Navigating the Operational & Permitting Requirements for Shipping in the Canadian Arctic: A Visualization Tool

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Introduction

The PASSAGES Project

*Protection & Advanced Surveillance System for the Arctic: Green, Efficient, Secure*

Purpose:
Improve monitoring and risk analysis of vessel traffic in the Canadian Arctic

Airbus Defence & Space, Fraunhofer FKIE, exactEarth Ltd., Dalhousie University

• Observations:
  ◦ The regulations can be fragmented and confusing
  ◦ The jurisdictions and authorities are not always clear
  ◦ There is not an overview of the regulations and stakeholders

• Goal: Create a database of the stakeholders and legal aspects
Also pursuant to the AWPPA, the Navigation Safety Regulations addresses aspects of navigational safety, including equipment, personnel training, and emergency procedures. CEPA provides regulations to prevent pollution and protect the environment and human life and health from the risks associated with human activities. The COLREGs provide navigational rules to prevent collisions between two or more vessels at sea. The Guide for Cold Water Survival provides seafarers with information that will help an individual if they fall into or purposefully enter cold water. The Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic aims to strengthen aeronautical and maritime search and rescue services, hazards, and navigation techniques in ice. The Unified Requirements outline the structural and machinery requirements of the different Polar Class Ships. OPRC provides a global framework for international cooperation in combating major incidents of threats of marine pollution from land-based activities. CEPA provides regulations to prevent pollution and protect the environment and human life and health from the risks associated with human activities.
The Databases

### Stakeholders

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Stakeholders Included in the Map</th>
<th>Role</th>
<th>Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aboriginal Affairs and Northern Development Canada</td>
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<td></td>
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<tr>
<td>Arctic Council</td>
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<tr>
<td>Safety/Insurance</td>
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<td></td>
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<tr>
<td>Canadian Northern Economic Development Agency (CanNor)</td>
<td></td>
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<td></td>
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<tr>
<td>Coal/Transport-sector</td>
<td></td>
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</tr>
</tbody>
</table>

### Legal Aspects

<table>
<thead>
<tr>
<th>International Oil spills (ILOS)</th>
<th>Ballast Water (ILOS)</th>
<th>Arctic Code</th>
<th>Load Lines</th>
<th>Intact Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>International shipping industry</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Safety/insurance</td>
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<tr>
<td>Canadian Northern Economic Dev.</td>
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</table>

**Goal:** Create user-friendly tools
The Visualization Tools

Platform: d3.js
A Specialized Tool

Canadian Marine Advisory Council - Prairie & Northern Region Meeting
May 2015, Iqaluit NU

• Observations:
  ◦ Communication between and knowledge of other stakeholders is not ideal
  ◦ No single open-access pool of information on the stakeholders, interactions, and legal aspects

• Goal: Produce an open-access visualization tool that is interactive and user-friendly

• Methods:
  ◦ Advance the stakeholder database
  ◦ Develop a visualization tool

passages.ie.dal.ca/Stakeholders_analysis.html
The Visualization Tool for Navigating Domestic Shipping in the Canadian Arctic
Applications

- **Industry:**
  - Facilitate in-house training
  - Best practices within the industry

- **Public:**
  - Knowledge mobilization

- **Research applications:**
  - Framework for working with other industries (e.g., cruise)
    - Comparisons / best practices shared between industries
    - Opportunity for collaboration and crowd-sourcing

- **Governance:**
  - Create and strengthen interactions
Thank you

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Links

PASSAGES website:
http://passages.ie.dal.ca

Legal aspects visualization tool:
https://jsfiddle.net/xhxe97vh/51/embedded/result/

Stakeholder visualization tool:
http://passages.ie.dal.ca/Stakeholders_Wheel.html

Specialized visualization tool:
http://passages.ie.dal.ca/Stakeholders_analysis.html

Stakeholder database:
http://passages.ie.dal.ca/Appendix/Appendix_1.pdf