Canadian Hydrographic Service

March 2019 Dartmouth, NS Canada

York Friesen, A/Director CHS Atlantic Region

CHS Overview

- CHS: Who are we
- CHS – Products & clients
- CHS national drivers
  - Canada's Oceans Protection Plan

CHS Vision & Mandate

VISION:

To be a world class authority and supplier of hydrospatial information.

MISSION:

The Canadian Hydrographic Service (CHS) supports government priorities and meets its obligations* by providing **up-to-date, authoritative and standardized** hydrospatial information.

VALUES / QUALITY POLICY:

CHS will maintain a Registered ISO 9001 Quality Management System to enable us to supply these services in an efficient, cost-effective, and responsible manner .

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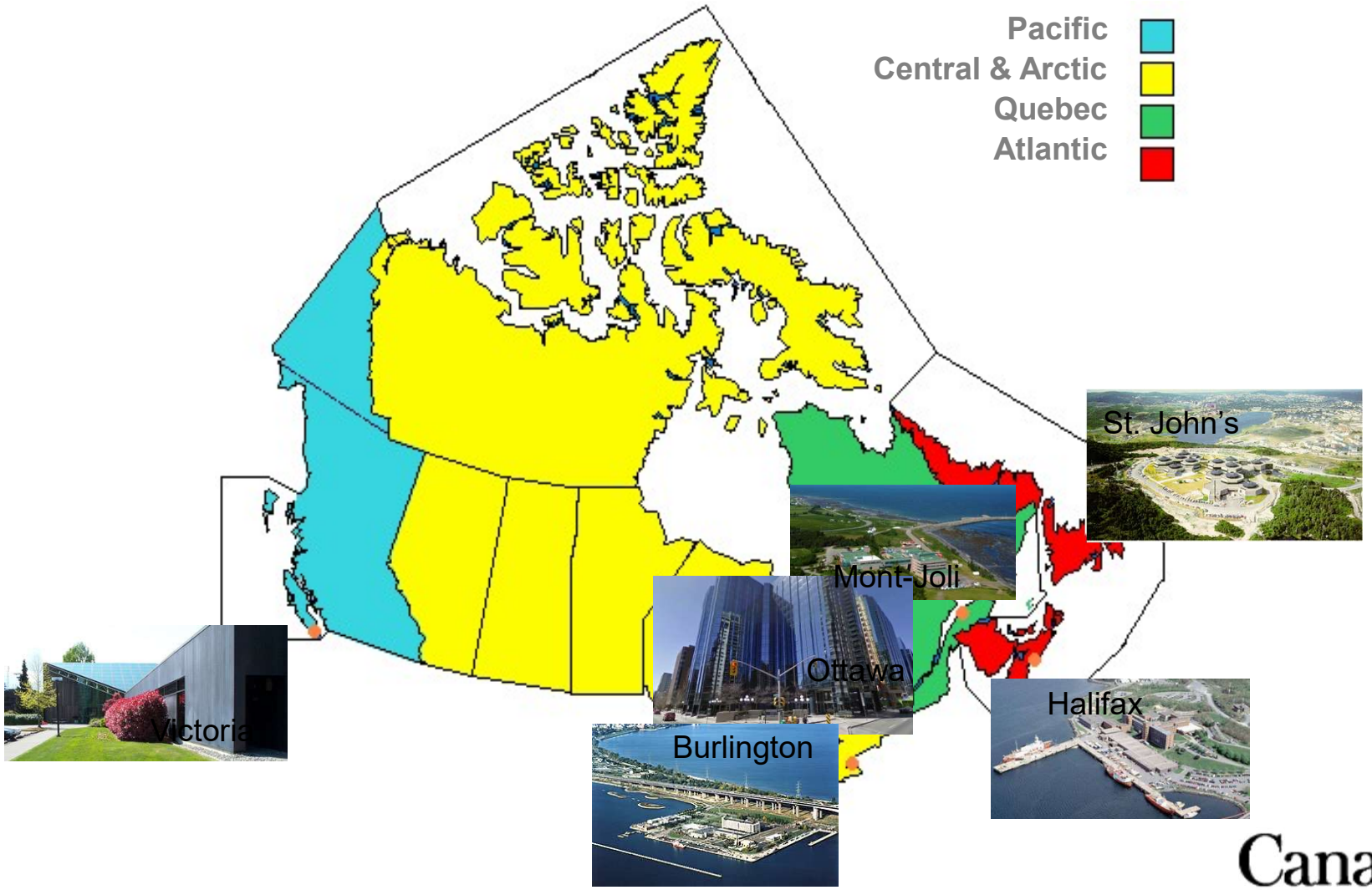
CHS Offices



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CHS Structure

Deputy Minister Fisheries & Oceans Canada
Timothy Sargent

Assistant Deputy Minister – Ecosystems and Oceans Science
Dr. Arran McPherson

Director General / Hydrographer General
Dr. Geneviève Béchard

CHS Regional Offices

Dartmouth, Nova Scotia – A/Director York Friesen

Mont-Joli, Quebec - Director Serge Gosselin

Burlington, Ontario - Director Chris Marshall

Sidney, British Columbia – Director Dave Prince

Hydrography
Director Chris Hemmingway
Boundaries, Limits & Sovereignty
Geodesy
UNCLOS

Science Data Management for Ecosystems and Ocean Science
Program Manager David Bradley
National Integration, Monitoring and Reporting (Oceans Protection Plan)
Multi-disciplinary Hydrographer Training Program

Products & Services
Director Louis Maltais
Client Services
Production
Publishing
Distribution

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CHS: Context

- **Canada has the longest coastline of any country in the world.**
- **Our lakes, rivers and oceans are used by millions of craft every year – for recreation, tourism, fishing, national and international shipping, national defense and energy related activities.**
- **These activities require detailed knowledge of our waterways for safe and efficient operations.**
- **Since 1883, the Canadian Hydrographic Service (CHS) has mapped the waters of Canada with a priority of ensuring safe and efficient navigation.**

OUR PRODUCTS

- Products
  - Charts - Paper, Vector, Raster
  - Product Updates - Notices to Mariners with CCG
  - Sailing Directions
  - Tide and Current Tables
- 131, 650 Nautical Miles of Coastline
- 968 Charts
- over 300 Employees
- Distribution ~ 200,000 Charts (Paper/Electronic) per Year
- Chart Dealers Worldwide

CHS: Key Sectors

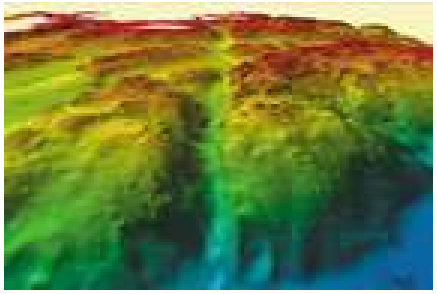
Maritime Transportation

CHS produces over 1000 nautical charts and hundreds of other navigational products which help ensure safe and efficient navigation of Canada's waterways.

Natural Coastal Hazards

CHS monitors tides and water levels – essential information for detecting and predicting climate change and variability, and natural hazards. Tidal information is also used to produce tide and current tables.

CHS: Key Sectors



Ocean and Freshwater Mapping

CHS uses the latest technology to collect high-resolution data on the depth of water, the shape, type and structure of the bottom and information on the water column for Canada's oceans, lakes and rivers.

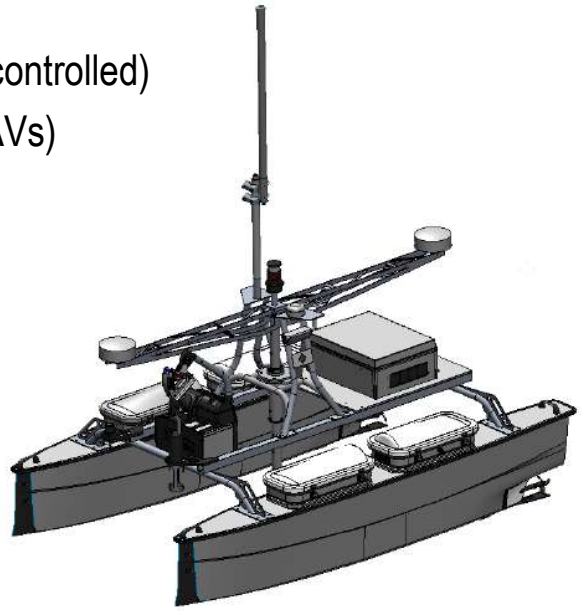
Sovereignty, Security and Defence

CHS plays a vital role in determining Canada's maritime boundaries and sovereignty.

CHS National Drivers

Mandate delivery through:

- National planning & priorities
- Innovation – by improving the speed of production and dissemination of existing and new hydrographic data and services:
  - Marine Spatial Data Infrastructure (MSDI)
  - Crowd-source bathymetry (open, targeted and trusted/controlled)
  - Satellite-derived bathymetry & Autonomous Vehicles (AVs)
- Stakeholders engagement
- Efficient & agile organization
- Quality Management System
- Hydrographic expertise of its workforce



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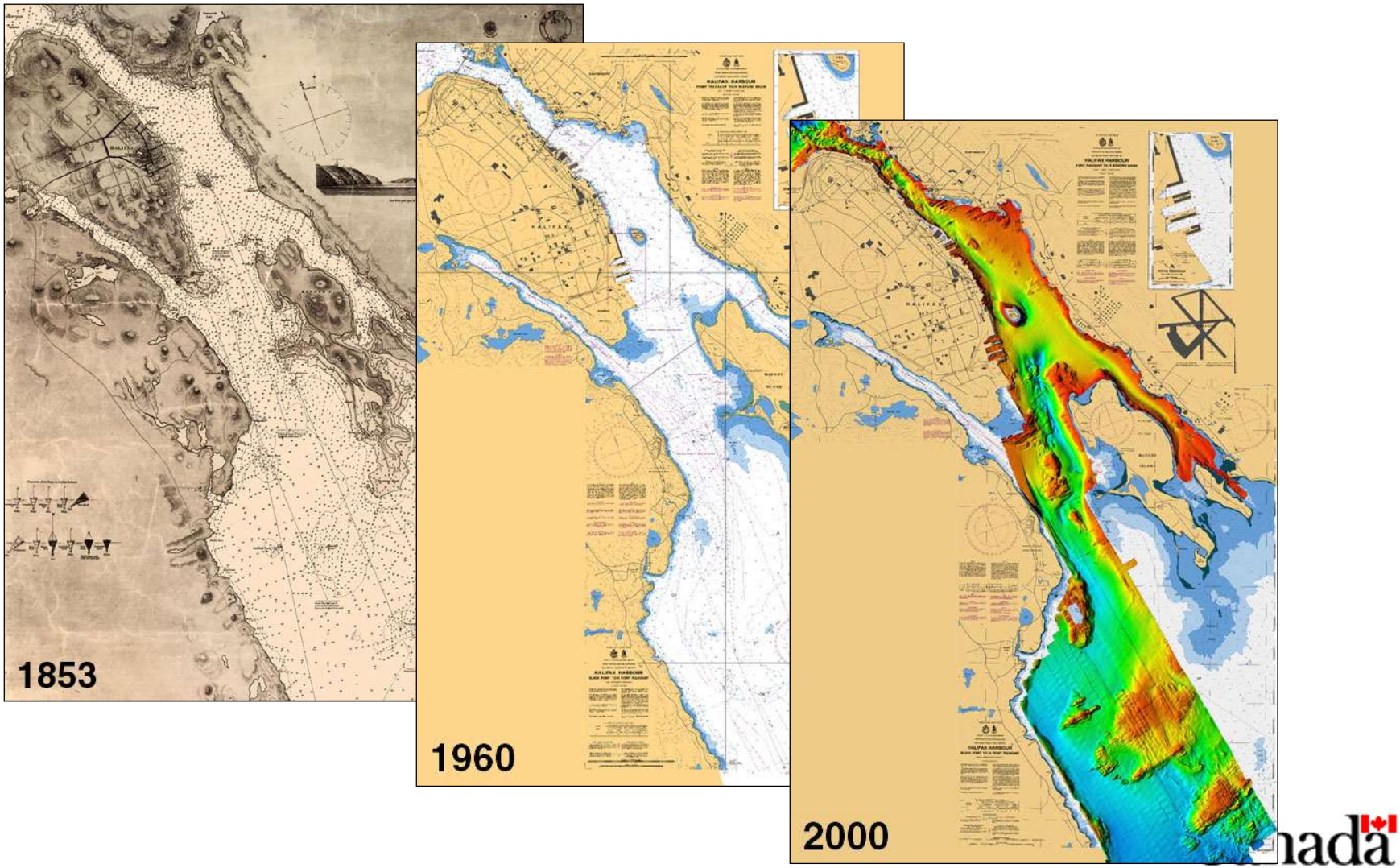
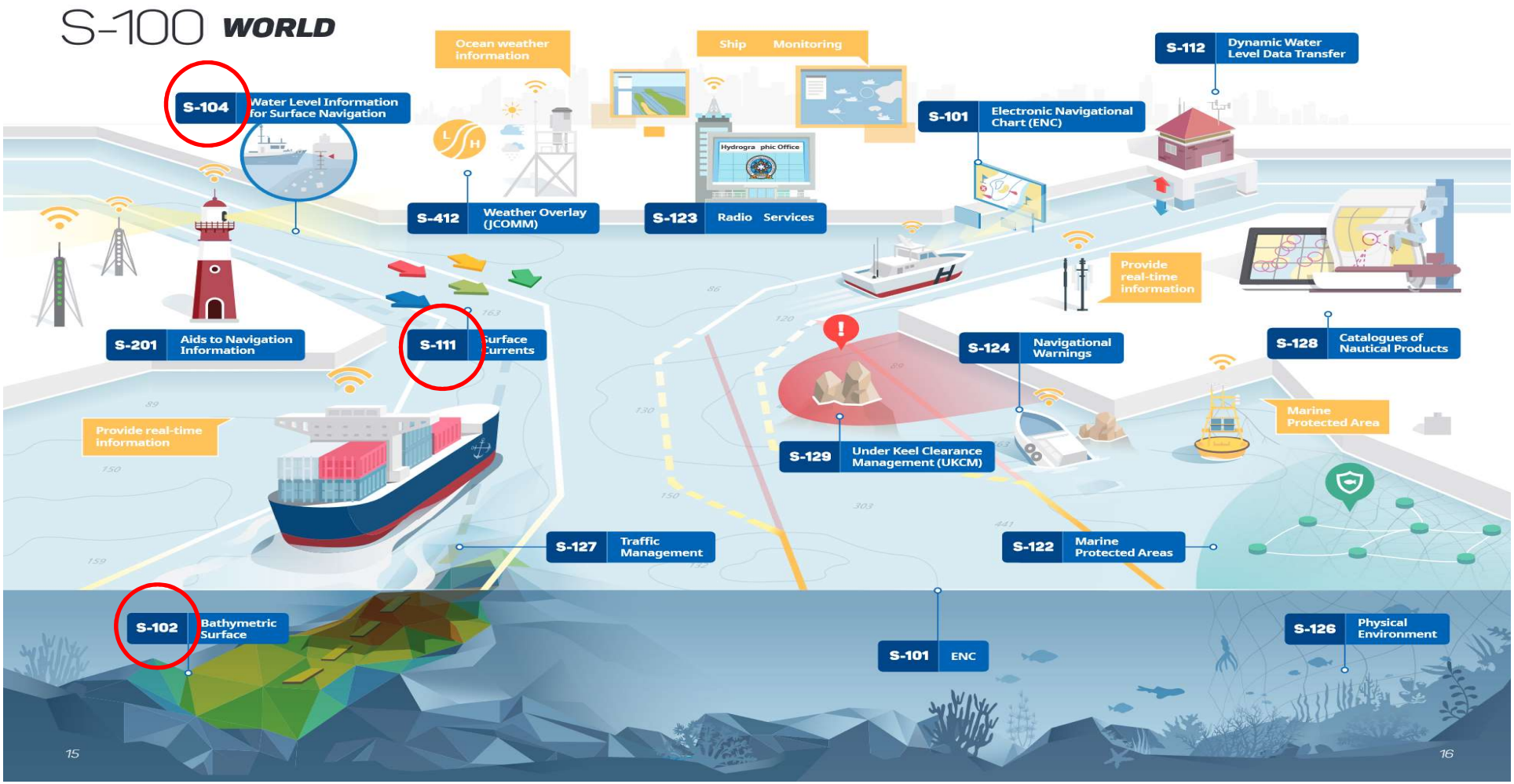
HOW CHARTS HAVE CHANGED



Hydrography is changing

- From product to services
- From static to dynamic
- Tsunami of data
- Paper chart 2.0

OPP Dynamic Hydrographic Products DHP



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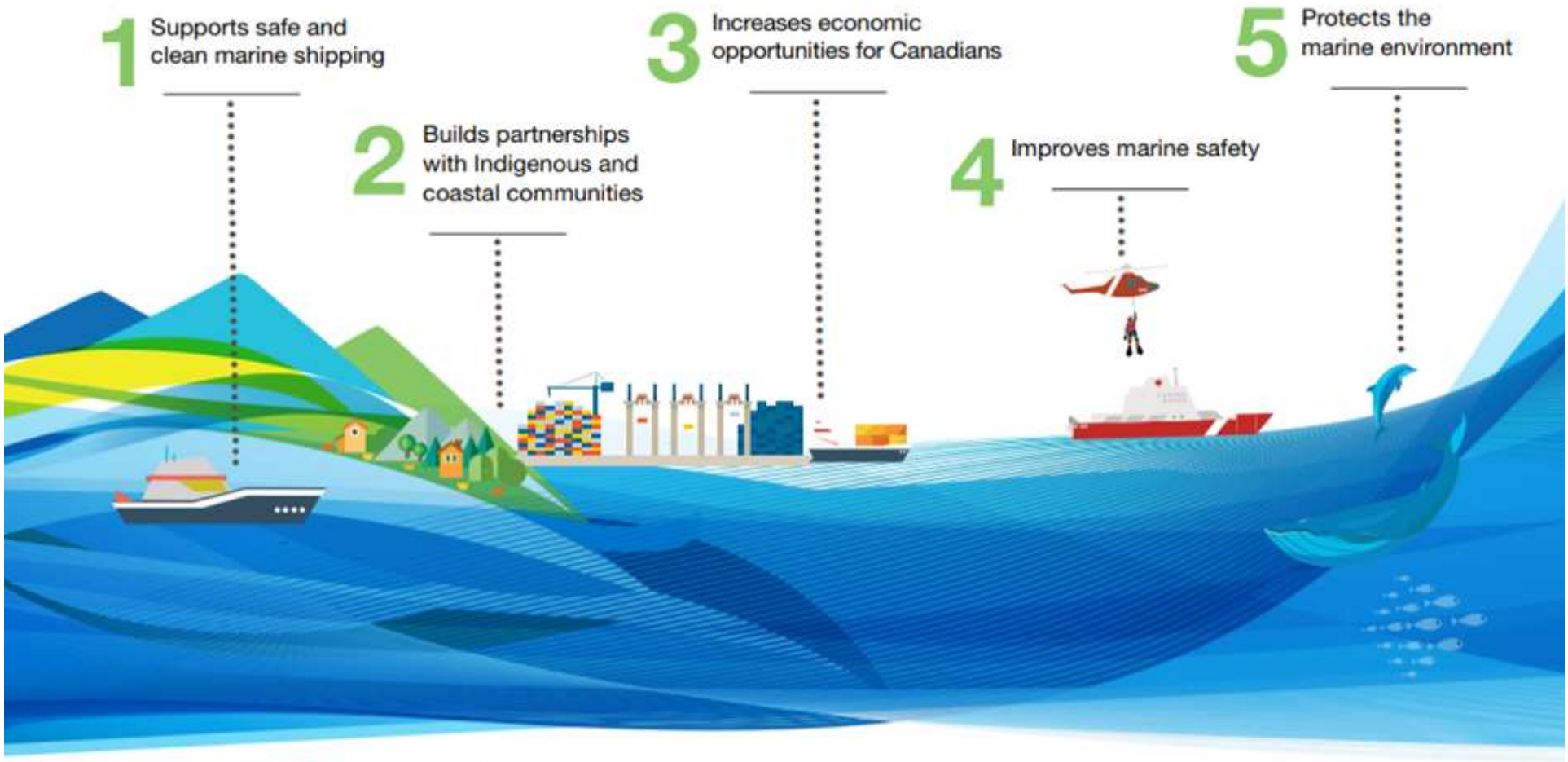
$1.5 Billion National Oceans Protection Plan



canada.ca/oceans-protection-plan

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Canada's Oceans Protection Plan: A world-leading marine safety system protecting Canada's coasts

What does ***"…Make navigation safer by providing modern hydrography and charting in key areas of high traffic commercial ports and waterways, dynamic products, and …"*** mean for CHS:

1. Modern hydrography and charting in additional « 23 Ports »;
2. « Near Shore » modern hydrography (*Light Detection And Ranging* – LiDAR) and charting in key areas;
3. « Dynamic Hydrographic Products » and services related to tides, water levels, currents and high resolution bathymetry in targeted sites;
4. « Arctic » modern hydrography and charting in key areas;
5. Implementing a Marine Spatial Data Infrastructure (MSDI).

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Hydrography in Ports

Canada's Oceans Protection Plan (OPP): Modern Hydrography & Charting in Key Areas

DFO-Science CHS OPP Initiatives | Hydrography in Ports | Near Shore Bathymetry | Arctic Hydrography & Charting | Hydrographic Dynamic Products | MSDI & RRP

Last Updated: January 18, 2018

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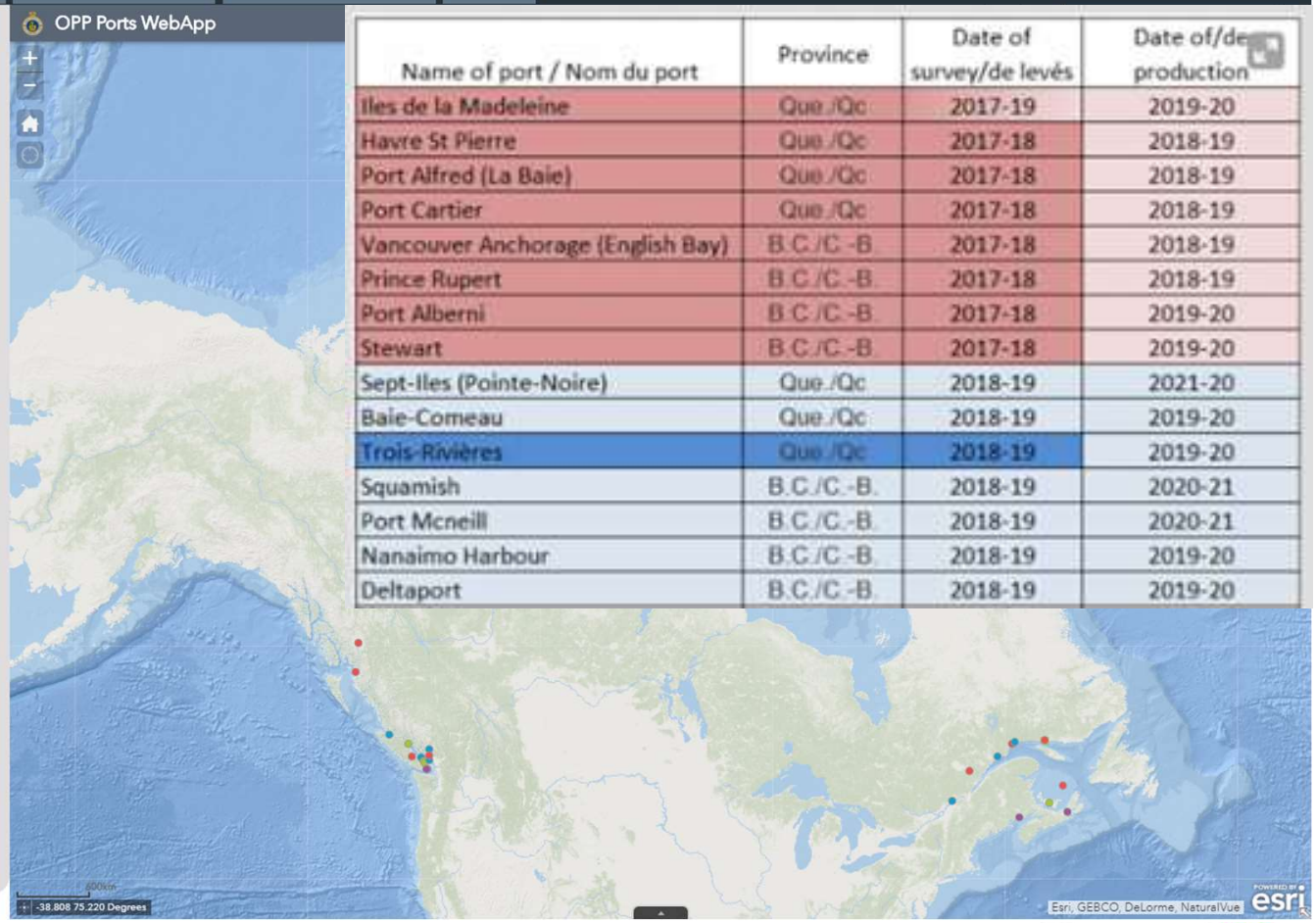
Modern hydrographic surveying of 23 priority commercial ports will start in 2017-18 with a goal to complete the surveying of 15 ports by 2018-19. This sub-element continue to build on the initial efforts under the World Class Tanker Safety System initiatives. Ports were assessed based on size/traffic (current and potential growth in both size and traffic flow), gaps in hydrography and ENC coverage, risk potential (e.g. recent marine incident/grounding), stakeholder feedback (e.g., port authorities) and information identifying high risk approaches to ports.

Name of port / Nom du port	Province	Date of survey/de levés	Date of/de production
Iles de la Madeleine	Que./Qc	2017-19	2019-20
Havre St Pierre	Que./Qc	2017-18	2018-19
Port Alfred (La Baie)	Que./Qc	2017-18	2018-19
Port Cartier	Que./Qc	2017-18	2018-19
Vancouver Anchorage (English Bay)	B.C./C.-B.	2017-18	2018-19
Prince Rupert	B.C./C.-B.	2017-18	2018-19
Port Alberni	B.C./C.-B.	2017-18	2019-20
Stewart	B.C./C.-B.	2017-18	2019-20
Sept-Iles (Pointe-Noire)	Que./Qc	2018-19	2021-20
Baie-Comeau	Que./Qc	2018-19	2019-20
Trois-Rivières	Que./Qc	2018-19	2019-20
Squamish	B.C./C.-B.	2018-19	2020-21
Port Mcneill	B.C./C.-B.	2018-19	2020-21
Nanaimo Harbour	B.C./C.-B.	2018-19	2019-20
Deltaport	B.C./C.-B.	2018-19	2019-20
Charlottetown	P.E.I./Î.-P.-É.	2019-20	2020-21
Campbell River	B.C./C.-B.	2019-20	2020-21
Crofton	B.C./C.-B.	2019-20	2021-22
Chemainus	B.C./C.-B.	2019-20	2020-21
Saint John	N.B./N.-B.	2020-21	2021-22
Port Hawkesbury	N.S./N.-É.	2020-21	2021-22
Esquimalt	B.C./C.-B.	2020-21	2021-22
Victoria Harbour	B.C./C.-B.	2020-21	2021-22

Darker shade indicates completion.



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Near Shore Bathymetry

Canada's Oceans Protection Plan (OPP): Modern Hydrography & Charting in Key Areas

DFO-Science CHS OPP Initiatives | Hydrography in Ports | Near Shore Bathymetry | Arctic Hydrography & Charting | Hydrographic Dynamic Products | MSDI & RRP

Last Updated: March 5, 2018

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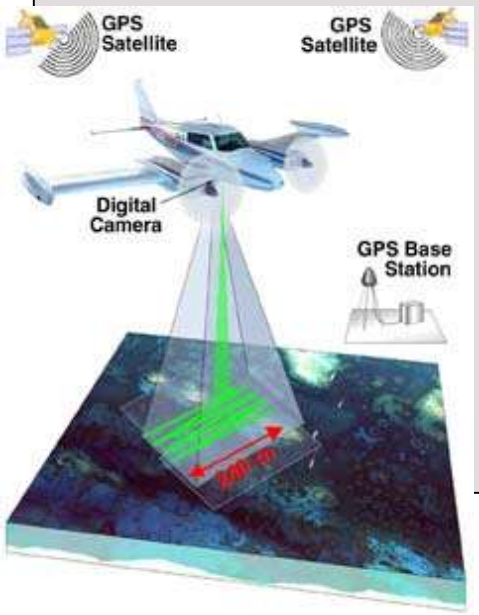
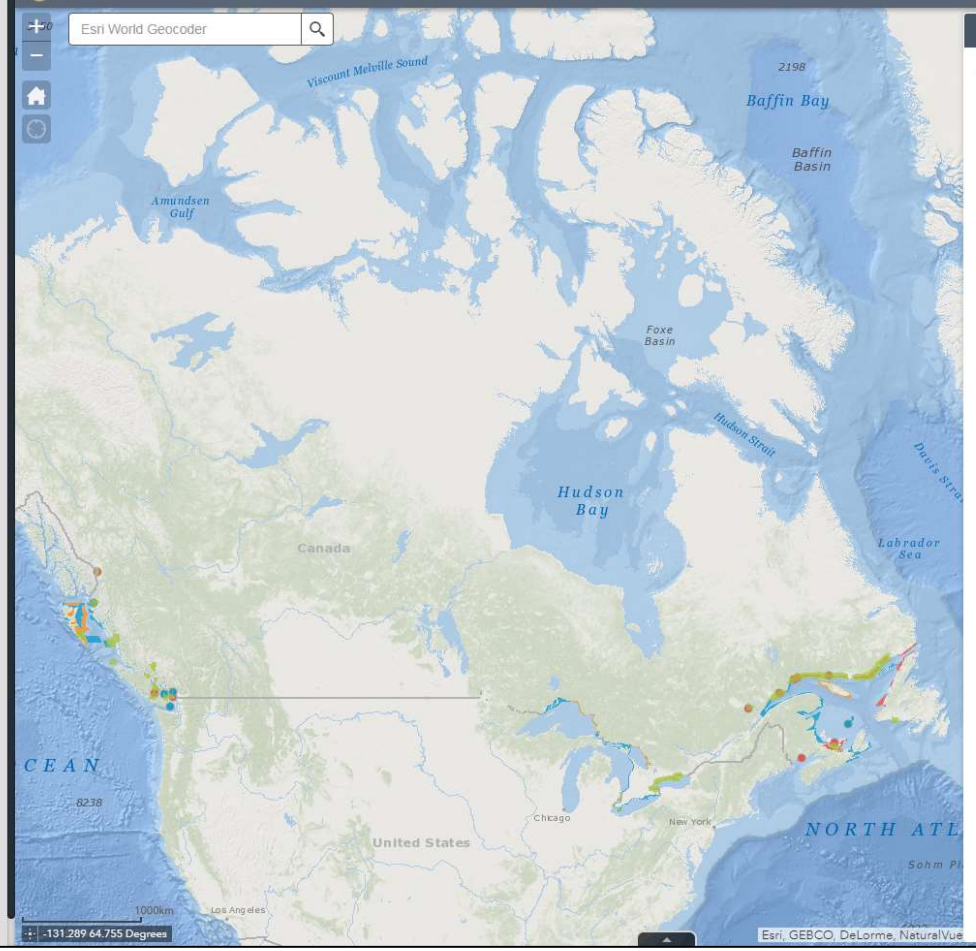
DFO-Science CHS will undertake near-shore surveying activities through a combination of Light Detection and Ranging (LiDAR) surveys and multi-beam launch surveys covering priority and high risk areas in Pacific, Newfoundland and Labrador, Estuary and Gulf St. Lawrence, Maritimes and Great Lakes Basin. LiDAR is an Airborne a powerful hydrographic survey technique allowing to measure bathymetry from an Airplane equipped with a specialized Laser to measure water depth down to 20 meters deep weather and water clarity dependent.

2017-18 Near-shore Survey Plan: LiDAR Surveys

Lake Ontario-Lake Erie
Northumberland Strait and Ports : Saint-John; Charlottetown
North Shore & West Coast of Newfoundland (including Ports Alfred, Cartier, Havre Saint-Pierre, IDM)
Eastern Shore of Nova Scotia
Haida Gwaii – Graham Island North





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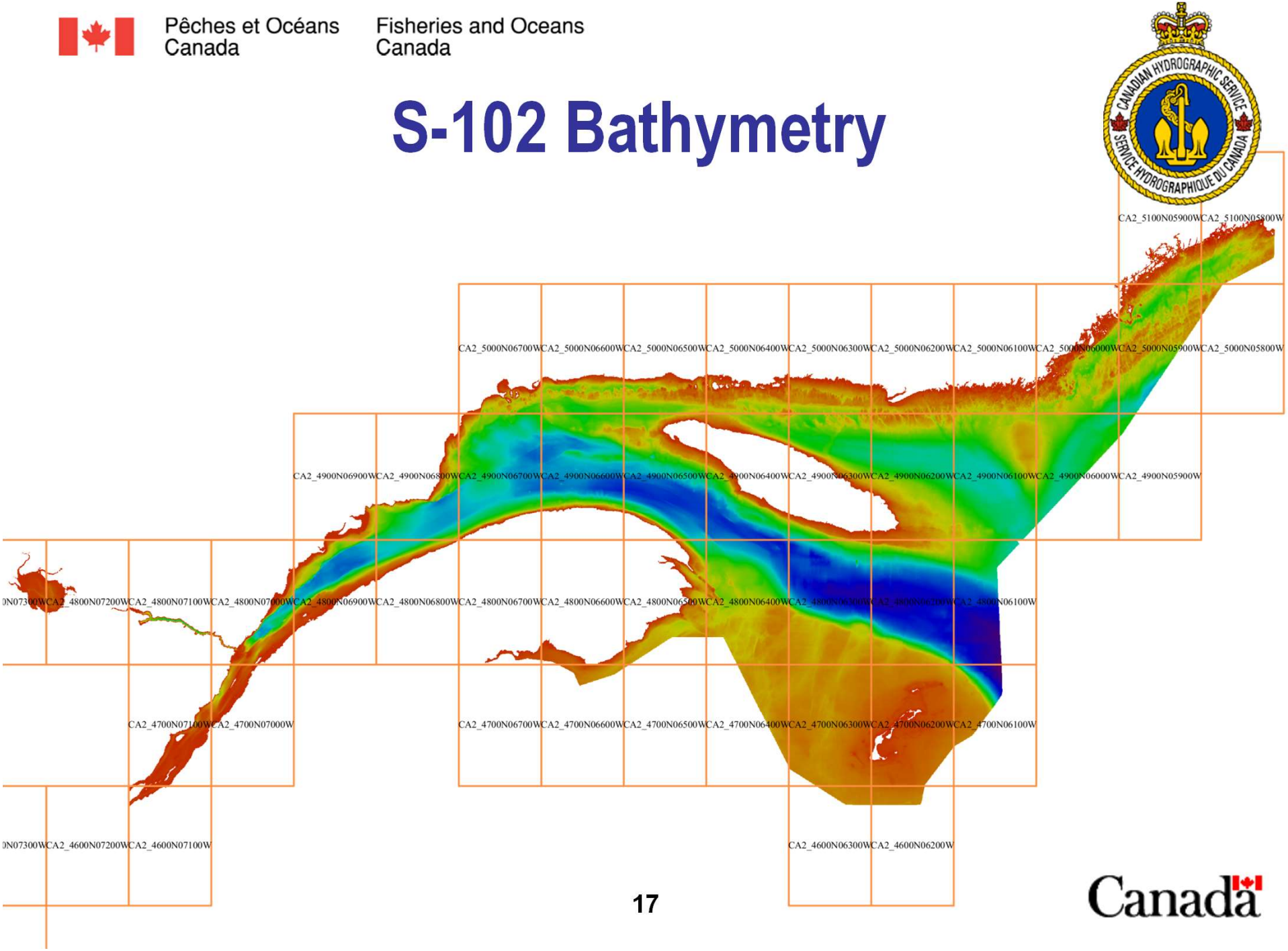
S-102 Bathymetry



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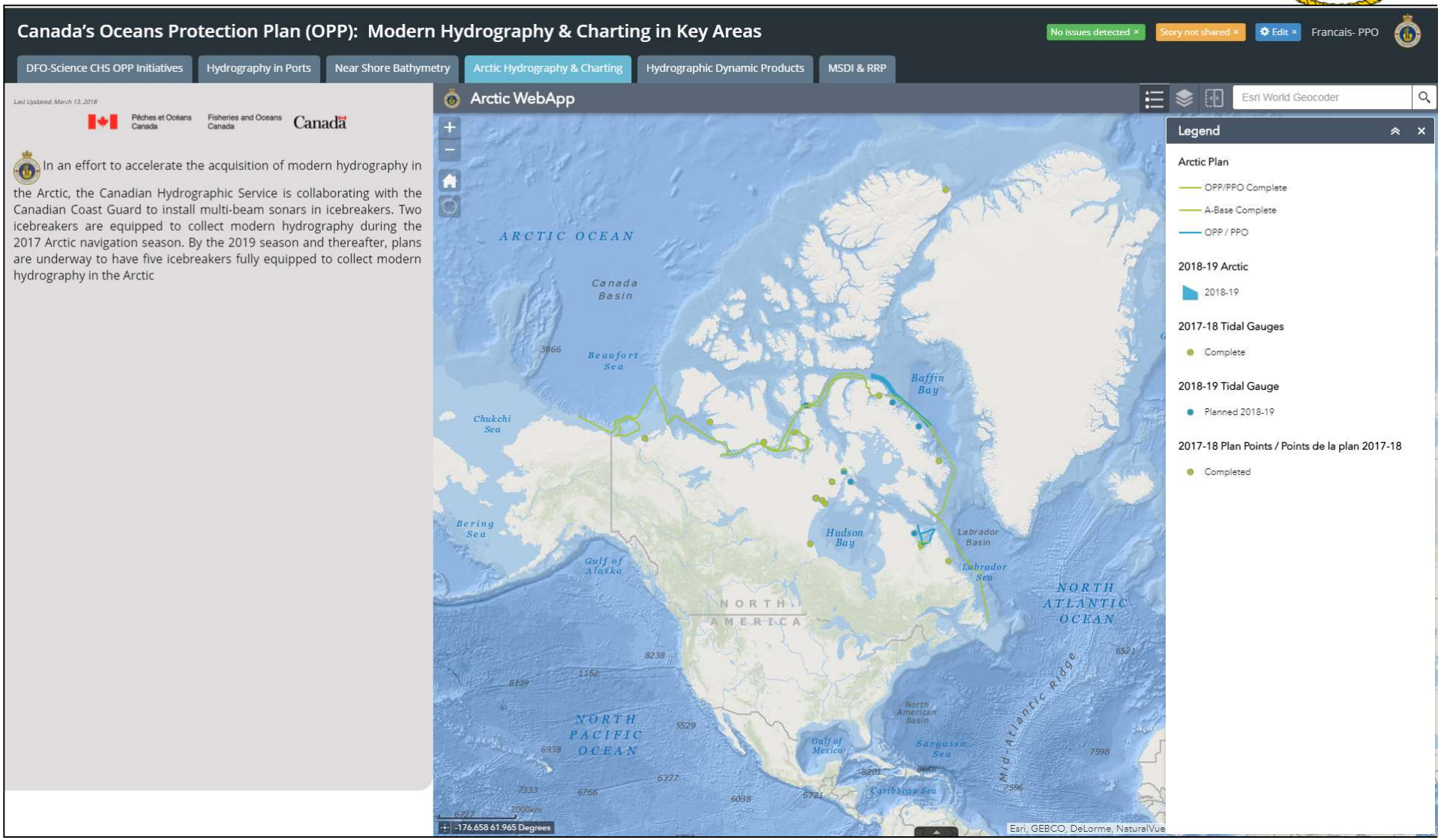
Arctic



Thank you
Merci

Questions?