International Regulation of Arctic Shipping
– *Polar Code and Further Development*

Climate Change and Law of the Sea
*Adapting the Law of the Sea to Address the Challenges of Climate Change*

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https://www.state.gov/e/oes/ocns/opa/arc/uschair/258202.htm
I. Shipping in the Arctic Ocean
   - Impacts of Climate Change
   - Challenges and Impacts of Shipping Activities

II. Regulation of Arctic Shipping
   - Article 234 and National Regulations
   - IMO & Polar Code

III. Further Development of the Polar Code
   - Implementation
   - Phase Two of Polar Code
I. Shipping in the Arctic: **Background**

**Changing of Ice Coverage**
- Sea ice extent continues to decrease
- Disappearance of multiyear sea ice
- Floating icebergs, ice islands, bergy bits and growlers
I. Shipping in the Arctic: *Marine Activities*

- **Marine Activities:**
  - Shipping
  - Offshore exploitation
  - Marine tourism
  - Research
  - Fishing
  - Recreational activities

- **Shipping Routes:**
  - Northwest Passage
  - Northern Sea Route
  - Transpolar Sea Route
I. Shipping in the Arctic: **Challenges & Impacts**

**Arctic Shipping Accidents 1995-2004**

**Challenges for Arctic Shipping:**
- Natural hazards
- Lack of facilities
- Lack of accurate data and mapping
- Lack of experience in polar operations

**Impacts on Arctic Environment:**
- Potential pollution from oil and other hazardous substances
- Sewage and garbage
- Invasive species
- Underwater noise
- Airborne emissions
I. Shipping in the Arctic: NSR

Symbols:

- Sea transport corridors
- Railways
- Railways to be constructed
- River shipping lines
- Area of the formation of cargo
- Sources for the Northern Sea Route

Characteristics of transport corridors:

<table>
<thead>
<tr>
<th>Corridor by 2010</th>
<th>Length (miles)</th>
<th>Volume of transportation (in tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Sea Route</td>
<td>2500</td>
<td>7-10</td>
</tr>
<tr>
<td>Barents-Euroarctic Corridor</td>
<td>2100</td>
<td>20-25</td>
</tr>
<tr>
<td>Asia-Pacific Corridor</td>
<td>4020</td>
<td>5-10</td>
</tr>
</tbody>
</table>

Shortening of the distance when using the NSR (miles):

<table>
<thead>
<tr>
<th>Port of destination</th>
<th>Delivery via</th>
<th>Port of</th>
<th>Murmansk</th>
<th>Rotterdam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yokohama (Japan)</td>
<td>Suez Canal NSR Difference (%)</td>
<td>12840</td>
<td>5767</td>
<td>7071 (56%)</td>
</tr>
<tr>
<td>Shanghai (China)</td>
<td>Suez Canal NSR Difference (%)</td>
<td>11999</td>
<td>6501</td>
<td>5499 (46%)</td>
</tr>
<tr>
<td>Vancouver (Canada)</td>
<td>Panama Canal NSR Difference (%)</td>
<td>9710</td>
<td>5466</td>
<td>4304 (44%)</td>
</tr>
</tbody>
</table>
I. Shipping in the Arctic: *Shipping in NSR*

<table>
<thead>
<tr>
<th>Vessels transited NSR (full transits)</th>
<th>2016</th>
<th>2015</th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Cargo/Bulk Carrier</td>
<td>8</td>
<td>4</td>
<td>16</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Oil/Chemical Tanker</td>
<td>0</td>
<td>2</td>
<td>27</td>
<td>32</td>
<td>26</td>
</tr>
<tr>
<td>Passengers Ship</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Icebreaker/Research</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Tug/Trawler/Supply</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Salvage/Rescue Vessel</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>18</td>
<td>53(23)</td>
<td>71(37)</td>
<td>46(27)</td>
</tr>
</tbody>
</table>

- NSR extends for about 3000 miles, actual length varies
- Historically developed for Russian national transport communication
- Annual and seasonal variability of ice conditions is typical for all areas of NSR
- Navigation season for transit passages is approximately between early July and late November
II. Regulation of Arctic Shipping: **UNCLOS**

  - Basis for establishing maritime zones
  - Basis for asserting rights and obligation
  - Rule of reference to international rules/standards

- **2008 Ilulissat Declaration** *(Five Arctic coastal States)*
  - Committed to the legal framework as established by UNCLOS
  - Intended to work together including through the IMO to strengthen existing measures and develop new measures to improve the safety of maritime navigation and prevent or reduce the risk of ship-based pollution in the Arctic Ocean.
II. Regulation of Arctic Shipping: Jurisdiction

- **Flag State**
  - Exercise effective jurisdiction and control
  - Adopt laws and regulations that *at least have the same effect* as that of generally accepted international rules and standards

- **Coastal State**
  - Limited jurisdiction when the foreign ship is within TS/Straits/Archipelagic Waters/EEZ
  - Adopt pollution laws and regulations in the EEZ *conforming to and giving effect to* generally accepted international rules and standards

- **Port State**
  - Extraterritorial jurisdiction over violation of applicable international rules and standards upon request or when affected
  - Port State Control regime as established by treaties
## II. Regulation of Arctic Shipping: Coastal Jurisdiction

<table>
<thead>
<tr>
<th></th>
<th>Passage Regime</th>
<th>Coastal State Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Territorial Sea</strong></td>
<td>Innocent Passage</td>
<td><strong>Safety</strong>: no CDEM standard higher than int’l rules and standards</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Pollution</strong>: in conformity with the provisions of UNCLOS and other rules of international law</td>
</tr>
<tr>
<td><strong>Straits used for International Navigation</strong></td>
<td>Transit Passage</td>
<td><strong>Safety</strong>: designate sea lanes and TSS upon approval of IMO</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Pollution</strong>: giving effect to applicable int’l regulations regarding the discharge of oil, oily wastes and other noxious substances</td>
</tr>
<tr>
<td><strong>Archipelagic Waters</strong></td>
<td>Archipelagic Sea-lane Passage</td>
<td><strong>Ibid</strong></td>
</tr>
<tr>
<td><strong>Exclusive Economic Zone</strong></td>
<td>Freedom of Navigation</td>
<td><strong>Pollution</strong>: conforming to and giving effect to generally accepted int’l rules and standards</td>
</tr>
</tbody>
</table>
II. Regulation of Arctic Shipping: 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.
II. Regulation of Arctic Shipping: *National Laws*

- **Special Rules under Canadian & Russian’ Laws based on Article 234**
  - Mandatory ship reporting system
  - Permit for transiting
  - Special services reserved for nationals

- **Limitations of National Laws**
  - Some regulations are challenged by other States
  - Lack of consistency among different States
  - Lack of transparency for decision making
  - Applicable only within waters under State’s jurisdiction

- Is Article 234 still applicable against the impacts of CC?
II. Regulation of Arctic Shipping: *International Rules*

**Rule of Reference**

- States, acting through the **competent international organization** or general diplomatic conference, shall establish **international rules and standards** to prevent, reduce and control pollution of the marine environment from vessels.

- International rules and standards are the **minimum** requirements for flag State jurisdiction, and are the **maximum** requirements for coastal State jurisdiction.

**The International Maritime Organization**

- United Nations Specialized Agency

- Responsible for the safety and security of shipping and the prevention of marine pollution by ships.
II. Regulation of Arctic Shipping: *International Rules*

- UNCLOS Articles 22(3)(a), 41(4)&(5), 53(9), 60(3)&(5), 211(1)-
  (3)&(5)&(6)(a), 217(1)(4)&(7), 218(1), 220(7), 223, and 297(1)(c)
  refer to “Competent International Organization” – *maritime safety
  and efficiency of navigation*;

- Articles 197-202, 204-205, 207(4), 208(5), 210(4), 212(3), 213-214,
  216(1), 222, and 262, “Competent International Organizations” –
  *prevention and control of marine pollution*;

- UNCLOS Articles 21(2)&(4), 39(2), 41(3), 53(8), 60(3)&(5)-(6),
  94(4)(c)&(5), 211(2)&(5)&(6)(c), and 216(1)(a) refer to “*Generally
  Accepted International Rules, Standards, Regulations*” – technical
  matters relating to shipping: Design, construction, manning or
  equipment; safety of navigation and prevention of collisions at sea;
  prevention, reduction and control of pollution from ships;
II. Regulation of Arctic Shipping: *IMO Major Conventions*

- **SOLAS** - International Convention on Safety of Life at Sea, 1974, as amended – (163 Parties, 99.14 % of gross tonnage of the world's merchant fleet)

- **MARPOL** - International Convention for the Prevention of Pollution from Ships 1973, as modified by the 1978 Protocol, as amended – (156 Parties, 99.42 %)

- **STCW** - Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended – (162 Parties, 99.18 %)

- **Tacit Acceptance Procedure** - an amendment shall enter into force at a particular time unless before that date, objections to the amendment are received from a specified number of Parties.
II. Regulation of Arctic Shipping: *Early Development*

- 1993: IMO Polar Code Outside Working Group established
- 1998: Working Group Draft Polar Code sent to IMO
- 2002: IMO Guidelines for Ship’s Operating in Arctic Ice-covered Waters (V)
- 2004-2009: Arctic Council’s AMSA Report; Arctic States call for mandatory application of the 2002 Guidelines and augmentation of the IMO Conventions for ships operating in polar waters
- 2006-2008: International Association of Classification Societies (IACS) Unified Requirements for Polar Class Ships adopted
- 2009: IMO Guidelines for Ships Operating in Polar Waters (V)
- 2010: IMO Working Group on mandatory polar ship requirements established
- 2014-2015: IMO Polar Code & SOLAS/MARPOL amendments adopted (M)
- 2016 – IMO STCW amendments adopted (M)
II. Regulation of Arctic Shipping: *Polar Code Scope*

**Areas north of 60°N**

Slight deviations to include the entire southern exposure of Greenland while excluding Iceland and the Norwegian coastline.

Intend to balance vessel traffic, ice cover, safety considerations, and environmental ecosystems.
II. Regulation of Arctic Shipping: Polar Code Application

- Ships subject to SOLAS/MARPOL operating within Arctic waters
  - Minimum of 500 GT for cargo ships under SOLAS
  - Engaged in international voyages
  - New ships constructed after 1 January 2017
  - Ships constructed before 1 Jan 2017 will be required to meet the relevant requirements of the Polar Code by the first intermediate or renewal survey, whichever occurs first, after 1 Jan 2018 (with specified exemptions)

- Holistic, goal-oriented, and risk-based
  - Part I Safety Measures (Part I-A Mandatory, Part I-B Recommendatory)
  - Part II Pollution Prevention (Part II-A Mandatory, Part II-B Recommendatory)
  - Training & Qualification – STCW Convention and STCW Code
II. Regulation of Arctic Shipping: Polar Code Elements

- **Safety Rules – SOLAS Amendments:**
  - Polar Ship’s Structural & Equipment Standards (Ice Classes: PC1/ PC7)
  - Marine Safety and Lifesaving Equipment
  - Training & Experience of Polar Mariners
  - Polar Ship Certificate (Flag State ~ Ship Classes A,B,C)
  - Polar Waters Operations Manual (Ship Specific)

- **Environmental Rules – MARPOL Annexes:**
  - Annex I – Oil & Oily Mixtures (No Discharge)
  - Annex II – Noxious Liquid Substances (No Discharge)
  - Annex IV – Sewage
  - Annex V – Food Waste/Garbage

- **Training & Qualification – STCW Convention and STCW Code**
  - Polar Code related special training requirements and passenger ship-specific training and certification
II. Regulation of Arctic Shipping: Relationship

**UNCLOS Article 237 & 311**
- Without prejudice to the specific obligations assumed under special conventions
- Shall not alter the rights and obligations of states which arise from other agreements compatible with UNCLOS

**SOLAS Chapter 14 Regulation 2(5)**
- Nothing in this chapter shall prejudice the rights or obligations of States under international law.

**MARPOL Article 9(2) / STCW Article 5(4)**
- Nothing in the present Convention shall prejudice … the present or future claims and legal views of any State concerning the law of the sea and the nature and extent of coastal and flag State jurisdiction.
III. Further Development of the Polar Code: Implementation

- Enforcement Jurisdiction Shared Among Flag, Coastal and Port States
  - Flag State has the primary obligation to ensure that ships flying its flag comply with the Polar Code

- Port State Control Regime
  - No more favourable treatment for non-parties (MARPOL Art 5(4), SOLAS Art 1(3), STCW Art X(5))
  - Regional MoUs

- IMO Member State Audit Scheme
  - Mandatory for SOLAS/MARPOL/STCW
  - Provide comprehensive and objective assessment of how effectively States administers and implements those instruments
III. Further Development of the Polar Code: *Phase Two*

1) Risk assessment of operational capabilities and limitations in ice
2) Additional performance and test standards for the equipment and systems on board ships
3) Extending application scope to non-SOLAS vessels and vessels engaged in domestic voyages
4) Address issues such as underwater noise and ship strikes
5) Ships routeing measures and ship reporting systems
6) Designate special protected areas
7) Adopt polar-specific rules on the use of antifouling paints and ballast water management practice
8) Ban the use and carriage of heavy fuel oil
III. Further Development of the Polar Code: HFO Definition

- **Heavy Fuel Oil** referring to oil with characteristics as specified in MEPC.189(60)
  
  1. crude oils having a density at 15°C higher than 900 kg/m³;
  
  2. oils, other than crude oils, having a density at 15°C higher than 900 kg/m³ or a kinematic viscosity at 50°C higher than 180 mm²/s; or
  
  3. bitumen, tar and their emulsions,
III. Further Development of the Polar Code: *HFO Impacts*

- Oil cause adverse effects on the marine environment, destroy all aspects of the environmental integrity of the marine ecosystems including fisheries, marine mammals, corals, ocean and shore birds, and the coastal wildlife and thus lead to changes in e.g. behaviour (feeding, activity and motility, avoidance reactions etc.), growth, and reproduction.

- Arctic conditions such as extreme temperatures and sea ice formation and movement amplify the impact of oil; Residue from oil spills in the Arctic Ocean may remain for at least 50 years.

- HFO remains on the water’s surface longer with little to no evaporation or dissolution; it emulsifies with water that increase in the volume of oil spill;
III. Further Development of the Polar Code: HFO at IMO

- MEPC 71 (2017), the Committee agreed to include a new output on ‘Development of measures to reduce risks of use and carriage of heavy fuel oil (HFO) as fuel by ships in Arctic waters’ and invited concrete proposals to MEPC 72 (2018) on what type of measures should be developed.

- Proposals from States:
  - Finland, Germany, Iceland, the Netherlands, New Zealand, Norway, Sweden and the US seeking to ban HFO use and carriage as fuel by ships in Arctic waters.
  - Russia proposed to consider measures including navigation measures, operation of ships, infrastructure and communication, emergency preparedness and training.
  - Canada and Marshall Islands recommended for the PPR Sub-Committee to consider the economic and other impacts to Arctic communities associated with the restriction or phase out of heavy fuel in Arctic waters.
IV. Conclusions

• Shipping activities in the Arctic Ocean is increasing due to the impacts of climate change
• UNCLOS provides the legal basis for maritime zones and States’ jurisdiction over Arctic Shipping
• Further clarification of Article 234 is needed
• IMO instruments assist the implementation of States’ rights and obligations with respect to Arctic Shipping
• Polar Code is a living document and will be reviewed, amended and updated to reflect changing considerations
THANK YOU

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