

Canada

# Canadian Hydrographic Service (CHS)

Joint Canadian Hydrographic and National Surveyors' Conference March 26 – 29 2018, Victoria, BC. Louis Maltais, Director Hydrospatial Services and Support.



<u>Plan</u>

- Ocean Protection Plan, objectives / achievements
- Context
- Way forward
- S-100
- Challenges



*Graphic Source: International Hydrographic Organization (IHO)* 

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Korea Hydrographic & Oceanographic Agency (KHOA), Republic of Korea

Canada

## **Canada's Ocean Protection Plan: A world-leading**

# marine safety system that protects Canada's coasts

https://pm.gc.ca/eng/news/2016/11/07/canadas-ocean-protection-plan-world-leading-marine-safety-system-protects-canadas

Canada's Ocean Protection Plan: A world-leading marine safety system that protects Canada's coasts - Vancouver, British Columbia - November 7, 2016...

.... Make navigation safer by providing modern hydrography and charting in key areas of high traffic commercial ports and waterways, dynamic products, and ...

#### https://www.tc.gc.ca/eng/canada-oceans-protection-plan.html

#### Modern hydrography for charting in priority areas

- Major Canadian ports will have access to increased charting and electronic and navigation ٠ tools to allow ships to operate more efficiently and safely.
- This new investment will allow the Canadian Hydrographic Service to increase surveys, • deliver dynamic information for water levels, tides, and currents, and quickly produce high resolution electronic navigation charts and navigational products over the next five years for mariners. Over 20 of the highest traffic commercial ports and waterways in Canada, covering two thirds of Canada's total cargo vessel traffic, will have updated navigational information.





## **Canada's Oceans Protection Plan (OPP)**

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. «Hydrographic 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).





**Artificial intelligence** 

# 2018 Context

#### Wärtsilä acquires Transas to accelerate its Smart Marine Ecosystem vision

Wärtsilä Corporation, Press release, 19 March 2018 at 10:00 AM E. Europe Standard Time

Wärtsilä's Smart Marine Ecosystem is a vision whereby smart vessels connect with smart ports and beyond to deliver three fundamental industry benefits: maximising the use of resources and <u>operational efficiency, minimising environmental impact and risk, and</u> <u>achieving the highest levels of safety</u> and security. Through <u>data integration, greater</u> <u>connectivity and cloudbased technology</u>, Wärtsilä aims to resolve inefficiencies in the shipping sector resulting from overcapacity, sub-optimal fuel consumption, and waiting times at ports and other high-traffic areas.







## Hydrographic Dynamic Products





# Way forward

- Draft S-100 business plan
- Electronic chart and Paper chart 2.0
- From Products to Services
- Canada to lead implementation of S-100





Fisheries and Oceans Canada

## S-104 Water Levels

#### **Dynamic Hydrographic products**

	Water levels					
	Prediction Web Service	Observation Web Service	Forecast Web Service	Prediction S-104	Observation S-104	Forecast S-104
OPP Key areas						
Vancouver Harbour Area (model)						
Stations	Х	X				
Kitimat Area (model)						
Stations	Х	X				
St-Lawrence River Area (model)		Spine System	Spine System			
Stations	Х	X	X			
Saint-John NB area(model)						
Stations	Х	X				
Strait of Canso Model						
Stations	Х	X				

Station time serie | Saint-François I.O. (03100) | 2017-05-05 to 2017-05-07

Air - Pressure (kPa) Water - Level (m)

More -AII  $\Box_{\overline{S}}$ Zoom Day Week Mth Year 6 5 Water - Level (m) з 2 0 20:00 2017-05-06 12:00 20:00 16:00 04:00 08:00 16:00 2017-05-0 16:00 2017-05-06 16:00 2017-



# S-104 Water Levels

- Tests datasets provided to BC Coast Pilots few weeks ago.
- 700 stations, 15 mins interval, level + trend
- Annual dataset : 50 Mo
- Basic QC tools
- CHS, first member state to create S-104
- International Webinar (Feb 21) to share expertise and tools.



# Water level observations

- 80 stations
- Webservices / AIS (Automatic Identification System)
- During this presentation CHS measured, QC and published more than 500 water level observations !















# S-111 Surface currents

• Modelling efforts ongoing in key areas, iterative approach, team work with Environment Canada.





**Challenges** 

- 85 new staff hired in the last 2 years
- Use of emerging international standards (distribution?)
- From static to dynamic information
- Survey capacity vs charting capacity
- Priorities
  - Notices
  - Electronic Chart
  - Paper Chart (RFI)









CHS continues to be committed to deliver its mandate and obligations :

Deliver according to 5-year Oceans Protection Plan (OPP) to help Canada achieve a world-leading marine safety system commitments;

"Data Centric / Client / Innovation" DRIVEN ...



# Thank you! Merci!



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