

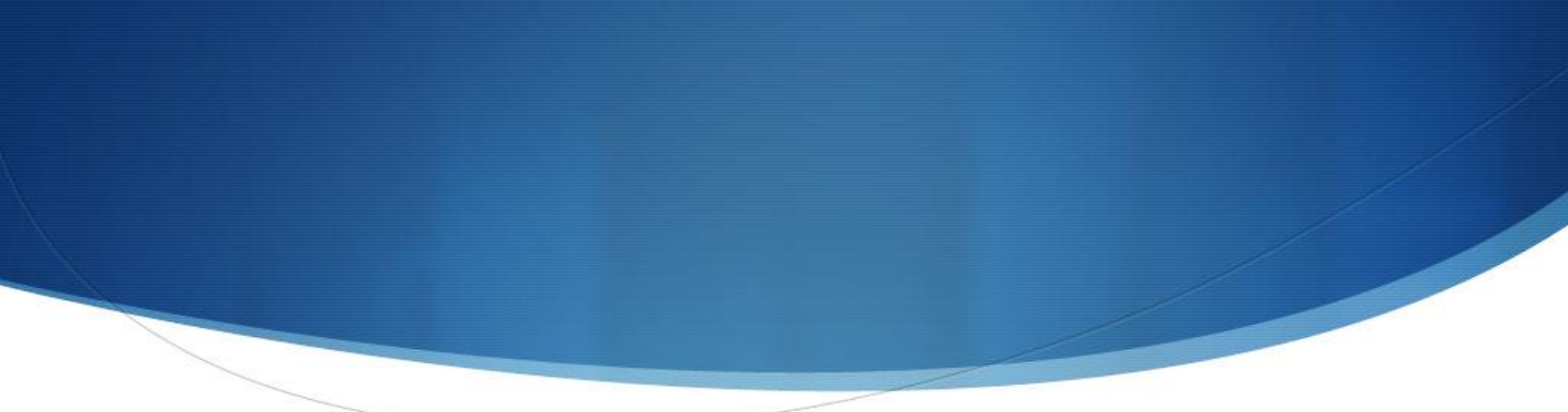
AOPS & The Arctic

Future Trends and Influences



Global Context

- ◆ Welcome to our Maritime Narrative
- ◆ Maritime Trends and Influences
- ◆ Implications for the Arctic
- ◆ Implications for Canada
- ◆ Implications for AOPS operations



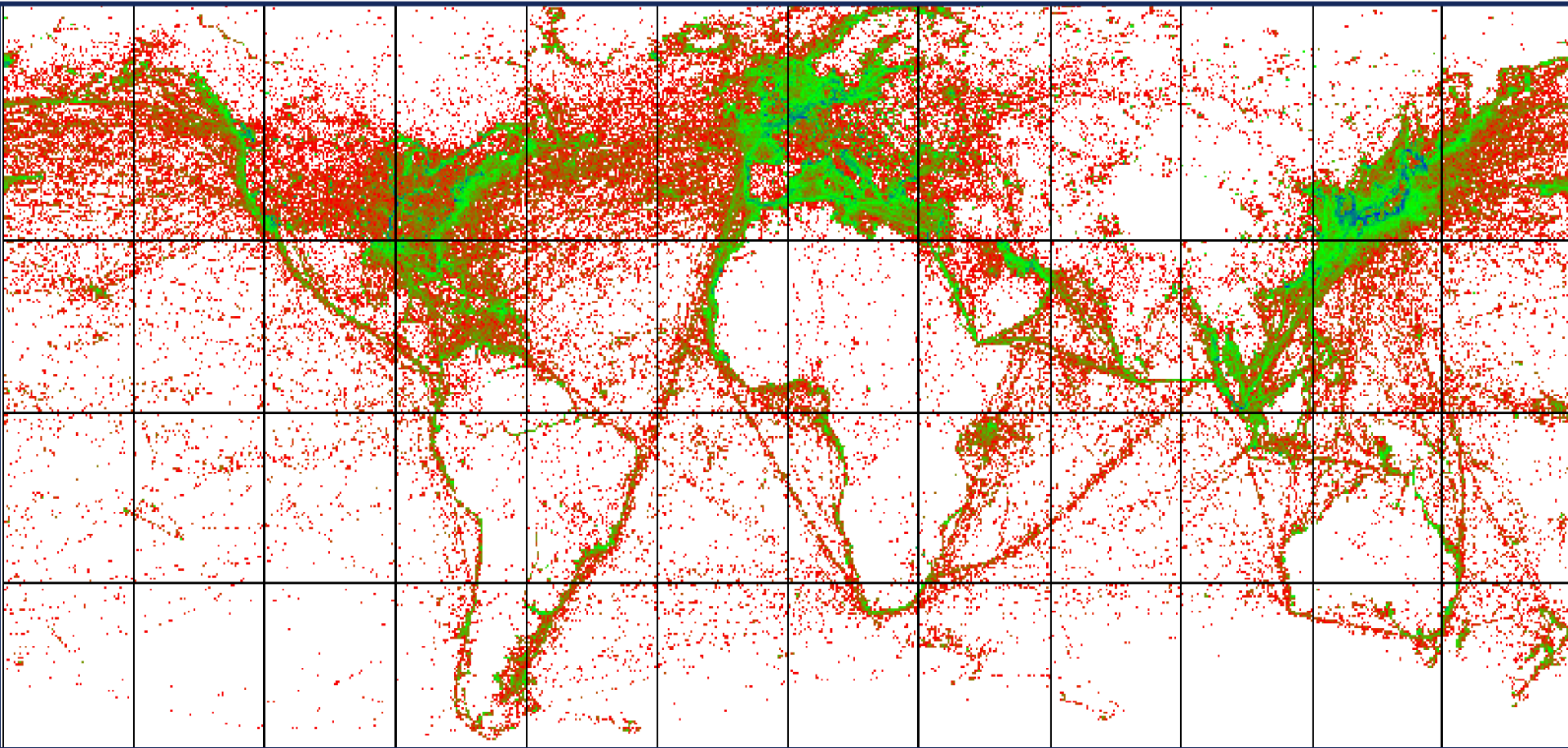
"Whosoever commands the sea
commands the trade; whosoever
commands the trade of the world
commands the riches of the
world, and consequently the
world itself. “

SIR WALTER RALEIGH

A Mariner's View of the World



A Mariner's View of the World



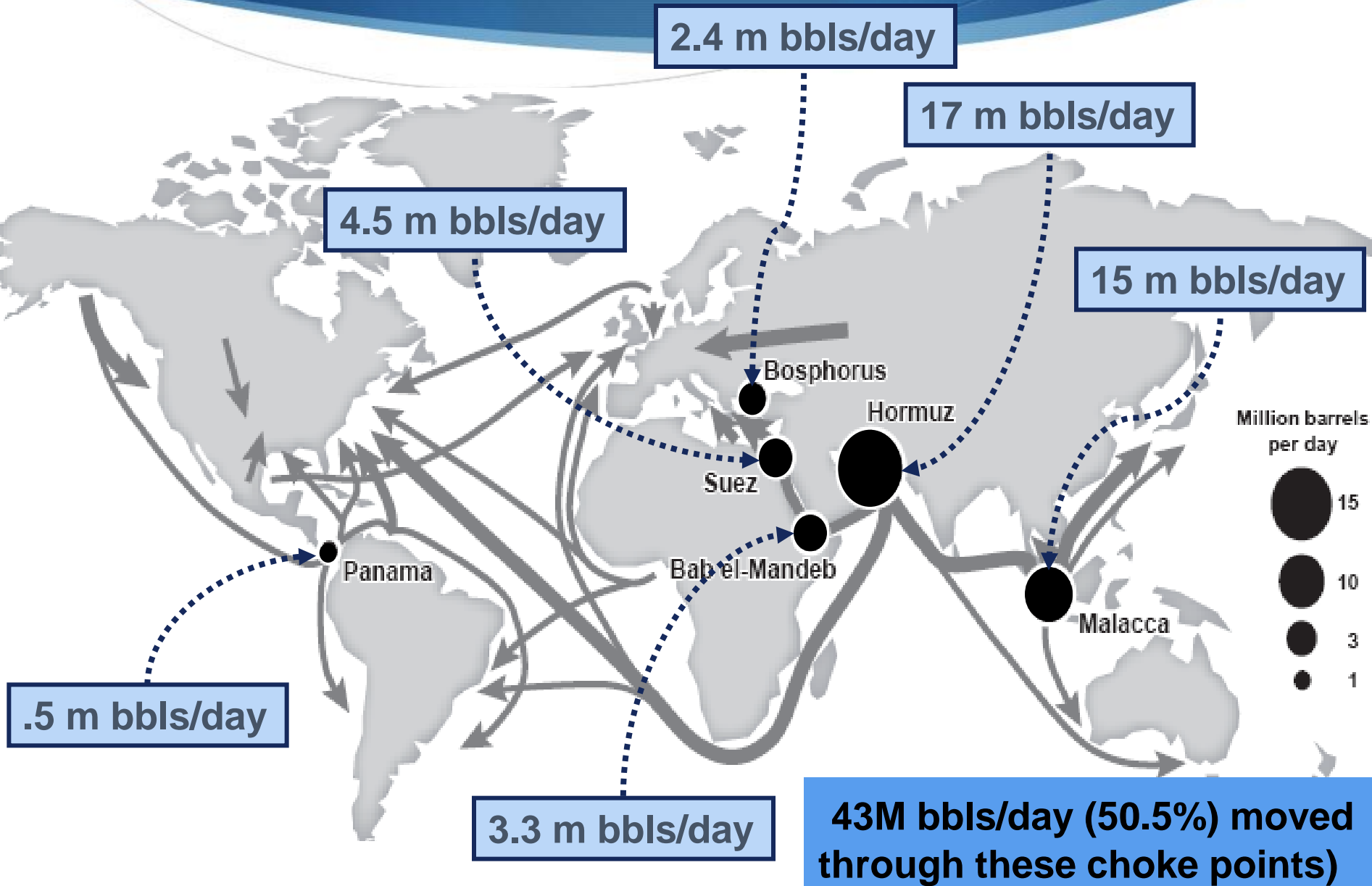
Over 95,000 vessels at sea at any time
90 percent of global commerce travels by sea

Globalization

- ◆ Stable dependable trade routes allow JIT inventory & manufacturing
- ◆ Warehouses are at Sea
- ◆ Commercial decisions:
 - ◆ Distance – Time – Risk
- ◆ Risk comes from interruptions to Global Flow

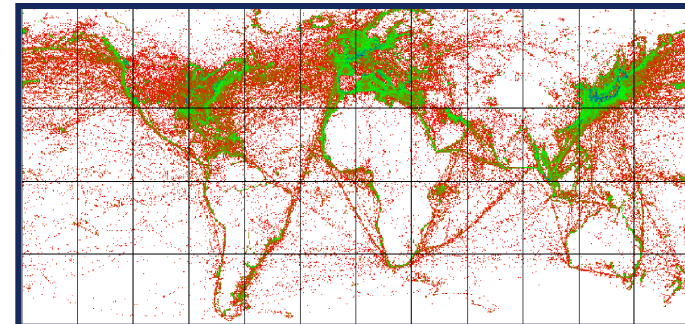


The World's Ocean Choke Points

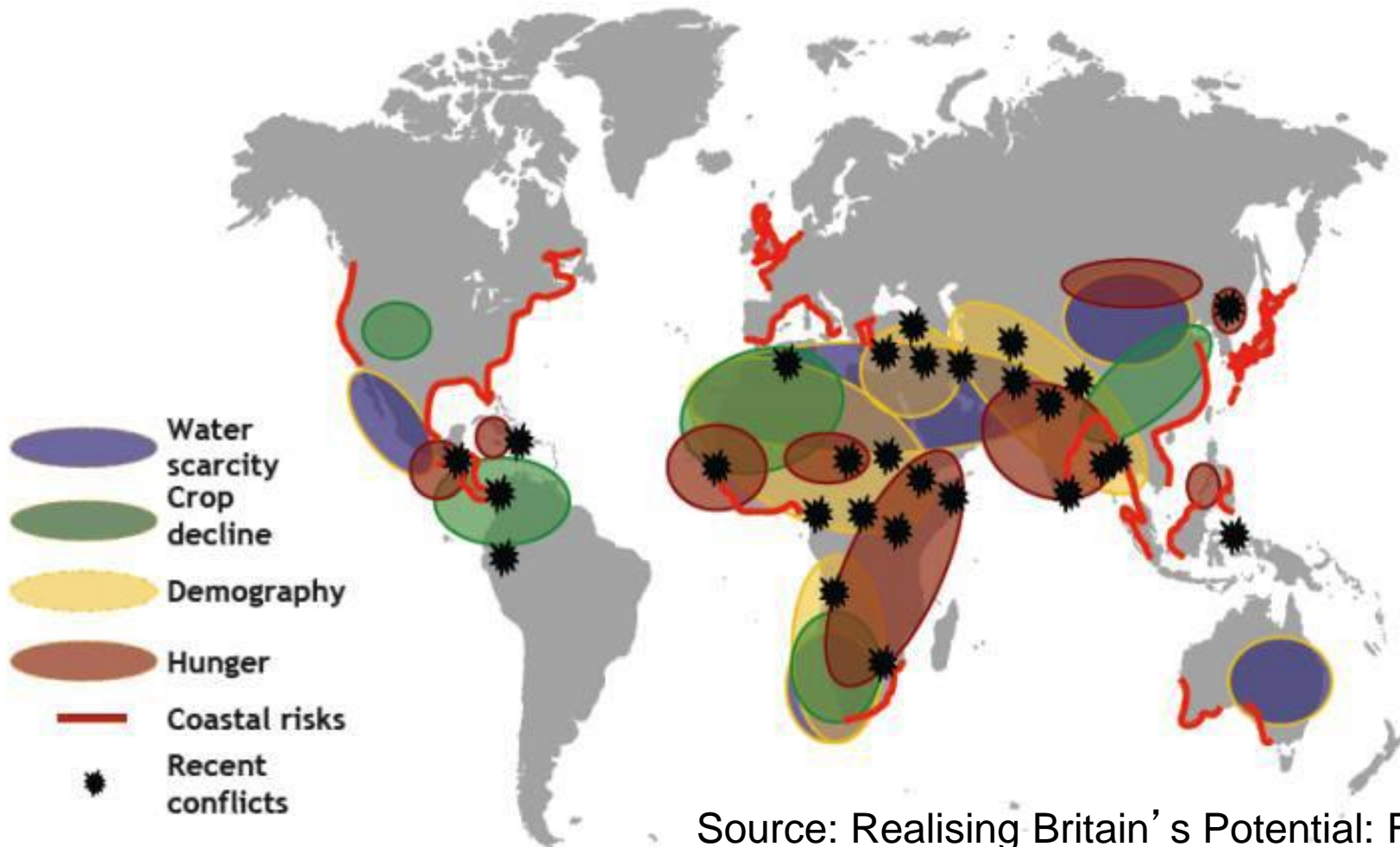


The Coming Maritime Century

- ◆ Globalization and the “great common”
 - ◆ Growing national interests in maritime security through trade
- ◆ Economic exploitation, environmental pressures
- ◆ Growth of regional navies
- ◆ Pre-eminence of American naval power
- ◆ Latent regional tensions (Asia-pacific)
 - ◆ Boundary and EEZ disputes
- ◆ Piracy, trafficking, organized crime
- ◆ Terrorism “from the sea”
- ◆ Proliferation
 - ◆ Weapons of mass destruction
 - ◆ Cruise missiles to non-state actors



Convergence of Destabilization Trends



Source: Realising Britain's Potential: Future Strategic Challenges for Britain, p. 34.

Arctic Implications

Climate Change

Globalization

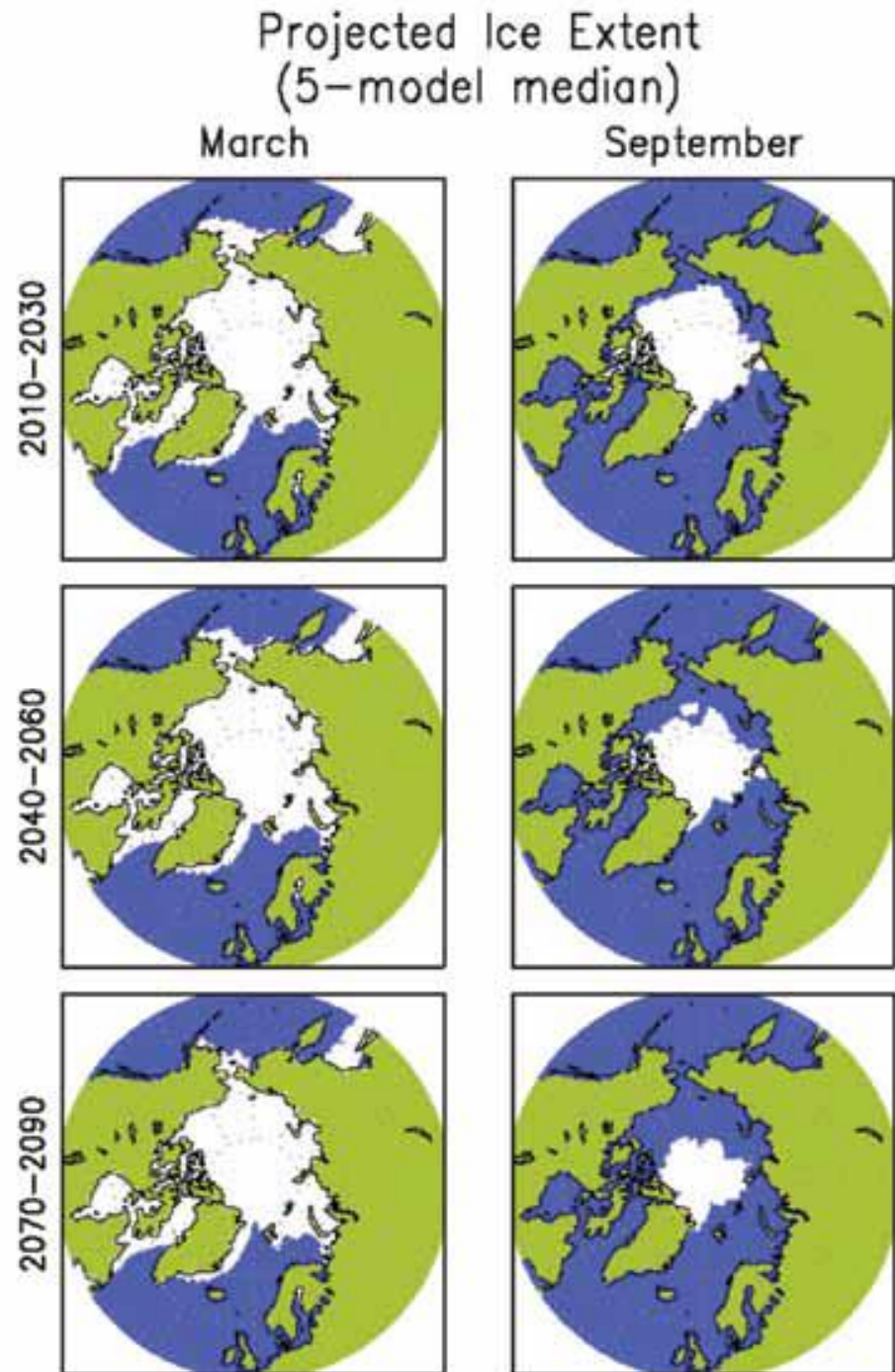
Governance

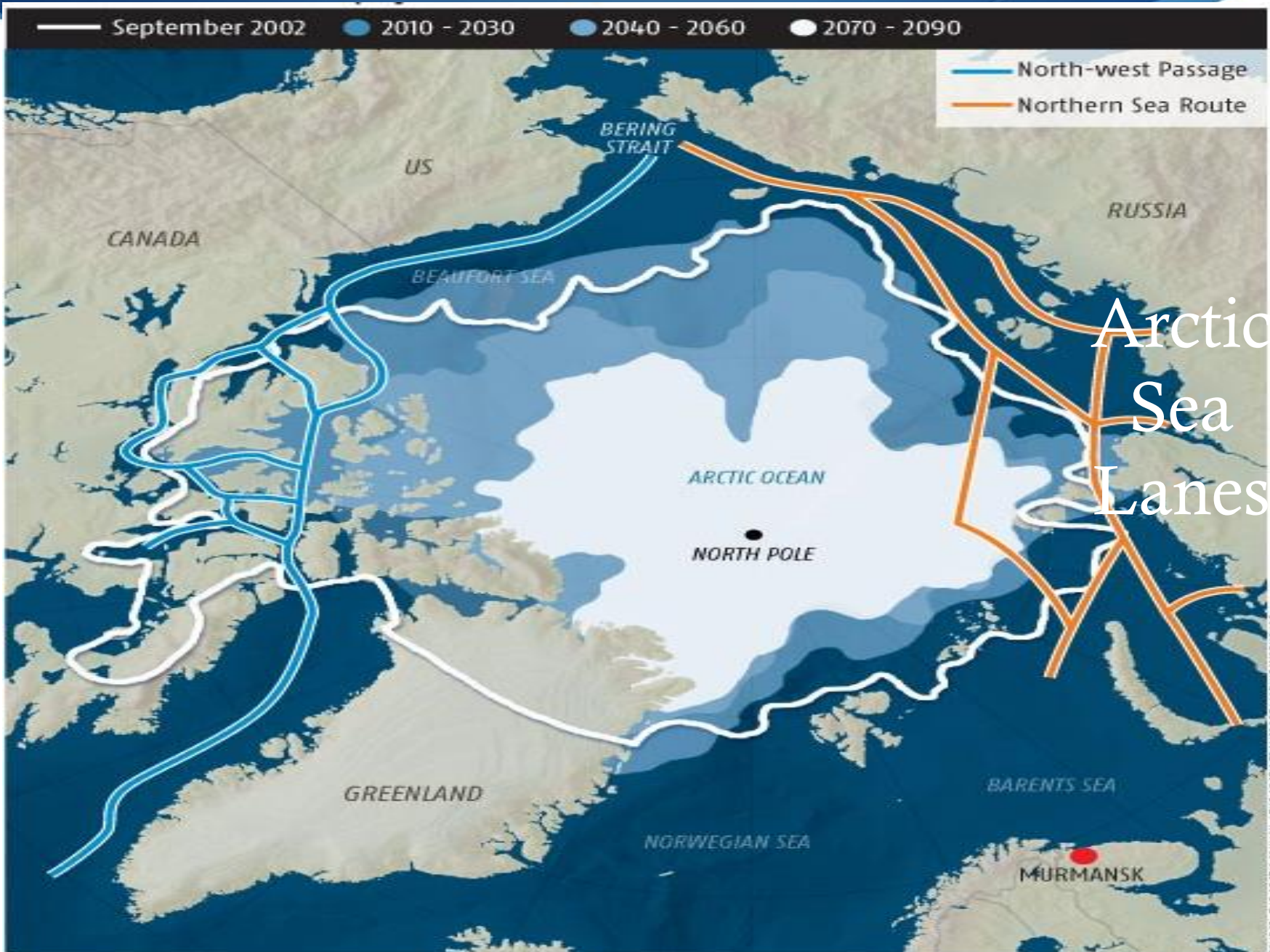


Sea Ice Projections: 2010 to 2090

Arctic Council – ACIA 2004

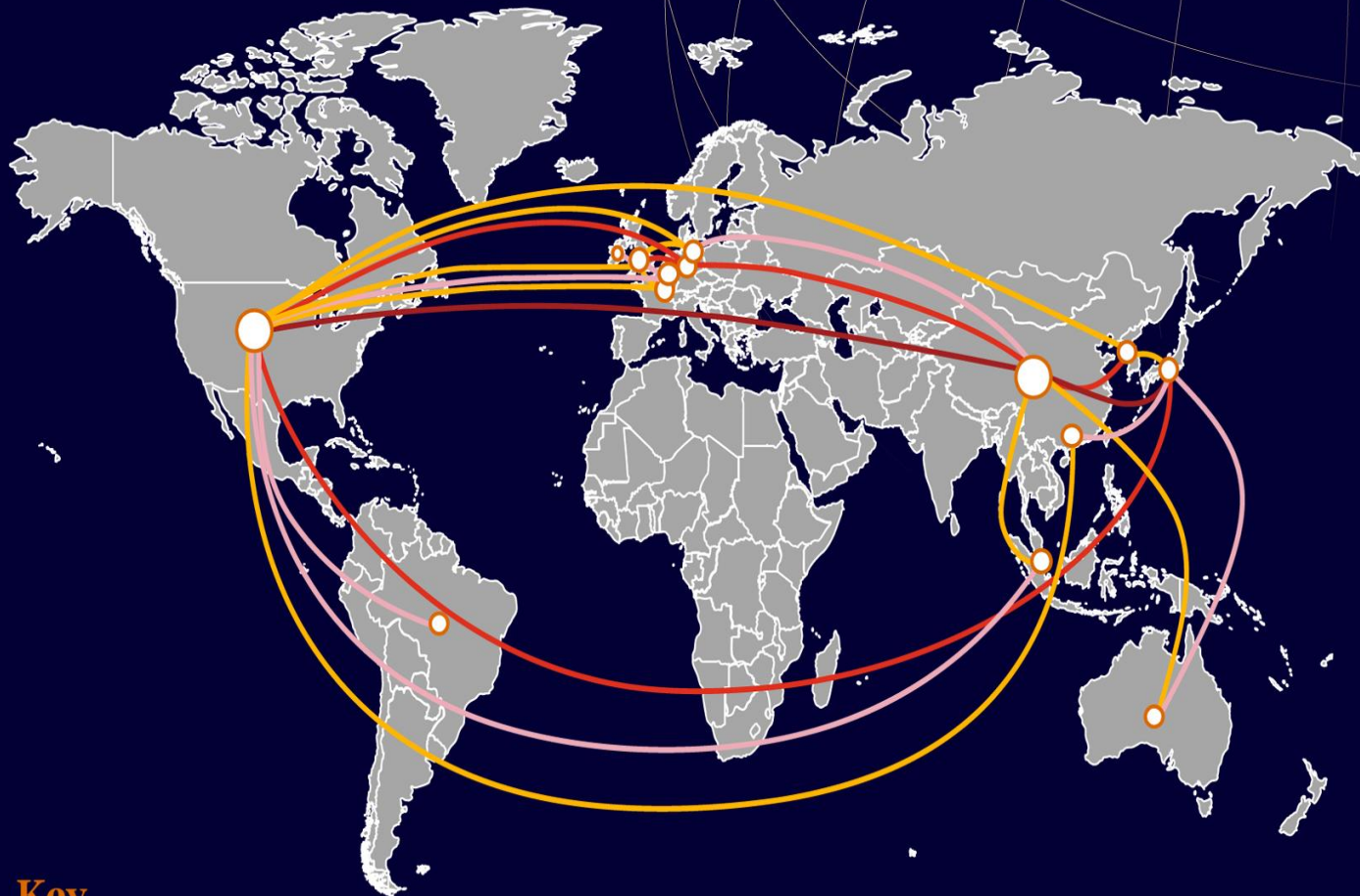
- Northern Sea Route likely more accessible, earlier
- Canada's Northwest passage will be later
- Also more treacherous due to Arctic gyres (currents)





Arctic Sea Lanes

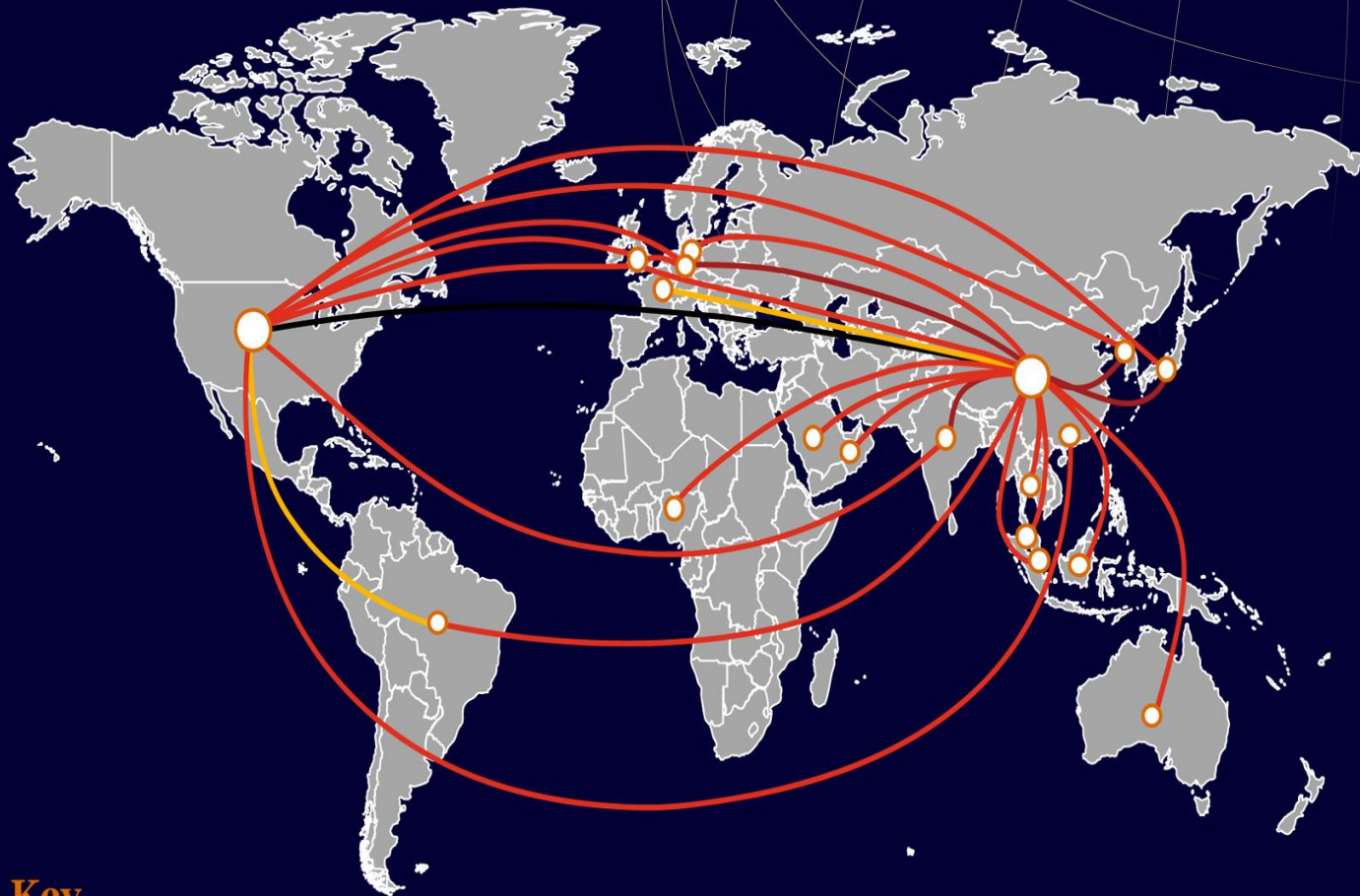
Top 25 sea and air freight bilateral trade pairs in 2009



Key

Size of bilateral trade flow (in 2009 \$USm for both charts)	Under 50,000	50,001-100,000	100,001-200,000	200,001 - 350,000	350,001+

Top 25 sea and air freight bilateral trade pairs in 2030



Key

Size of bilateral trade flow (in 2009 \$USm for both charts)	Under 50,000	50,001-100,000	100,001-200,000	200,001 - 350,000	350,001+

Shaving Distance off Sea Routes

- ◆ From Shanghai to Rotterdam:
- ◆ **Panama Canal:** 25,588 kilometres
- ◆ **Suez Canal:** 19,550 km
- ◆ **Northern Sea Route:** 15,793 km
- ◆ **Northwest Passage:** 16,100 km
- ◆ **Transpolar Route:** 13,630 km

Source: Laurence C. Smith, UCLA professor of geography



Arctic as Destination

Increased with Climate Change

Eco-Tourism

Resource Extraction

Oil & Gas

Undiscovered deposits, probability of oil and/or gas field*, 2008 estimates, %

100	50-99	30-49	10-29	<10
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*At least one undiscovered oil and/or gas field with recoverable reserves greater than 50m barrels of oil equivalent

Source: USGS



Areas inhabited by:

- Inuit/Yupik Eskimos
- Sami

Source: Norwegian Polar Institute

Agreed national offshore boundaries
 200-nautical mile limit
 Source: IBRU, Durham University

Arctic Governance

International

Canadian

Regional

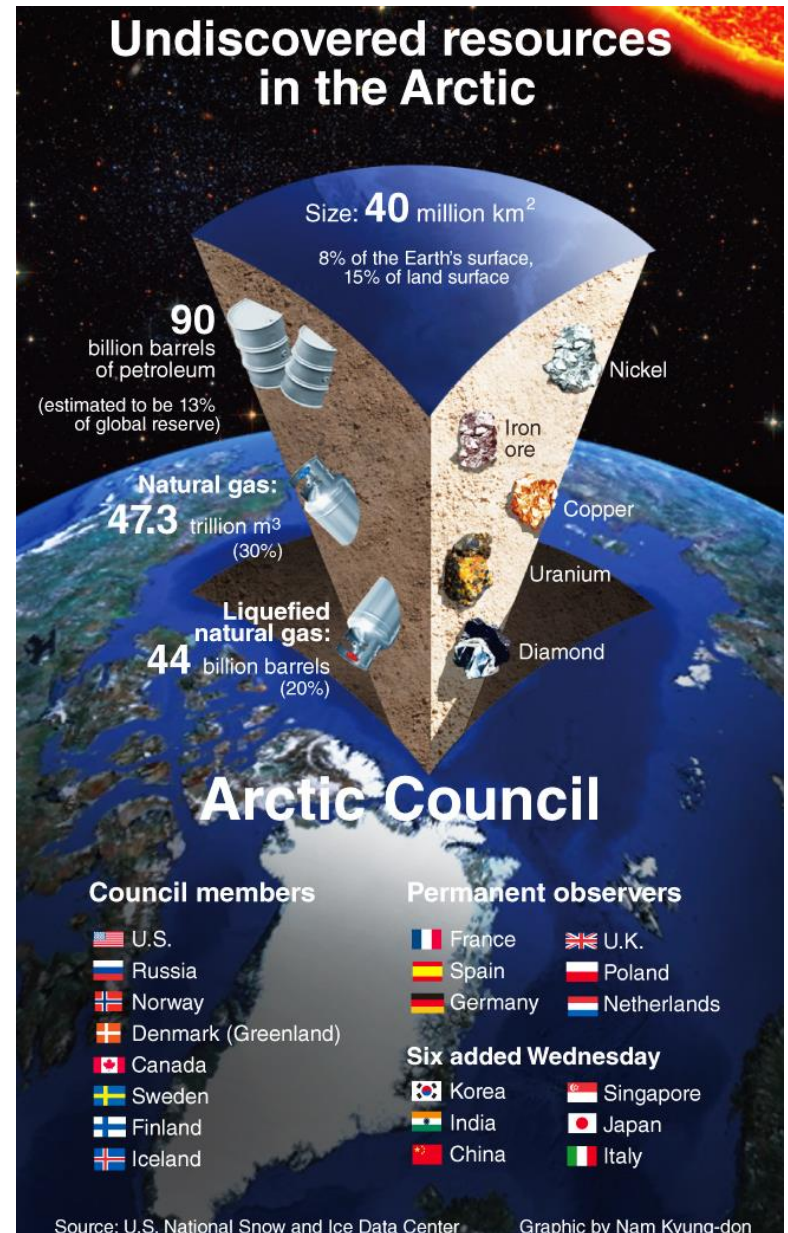




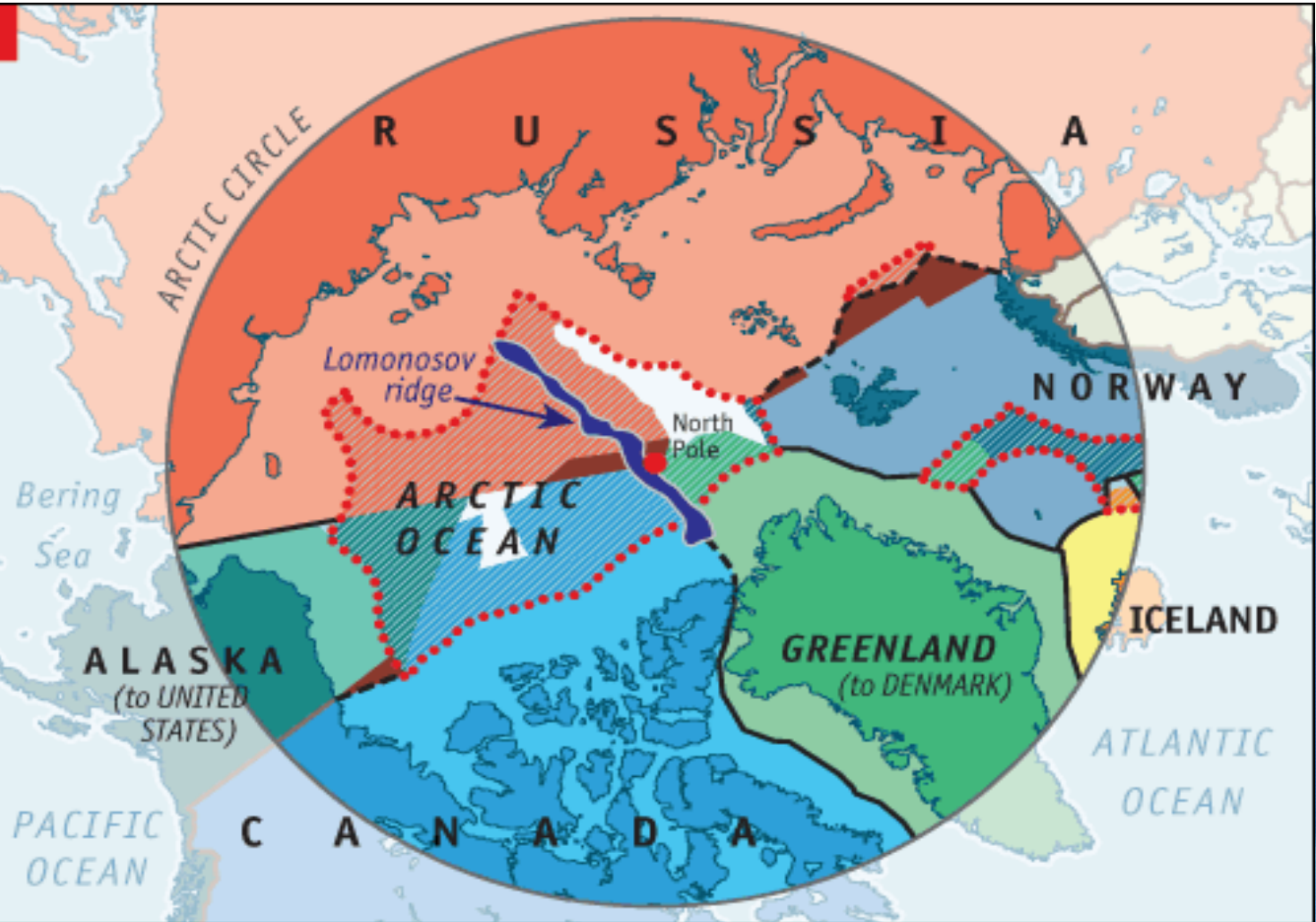
5 Coastal Nations
 3 Arctic Circle Nations
 Observers

Indigenous Peoples:

- Laplanders
- Inuit, etc.



Territories & Claims



Territories and claims within the Arctic Circle

	Russia	Norway	Iceland	Denmark	Canada	United States
EEZ*, internal and territorial waters						
Claimed/potential continental shelf						

- Agreed national borders
- Equidistant lines
- 200-nautical-mile limit
- Disputed/potentially disputed areas
- Unclaimed/unclaimable areas

Source: IBRU, Durham University

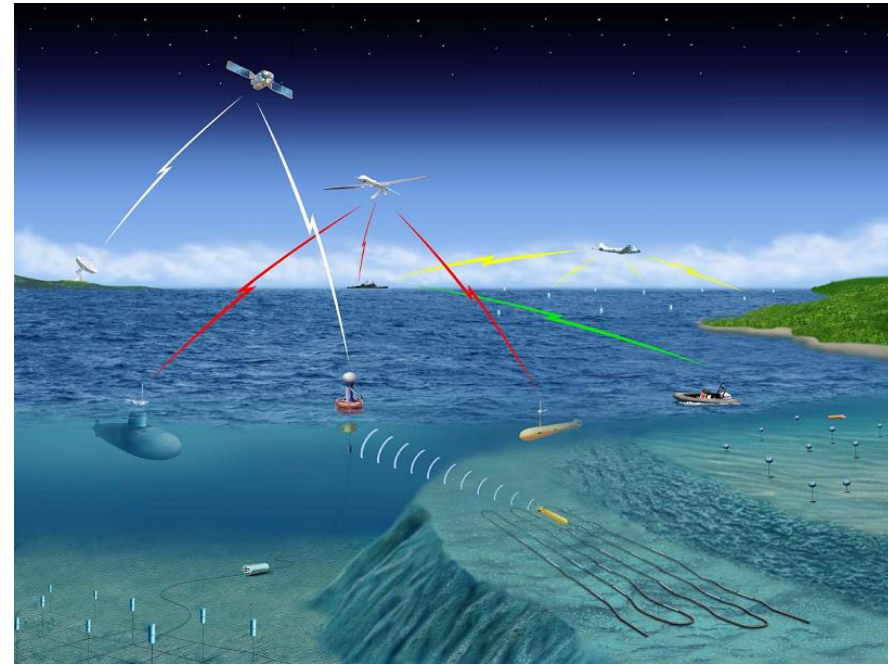
*Exclusive economic zone

Arctic Council Approach

- ◆ Ecosystem-Based Management
 - ◆ Treat the entire Arctic as one ecosystem
 - ◆ Encourage harmonized policies with each other and with world institutions and laws
 - ◆ IMO
 - ◆ UNCLOS
- ◆ Some Successes
 - ◆ Arctic Search and Rescue (SAR) cooperation
 - ◆ Arctic Marine Strategic Plan
- ◆ Will rest of the World sit idly by?

Technology – Global, National & Regional

- 💧 Space-based Surveillance
 - 💧 Unmanned vehicles
- 💧 Technology as driver for organizational & policy changes
 - 💧 Example – extend AIS reporting to less than 300kT
- 💧 Innovation & Productivity
 - 💧 Cold weather adaptation





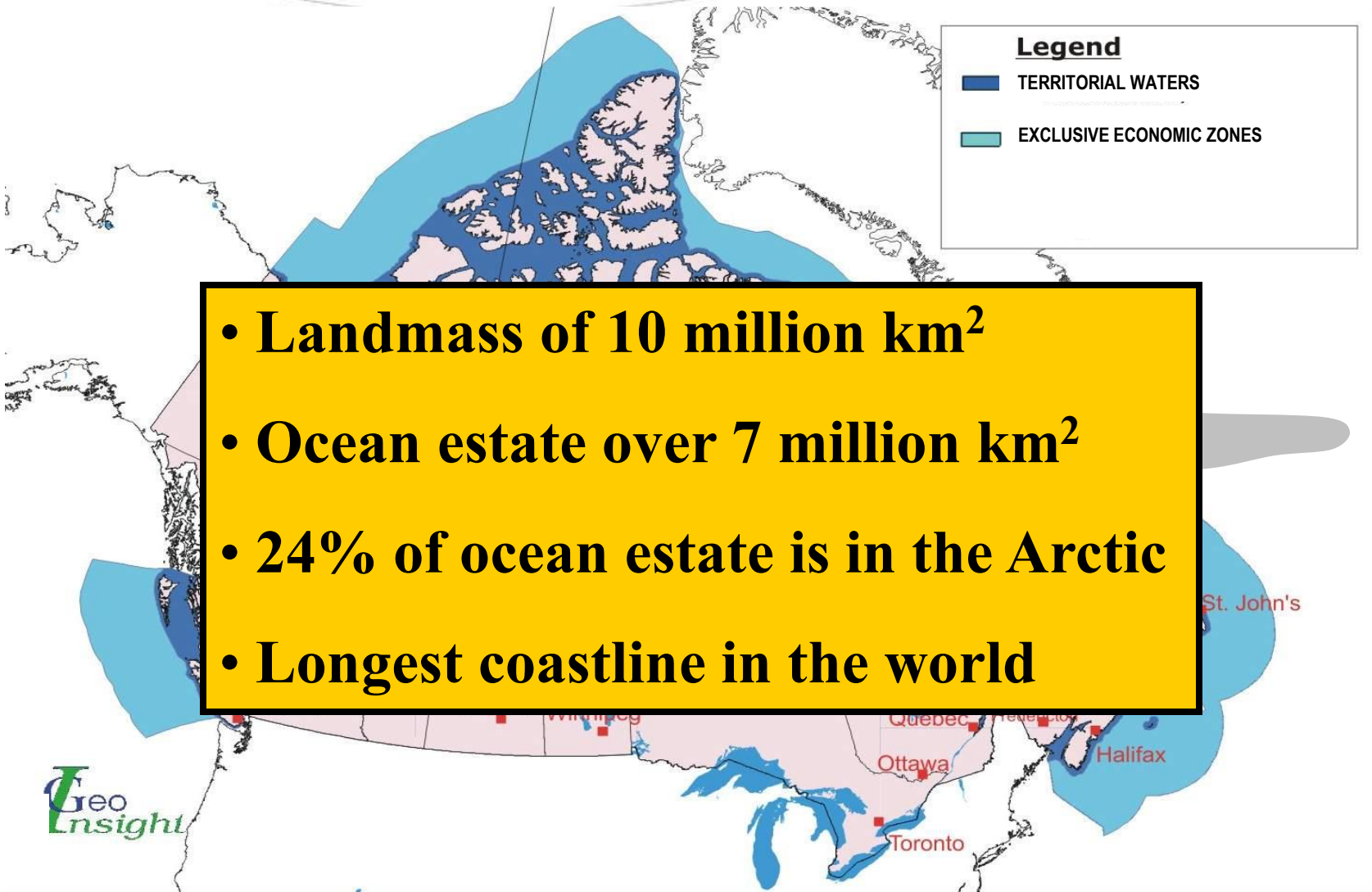
Implications for Canada

Multi-lateral

Bi-lateral

Internal
coordination

Canada's Ocean Estate



- Landmass of 10 million km²
- Ocean estate over 7 million km²
- 24% of ocean estate is in the Arctic
- Longest coastline in the world



Canada's Northern Strategy

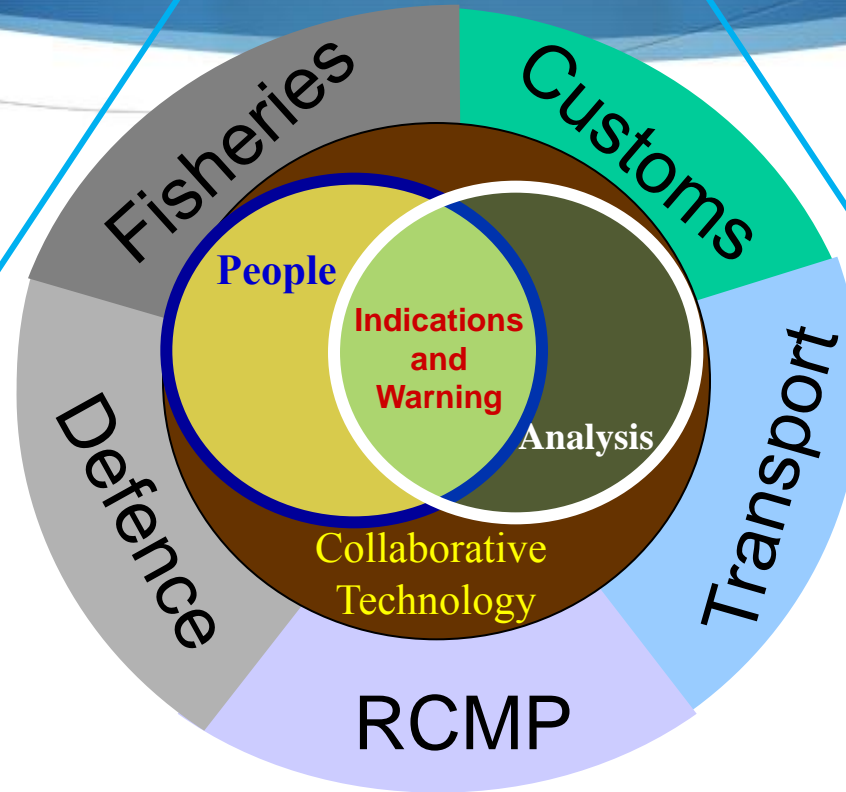
- ◆ Whole of Government Approach
- ◆ Overlapping of Regional boundaries
 - ◆ RCMP Divisions
 - ◆ DND: JTFN (Land) / JTFA (Water) / NORAD (Air)
- ◆ Atlantic Canada as Gateway?
 - ◆ Proximity to Eastern Arctic
 - ◆ Economic, Commercial and Exploration Activity
- ◆ The Arctic/Offshore Patrol Ship (AOPS)
 - ◆ Concept of Ops is Whole of Gov't

Increased Arctic Marine Activity

- ◆ Maritime Security and Safety concerns
- ◆ Pollution in fragile ecosystem
- ◆ Increases the need for Arctic Maritime Domain Awareness
 - ◆ Who is in our waters
 - ◆ Where are they going
 - ◆ What are they doing
- ◆ Increased need for SAR and Maritime response
- ◆ How much?

Integrated Maritime Domain Awareness

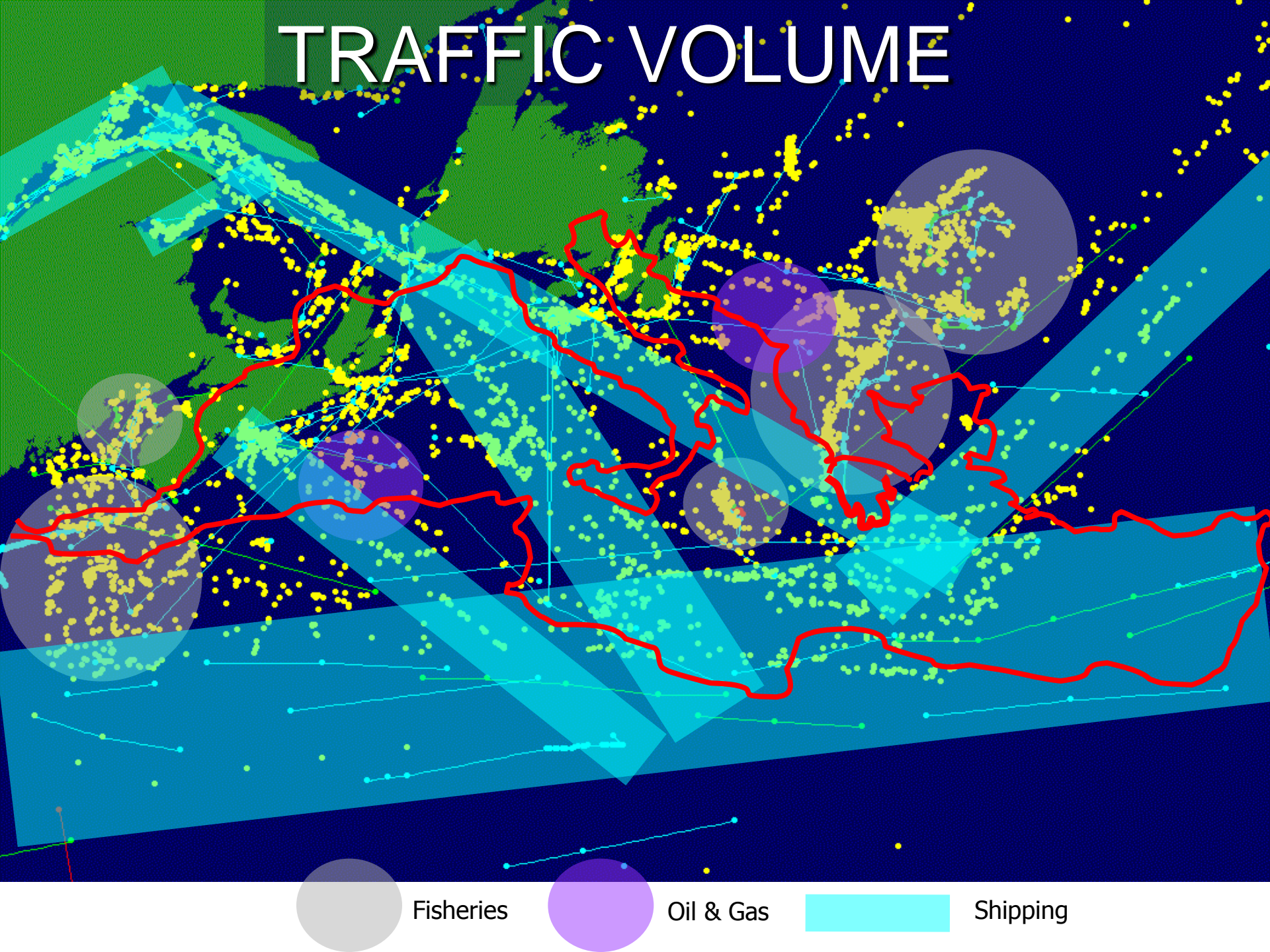
OPERATIONS

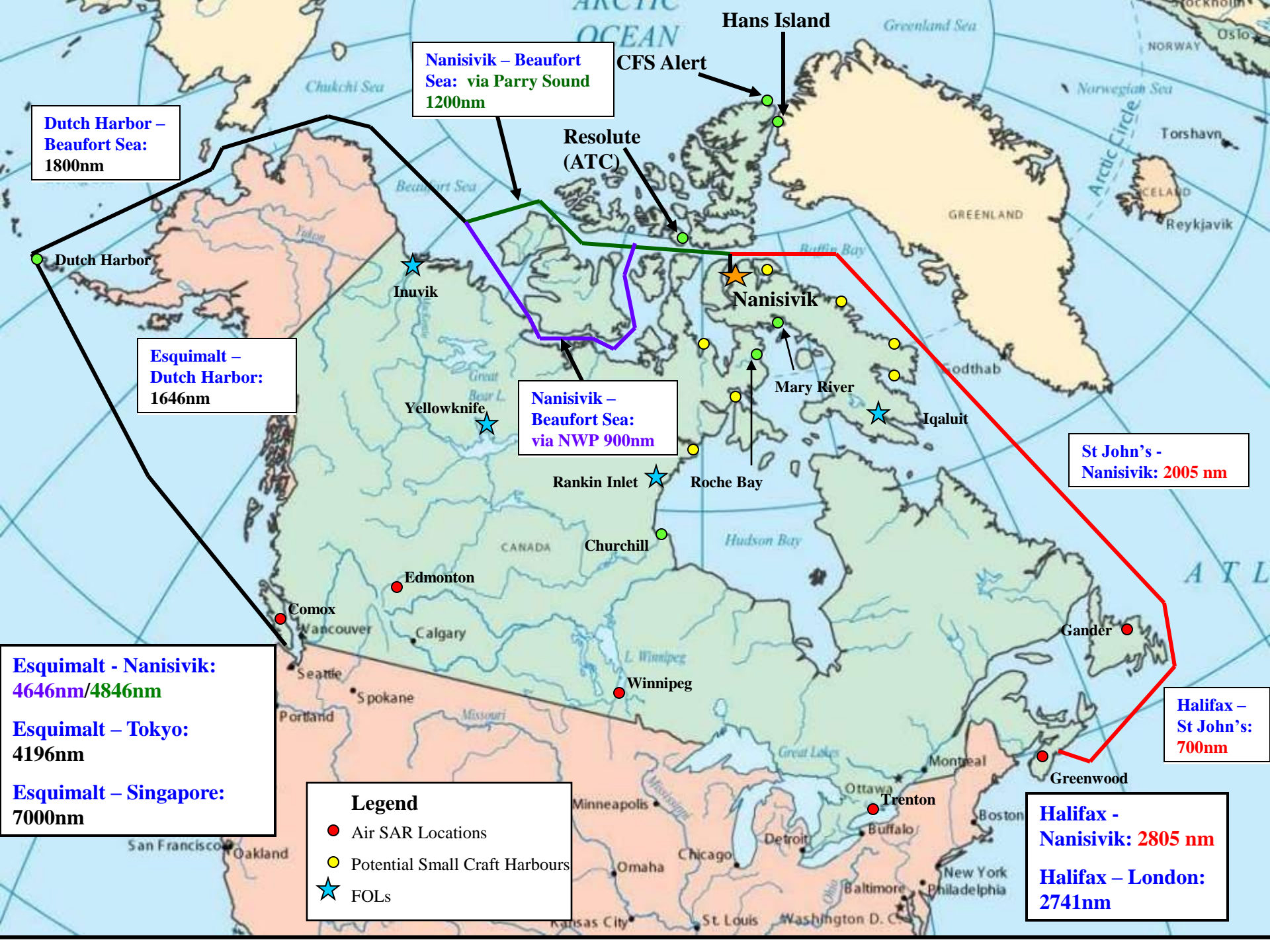


INTELLIGENCE

SURVEILLANCE

TRAFFIC VOLUME





Dutch Harbor – Beaufort Sea: 1800nm

Nanisivik – Beaufort Sea: via Parry Sound 1200nm

Esquimalt – Dutch Harbor: 1646nm

Nanisivik – Beaufort Sea: via NWP 900nm

St John's - Nanisivik: 2005 nm

Esquimalt - Nanisivik: 4646nm/4846nm
Esquimalt – Tokyo: 4196nm
Esquimalt – Singapore: 7000nm

Halifax – St John's: 700nm

Halifax - Nanisivik: 2805 nm
Halifax – London: 2741nm

Legend

- Air SAR Locations
- Potential Small Craft Harbours
- ★ FOLs



Implications for AOPS

One part of an integrated
Maritime Security approach

A necessary capability for
presence and extended seasonal
operations

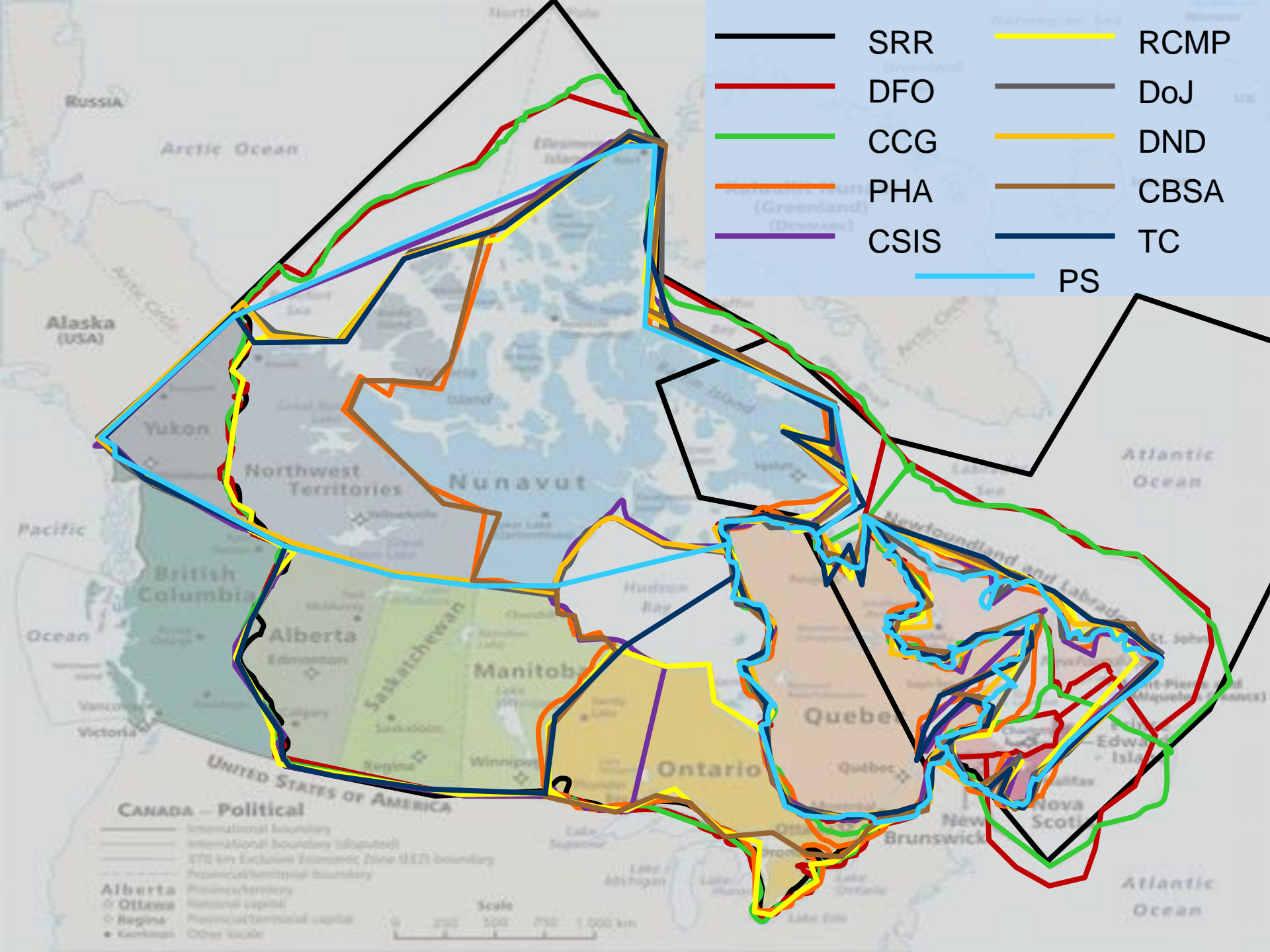
Will be limited by logistics and
infrastructure – which is the
norm for the Arctic



Thank You



UNCLASSIFIED



Extras



Canadian Maritime Blindness

Perceived



Actual



Canada's 546 ports handle over 390 million tonnes of cargo each year, and serve as Canada's gateway to more than 100 economies across the world

Cdn Maritime Trade Economics

AS AN EXPORTING NATION

- 40% of \$1.069 Trillion GDP from exports
- Most imports and non-US exports by sea



OFFSHORE RICH IN RESOURCES

- 50% of Canada's frontier oil reserves
- Hibernia alone at around 750 million bbls
- Fishing generates \$5B in exports



OCEAN-BASED TOURISM EXPANDING

- 1.5 million cruise ship passengers



JOB CREATION

- 11,000 Companies in Ocean Sector
- Directly employ nearly 145,000 Canadians



National Security Policy



Transport Canada

Royal Canadian Mounted Police

Canadian Coast Guard

Canadian Border Services

Regional Joint Operations Centre

Marine Security Operations Centre



Marine Security

Canadian Security Intelligence Service

Public Safety Canada / Sécurité publique Canada

Closing the Seams

Surveillance In Depth

**MARLANT COP
Management
Area**

RESPONSE

**Detect and Track
VOI**

**Close Surveillance
Gaps**

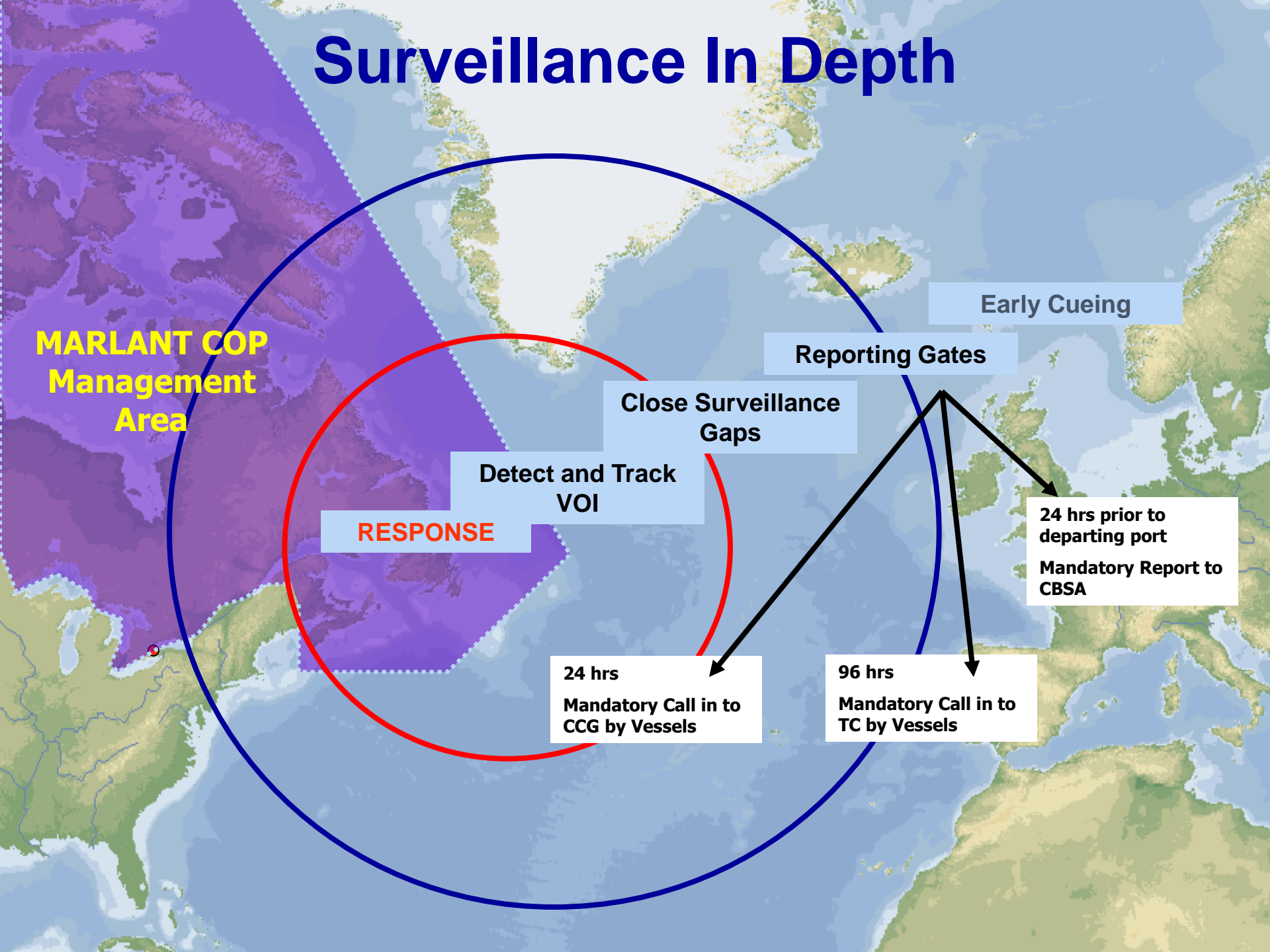
Reporting Gates

Early Cueing

**24 hrs
Mandatory Call in to
CCG by Vessels**

**96 hrs
Mandatory Call in to
TC by Vessels**

**24 hrs prior to
departing port
Mandatory Report to
CBSA**



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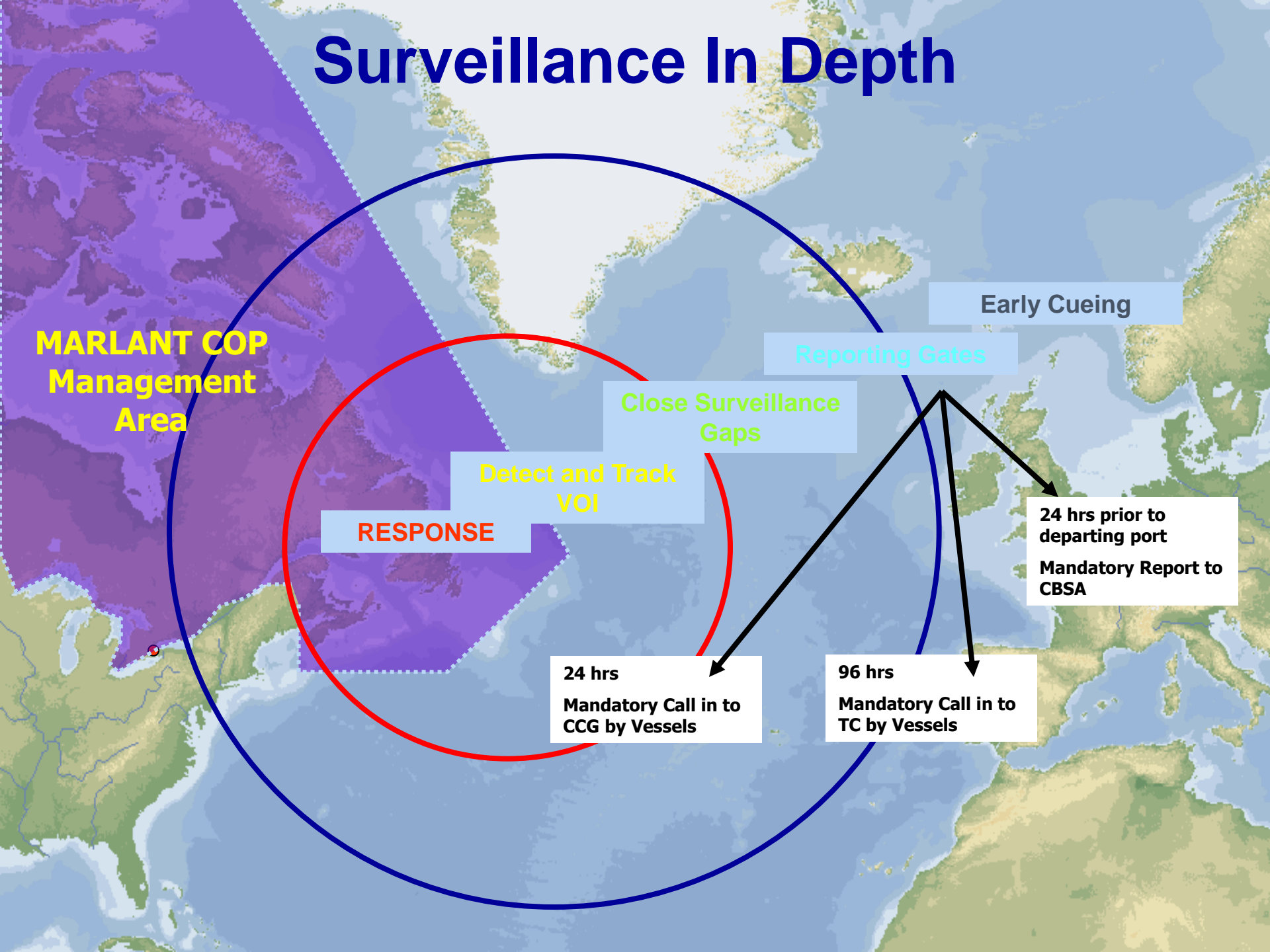
Reporting Gates

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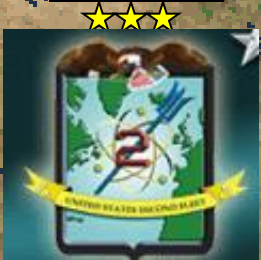
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Mandatory Report to
CBSA**





Defence – Security Partners



RMP



Canada Command



JTF Atlantic

Domestic



Northern Command



Maritime
Component
Commander
Fleet Forces
Command

Nth American



NORAD



NATO



Int'l

