

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

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

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# Introduction

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## 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 & Defense	Health & Social	Issue 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		
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	International	National	Local	Climate & Environment	Economics	Safety, Security & Defense	Health & Social	Issue 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 Council	Conservation Council	X			X	X	X	X	X
Banks/Insurance market	CoastalWatch		X	X	X	X	X		
Canadian Northern Economic Development Agency (CanNor)	American Bureau of Shipping	X	X	X		X		X	
Classification societies	Classiq	X	X	X	X	X	X		

## Goal: Create user-friendly tools

Stakeholder Group	Stakeholders Included in Group	International	National	Local	Climate & Environment	Economics	Safety, Security & Defense	Health & Social	Issue Specific Aspects
International Maritime Organization (IMO)	Maritime Environment Protection Committee (MEPC)	X			X		X		
International shipping industry	Maritime Safety Committee (MSC)								
	Shipowners, charterers and crew	X	X		X	X	X		
	Shipbuilders								
Inuit commercial fisheries	Classification societies				X	X	X	X	X
	Communication				X	X	X	X	X
Mining industry	Canadian Register	X	X		X	X	X	X	X
	Defence Research and Development Canada (DRDC)								
National Defence (DND)	Joint Rescue Coordination Centre (JRCC)	X	X	X			X		X
	Joint Task Force North (JTFC-N)								
Natural Resources Canada (NRCan)	National Search and Rescue Institute (NSRI)				X	X			
	Geological Survey of Canada		X			X			
Non-governmental organizations (NGOs)	Greenpeace								
	Global Conservation Council (GCC)	X	X	X	X	X	X	X	X
	Inuit Tapscott & King-Inuit (ITKI)								
	Greenpeace North								
Non-inuit commercial fisheries	World Wildlife Fund (WWF)	X	X	X	X	X	X		
Non-inuit population				X	X	X	X	X	
Oil & Gas industry		X	X	X	X	X	X	X	X
Parks Canada Agency	Canadian Border Service Agency (CBSA)								
	Canadian Security Intelligence Service (CSIS)		X	X	X		X		
Public Safety Canada (PSC)	Royal Canadian Mounted Police (RCMP)								
	Centre of Excellence								
	National Research Council of Canada	X	X	X	X	X	X	X	X
Research community	Research Institutes								
	Geographical Territories								
Territorial Governments	Nunavut			X	X	X	X	X	X
	Yukon								
	Canadian Marine Advisory Council								
Transport Canada (TC)	National Aerial Surveillance Program		X		X	X	X		
	Marine Safety								

Stakeholder Group	Stakeholders Included in Group	International	National	Local	Climate & Environment	Economics	Safety, Security & Defense	Health & Social	Issue Specific Aspects
International Maritime Organization (IMO)	Maritime Environment Protection Committee (MEPC)	X			X		X		
International shipping industry	Shipowners, charterers and crew	X	X		X	X	X		
Inuit commercial fisheries	Classification societies				X	X	X	X	X
Mining industry	Canadian Register	X	X		X	X	X	X	X
National Defence (DND)	Joint Rescue Coordination Centre (JRCC)	X	X	X			X		X
Natural Resources Canada (NRCan)	Geological Survey of Canada		X			X			
Non-governmental organizations (NGOs)	Greenpeace North								
Non-inuit commercial fisheries	World Wildlife Fund (WWF)	X	X	X	X	X	X		
Non-inuit population					X	X	X	X	
Oil & Gas industry		X	X	X	X	X	X	X	X
Public Safety Canada (PSC)	Canadian Security Intelligence Service (CSIS)		X	X	X		X		
Research community	National Research Council of Canada	X	X	X	X	X	X	X	X
Territorial Governments	Nunavut			X	X	X	X	X	X
Transport Canada (TC)	National Aerial Surveillance Program		X		X	X	X		

# The Visualization Tools

Platform: d3.js

[passages.ie.dal.ca/Arctic\\_Legal\\_Framework.html](http://passages.ie.dal.ca/Arctic_Legal_Framework.html)

[passages.ie.dal.ca/Stakeholders\\_Wheel.html](http://passages.ie.dal.ca/Stakeholders_Wheel.html)

# A Specialized Tool

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*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](http://passages.ie.dal.ca/Stakeholders_analysis.html)

# Applications

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- 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

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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](http://passages.ie.dal.ca/Stakeholders_Wheel.html)

Specialized visualization tool:

[http://passages.ie.dal.ca/Stakeholders\\_analysis.html](http://passages.ie.dal.ca/Stakeholders_analysis.html)

Stakeholder database:

[http://passages.ie.dal.ca/Appendix/Appendix\\_1.pdf](http://passages.ie.dal.ca/Appendix/Appendix_1.pdf)

**FEEDBACK WELCOMED**