A Strawman Reference Framework to Facilitate a Discussion: how the US and CA (or USCHC) should consider developing capacity for the delivery of "transboundary (hydrographic) services" over the upcoming decade

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What do "Transboundary Services" mean for the USCHC? How might OCS and CHS, or if more broadly the US and CA, progress this capacity in the upcoming ten years?

- The US and Canada are leading the way towards implementing a variety of S-100 based services based on their data holdings. As we move into alignment with the IHO SP[1], S-100 Roadmap[2] and the WEND-100, we need to consider how to develop a seamless delivery of these services across national boundaries, which would be called "transboundary services".
- The IHO defined subset of near term achievable S-10X features as set forth in "Roadmap for the Implementation Decade" (version 1.0 Rev 1) (December 2020)[3]

S-101	Electronic Navigational Chart (ENC)
S-102	Bathymetric Surface
S-104	Water Level Information for Surface Navigation
S-111	Surface Currents
S-122	Marine Protected Areas
S-123	Radio Services
S-124	Navigational warnings
S-129	Under Keel Clearance Management

- The same document identifies the following 7 "strategic fields of engagement":
  - Operational infrastructure
  - Technical standardization
  - Coordinated implementation of services
  - Synchronization with IMO
  - Collaboration with industry
  - Capacity Building of Hydrographic Offices
  - Development of Global Distribution Capability

Next Steps: 2021

- USCHC should define the term "transboundary services" and recognize the relevant IHO frameworks, to link a collaborative effort to deliver services in selected/candidate transboundary demonstration sites.
- Candidate pilot sites may include the St. Lawrence/Detroit Great Lakes and Pacific Northwest, which are assumed to be an appropriate scale, with appropriate existing hydrographic capacity, with appropriate economic roles with regard to maritime trade. The east coast transit corridor is another potential candidate regional focal area for service delivery attention.

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[1] **IHO Goal 1** "*Evolving the hydrographic support for safety and efficiency of maritime navigation, undergoing profound transformations, in a context of high demands for digital data;*" **Goal 2** "*Increasing the use of hydrographic data for the benefit of society;*" **Goal 3** "*Participating actively in international initiatives relatedo the knowledge and the sustainable use of the Ocean.*"

[2] https://iho.int/uploads/user/About%20IHO/Council/S-100_ImplementationStrategy/S100_Roadmap_Decade_v1Rev1_EN_16Nov2020.pdf

[3] https://iho.int/en/s-100-implementation-strategy (Dec 2020)

- OCS and CHS to form a management team to analyze the current state of capacity in the eight S-10X products that have been identified and how they relate to the requirements framework of the seven strategic fields of engagement. How mature are each S-10X to progress within each field in the selected area over the next 7-8 years? What are any recommendations? At least two of the strategic fields of engagement will require an assessment of the role of third parties, such as RENCs and others.
- Part of this exercise should determine the applicability of the WEND-100 principles to other S-100 based products beyond S-101 ENCs. For example, with surface currents, it may be ok to have overlapping coverage.
- Assess the above against the three goals of the IHO Strategic Plan, its targets, the Strategic Performance Indicators, and if time allows, the IHO Work Program, in order to better grasp appropriateness, measurability, benefits, critical partners, information sharing, and any recommendations.

The USCHC is invited to:

A) Discuss the above framework and implementation pathway;
B) Task the HGSPC or appropriate task force to provide a draft report to the National Hydrographers by May 31, 2021 outlining findings and assessment of the requirements and suggested next steps specific to the US-CA;
C) Convene any workshops to further investigate and progress issues that come up in the course of developing the report;
D) Regard this effort as highly time sensitive and of “high global importance;” and
E) Evaluate results and findings to potentially share at the IRCC-2021