

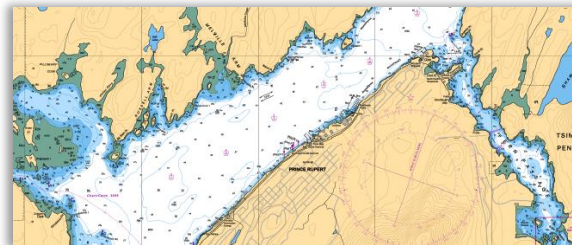


# CHS Role in the Implementation of a World Class Tanker Safety System

Presentation to US-Canada Hydrographic Commission

March 2015

Kian Fadaie, Director, Law of the Sea Program &  
National Director of Hydrography

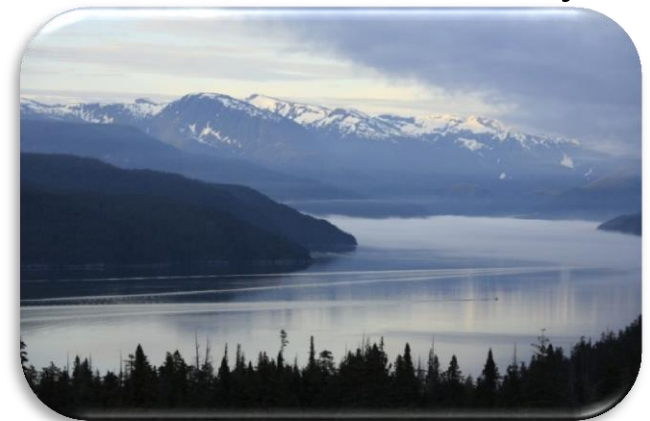




# Background



- Public concerns over pipeline development and increasing marine transport of oil & gas
- The Government of Canada's Economic Action Plan 2012:
  - measures and reviews to strengthen marine oil spill prevention, preparedness, and response; appointment of the Tanker Safety Expert Panel
  - Phase 1 of the World Class Tanker Safety System
    - Focus on Kitimat & Laying the Groundwork for the Arctic





# Tanker Safety Expert Panel



- Created to review Canada's current tanker safety system and propose further measures to strengthen it.
- First report *“A Review of Canada’s Ship-source Oil Spill Preparedness and Response Regime—Setting the Course for the Future”* completed Nov. 2013
  - Focus is on current regime south of 60° N
- Second report focusing on requirements for the Arctic and for hazardous and noxious substances nationally completed in September 2014.



# Characteristics of a WCTSS

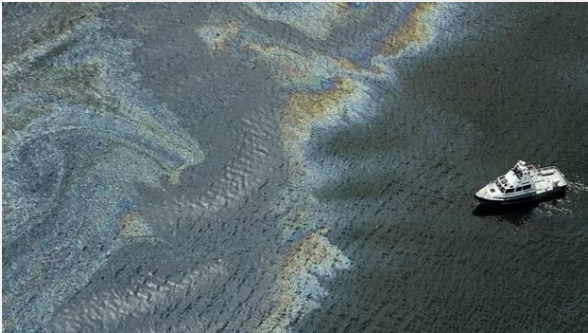


- ***Prevention*** – safe tankers; a modern and charted navigation system; navigation plans for high tanker traffic areas; and systematic surveillance and monitoring of ships.
- ***Preparedness and Response*** – risk-based response capacity; Public, Private and community partnerships; a well-established incident management system; a well-stocked ‘tool kit’ for spill response; and science and technology for clean-up.
- ***Liability and Compensation*** – polluter pay principle, international uniformity, and adequate protection



## WCTSS Phase 2



- Addresses recommendations of the Tanker Safety Expert Panel's first report
- 
- Further measures to strengthen marine oil spill prevention, preparedness and response, and liability and compensation South of 60° North Latitude



# Phase 1 – Focus on Kitimat, BC



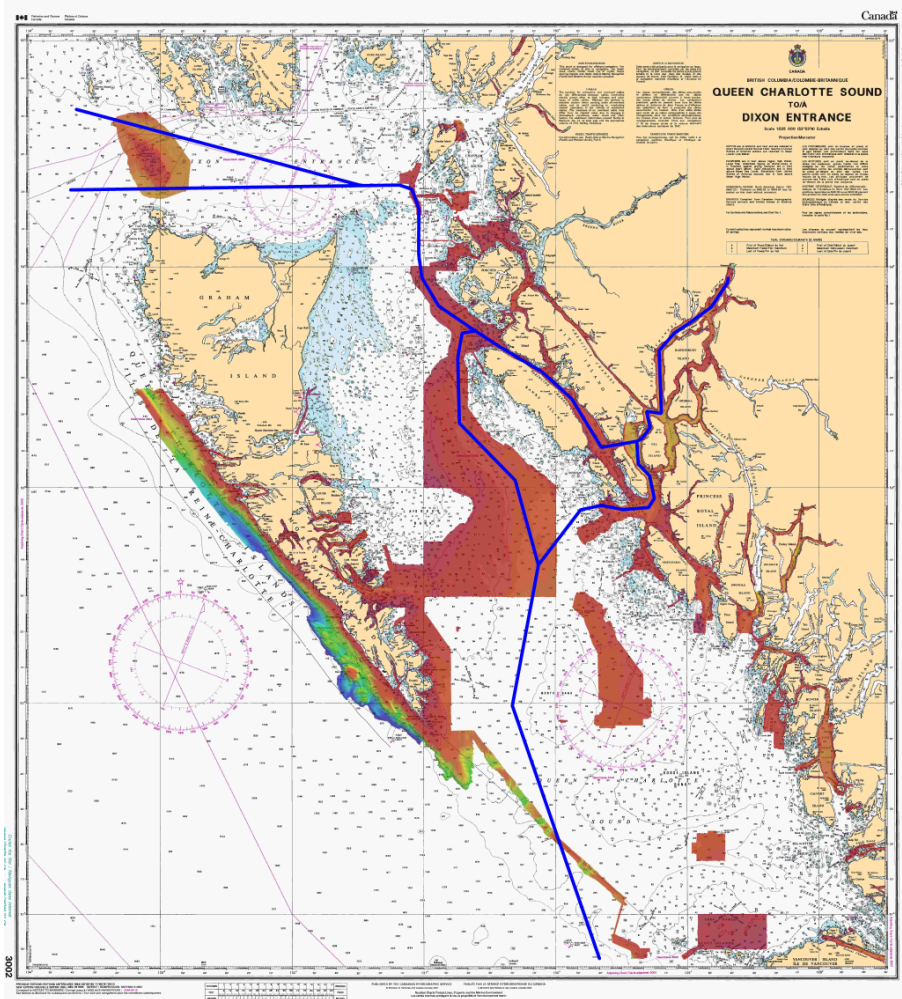
- Fill in charting gaps along the proposed tanker routes to and from Kitimat
- Requires multi-beam surveys and installation of tide gauges and current meters to acquire tidal data to develop models and predictions
- Aim is to produce modern navigational products to better support safe navigation and oil spill response measures







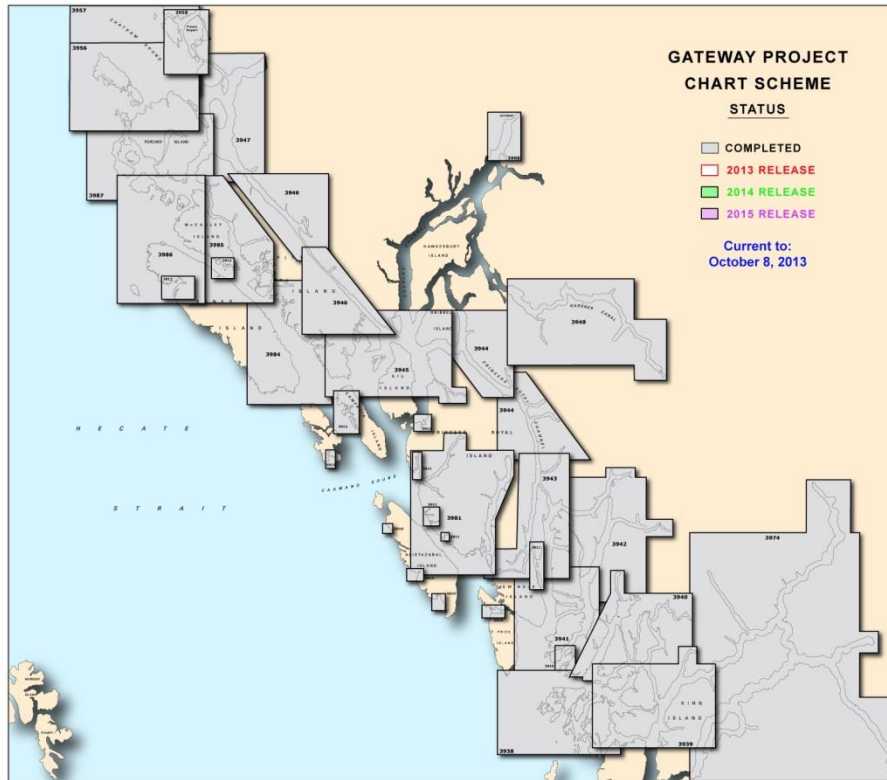
# Phase 1 - Area of survey coverage



- Routes shown in Blue
- Multibeam surveys completed in coloured shades



# Approaches to Kitimat



## New Charts completed to date

- 19 of the 25 new charts are released

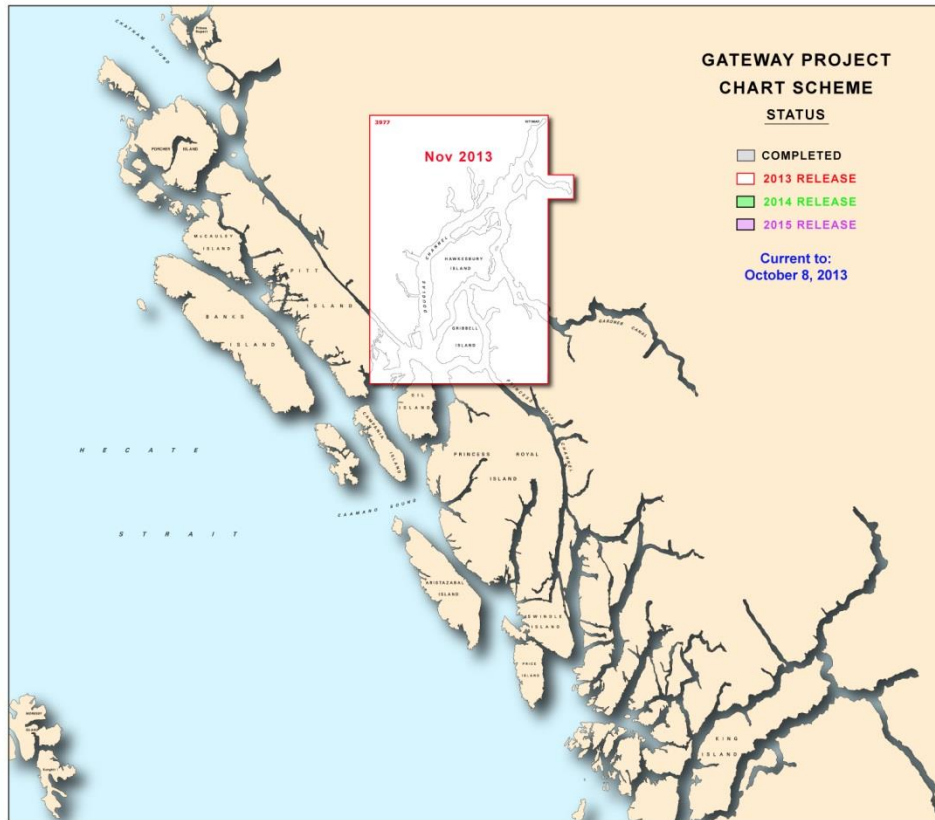
## All to modern standards

- NAD 83
- Metric
- Bilingual





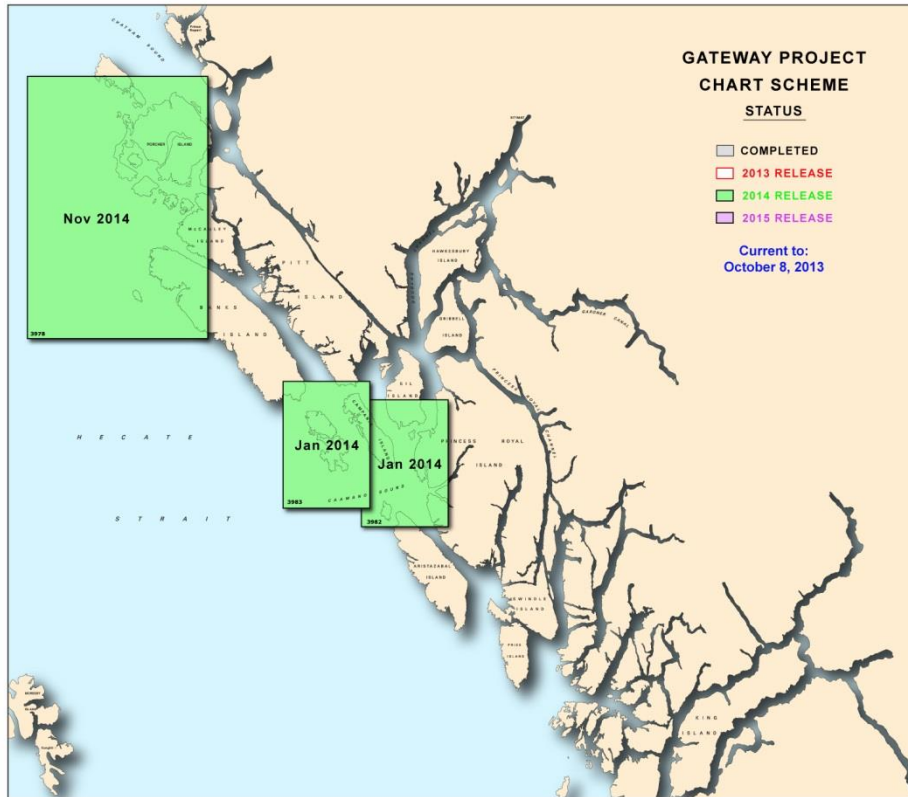
# Approaches to Kitimat



Most recent New  
Chart completed  
- Douglas Channel



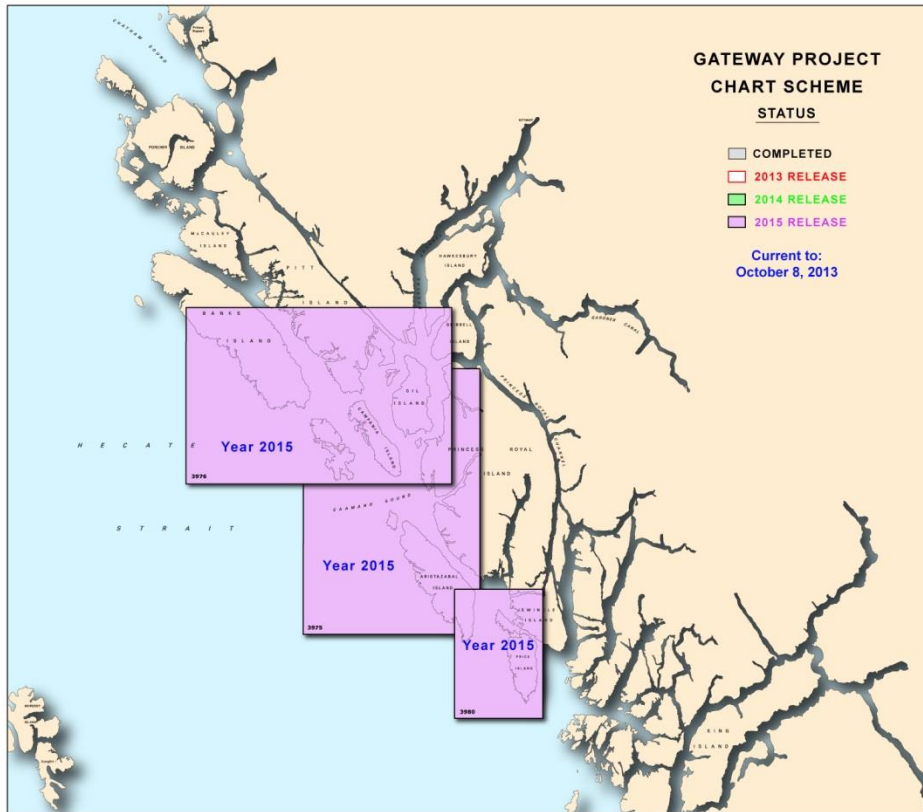
# Approaches to Kitimat



New Charts  
completed in  
2014/15



# Approaches to Kitimat



New Charts to be  
completed in  
2015/16



# Phase 2 – South of 60 initiatives



- *Prevention*
  - Modern Navigation System (led by the Canadian Coast Guard with CHS and Environment Canada) ;
  - Ocean Networks Canada – Smart Oceans Initiative;
- *Preparedness and Response*
  - Area Response Planning, starting with four local areas;
  - Alternative Response Measures
  - Operational Science for Marine Oil Spill Response;
  - Centre of Excellence for the Marine Transportation of Oil and LNG;
- *Liability and Compensation*
  - Enhancements to the Ship-Source Oil Pollution Fund;
- *General*
  - Long-Term Governance and Funding of World Class Tanker Safety System.



# Prevention: Modern Navigation System

Mariners-On-Line

**Enhanced Electronic  
Navigational Chart (ENC)  
Coverage**

Up-to-date Information on  
Restrictions to Safe Navigation

Enhanced Weather Monitoring  
through Deployment of Smart  
Environmental Buoys

e-Navigation Information Hub

Equipping the CCG's Large Vessels  
with e-Navigation Capabilities

**Three Studies to Prepare for the  
Transition to Dynamic  
Hydrographic Products and  
Services**

Review to Implement a Resilient  
Position and Timing Solution for  
Canada

Strengthened Navigational  
Monitoring

Expanded Automatic Identification  
System Carriage Requirements

Enhanced Traffic Planning and  
Analysis

Northern British Columbia Radar  
Partnership

Review to Implement an Intelligent  
Marine Navigation Traffic System

Review of Electronic Monitoring and  
Communications Capability

Modern, Relevant and  
Innovative Navigational Services

Implement Four-Season Lighted  
Navigation Buoys in Select Areas and  
Research to Adapt the Prototype to Other  
Areas

Assessment of Canada's Existing Aids to  
Navigation System with the View to  
Rationalize and Modernize the System

Initiatives

Reviews/Studies



# CHS Modern & Charted Navigation System

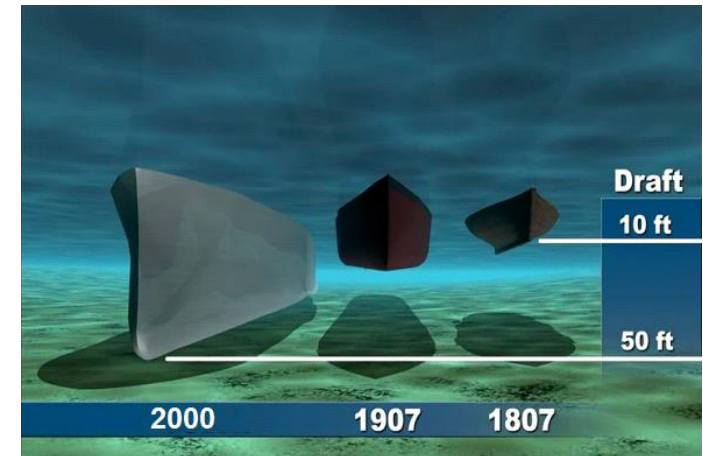
- Two distinct components:
  1. Address data and Electronic Navigation Charts (ENC) coverage gaps for 20 significant commercial ports and waterways by conducting new hydrographic surveys and producing ENCs to international standards for the ports and their approaches.
  2. Reviews to prepare for the transition to dynamic hydrographic products and services
    - Looking at future use of technology, data collection methodologies, dissemination of real-time, dynamic tide, current and water level info, costing, etc.





# ENC and Data Gaps 20 Ports & Waterways

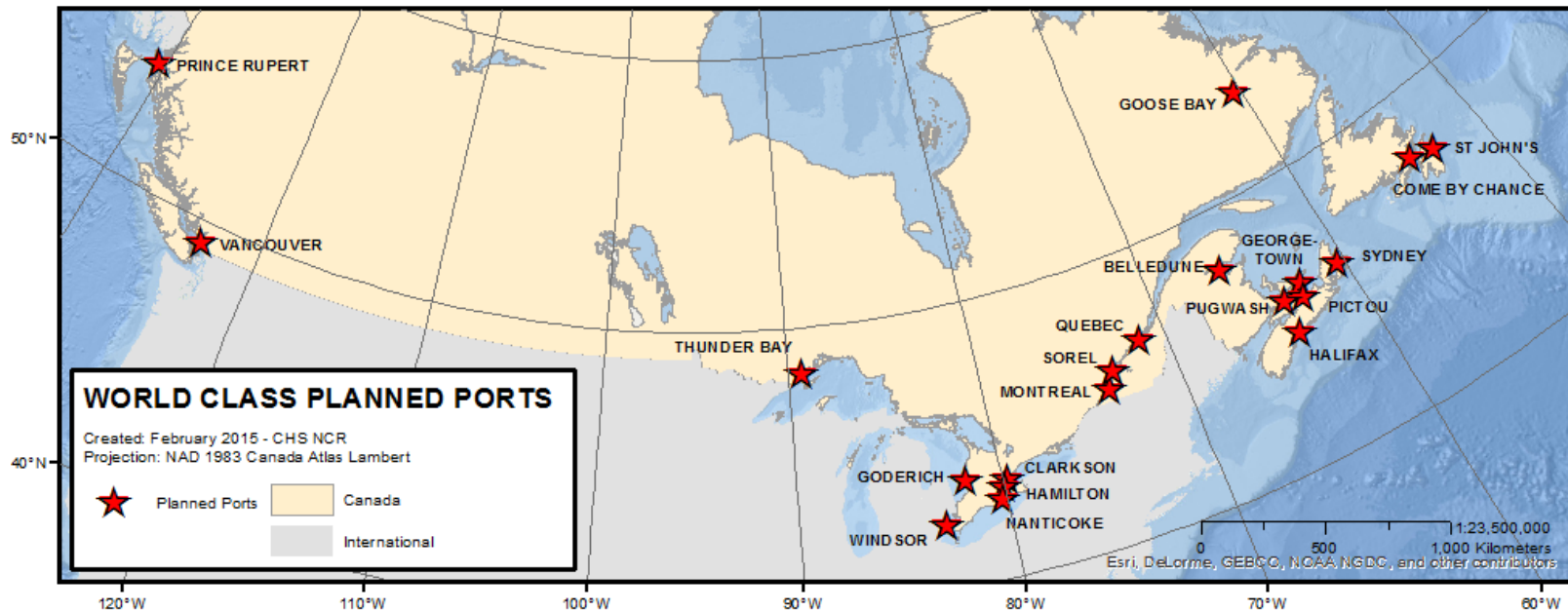
- The highest risk 20 ports in Phase 2 are selected based on the following criteria:
  - High tonnage
  - Cargoes including Oil & Gas and Hazardous and Noxious Substances.
  - Quality of bathymetry (WC standard for CHS is multi-beam bathymetry to 50m depth)
  - Quality of ENC coverage (WC standard for CHS is ENC equal to paper chart coverage or better, considering client needs);
  - Risk to shipping from navigational complexity (traffic congestion, silting, etc.)
  - Risk of port prone to environmental conditions (tides, weather, ice, swells, etc.)
  - Large vessel time for surveying not required
- Goal of ENC coverage is to meet Canada's commitments with respect to provision of ENCs under the *Safety of Life at Sea Convention*;





# ENC and Data Gaps 20 Ports & Routes

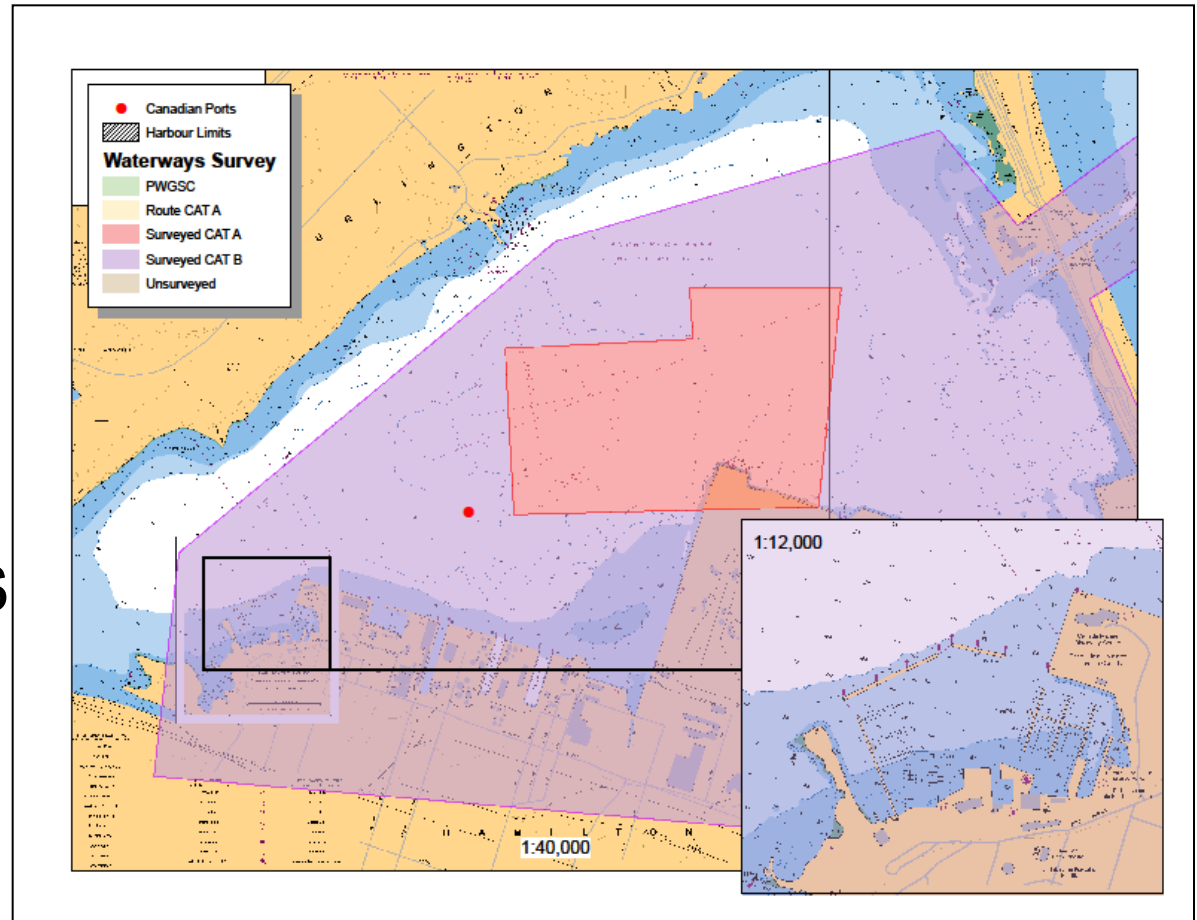
- These 20 ports are the original targets based on a rush assessment -- now being refined with full regional (local area) knowledge
  - Belledune, NS
  - Come By Chance, NL
  - Georgetown, PEI
  - Goose Bay, NL
  - Halifax, NS
  - Pictou, NS
  - Pugwash, NS
  - Sydney, NS
  - St. John's, NL
  - Montreal, QC
  - Québec, QC
  - Sorel-Tracy, QC
  - Clarkson, ON
  - Hamilton, ON
  - Nanticoke, ON
  - Thunder Bay, ON
  - Goderich, ON
  - Windsor, ON
  - Vancouver, BC
  - Prince Rupert, BC





# Details - Ports

- Hydrographic Surveys to fill gaps in data
- Production of New Edition and New ENC's
- Conversion of existing paper charts to ENC's





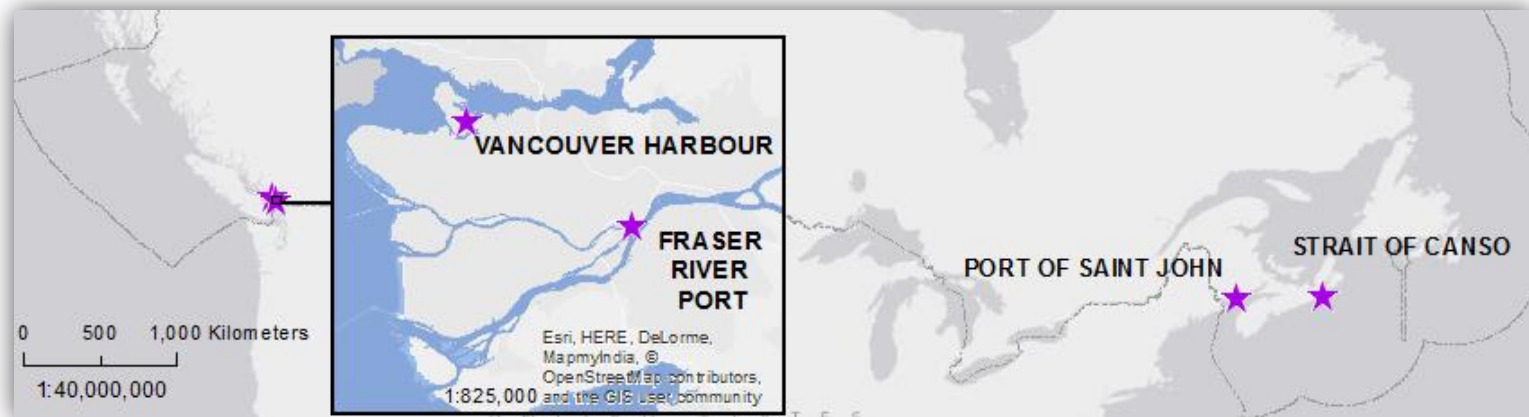
# Study: 4 Pilots For Dynamic Tides & Currents

- Real-time and forecasted tides and currents
  - to meet the real-time data requirements for next-generation Electronic Navigational Charts
  - development of standards for dynamic products is with the International Hydrographic Organization (Canada strong participant)
    - With release in 2017-18, these will become industry standard for commercial competitive shipping
- Involves installation of hydrographic instrumentation at four pilot sites
- Pilot sites were selected based on analysis of need and benefit of enhanced tide and current services



# Study: 4 Pilots For Dynamic Tides & Currents

- Proposed study sites:
  - Vancouver Harbour; Fraser River Port; Port of Saint John, NB; Strait of Canso



- Goal is to operationalize 4 study sites including implementation of the S-100 Standard for next generation ENC and dynamic data services, and;
- Extend lessons learned nationally.



# Study: Hydrographic Capacity and New Technologies



- Explore and analyse options to enhance hydrographic data collection efficiency and capacity
  - new and alternate technologies for data collection applications (e.g., air-borne bathymetry, satellite imagery for shallow water detection, Autonomous Underwater Vehicles, etc.);
  - options for the best utilization of the federal fleet (e.g., Canadian Coast Guard and Department of National Defence)\*.

\*Recommendation of the draft TC Expert Panel Report on Arctic





# Study: Costing Model for Digital Products & Services

- Develop a precise costing model for hydrographic products and services.
- Consider necessity of fees adjustment for hydrographic products and services
- Provide CHS with fact-based rationale to seek financial and operational authorities to support a viable and sustainable future business model
- Study is intended to align with similar work ongoing in the Canadian Coast Guard



# WCTSS



- Phase 1 almost complete
- Phase 2 started and will continue for the coming years
- Talks on Phase 3 and beyond