

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

The Databases

STAKEHOLDERS

Stakeholder Group	Stakeholders Included in Group	SCALE			INTERESTS			
		International	National	Local	Climate & Environment	Economics	Safety, Security & Defence	Health & Social
Aboriginal Affairs and Northern Development Canada (AANDC)	Canadian Polar Commission		X		X	X		X
	Adventure tourists	X		X			X	
Arctic Council	Arctic Contaminants Action Program (ACAP)							
	Arctic Monitoring & Assessment Programme (AMAP)							
	Conservation of Arctic Flora and Fauna (CAFF)							
	Coastal Council	X			X	X	X	X
	Emergency, Prevention, Preparedness and Response (EP3R)							
Banks/Insurance market	Protection of the Arctic's Marine Environment (PAME)							
	Sustainable Development Working Group (SDWG)							
Canadian Northern Economic Development Agency (CanNor)	Coastal Council							
	Coastal Council							
Classification societies	Classification societies							
	Classification societies							
	Classification societies							
	Classification societies							
	Classification societies							
Cruise industry	Association of Arctic Expedition Cruise Operators (AAECO)		X	X	X	X	X	X
	Ship owners, operators and crew							
Domestic shipping industry	Ship owners, operators and crew							
	Chartering companies		X		X	X	X	
Environment Canada (EC)	Environment Canada							
	Environment Canada							
Fisheries & Oceans Canada (DFO)	Maritime Communications and Transportation Service (MCTS)		X	X	X	X	X	X
	Canadian Hydrographic Service (CHS)							
Foreign Affairs, Trade and Development (FATD)	Foreign Affairs, Trade and Development		X	X	X	X	X	X
	Foreign Affairs, Trade and Development		X	X	X	X	X	X
Ice Navigators	Ice Navigators							
	Ice Navigators							
International Maritime Organization (IMO)	International Maritime Organization							
	International Maritime Organization							
International shipping industry	International shipping industry							
	International shipping industry							
Inuit commercial fisheries	Inuit commercial fisheries							
	Inuit commercial fisheries							
Mining industry	Mining industry							
	Mining industry							
National Defence (DND)	National Defence							
	National Defence							
Natural Resources Canada (NRCan)	Natural Resources Canada							
	Natural Resources Canada							
Non-governmental organizations (NGOs)	Non-governmental organizations							
	Non-governmental organizations							
Non-inuit commercial fisheries	Non-inuit commercial fisheries							
	Non-inuit commercial fisheries							
Oil & Gas industry	Oil & Gas industry							
	Oil & Gas industry							
Public Safety Canada (PSC)	Public Safety Canada							
	Public Safety Canada							
Research community	Research community							
	Research community							
Territorial Governments	Territorial Governments							
	Territorial Governments							
Transport Canada (TC)	Transport Canada							
	Transport Canada							

LEGAL ASPECTS

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	Adventure tourists	X		X			X	
Arctic Council	Arctic Contaminants Action Program (ACAP)							
	Arctic Monitoring & Assessment Programme (AMAP)							
	Conservation of Arctic Flora and Fauna (CAFF)							
	Coastal Council	X			X	X	X	X
	Emergency, Prevention, Preparedness and Response (EP3R)							
Banks/Insurance market	Protection of the Arctic's Marine Environment (PAME)							
	Sustainable Development Working Group (SDWG)							
Canadian Northern Economic Development Agency (CanNor)	Coastal Council							
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Cruise industry	Association of Arctic Expedition Cruise Operators (AAECO)		X	X	X	X	X	X
	Ship owners, operators and crew							
Domestic shipping industry	Ship owners, operators and crew							
	Chartering companies		X		X	X	X	
Environment Canada (EC)	Environment Canada							
	Environment Canada							
Fisheries & Oceans Canada (DFO)	Maritime Communications and Transportation Service (MCTS)		X	X	X	X	X	X
	Canadian Hydrographic Service (CHS)							
Foreign Affairs, Trade and Development (FATD)	Foreign Affairs, Trade and Development		X	X	X	X	X	X
	Foreign Affairs, Trade and Development		X	X	X	X	X	X
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International Maritime Organization (IMO)	International Maritime Organization							
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	Adventure tourists	X		X			X	
Arctic Council	Arctic Contaminants Action Program (ACAP)							
	Arctic Monitoring & Assessment Programme (AMAP)							
	Conservation of Arctic Flora and Fauna (CAFF)							
	Coastal Council	X			X	X	X	X
	Emergency, Prevention, Preparedness and Response (EP3R)							
Banks/Insurance market	Protection of the Arctic/Marine Environment (PAME)							
	Sustainable Development Working Group (SDWG)							
Canadian Northern Economic Development Agency (CanNor)	Government							
	Libraries		X	X	X	X	X	
Classification societies	P&ID Clubs	X	X	X		X		X
	Arctic Council Bureau of Shipping							
Classification societies	Korona, Wierke							
	Classification							
Classification societies	DNV GL	X	X	X	X	X	X	
	Korona Register							

LEGAL ASPECTS

Document	Year	Summary
Arctic Contaminants Action Program (ACAP)	1991	Agreement to develop a framework for action on contaminants in the Arctic region, including a commitment to monitor and assess contaminants in the Arctic.
Arctic Monitoring and Assessment Programme (AMAP)	1991	Agreement to develop a framework for action on contaminants in the Arctic region, including a commitment to monitor and assess contaminants in the Arctic.
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Goal: Create user-friendly tools

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International Maritime Organization (IMO)	Maritime Environment Protection Committee (MEPC)	X			X		X	
	Maritime Safety Committee (MSC)							
International shipping industry	Shipowners, Operators and Charterers	X	X		X	X	X	
	Shipbuilders							
Inuit commercial fisheries	Classification societies			X	X	X	X	X
	Communication			X	X	X	X	X
Mining industry	Communication	X	X		X	X	X	X
	Classification societies							
National Defence (DND)	Defence Research and Development Canada (DRDC)							
	Joint Forces Command (JFC)	X	X	X			X	X
Natural Resources Canada (NRCan)	Joint Task Force North (JTFN)							
	Natural Resources Canada (NRCan)							
Non-governmental organizations (NGOs)	Geographical Survey of Canada		X		X	X		
	Geography							
Non-inuit commercial fisheries	Joint Task Force North (JTFN)	X	X	X	X	X	X	X
	Geography							
Oil & Gas industry	Joint Task Force North (JTFN)	X	X	X	X	X	X	X
	Geography							
Public Safety Canada (PSC)	Canadian Border Service Agency (CBSA)							
	Canadian Security Intelligence Service (CSIS)	X	X	X			X	
Research community	Research Institutes							
	Research Institutes	X	X	X	X	X	X	X
Territorial Governments	Research Institutes							
	Research Institutes							
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	Research Institutes							

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The Visualization Tools

Platform: d3.js

passages.ie.dal.ca/Arctic_Legal_Framework.html

passages.ie.dal.ca/Stakeholders_Wheel.html

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

The Visualization Tool for Navigating Domestic Shipping in the Canadian Arctic

passages.ie.dal.ca/Stakeholders_analysis.html

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



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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

FEEDBACK WELCOMED