



44th Meeting of the US - Canada Hydrographic Commission



National Report by CANADA

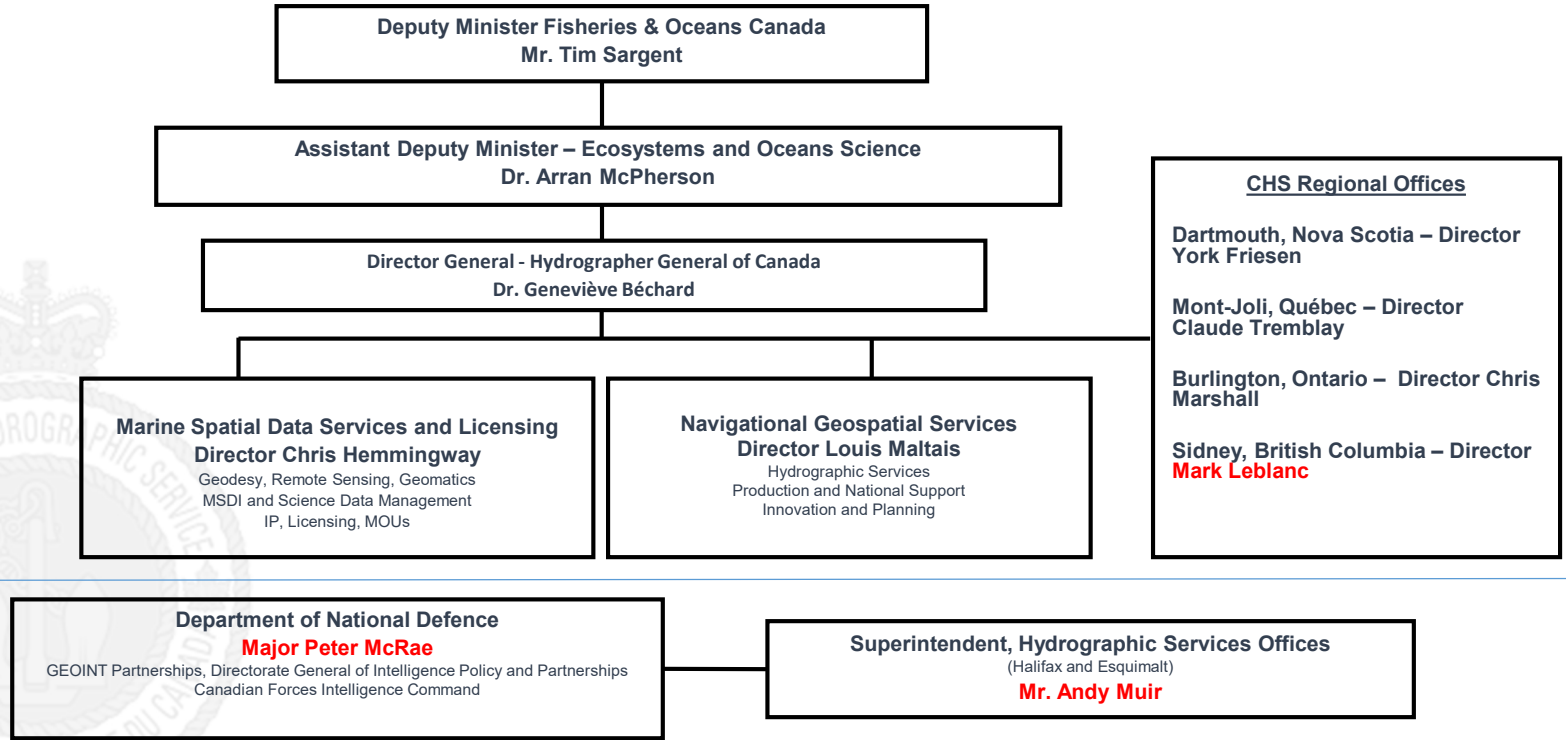


Presentation Outline

- Organizational update
- The COVID-19 Challenge
- Ocean Protection Plan
- Initiatives of Influence (international, domestic)
- CHS Transformation
- Update from Department of National Defence (DND)
- Conclusion



Organizational Updates





The COVID-19 Challenge

Essential field work under COVID-19



Quebec, July 2020



St. Mary's River, Ontario, May 2020



Rivière-au-Tonnerre, Quebec,
June 2020



CCGS Vector, July 2020



Sandy Cove, British Columbia, July 2020



Kitsilano Base, British Columbia,
August 2020





Ocean Protection Plan: After 4 years

- Improved navigation products and services for mariners in important coastal areas, the Arctic and high traffic commercial ports and waterways. Thus far we have:
 - Completed hydrographic surveys for 23 high-priority commercial ports, and released 35 new or updated corresponding Electronic Navigation Charts (ENCs)
 - Increased to ~35% the percentage of modern hydrographic coverage in the Arctic Primary and Secondary Low Impact Shipping Corridors, expanded ENC coverage.
 - Completed multiple LIDAR and multi-beam surveys in high-risk near-shore areas on the coasts of British Columbia, Newfoundland and Labrador, Gulf of St. Lawrence and the Great Lakes Basin.
 - Developed models for dynamic tide and current e-navigation products for six ports/waterways; Kitimat, Vancouver, Fraser River, Straits of Canso, St. John and the St. Lawrence River Quebec-Montreal Corridor.
 - Continued to refurbish the Permanent Water Level Network stations for tide and water level monitoring
 - New grid based ENC scheme for Haida Gwaii incorporating bathymetric LIDAR



Initiatives of Influence

- IHO Strategic Plan
- IHO Roadmap for S-100 Implementation
- UN Decade of Ocean Science for Sustainability
- Gender and Diversity
- The Blue Economy





S-100 Enabling Initiatives in Canada

- CA S-100 Committee (CHS lead)
- National Marine Committee (Transport Canada lead)
- E-Navigation (Canadian Coast Guard lead)
- Maritime Autonomous Surface Ships MASS (Transport Canada, National Research Canada leads)
- Space-Based Earth Observation 15-year draft strategy (Canadian Space Agency lead)
- Canadian Ocean Mapping Research and Education Network (COMREN)



CHS Transformation

10-years impacting all operations

		Chapter	Champion
1		CHS Workforce and Workplace	Geneviève Béchard
2		Business Model Modernization	Chris Hemmingway
3		Data Acquisition Transformation	Chris Marshall
4		Database Transformation	York Friesen
5		Product Rationalization (Modernization)	Mark Leblanc
6		Products to S-100 Services	Claude Tremblay, Louis Maltais
7		Data Distribution	Louis Maltais
8		Communication	Claude Tremblay





1. Workforce and Culture



“ *The Future of Work...*

*People with a **growth mindset***

*develop a thrive mentality,
believing the future holds
greater potential to learn
and grow their skills.*



*...The **culture change** is the
sum of all individual changes.*

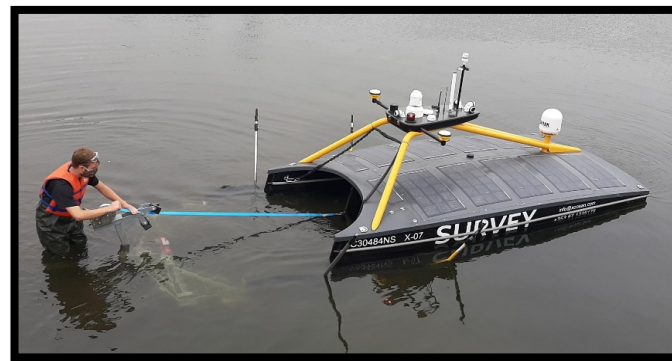


2. Business Model Modernization

- Business Model / Legal and Policy Implementation
 - Confirm CHS authorities (e.g., for revenue/royalty generation, product & service price changes, etc.)
 - Clarify interpretation of new/modified legislation as it applies to CHS
- Intellectual Property Licensing Revamp Related to Business Model
 - Fee, with updated royalty matrix, or free?
 - Streamline Licensing and update templates

3. Data Acquisition Transformation

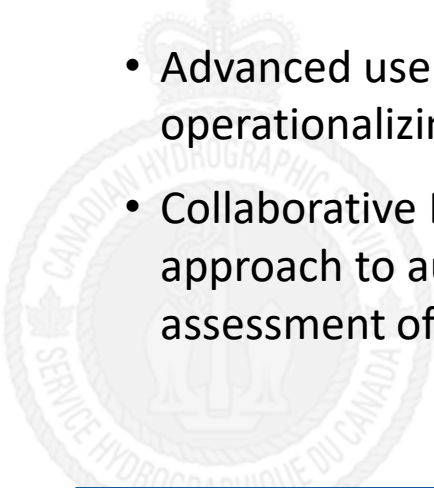
- Advances in Data Acquisition Including Tides - ASV trials, improved comms
- Innovation in Data Processing – Remote data collection, automated processing
- Advanced use of Remote Sensing – operationalizing SDB, hazard detection
- Collaborative Data Collection Current focus approach to automate collection and assessment of data



Lake Superior ASV survey trial



Remote survey operations --- from home

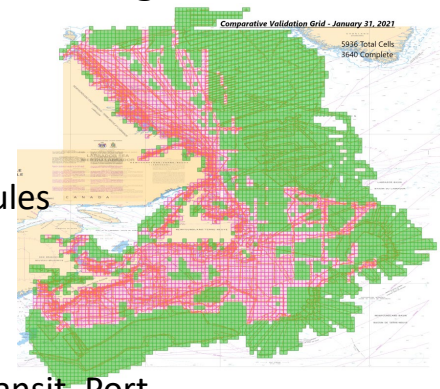


4. Database Transformation

Goal: Ensure all soundings & navigational data are *complete, current & digital*

Key Projects

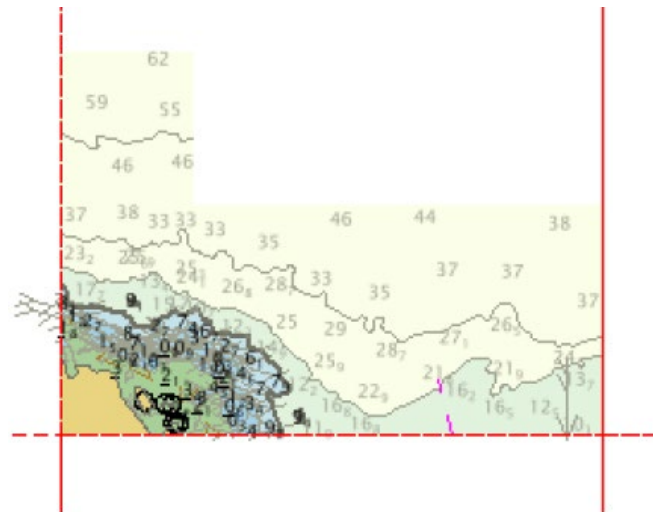
- Comparative Validation (Deconfliction)
 - Identify & validate the most current soundings using common prioritization rules
- Loading Legacy Data
 - Loading historical bathymetric soundings into CHS' database
- 6 to 3 Usages
 - CHS chart catalogue currently focuses on 6 scales. Moving to 3: Overview, Transit, Port
- Vectorization
 - Vectorize and metrify all non-digitized (raster) and imperial based charts and areas
- Database Modernization
 - Develop S-100 capabilities within HPD





5. Product Rationalization

- Product Rationalization
 - Rule of 3; “Outside” of Rule of 3
 - Grid Based ENC production in 3 usage band; cancel redundant coverage (General, Transit, Harbour)
 - Match IHO S-101 recommended scales
- Product Modernization
 - What to stop doing
 - BSB Cancellation where ENC coverage exists.
 - Contract paper chart production
 - Innovation in data processing
- Path forward on low risk products
 - Transform to ENC’s
 - Coverage at next smaller scale





6. Products to S-100 Services

- BSB to ENC
- Paper Chart 2.0
- Sailing Directions
- Gridded ENC scheme for S-101
- Continuous Maintenance
- Tide Tables



6. Products to S-100 Services *continued*

- S-101 ENC
- S-102 Bathymetric Surface
- S-104 Water-level Information
- S-111 Surface Currents
- S-121 Maritime Limits and Boundaries
- S-131 Harbour Infrastructure
- S-100 in MSDI for Blue Economy
- S-100 in other Government Departments
- Undersea Features



7. Data Distribution

- National Distribution Service – Cloud infrastructure – e-Nav (S-57, S-101, S-102, S-104, S-111)
- Electronic Hydrographic Service – Subscription
- Blue Economy : NONNA 10 – MSDI
- IWLS-Integrated water level service Web app



8. Communication

- Develop communications plan to :
 - Engage internal staff on CHS Transformation initiatives
 - Keep stakeholders informed of changes in a timely manner
- Internal and external survey were conducted early 2021
- Communications material, key messages...
- Learn from communications that NOAA has done (e.g. phasing out of paper chart).



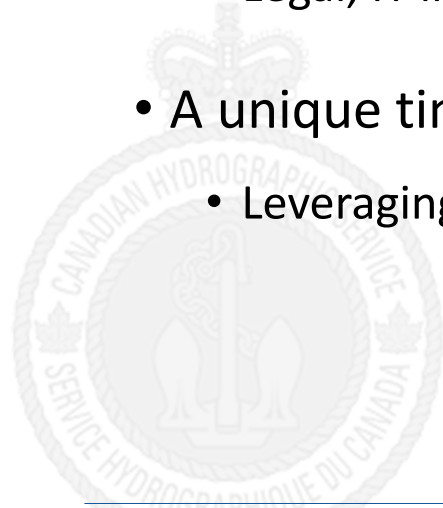
Department of National Defence Update

- Hydrographic Services (Halifax & Esquimalt)
 - Distribution of navigation products to Government of Canada fleets
 - Support to CAF/RCN Operations and Exercises world wide
 - Production of Additional Military Layers (AML)
 - Strategic NATO Co-Production Program (NACPP) & participant in NATO AML standards discussions
 - Operational/Tactical FVEYS co-production program
 - RCN custom products
 - Intellectual Property Licensing Revamp Related to Business Model
 - Support RCN submarines & FVEYS partners
 - Maintenance of DNC products in CA waters
 - IHO S-8 Cat B Nautical cartography program



Conclusion

- Collaborations are vital
 - Domestic, International
 - Legal, IT infrastructure, Policy
- A unique time with unique opportunities and challenges
 - Leveraging, adapting, harnessing





Questions?