

**International Hydrographic
 Organization**



**United States - Canada Hydrographic
 Commission**



International Hydrographic Organization (IHO)
United States-Canada Hydrographic Commission (USCHC)
Meeting

26 March 2018

FAIRMONT EMPRESS VICTORIA AND VICTORIA CONFERENCE CENTRE
 721 Government St, Victoria, BC V8W 1W5
 (Saanich Room)

Agenda #	Agenda Topic [Documentation]	Comments	Action/Decision/Note
1.	Introductions and Welcome Smith/Béchar <i>[USCHC41-01 List of Participants]</i>	Dr. Geneviève Béchar, Hydrographer General of Canada and the Director General of the Canadian Hydrographic Service (CHS) welcomed the 32 participants and opened the meeting. All documents cited here may be found at: https://www.iho.int/mtg_docs/rhc/USCHC/USCHC41/USCHC41_Docs.htm	All documents cited here may be found at: https://www.iho.int/mtg_docs/rhc/USCHC/USCHC41/USCHC41_Docs.htm

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2.	Approval of the Agenda Smith/Béchar [USCHC41-02 Agenda]	The agenda was approved with amendments to include one new item e.g. a brief on Seabed 2030 by Andy Armstrong.	
3.	Organizational and Personnel Update/National Reports (15 min) A- Canada Béchar [USCHC41-3A Canada National Report -ver00] B – United States Smith	<p>The Canada report was introduced by Mr Dave Prince, Director of Canada Report</p> <p>CHS Pacific Region. He noted that most of CHS’s activities are focusing on the deliverables for the Ocean Protection Plan (OPP). There are 5 national sub-initiatives under this plan for which CHS has responsibility: new ENC data for 23 key ports (report given by Mark Leblanc); new near-shore bathymetry collection and chart updating (Roger Côté); Arctic corridors (Andrew Leyzack); dynamic hydrographic products and services (Phil MacAulay); and regional response planning (Doug Brunt for Chris Hemmingway).</p> <p>Each presenter highlighted some of the unique challenges for the sub-initiatives. For example, Mark explained that CHS does not have a product specification for super-scale ENCs so it now incorporates a selection of high-density soundings and contours in the new ENCs. In another example, Roger noted that the near-shore project itself could result in over 100 charts requiring updates. This is a substantial pressure on resources.</p> <p>LCdr James Zuliani updated the USCHC on relevant activities planned or underway within the Royal Canadian Navy.</p> <p>The CA national report presentation ended with Louis Maltais (Director, Hydrospatial Services and Support) briefing the participants on the elements of the CHS S-100 Business Plan.</p> <p>US Report: RDML Smith introduced the USA report.</p>	

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	<p>[USCHC41-3B US Report 2018 ver2]</p>	<p>He began by noting that Tim Gallaudet (former Hydrographer and Oceanographer of the US Navy) now acting administrator at NOAA, and that his replacement is RDML John Okon.</p> <p>In his presentation, RDML highlighted many of the projects and plans for NOAA. Of note were the successful precision navigation projects (e.g. Long Beach) that demanded super-scale/dynamic ENC's combined with other real-time information. Related to this was the obvious need to support dynamic under-keel clearance in certain key ports and waterways. Other challenges, activities and initiatives highlighted included:</p> <ul style="list-style-type: none"> -Need for a central dissemination model required; -Application of risk-based coastal hydrography; -Seafloor backscatter standard for surveys; -The resolution of charted discrepancies; over 10000 of them; -US National Charting Plan; -Product (paper) on Demand has received positive feedback and even though the output is not currently for navigation, it could get to that point; -Raster tile charts direct from vector looks promising and the goals are to have an automated process with weekly updates that will end the requirement to have a separate raster production system; -There has been further attention given in the direction of unmanned systems, including some launch conversion. More contractors using UAVs and USM is now offering a training session (6 weeks) on UAVs; -US considering moving Hawaii to the SWPHC because the challenges there are more related with that region; -NOAA has seen the value of good communications and the use of social media etc. and are leaning on this a lot; -Related an invitation has been extended to IHO for assisting in globalizing the social medias of other HOs; -NGA (John Lowell) gave its update which, among other things noted that NGA's DNC production is being shut-down and it is 	

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		transforming to ENC products and it is trying to encourage all DNC users to go to ENCs; and, - Deputy Hydrographer of the US Navy, Stan Harvey briefed the USCHC regarding the US Navy’s activities and extended the RDML Okon’s greetings and regrets for being unable to attend.	
4.	Review of Past Actions Brunt/Justi A- USCHC40 <i>[Status of Action from USCHC40]</i> B- IRCC9 <i>[Status of Action from IRCC9]</i> C – IHO Assembly <i>[List of Decisions from IHO 1st Assembly (A-1)]</i> D – IHO Council <i>[List of Actions and Decisions from IHO Council (C-1)]</i>	A. USCHC40: The action items from the previous USCHC meeting were reviewed. It was noted at USCHC40 that the OCS-CHS MOU was expiring in 2018. Intersessional work produced a new MOU that was signed into effect by Dr. Bécharde and RDML Smith in the margins of the meeting. The agreement is in place until September 30 th 2023. B. IRCC9: The USCHC Secretariat outlined the status of actions from IRCC9 and the preparations and deliverables for IRCC10. One of the specific actions from IRCC9 was for Regional Hydrographic Commissions (RHCs) to nominate an MSDI ‘Ambassador’ for the purposes communication and engagement. Given that US and CA are very active in MSDI already, it was decided that this was not necessary for USCHC to appoint such a person. C. IHO Assembly Outstanding from A1 there is the need for a USCHC response to PRO-03 regarding a ‘Disaster Response Plan’, which states, in part, ‘The Chair of the RHC will be responsible for coordinating actions needed within the Region. In order to achieve this...’ A response will have to be drafted and approved in time to be submitted to A2 (approximately October 2019). D. IHO Council -There were no outstanding actions for USCHC vis-à-vis the upcoming C2.	<p>USCHC41- Action 01 Prepare USCHC Report and other responses for IRCC10. (Brunt/Justi)</p> <p>USCHC41- Decision 01 USCHC will not explicitly nominate and ambassador. This decision will be communicated at IRCC10.</p> <p>USCHC41-Action 02 USCHC MS to ensure C-55 and P-5 are updated regularly. This is to be a permanent Action Item for USCHC. (Justi and Brunt)</p> <p>USCHC41-Action 03 Draft a response to PRO-03 (Brunt).</p>

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1000	Break		
5A.	US-CA Chart Advisory Committee <i>[2018-03-02 CAC 20 Minutes]</i> <i>[HGpsc Terms of Reference Draft]</i>	<p>Louis Maltais gave a presentation on the former Chart Advisory Committee (CAC) which is proposed to be renamed the Hydrographic Geospatial Products and Services Committee. (HGpsc). A new TOR document was presented for review and adoption. The group has not been very active over the past few years mainly because there have not been many projects of mutual interest. However, there was one WebEx meeting prior to USCHC41 that was attend by 4 representatives from each member state.</p> <p>The presentation noted that there are several common challenges that both countries are facing.</p> <ul style="list-style-type: none"> • Grid Based ENC’s scheme • Scheme for S-100 Services • Distribution of S-100 Services • Chart Maintenance • Arctic corridors • INT charts program • Future of the paper chart • S-102, S-111, s-104 <p>Louis proposed regular WebEx meetings to begin to address some of these issues.</p> <p>With OPP on the CA side, there is the opportunity to initiate projects and work with the US on things like S-100 products and services delivery, re-scheming of ENC etc.</p> <p>Christie Ence will be representing the Marine Chart Division in place of John Nyberg and NGA requested to be involved, as well. An offer for the USN and the RCN to participate has also been extended.</p>	<p>USCHC41-Action 04 Review new name and TORs and reply to USCHC. (All)</p>

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5B.	Personnel exchange	It was acknowledged by both Member States that personnel exchanges would be mutually beneficial. The HGPSC was tasked to develop a list of exchange possibilities. The list should be based on topics of interest, for example, data acquisition, production, and innovation.	USCHC41-Action 05 Develop a list of topics of exchange possibilities. (HGPSC)
5C.	Cooperative charting A- Grid-based ENC's -Arctic -North America approach for transboundary solution Ence [NOAA's Re-scheming Plan for ENCs] B – Scheme for S-100 services	A. Christie gave this presentation from the US perspective and noted that US has many of the same issues as CA. The OCS goal is to reduce the number of scales from over one hundred to 12 and to implement a grid based scheme, as several other HO's have done or have decided to do. US noted that its scale ranges are not binary which is not the best for web services (e.g. Google uses the Binary 1 scale). This is very important to NOAA and it wants most of the generalization at every scale above the largest scale should be machine-generated. B. NOAA presented its proposed scales and also the standardized sizes for the cells. Additional complexities do get introduced at higher latitudes. Above 48 degrees, cells are doubled in width and above 64, it is doubled again. Each cell is a quarter of the previous scale. There is no intent to make paper charts to this scheme. It is apparent that USCHC will have to revisit trans-boundary ENCs. – Dave Prince suggested that the CAC-HGPSC should be the group to manage the trans-boundary re-scheming. The Great Lakes could make a good collaborative test case. There is no rigid time frame for this work; New York will re-gridded by the end of this year and the Great Lakes are next. Asked what is the future of the NOAA paper chart, the response was that the paper chart will be available via raster cell tile service. NOAA will maintain paper charts but will not make new paper	<p>USCHC41- Action 06 Re-visit the trans-boundary ENC agreement to determine what parts require updating, particularly if a uniform grid is to be applied. (Mark Leblanc/HGPSC)</p> <p>USCHC41-Action 07 Work up a gridded scheme for the Great Lakes as a test case. A report for IRCC will be produced when the work is completed. (HGPSC)</p>

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		<p>charts. The US Nautical Charting Plan communicated this plan. A report up to IRCC on this initiative was proposed. This action should be after a plan has been developed, at least.</p>	
5D.	<p>International A – INT chart programs</p> <p>B – Seabed 2030 Evaluation Armstrong <i>[Seabed 2030 - Call to Action]</i> <i>[PresentationGap Analysis for US Seabed 2030 Mapping]</i></p>	<p>A. USCHC has 100% INT charts (small scale). The submission of the grid scheming discussed at the meeting to ENCWG Admiral Smith suggested to formally inform the IHO via a letter that the US and Canada (USCHC) will not be producing INT charts. This position could also be stated in the HGPSC Charter if it's not there already.</p> <p>B. Andy Armstrong made a presentation on the US (NCEI) approach to the evaluation. The methodology included the following: -The selection of all soundings since 196 that meet the criteria. -Any 100m cell with one sounding in it is enough. -The result was a summary of what the US has "mapped". Andy said it was important to note that is just for soundings; they were not trying to build DTM. The results (which were the subject of a 'lightening' presentation at CHS 2018) indicated that 41% of US water are mapped based on these criteria and that this analyse could be refreshed on a semi-annual or annual basis. USA is happy to share their info and methodology. There was an action for CA to have a similar report for USCHC42. Subsequently, a combined USCHC report could be generated for submission to IRCC/IHO Council as an information paper. This task was assigned to the CAC/HGPSC</p>	<p>USCHC41- Decision 02 USCHC does not intend to expand its coverage of INT charts (except to add the French charts).</p> <p>USCHC41-Action 08 Produce an information paper on the USCHC INT programme intentions for IRCC consumption. (HGPSC)</p> <p>USCHC41-Action 09 CA to produce a similar evaluation report for USCHC42. (Louis)</p> <p>USCHC41-Action 10 CA to report on its engagement/involvement in the Seabed 2030 initiatives. (Maltais)</p> <p>USCHC41-Action 11 Combine US and CA Seabed 2030 evaluations into one report for IRCC/Council.</p> <p>USCHC41-Action 12 Add a bullet regarding USCHC Seabed 2030 efforts to the IRCC10 report. (Justi/Brunt)</p>

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5E.	<p>Research and Development A - Future of the Paper Chart Leblanc <i>[The Future Vision of the Paper Chart - Final Report]</i> <i>[Presentation]</i></p> <p>B – S-1xx product development status Weston <i>[Visualising Data for Mariners]</i></p>	<p>A. Mark Leblanc led this discussion and gave a presentation that he produced along with Dave Prince and Louis Maltais. The premise was an ENC first approach with the paper chart being generated automatically afterwards. OCS already takes an ENC-first approach, and both MS are very much interest in automation of paper chart generation.</p> <p>B. Neil Weston gave a presentation on “Dissemination of Surface Current Models for Navigation”. He started with an introduction to GRIB data formats and explained that grids are easily read and can be used to get surface current information to mariners. NOAA worked with RosePoint to develop a display method to and he showed several display overlays, and expressed confidence that they can show up to 48 hours forecast. He gave examples of how user can query data points (arrows). Operational forecast systems (12-14 models running on a 24/7 basis) have several applications including route optimization, emergency response. HDF5 and S-111 formats are being looked at and one of the challenges is trying to keep datasets under 10MB. In the discussion it was noted that the models have been completed for a number of years, but the information was not available to end-users; this is forcing HOs to re-think or move to new dissemination models. In response to a question regarding how to "compact" the information so that it is usable, Louis Maltais (CA) noted that CA and US are able to produce test data sets which are available on the IHO website. S-102 Developments.</p>	

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		<p>Wade Ladner (US) provided a couple of slides on the S-102 developments. US has developed a second version of S-102, but based on S-100 version 3 and portrayal options have not been discussed to any extent other than going back to showing safe/unsafe/cautionary areas. Cautionary areas are to be a function of the uncertainty</p> <p>-Phil MacAulay (CA) asked about the 'sequence' of S-104 and S-102 in other words, how do they (or any other S-1xx) work together? The response was that there will have to be some performance standards for this.</p>	
	Lunch	Conversation / Group photo	
6.	<p>Extra-Commission Briefs</p> <p>A- IHO Kampfer <i>[IHO Report]</i></p> <p>B- WENDWG brief Nyberg/Brunt <i>[WENDWG Brief]</i></p> <p>C- UKHO Ahmed <i>[USCHC41-6C UKHO Report]</i></p> <p>D- GEBCO/IBCAO update Armstrong <i>[USCHC41-6dARMSTRONG_</i></p>	<p>A. IHO</p> <p>Director Abri highlighted changes at the IHO since the last USCHC meeting.</p> <p>Of note, CA has not provided their CATZOC guidelines to the DQWG. This was taken as an action by CA.</p> <p>The IHO also requested MS update P-5 and C-55, if required.</p> <p>It was reported that the IHO working with UNB to create a digital online ca1963-2015 (see link in report) of the IHR.</p> <p>MS encouraged to publish videos through IHO</p> <p>USCHC was also asked to take note of the 2nd IHO Council timelines.</p> <p>B. WENDWG</p> <p>Brunt (CA) gave a verbal report and reviewed the relevant action items from the meeting. Two of the more interesting discussions centered around what it is the future of the RENC, and how (or if) the leisure markets should be served.</p> <p>C. UKHO</p> <p>Sunny Ahmed presented the UKHO report on that organization’s overview and the plans and challenges ahead.</p> <p>D. GEBCO/IBCAO</p>	<p>USCHC41 –Action 13 CA to provide USCHC and the IHO DQWG an update on its CATZOC = undefined situation and its plans to address outstanding issues (Maltais).</p> <p>USCHC41 –Action 14 USCHC to note dates for proposals and comments for IHO C-2 (All)</p>

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	<p>Mayer_GEBCO-Seabed 2030_USCHC.pdf E- IHO CSBWG update Jencks [USCHC41-6E CSBWG]</p>	<p>As always, GEBCO would welcome input from HOs and RHCs. Seabed 2030, which is funded by the Nippon Foundation, is the major project for GEBCO. The process to develop regional maps, that will be globally assembled. The target for first grid release is 1 Dec 2018.</p> <p>The USCHC was encouraged to become more engaged with the Galway Accord and for MS to clarify/ evaluate their data policies (data accessibility for any data in their holdings). For CHS, consider releasing all ENC soundings</p> <p>E. CSBWG</p> <p>The brief was given by Jennifer Jencks, chair of the CSBWG and head of the DCDB. She reported on activities since 2014 IHO extraordinary conference asked for the establishment of an IHO CSBWG. Its major goal is to have the CSB Guidance Document (B-12) Ed. 1.0.0 ready for MS approval by January 2019.</p> <p>Jennifer also noted some of the DCDB enhancements (for CSB) and pilot project with RosePoint, as well as research into ingesting web services of other repositories. There is an impressive list of potential contributors</p> <p>Actions requested of USCHC were: release datasets, review data gathering terms to enable CSB activities, encourage research and other vessels to collect data in transit, and to consider participation in Seabed 2030.</p>	<p>USCHC41 –Action 15 CA to consider allowing sounding data available to the IHO DCDB (Béchar, Maltais)</p> <p>USCHC 41 –Action 16 USCHC to consider the following actions requested by CSBWG:</p> <ul style="list-style-type: none"> -Release current datasets -Review data gathering terms/policies to enable CSB activities -Encourage research and other vessels to collect data in transit.

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7.	Marine Spatial Data Infrastructure A – CA Hemmingway <i>[USCHC41-7A MSDI report -CA]</i> B – US Lowell <i>[USCHC41-7B MSDI -US]</i> C – IHO MSDIWG Hemmingway/Lowe II <i>[USCHC41-7C MSDIWG report]</i>	A. CA A presentation prepared by Chris Hemmingway was given to brief the Commission on CA MSDI efforts. B. US Caitlin gave the US MSDI (NOAA-NGA-USN) presentation and focused on some of the relationships between data-centric production and MSDI. These included the Bathymetric Operational Model Database (BOMB) and production on demand. Some of the services noted were portals like, MarineCadastre.gov, US Regional data catalogues (portals), and NGA GEOINT Service for Arctic support. All themes available in common GIS formations and it was pointed out that there is an obvious need for good governance to ensure the identification of the authoritative sources and the means to access the data. C. IHO MSDIWG In response to an IRCC request, USCHC sees no need for a USCHC MSDI ambassador since both MS are already active with MSDIWG and related activities e.g. UN-GGIM. However, this was an action from IRCC that USCHC will have to report on.	See USCHC41 –Decision 01 above.
	Break		
8.	Renewal of US-CA MOU	The new OCS-CHS MOU was signed in the margins of the meeting (see Agenda Item #4).	

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9.	Preparation for IRCC10 A – Report(s) B – Proposal(s) C- Head of Delegation	Brian Connon (USCHC CBSC rep) gave a brief on the upcoming CBSC /IRCC meeting. Brian concluded by announcing he is retiring. Subsequently, the US nominated Calvin Martin as his replacement. The nomination was quickly endorsed by USCHC with Calvin will represent the USCHC at the next CBSC It was noted that Jonathan and Doug are in the process of preparing for IRCC10. See also item #4. RDML Smith gave a brief on the IHO Council and the preparations of for C-2. [He is the chair of the IHO Council.] Doug Brunt summarized the activities of the IHO Strategic Plan Review Working Group (SPRWG) and RDML Smith added that there will be an ad hoc f-2-f meeting during IRCC10.	<p>USCHC 41 –Decision 03 Calvin Martin will be the USCHC CBSC rep (replacing the retiring Brian Connon –Thank you, Brian!)</p> <p>USCHC 41 –Action 17 The formal designation of which MS will represent the USCHC at the following IRCC meeting is to be added as a permanent USCHC meeting agenda item (Justi and Brunt).</p>

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10.	Informational and Other Items A – Conversion of equipment to autonomous vessels B – Hydrographic Remote Sensing workshop C- Marine mammal impact assesement [USCHC41-10A AHSL Conversion Project] [USCHC41-10C Marine Mammal Impact Assessment Methodology]	A. Roger Côté gave a summary of this CHS project to convert a launch to an autonomous vessel. In general, the pilot project was successful, but he noted some limitations and other observations. For example, e.g. there was no a reduction of personnel required, and there is also some restrictions (Transport Canada regulations) vis-a-vis operations of autonomous vehicles. In the following discussions E.J. Van Den Aemele noted that US is doing a similar project, but they are about a year behind. In both cases, the con-ops need to be developed. This could be an area of interest were a personnel exchange would be of high value. The USN is also moving in this direction and it is evident that industry is moving fast, as well. B. Louis Maltais updated USCHC on the upcoming hydrographic remote sensing workshop that is going to be held in Ottawa in September 2018. The event has now been entered in the IHO Calendar. This workshop is a combined CHS, SHOM, and NOAA effort and hopes to have a balance between HOs, industry, and academia participation. C. A presentation on Marine Mammal Impact Assessment Methodology was submitted to USCHC41, but due to the timetable, it was not presented.	

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11.	Review of USCHC41 Actions Brunt/Justi <i>[USUSCHC41-11 USCHC41 Actions and Decisions - ver01]</i>	Doug and Jonathan were tasked to develop list of action by April 6 th and circulate them to all participants. In addition, all participants were asked to review the CAC 2.0 TOR and return comments by April 6th (pushed to 9 April).	
12.	Next Meeting and Closing of USCHC42 Smith/Bécharde	The US announced that USCHC42 will take place in Biloxi MS, 18 March 2019, the first day of US Hydro 2019. In closing, Dr. Bécharde thanked the participants wished them a great stay in Victoria.	