

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

LEAH BEVERIDGE
DR. MÉLANIE FOURNIER
DR. RONALD PELOT
DALHOUSIE UNIVERSITY

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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	Global & Environment	Economics	Safety, Security & Defense	Health & Social	Multi-Specific Aspects
Aboriginal Affairs and Northern Development Canada (AANDC)	Canadian Polar Commission		X		X	X		X	X
Adventure tourists	Arctic Conservation Action Program (ACAP)	X		X			X		
	Arctic Monitoring & Assessment Programs (AMAP)								
	Conservation of Arctic Flora and Fauna (CAFF)								
Arctic Council	Conservation Council	X			X	X	X	X	X
	Emergency, Prevention, Preparedness and Response (EPPRR)								
	Protection of the Arctic Marine Environment (PAME)								
	Sustainable Development Working Group (SDWG)								
Banks/Insurance market	CoastalWatch		X	X	X	X	X		
	P&G-Quin		X	X	X	X	X	X	
Canadian Northern Economic Development Agency (CanNor)	American Bureau of Shipping	X	X	X		X		X	
	Kurwe, Wilke								
Classification societies	Classiq	X	X	X	X	X	X		
	DNV GL								
	Korean Register								

LEGAL ASPECTS

Stakeholder Group	Stakeholders Included in Group	SCALE	INTERESTS
Aboriginal Affairs and Northern Development Canada (AANDC)	Canadian Polar Commission		X
Adventure tourists	Arctic Conservation Action Program (ACAP)	X	
Arctic Council	Conservation Council	X	X
Banks/Insurance market	CoastalWatch	X	X
Canadian Northern Economic Development Agency (CanNor)	American Bureau of Shipping	X	X
Classification societies	Classiq	X	X

Goal: Create user-friendly tools

Stakeholder Group	Stakeholders Included in Group	SCALE	INTERESTS
International Maritime Organization (IMO)	Maritime Environment Protection Committee (MEPC)	X	X
International shipping industry	Maritime Safety Committee (MSC)		
	Shipowners, Operators and Crew	X	X
Inuit commercial fisheries	CoastalWatch		X
	Communication		X
Mining industry	Canadian Rangers	X	X
	Defence Research and Development Canada (DRDC)		X
National Defence (DND)	Joint Rescue Coordination Centre (JRCC)	X	X
	Joint Task Force Search (JTFS)		X
Natural Resources Canada (NRCan)	National Search and Rescue Institute (NSRI)		X
	Geological Survey of Canada	X	X
Non-governmental organizations (NGOs)	Greenpeace		
	Wildlife Conservation Society (WCS)	X	X
	Wildlife Trusts of Canada (WTC)		X
Non-inuit commercial fisheries	Wildlife Trusts of Canada (WTC)	X	X
Non-inuit population	Wildlife Trusts of Canada (WTC)		X
Oil & Gas industry	Wildlife Trusts of Canada (WTC)	X	X
Parks Canada Agency	Wildlife Trusts of Canada (WTC)	X	X
Public Safety Canada (PSC)	Canadian Border Service Agency (CBSA)		X
	Canadian Security Intelligence Service (CSIS)	X	X
Research community	Royal Canadian Mounted Police (RCMP)		X
	Centre of Excellence	X	X
Territorial Governments	National Research Council of Canada	X	X
	Research Institutes		X
Transport Canada (TC)	Transport Canada		X
	Marine Safety	X	X

Stakeholder Group	Stakeholders Included in Group	SCALE	INTERESTS
International Maritime Organization (IMO)	Maritime Environment Protection Committee (MEPC)		X
International shipping industry	Shipowners, Operators and Crew	X	X
Inuit commercial fisheries	CoastalWatch		X
Mining industry	Canadian Rangers	X	X
National Defence (DND)	Joint Rescue Coordination Centre (JRCC)	X	X
Natural Resources Canada (NRCan)	National Search and Rescue Institute (NSRI)		X
Non-governmental organizations (NGOs)	Wildlife Conservation Society (WCS)	X	X
Non-inuit commercial fisheries	Wildlife Trusts of Canada (WTC)	X	X
Non-inuit population	Wildlife Trusts of Canada (WTC)		X
Oil & Gas industry	Wildlife Trusts of Canada (WTC)	X	X
Parks Canada Agency	Wildlife Trusts of Canada (WTC)	X	X
Public Safety Canada (PSC)	Canadian Border Service Agency (CBSA)		X
Public Safety Canada (PSC)	Canadian Security Intelligence Service (CSIS)	X	X
Research community	Royal Canadian Mounted Police (RCMP)		X
Research community	Centre of Excellence	X	X
Territorial Governments	National Research Council of Canada	X	X
Territorial Governments	Research Institutes		X
Transport Canada (TC)	Transport Canada		X
Transport Canada (TC)	Marine Safety	X	X

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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leah.beveridge@dal.ca
melanie.fournier@dal.ca
ronald.pelot@dal.ca

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