transits
- Ice and other navigation hazards will continue to be a limiting factor, compounded by lack of search and rescue facilities
- Uncertainty of seasonal start and end dates shortens the effective season for business traffic
- NWP unlikely to be economic for most transit traffic, compared with Panama, Northern Sea Route or Trans-Polar Route
• No crude shipments from Cdn Arctic since 1996 (Bent Horn)
• 2010 Macondo blowout has generated new focus on safety requirements
• Seismic work is ongoing, but physical exploration in Cdn arctic now has an extended target range of 2019-21
• Full development would bring an armada of support ships
• However, development remains highly uncertain under current economic and regulatory conditions
MINING

- Currently 16-22 voyages serving Meadowbank and Raglan mines
- Also Red Dog in AK and Voisey’s Bay in Labrador
- Proposed Baffinland Mary River project:
  - 2013: 14 equipment delivery voyages, 2 bulk fuel deliveries
  - Early Revenue phase: 50-55 summer voyages through Milne Inlet and Eclipse Sound
  - Full development: 230-300 voyages annually through Foxe Basin and Hudson Strait
- Numerous other projects at various stages of development
- Overall, mining has the potential for the most dramatic increase in Canadian shipping
- Growth is heavily dependent on global commodity prices
TOURISM

Cruise ships
- 9 ships, 18 voyages anticipated in 2013
- Existing Arctic cruising fleet is small and old, with no new ships currently under development
- Modest increase due to aging fleet and limited infrastructure

Pleasure craft
- 300% increase since 2005
- Sharp increase likely to continue
WHEAT FROM CHURCHILL

- Recent traffic 20-25 voyages per year
- Demise of wheat marketing board doesn’t bode well for Churchill
- Ship traffic from Churchill expected to decrease in coming years
FISHING VESSELS TRAFFIC, 2011
FISHING

- Primary fisheries in Canadian Arctic in Baffin Bay/Davis Strait, turbot and northern shrimp
- High level of uncertainty for future trends
RE-SUPPLY IN NORTHERN COMMUNITIES

• 43 marine communities in Cdn Arctic
• Dry cargo demand largely determined by population; expected to increase modestly
• Petroleum product demand more closely correlated to economic strength, also expected to grow modestly
• Lack of port facilities inhibits expanded growth of sealift
GENERAL OBSERVATIONS

- Many uncertainties, especially in global economic outlook
- Shipping traffic *will* increase, but not as quickly or as dramatically as some have predicted
- Sea ice change is not the only or even the most important factor
- Conditions remain hazardous; port and search & rescue infrastructure inadequate; insurance costs high
- Primary driver is the global supply of and demand for commodities
- As demand increases, global supply also increases
  - Iron ore in Australia
  - Shale gas and oil in many regions

Shipping services economic development, but there are risks we should be aware of
IMPACTS ON PEOPLE

• Wildlife disturbed from nesting, haulout and feeding areas
• Risks of oil spills and pollution
• Personal safety of hunters
SUMMER SHIPPING AND CETACEANS
WINTER SHIPPING AND CETACEANS
MINIMIZING IMPACTS ON WILDLIFE

Routing
• Ship routes planned around spatial, seasonal or other measures to reduce conflicts

Noise
• Develop thresholds, initiate noise mapping and adopt mitigating measures (e.g. routing, speed, technology)
OTHER ENVIRONMENTAL IMPACTS

Invasive species
• Arctic-specific measures in the Ballast Water Management Convention

Pollutants
• Zero discharge legislation in Canada
• Apply Emissions Control Area limits on SOx, NOx and particulates (Black Carbon)
• Fit-for-purpose non-toxic anti-fouling systems
• Adequate pricing of carbon from marine traffic to reduce GHG emissions
SAFETY

Fit-For-Purpose vessels
• All ships entering Arctic are designed to appropriate Polar Class, by region and season

Heavy Fuel Oil discharges
• HFO carriage restrictions in sensitive waters
• Ship design (internal fuel tank placement)
• Avoid and eventually eliminate HFO use
SUSTAINABLE ARCTIC DEVELOPMENT

Monitoring
• Support for baseline assessment and monitoring
• Shipboard monitoring and reporting

Engagement in planning
• Strategic Environmental Assessment
• Marine Spatial Planning
• Cumulative impacts assessment
• Land Use Planning
THANK YOU
QUJANNAMIICK

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+100
WWF is in over 100 countries, on 5 continents

1961
WWF was founded in 1961

+5,000
WWF has over 5,000 staff worldwide

+5M
WWF has over 5 million supporters

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