

Use of the Northeast and Northwest  
Passages as Transit Routes:  
*Questions & Issues for Regime-Building  
in the Arctic*

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# Outline

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2. Change in the Arctic
3. Meaning of "Arctic"?
4. The passages
5. Regimes for international shipping in the Arctic
6. Conclusion

# 1. Purpose of presentation

- ▶ To identify some actual and potential questions, issues and challenges for international shipping through the Arctic.
- ▶ Northeast/Northwest Passages; principal focus on the Canadian Arctic (Northwest Passage + maritime zones in the Arctic Ocean).

## 2. Change in the Arctic

### ► Climatic & environmental:

- Change in the Arctic can be expected to increase (ACIA, 2004); RADARSAT-1 image of Canadian Arctic waters in September 2007 revealed that sea ice had melted to an extent not seen for probably a century (Environment Canada, 2007); similar reporting in 2008.
- Small ships could have navigated waters in the Northwest Passage; circa 100 vessels actually navigated the area (Environment Canada, 2007).

# Change ...

- ▶ Ocean uses in the Arctic generally:
  - Indigenous subsistence uses.
  - Increasing interest in the development of resources, requiring shipping support.
  - Growing tourism (cruise shipping, eco-tourism).
  - New distant fishing opportunities likely to emerge.
  - Scientific research.
  - Increasing domestic & international commercial shipping:
    - ▶ Polar class vessels on order;
    - ▶ Non-polar class vessels also navigating in the region;
    - ▶ Shortage of seafarers with ice-navigation experience to crew these ships).

# Change ...

## ▶ Jurisdictional:

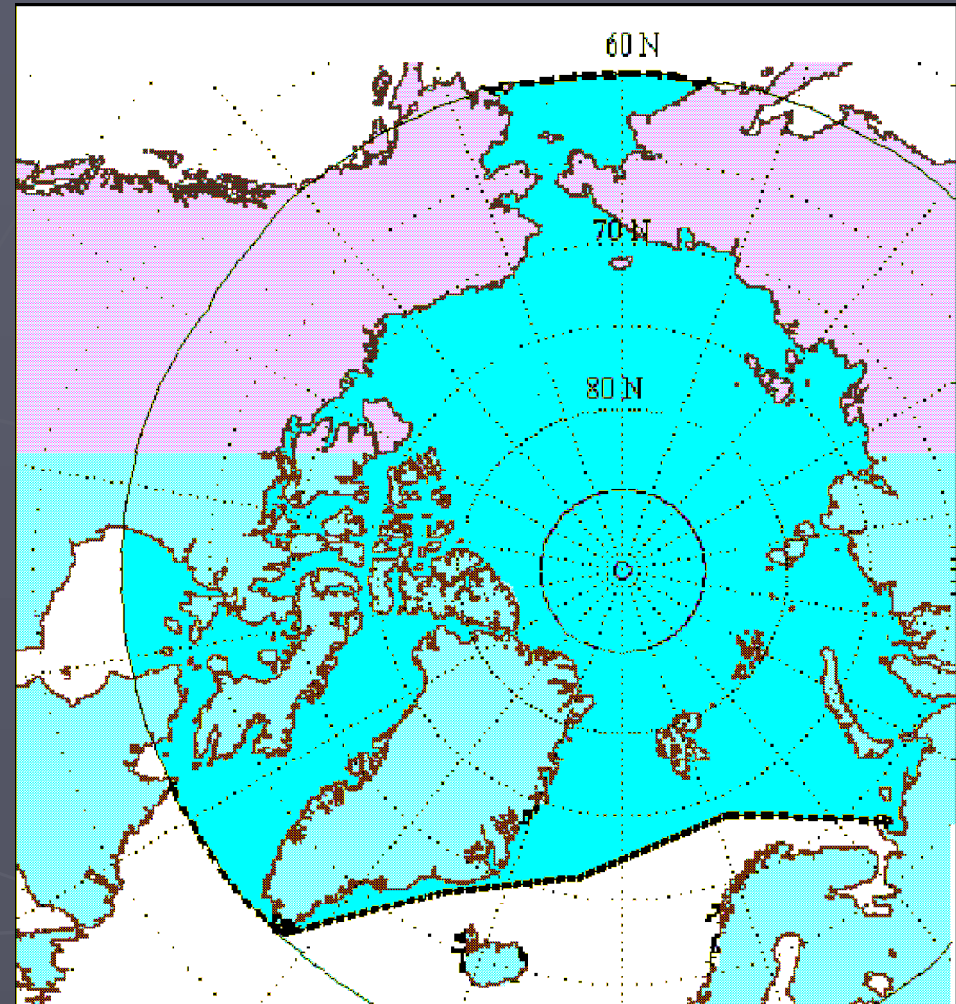
- Arctic Ocean states are acting upon their extended continental shelf interests in the region:
  - ▶ Russian Federation & Norway have already made submissions to the Commission on the Limits of the Continental Shelf (CLCS).
  - ▶ Canada will make a submission to CLCS in 2013 and Denmark (Greenland) by 2014.
  - ▶ United States, although not a party to UNCLOS, is considering its seabed interests in the region.
- International Seabed Area?
- EEZ and extended continental shelf boundaries to be delimited.
- Relevance of territorial sea and EEZ boundaries for shipping regulation.

# 3. Meaning of "Arctic"?

- ▶ Meaning of "Arctic" – various meanings, e.g.:
  - 10° centigrade (July) isotherm.
  - IMO Guidelines for Ships Operating in Arctic Ice-Covered Waters, 2002 (IMO Arctic Guidelines), currently being amended.
  - Arctic Circle (areas North of 60° latitude), eight Arctic states: Canada, Denmark/Greenland, Finland, Iceland, Norway, Russian Federation, Sweden, United States.
    - ▶ Finland and Sweden's coastal frontage is in the Baltic.
    - ▶ Iceland fronts the Norwegian Sea.
  - Arctic Ocean (as a semi-enclosed sea), bordered by five coastal states: Canada, Denmark/Greenland, Norway, Russian Federation, United States).



Source: World Factbook



Source: IMO Arctic Guidelines, 2002



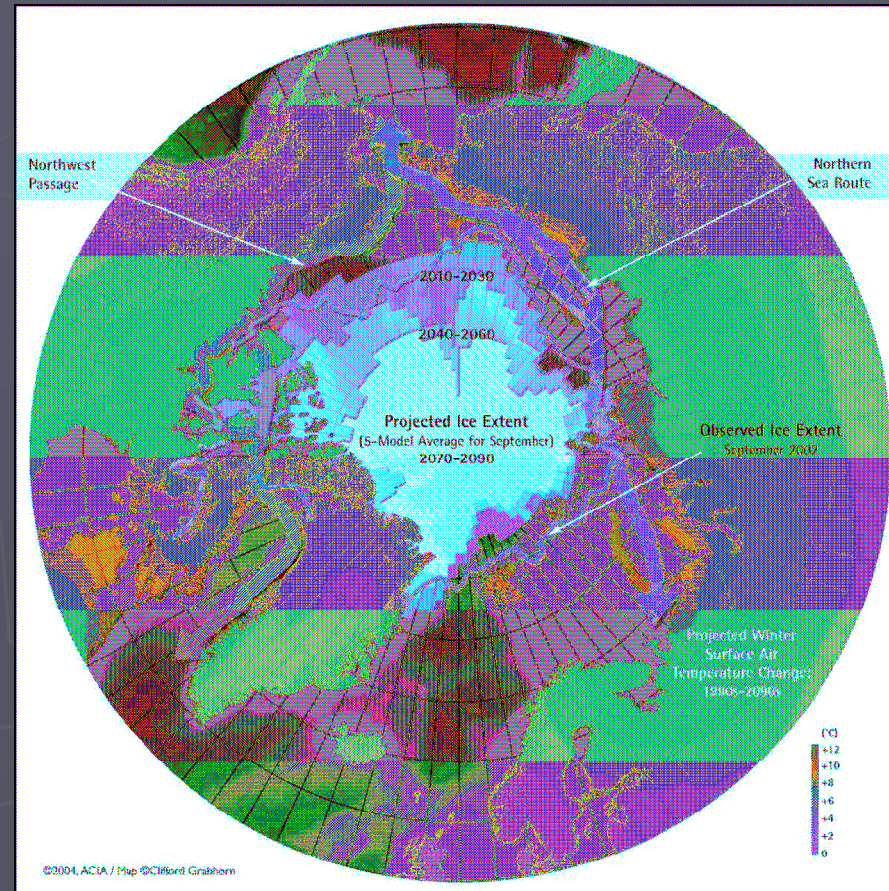
# Meaning ...

- "Arctic waters": includes waters enclosed by straight baselines delineating outer limits of coastal archipelagoes of Canada & Russian Federation and considered "internal" waters by them.
  - ▶ Some states have protested.
  - ▶ Canada: waters north of 60° latitude; 100M limit from straight baselines (to be increased to 200M).
- Subseas: Barents Sea, Bering Sea, Beaufort Sea, Greenland Sea, Kara Sea, Labrador Sea, Laptev Sea, Norwegian Sea, Siberian Sea.

# 4. The Passages

Potential  
Navigation  
Routes in the  
Arctic

Source: Arctic  
Council,  
2006



# Northern Sea Route

- ▶ A navigation route through the Russian Arctic:
  - Linking northern Europe and East Asia.
  - 4,800 miles shorter than the Suez Canal route (Hamburg-Yokohama)(INSROP, 1999).
  - "... the technological and environmental challenges of the NSR 'are **no longer absolute obstacles to commercial shipping** (even in winter time [with icebreaker assistance]), and that the route has a considerable commercial potential, which however is dependent on Russia's ability to accommodate the needs and requirements of international shipping'" (Østreng, 2006; also: INSROP, 1999; Ragner, 2000).

# Northwest Passage

- ▶ A navigation route mostly through the Canadian Arctic, linking Europe and Asia (Wilson et al., 2004):
  - Package of routes through Canadian maritime zones (especially internal waters of the Canadian Arctic archipelago), and also the Beaufort Sea to the west and Baffin Bay, Davis Strait and Labrador Sea to the east.
  - Mostly summer navigation.
  - 9,000 km shorter than the Panama Canal route.
  - 17,000 km shorter than the Cape Horn route.
- ▶ “Climate change has reduced the extent and thickness of sea ice in the Arctic, making **international shipping** in the Northwest Passage **a virtual certainty in the foreseeable future**” (Pharand, 2007).

# Hazards of Arctic navigation

- ▶ Despite the rate of sea-ice loss, navigation through the Arctic remains and is likely to remain hazardous:
  - Likely mostly seasonal if without icebreaker assistance (polar class ships? Higher classes?).
  - Passage is not necessarily ice free: likely ice-cover, including presence of multi-year ice and packing.
  - Poor weather; reduced visibility (fog); variable light conditions.
  - Ice-build-up due to freezing of rain, sea spray, snow.
  - Bathymetry is not up to date; lack of up-to-date charts; better charting in Russian waters.
  - Remote areas: little infrastructure to support ships in transit (e.g., navigation aids, ports & repair facilities, search and rescue, salvage, pollution response); better support for navigation in Russian waters.

# 5. Regimes for international shipping in the Arctic

- ▶ International shipping in ice-covered areas is expected to comply with:
  - (1) International safety, environmental & security standards adopted through the IMO: mandatory & non-mandatory.
  - (2) National environmental standards and requirements enacted by Arctic states under UNCLOS Article 234 and other provisions (e.g., Canada & Russian Federation): mandatory & non-mandatory:
    - ▶ Environmental regulations pursuant to 234;
    - ▶ Safety under 234? Necessity to consider environmental & safety regulations together.
  - Class/industry standards (i.e., IACS Unified Requirements).

# International:

## Construction, equipping & training standards

### ▶ IMO Arctic Guidelines:

- Voluntary: should they become mandatory SOLAS requirements?
- Need for mandatory training standards for Arctic seafaring (including survival skills); ILO, IMO & IHO have no polar specific binding instruments; brief reference in the IMO Arctic Guidelines; an STCW matter?
- Thin/weak provisions on training for ice-navigators (e.g., no prior requirement of ice-navigation experience for certification of ice navigators); limited advice on how to avoid ice-build-up (Jensen, 2008).
- Are dedicated construction standards needed for certain types of ships, e.g., cruise ships & LNGs? Adequacy of existing standards (e.g., life saving equipment).

### ▶ IACS Unified Requirements.

# Operations

- ▶ Collision Avoidance Regulations (COLREGS):
  - Do not contain rules specific to navigation in ice-covered areas; closest refers to a ship constrained in its ability to manoeuvre and a brief reference in safe speed (Reg. 6).
  - Drawn up with open waters, not ice navigation in mind.
  - Ice navigation is not necessarily linear.
  - Action to avoid a collision during ice navigation?



# Pollution prevention: Arctic Ocean coastal states & vessel source pollution conventions

Arctic Ocean Coastal States	MARPOL 73/78					OPRC 1990	OPRC/HNS 2000	Anti-fouling 2001	Ballast Water 2004	Wreck Removal 2007
	Annex I/II	Annex III	Annex IV	Annex V	Protocol 1997 (Annex VI)					
Canada	✓	✓				✓				
Denmark	✓	✓	✓	✓	✓	✓		✓		
Norway	✓	✓	✓	✓	✓	✓		✓	✓	
Russian Federation	✓	✓	✓	✓						
U.S.A.	✓	✓		✓		✓				

# Pollution prevention ...

## ▶ MARPOL:

### ■ Oil (Annex I):

- ▶ Minimal oily water discharge permitted, not to exceed  $1/15k$  (old tankers; cargo-carrying capacity) +  $1/30k$  (new tankers; total cargo carried) + max. 30 litre per M + 50M from the nearest land.
- ▶ Canada & Russian Federation: "0" discharge.
- ▶ Should use of heavy grade oils (HGOs) as fuel be banned?

### ■ Sewage (Annex IV):

- ▶ Unless comminuted/disinfected, may be discharged 12M from the nearest land + proceeding at 4 knots.
- ▶ If ship is ice-breaking or following an ice-breaker, speed may be less than 4 knots + discharge at a moderate rate.
- ▶ Canada: permits discharge without regard to distance from land.

# MARPOL continued:

- ▶ Garbage (Annex V):
  - Plastics: prohibited.
  - Packing materials: may be discharged 25M offshore.
  - Paper, glass, rags, metal: 12M from the nearest land.
- ▶ Canada: no discharge of garbage at sea.

# MARPOL: continued

## ▶ General:

- Potential issue with discharge “from nearest land” where there is extensive ice-cover?
  - ▶ Pack ice: analogous to land?
  - ▶ Discharges in ice-infested areas: lower dissipation rate?
- Special area designation for the Arctic under Annexes I, II & V?:
  - ▶ Theoretically, even a few ships could pose a threat to the fragile Arctic environment; small discharge can cause significant damage (AMAP, 2007).
  - ▶ General waste management concerns in the Arctic: necessity to maximize waste use on-board (INSROP, 1999).
  - ▶ Few ports in the region = issue with reception facilities; facilities must have capacity to ensure there is no undue delay!
  - ▶ Reception facilities variable, possibly unlikely to meet all MARPOL requirements at this time; need for harmonization (DNV/PAME, 2006).

# Salvage & pollution response

- ▶ Salvage Convention, 1989 & IMO Guidelines on Places of Refuge for Ships in Need of Assistance, 2003:
  - Little commercial salvage experience in the Arctic.
  - Article 234 regulation places additional constraints for salvors?
    - ▶ “The salvor should ensure that the salvage plan and actions represent the best environmental option for the Company and the coastal State(s) concerned” (IMO Guidelines on the Control of Ships in an Emergency, 2007).
    - ▶ Difficulty of designating places of refuge in the Arctic.
- ▶ OPRC:
  - At this time, little or no capacity for effective removal of oil from ice-infested areas.
  - OPRC requires stockpiling, holding exercises and detailed planning; remoteness & necessity of regional cooperation (e.g., Canada-US: CANUSNORTH).
  - Importance of regional + bilateral approach to OPRC.
- ▶ Search & rescue:
  - Importance of regional + bilateral SAR cooperation.

# National

## UNCLOS Article 234

### *Ice-covered areas*

- ▶ Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.

## Potential “layering” of regulatory regimes setting shipping standards in the Arctic

Maritime zone	Navigation Regime	Coastal state	Flag state	International (IMO)	Regulatory consequence
Internal waters (sovereignty)	No right to navigate or enter into port (exceptions: treaty applies; areas that were formerly high seas now enclosed as internal waters; places of refuge)	x	x		National regulation  Application of international standards at the discretion of coastal state
Territorial sea (12M) (sovereignty)	Right of innocent passage in general areas of the TS	x	x	x	National laws & regulations
	Right of transit passage in international straits within the TS				International standards apply
EEZ (200M)  Sovereign rights + jurisdictions	Freedom of navigation, subject to EEZ regime & Article 234 regulation	x	x	x	National regulation applies  International standards apply
Extended continental shelf (i.e., outside 200M)/high seas	Freedom of navigation (high seas)		x	x	International standards apply
International Seabed Area/ high seas	Freedom of navigation (high seas)		x	x	International standards apply

# Nature of Article 234 and constraints on national shipping regulation

- ▶ Negotiated mostly between Canada, Russian Federation (USSR at the time) and the US during UNCLOS III.
- ▶ A *lex specialis* giving additional powers to coastal states in marine regions with ice-covered waters not enjoyed by coastal states of other marine regions.
- ▶ Higher standards can be adopted and would apply in addition to IMO regulation.



# Canadian reservation to MARPOL

- ▶ (a) The Government of Canada considers that it has the right in accordance with international law to adopt and enforce special non-discrimination laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered waters where particularly severe climatic conditions and the presence of ice covering such waters for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance.
- ▶ (b) Consequently, Canada considers that its accession to the Protocol of 1978, as amended, relating to the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL 73/78) is without prejudice to such Canadian laws and regulations as are now or may in the future be established in respect of arctic waters within or adjacent to Canada (IMO, 2005).

# Conditions for the exercise of Article 234 powers

- ▶ Hazards to navigation:
  - Severe climatic conditions and ice cover for most of the year create obstructions/hazards (IMO Arctic Guidelines: at least 9/10s cover?).
  - Irreversible damage could be caused to the environment.
- ▶ Jurisdictional area:
  - Within the limits of the exclusive economic zone (includes the territorial sea?).
- ▶ Nature of laws and regulations:
  - Non-discriminatory.
  - Due regard to navigation.
  - No requirement to go through the IMO.
- ▶ Purpose of domestic regulation:
  - For the prevention, reduction & control of pollution.
- ▶ Basis:
  - Best scientific evidence (i.e., must be justified!).

# Vessel-source pollution regulation in Canada

- ▶ General environment & resource conservation:
  - Canadian Environment Protection Act & regulations
  - Fisheries Act
  - Migratory Birds Convention Act
  - Other marine conservation legislation
- ▶ Shipping:
  - Navigable Waters Protection Act
  - Canada Shipping Act 2001 & regulations
  - Arctic Waters Pollution Prevention Act, 1970 & regulations:
    - ▶ Currently applies only to 100M; will be amended to 200M.
    - ▶ Some divergence from MARPOL; at this time, MARPOL applies to areas outside 100M; reservation to MARPOL.
    - ▶ Canada a party to only Annexes I-III.

# Regional:

## Role of the Arctic Council

- ▶ Adoption of the Arctic Environmental Protection Strategy in 1991 following the Rovaniemi meeting of eight Arctic states: Canada, Denmark (Greenland), Finland, Iceland, Norway, Russian Federation, Sweden, United States.
- ▶ Arctic Council established in 1996 by a Declaration of the Arctic states.

# Work of the Arctic Council

- ▶ Arctic Environmental Protection Strategy, 1991.
- ▶ Arctic Council established in 1996.
- ▶ Arctic Climate Impact Assessment, 2004.
- ▶ Protection of the Arctic Marine Environment (PAME):
  - Arctic Marine Strategic Plan (employing an ecosystem approach).
  - Arctic Marine Shipping Assessment, 2005-2008 (led by Canada, Finland, US) – final report in preparation.

# Lead by Arctic Ocean States?

- ▶ Ilulissat (Greenland) Declaration, 28 May 2008 of Arctic Ocean Ministers from Canada, Denmark (Greenland), Norway, Russian Federation, United States:
  - **No need to develop a new comprehensive international legal regime** for the Arctic Ocean.
  - Five states will undertake responsible management through the **existing law of the sea framework**.
  - Arctic Ocean states' intention **to continue working together, including through the IMO**, to strengthen existing measures and develop new safety measures to prevent/reduce vessel source pollution.
- ▶ Interests of non-regional actors? (e.g., the European Commission/DG MARE is developing an Arctic policy that will state EU interests in the region, in furtherance of the Blue Book).

# Conclusion

## ► Issues:

- The Arctic marine environment & peoples of the North need a higher degree of protection than the norm.
- Importance of harmonized safety and environmental standards for international shipping.
- Arctic States are not always parties to all relevant conventions/ annexes.
- Is there a hierarchy of regime application?
- What standards should be mandatory? Non-mandatory?
- Is a port state control regime (MOU type) for the Arctic conceivable? What standards would be applied?
- Sufficient numbers of competent seafarers; need to reconsider “competence” in relation to Arctic seafaring?

# Conclusion ...

- ▶ Complexity of multiple regime layers for Arctic shipping:
  - Likely a combination/convergence of IMO standards, Arctic Council-facilitated bilateral & multilateral arrangements, and national regulatory regimes under UNCLOS Article 234.
  - The need to consider the application of the international maritime conventions in the Arctic from an integrated perspective.
- ▶ Key “presence” and role of Arctic coastal states:
  - Infrastructural support & regulatory/overseeing roles.



The background is a dark blue-grey color with a subtle pattern of light grey topographic contour lines. In the lower-left corner, there is a faint, semi-transparent illustration of a compass rose with a needle pointing towards the top-left. The compass rose includes directional markers for North (N), East (E), South (S), and West (W), along with a dollar sign (\$) and a small 'M' symbol.

**Thank you!**

**Vielen dank!**

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