BALTIC SEA HYDROGRAPHIC COMMISSION

Report of the IHO Secretariat

Submitted by:	Secretariat of the IHO
Executive Summary:	This paper reports on activities of the IHO Secretariat that may impact the work of the Baltic Sea Hydrographic Commission.

Status of Membership of the IHO

1. One of the main changes resulting from the entry into force of the revised IHO Convention is that, for States wishing to join the IHO that are already Member States of the United Nations, there is no requirement to seek the approval of existing Member States of the IHO. Since the last BSHC Conference the Republic of Ghana and Samoa acceded to the IHO Convention and the IHO membership now stands at 93. Unfortunately, Democratic Republic of the Congo, Serbia, Syria and Vanuatu remain suspended from Member States rights.

Regional Applications for Membership of the IHO

2. The only non-IHO Member State of the BSHC region is Lithuania. Countries who are Member States of the IMO are encouraged to become IHO members and the IHO respectfully repeats its invitation to Lithuania to accede to the IHO Convention. The IHO Secretariat, in cooperation with the Department of External Relations of the Government of Monaco, stands ready to assist Lithuania with the application process for membership of the IHO.

IHO Council Activities

3. The third meeting of the IHO Council (C-3) took place from 15 to 17 October 2019 at the IHO Secretariat in Monaco. Summary report of the 3rd Meeting of the IHO Council is available at the IHO web site.

4. In accordance with Article 16 of the General Regulations of the IHO, the Secretary-General informed the BSHC about the allocation of one Council Seat to the Commission. The BSHC Chair informed the Secretariat on the Commission´s decision to select Sweden for this seat. It is noted that the BSHC members are well represented in the forthcoming second IHO Council, namely Finland (via NHC), Germany (via NSHC) and Russian Federation (via ARHC).

Preparation of the Second IHO Assembly

5. The 2nd IHO Assembly initially scheduled to take place in April 2020, was postponed to November 2020 due to the pandemic situation. For the same reason it was necessary to propose an alternative scenario to conduct of the forthcoming Assembly session and Council meeting as remote events. This scenario, which is awaiting approval by vote by 21 September 2020, is explained in the Assembly Circular Letter ACL29.

6. IHO ACL 19/2020 informed about the positive vote of the Member States in favour on the proposed scenario on the postponement of the 2ndSession of the IHO Assembly (A-2) and associated activities resulting from exceptional circumstances due to COVID-19 (IHO ACL 17/2020 refers).

7. As a consequence, the Secretariat invited Member States to vote by correspondence on proposals submitted for consideration by the 2nd session of the Assembly (IHO ACL 21/2020 and IHO ACL 22/2020). Among other items, IHO ACL 26/2020 reported on the approval of the Revision of the IHO Resolution 2/1997 –Establishment of Regional Hydrographic Commissions (RHC) (Assembly Document A2_2020_PRO3-1_EN_Res_21997_cc_v1).

8. **Recommendation**. BSHC is invited to consider the need to adapt their respective instruments to comply with the recommendations of the IHO Resolution 2/1997 as amended by A-2.

INT Chart and ENC Production Coordination - Region E

9. Region E is one of the most dynamic regions in the IHO for the maintenance of the INT charts Catalogue and ENCs Schemes, thanks to the involvement of its Members under the coordination of Mr Jarmo Mäkinen (Finland). Since the commissioning on 2 January 2020 of INToGIS II to facilitate the maintenance of the regional databases of ENC Schemes (and INT Charts if needed), the BSHC has been again actively involved in the process. A representative of BSHC participated in the specific Workshop on INToGIS II and the future of the INT chart concept that was arranged the day before the 5th meeting of NCWG in November 2019 in Stockholm. This was much appreciated. Inputs were taken into consideration by the NCWG Chair, Mr Mikko Hovi (Finland) and the drafting group in the preparation of the final report on the future of the nautical paper chart which is now submitted to HSSC for further consideration (Doc. HSSC12-05.4B refers).

10. **Recommendations**

a. BSHC members are invited to check the quality of the information available in INToGIS II for Region H and report any discrepancies.

b. BSHC members are invited to prepare for the discussions on the future of the paper chart in HSSC-12.

11. Mr Jarmo Makinen (Finland) is the designated Member representing the BSHC in the WENDWG. Discussions on the development of a new set of WEND100 Principles (applicable to S-100 based products) were held through a VTC WENDWG meeting from 7 to 9 April 2020 and on 9 September 2020. The development of WEND100 is an important and fundamental component of the S-100 Implementation Roadmap. The new elected WENDWG Vice-Chair is Ms Annika Kindeberg from Sweden.

12. **Recommendation.** The IHO Secretariat commends the BSHC's active involvement in the global IHO charting process in general, and their key members: Ms Annika Kindeberg (Sweden) and Mr Jarmo Mäkinen, Mikko Hovi (Finland) in particular for their continuous contributions.

Capacity Building Programme

13. The level of activity of the IHO Capacity Building (CB) Programme remained at the same level as in 2019. Expenditure in the IHO 2019 CB Work Programme was 872 832 Euros, 1% smaller than the budget for the previous year. The ongoing financial support is provided by the Nippon Foundation of Japan, the Republic of Korea and by a contribution from the IHO budget with in-kind support from Member States and from industry. In 2019, 91% of the budgeted work program was executed and paid for.

14. The COVID-19 pandemic has had a significant impact in the 2020 CBWP and it is expected that the 2021 CBWP will require an extensive review. Mr Thomas Dehling (Germany) is the BSHC CB Coordinator for planning and implementing the regional CB activities. For the 2020 and the 2021 CBWP the BSHC did not submit any CB requirement.

15. **Recommendation.** BSHC members are invited to continue to follow and evaluate the possibility to contribute to the CB Programme.

Crowdsourced Bathymetry

16. The Crowdsourced Bathymetry Working Group (CSBWG) has been tasked by the Inter-Regional Coordination Committee (IRCC) to develop the IHO publication B-12 that provides guidance on the collection and use of Crowdsourced Bathymetry (CSB) and to investigate ways to increase participation in data gathering activities. IHO Publication B-12, Edition 2.0.2 - Guidance on Crowdsourced Bathymetry, provides guidelines and advice on various considerations that should be taken into account when collecting CSB data for inclusion in the global bathymetric data set which is maintained in the IHO Data Centre for Digital Bathymetry (DCDB).

17. Replies of Member States positions on the conduct of CSB in their waters of jurisdiction (Annex B of IHO CL 11/2019) have been analysed and a table of coastal states indicating positive support for the activity within all or parts of their waters of national jurisdiction has been generated and is published on the IHO website for the guidance of the wider maritime community. Member States may advise the Secretary General at any time of any change to their originally stated position.

18. As indicated in IHO CL 11/2019, a second IHO CL (CL 21/2020 dated 3 June 2020) has been published, which focuses on the provision of data into the public domain rather than seeking support for the activity of collecting CSB. This is in recognition that vessels, in accordance with the safety of navigation requirements of SOLAS 1974, are collecting depth data at all times in coastal waters. The Secretariat and the Chair of the CSBWG are requesting coastal states whether, rather than destroying this data, it can be data based and made available for wider uses other than its original individual vessel safety of navigation purpose. It is assumed there is no change for those coastal states which have already indicated positive support along with any caveats. It is hoped that other coastal states will allow the use of this data with whatever caveats that are deemed appropriate for the situation of each state.

19. In addition to the IHO CL, the Chair of the CSBWG, recognising that although engaged with their respective RHC, not all coastal states are members of the IHO and would therefore not received the IHO CL nor have an ability to indicate their position, requested the Chair of the IRCC to write to the Chairs of all RHCs asking them to engage with these coastal states to seek their support. At the same time a submission to the IRCC has been made in coordination with GEBCO and Seabed 2030, for RHCs to identify regional ambassadors to act as a point of contact and to raise the profile of data gather and provision within their respective region, all with the view of increasing awareness and highlighting the link between gaining a complete picture of the ocean floor with the UN Decade and the SDGs.

20. Should the forthcoming IHO Assembly approve the revised IHO Strategic Plan as endorsed by the IHO Council, the regional ambassadors would have a key role in assisting the RHCs in gathering the evidence and reporting annually on the percentage coverage achieved within their region. They would also be in a position to assist individual coastal states. Further the submission to IRCC has proposed a number of CSB and GEBCO related topics for inclusion in national reports, which aim to identify the level of activity within each coastal state, as well as any challenges for which help can be provided.

21. In support of these activities the IHO DCDB has undertaken significant development to improve the data pipeline and data viewer operability. The DCDB has developed a geographic filter application, which suppresses embargoed data from public availability and places this data in a separate data store until such time as approval is given for its release into the public domain. The DCDB has also commenced initial discussions with the International Seabed Authority (ISA) on suitable methods for making its data available, either into the DCDB or directly into the GEBCO grid, it is anticipated that a small number of

focused trials will be started later this year. The DCDB is also in advanced discussion with a number of commercial shipping companies to extract bathymetric data from their voyage data recorder systems, the initial work is being undertaken with MacGregor/Carnival Cruise Lines.

22. A number of regional projects are being supported and used as successful examples for future expansion. The Great Barrier Reef project being undertaken by James Cook University and the extensive work with local communities in northern Canada by Centre Interdisciplinaire de Développement en Cartographie des Océans (CIDCO) have provided many useful lessons, which are of relevance to all CSB community focused projects globally. The CSBWG has commenced initial engagement with C-Map/NAVICO on how they can contribute their data without impacting on their commercial activities or business model. C-Map/NAVICO has a 'Social Map' initiative from which they process the resultant crowd data to generate contour maps and they are looking to increase engagement to complete areas of sparse or no data, including a proposed reward scheme for contributors to complete designated 'survey lots', as well as provide new data types such seabed texture, vegetation type, navigation aids, shoals and obstructions.

23. The CSBWG has identified the importance of much closer cooperation and coordination with GEBCO and Seabed 2030 in communication and outreach to avoid duplication of effort and to ensure a harmonised message is maintained. The CSBWG will be working with the GEBCO Sub-committee on Communications, Outreach and Public Engagement (SCOPE), the Seabed 2030 Director and the IHO Secretariat Communications and Public Relations Officer (CPRO) to improve the message and increase awareness amongst the non-traditional sectors and communities, which have only partial or limited engagement or knowledge of the issues; the objective is to leverage the momentum generated by the UN Decade and the SDGs.

24. **Recommendations.** BSHC Members and Associate Members are invited to indicate their positions on the conduct of CSB in their waters of jurisdiction (Annex B of IHO CL 11/2019) and to identify further potential sources of bathymetric measurements and survey data providers to facilitate the further completion of the DCDB data holdings.

GEBCO support through Seabed 2030

25. The Nippon Foundation (NF)-GEBCO Seabed 2030 (Seabed 2030) project builds on more than 100 years of GEBCO history; the project has established regional connections to all corners of the World and benefits from the human network of ocean mapping capacity built over 15 years through the Nippon Foundation – University of New Hampshire (UNH) ocean mapping training programme. Through Seabed 2030, GEBCO's role is recognized and reinforced as the authoritative international initiative for mapping the World Ocean, from the coasts to the deepest trenches. Seabed 2030 has established a South West Pacific Regional Center located at the New Zealand National Institute of Water and Atmospheric Research. The Antarctic and Southern Oceans are covered by the Southern Ocean Regional Center located at Alfred Wegener Institute, Bremerhaven, Germany. Each centre focuses on discovering, gathering and assembling all available bathymetric data from their region to produce regional datasets and resulting products. A global centre will merge the regional datasets to generate the production of the annual GEBCO grid as well as other products. Within this structure, the IHO-DCDB will remain the central GEBCO repository for all raw bathymetric data and all Seabed 2030 project data will be data based there.

26. GEBCO released the GEBCO 2019 grid in March. Based on the variable resolution coverage, which was recently calculated and takes into account current technology capabilities, the cover has increased from 6% in the 2014 grid to 15% in the current grid. Most of this increase has been achieved through the release of previous survey data, which had not been placed in the public domain and was not available to GEBCO. The 2019 grid does also include the data gathered by the two contracts in the search for MH370, which have been released by the Australian authorities.

27. **Recommendations.** BSHC members are invited to consider the future invitation of Seabed 2030 project representatives to BSHC meetings to discuss options for deepened cooperation and support. BSHC members are also encouraged to make more detailed and comprehensive seabed data available as well as help identify new sources of data for inclusion in future GEBCO grids.

IHO GIS and Databases

28. Work has continued on the IHO internal systems. Especially, two components are to be mentioned:

- IHO Country Information system, and
- IHO Online Form system.

29. The IHO Country Information system has been progressively upgraded to include administrative information and facilitate the maintenance of the IHO publications such as Yearbook (P-5) and Status of Hydrographic Surveying and Charting Worldwide (C-55) posted on the IHO website. The IHO Online Form system has been used since March 2019 and has been widely accepted by the Member States for the Circular Letter responses and the updating of P-5 and C-55 (CL20/2019 and CL03/2020 refers). Countries in the BSHC Region are invited to review their entry in the publications on an annual basis and provide the IHO Secretariat with the appropriate updates through the IHO Online Form system. The status of the data in the IHO Country Information Database concerning the BSHC Countries, including those provided for C-55 is as follows:

Country	P-5 –Yearbook Last update received	C-55 Last update received
Denmark	Mar 2020	May 2017
Estonia	Feb 2020	Aug 2020
Finland	Feb 2020	Aug 2019
Germany	Aug 2020	Aug 2017
Latvia	Mar 2020	Jul 2014
Poland	Jan 2020	Jul 2020
Russian Federation	Feb 2020	Sep 2015
Sweden	Feb 2020	Mar 2020
Lithuania	Sep 2019	Aug 2020

30. An Esri-based GIS solution has been implemented for the efficient visualization of geospatial data stored in the Country Information System. This Cloud-based service has enabled access to various layers and functions through the IHO website such as the IHO ENC Catalogue. Currently, five WebGIS applications have been available to the public in this new environment.

31. Work has continued on developing a GIS database application to support C-55 - Status of

Hydrographic Surveying and Charting Worldwide and the work of the IHO. In response to the request to complement C-55 composite data (percentage of areas adequately surveyed / requiring re-survey / not surveyed) with CATZOC information. The CBSC established the C-55 Review Project Team (C-55RPT) to deal with this task.

32. **Recommendations.** Countries in the BSHC Region are invited to review their entry in the IHO Yearbook and C-55 and to provide the IHO Secretariat with the appropriate updates or to report no change (CL 20/2019 refers).

IHO Outreach

World Hydrography Day

33. At the third IHO Council meeting in October 2019, the Secretary General proposed the theme for WHD 2020 as follows: "*"Hydrography - enabling autonomous technologies"*. The theme highlights the role of hydrography in various dimensions: For the conduct of hydrographic survey itself by means of autonomously acting sensor carriers such as autonomous surface vehicles (ASV), autonomous underwater vehicles (AUV) and flying drones to carry Lidar equipment. The second important field is to pave the way for the expected development of safe, secure and environmentally sound Maritime Autonomous Surface Ships (MASS) operations under the auspices of the IMO which will definitely rely on qualified hydrographic information.

34. Following comprehensive redesign, the IHO website, including GIS-services was renewed on 1 January 2020. The new website, which have versions in both English and French, have a functional but creative design that pays respect to tradition and is fit for modern technology. The IHO emblem was also been modified with effect from 21 June 2019.

IHO Centenary Celebrations (IHO-100)

35. The years 2019 and 2021 are important in the history of the International Hydrographic Organization. 2019 marked the centenary of the 1st International Hydrographic Conference, which was held in London in 1919 and 2021 will be the centenary of the establishment of the International Hydrographic Bureau (IHB) in 1921 in Monaco as precursor of the modern IHO.

36. The IHO Secretariat has already undertaken the preparations for the centenary celebrations of the International Hydrographic Organization ranging from 2019 to 2021 as important milestones of the IHO. In this respect, it is planned to organize workshops, exhibitions, outreach events and similar activities from 2019 to 2021, either independently or jointly with sister institutions and agencies. *The" peak-of-the-peak" will be World Hydrography Day (WHD) on 21 June 2021.* There will also be an opportunity to present IHO's achievements at the United Nations General Assembly in September 2021 and at the IMO Assembly in November 2021.

37. The main activities scheduled for the IHO centenary celebrations, coordinated by the IHO Secretariat are/were as follows (CL 32/2017 refers):

- An exhibition on "Historical Nautical Charts and Mediterranean". This event, which was held at the Monaco Yacht Club from 1 to 13 April 2019, was a resounding success.
- An international Symposium on "A Historical Approach for Measurements and Protection of Oceans and World Waters''. This event was held at the Oceanographic Museum of Monaco from 20 to 21 June 2019 (in conjunction with the World Hydrography Day)
- To highlight the centenary celebrations as part of the media and press-campaign associated with the Council meetings in 2019 and 2021.

- To organize a half day special session on IHO-100 at the 2nd Session of the IHO Assembly(A-2) in April 2020.
- To prepare, publish and distribute an IHO Prestige Book on “100 Years of International Cooperation in Hydrography”.
- To hold the 2021 World Hydrography Day in Monaco in conjunction with IRCC13, CBSC19 and a CB/IBSC Seminar.
- The centenary events could also be linked with the United Nations Decade of Ocean Science for Sustainable Development (2021-2030) which has been coordinated by the IOC of UNESCO.

International Hydrographic Review

38. Twice a year, the IHR provides an opportunity for Member States to publicize technical and other achievements in their region. An editorial board comprising a representative from each region has been established. Dr Patrick Westfeld is representing BSHC on the IHR Board.

39. Papers for consideration for publication in the IHR should be forwarded directly to the editor (ihreview@iho.int, copy to Brian.Connon@usm.edu). The deadlines are:

- end of January for the May Edition
- end of July for the November Edition

40. The IHO Secretariat worked with the University of New Brunswick (UNB), Canada, in a project to develop a digital repository of the complete library of the IHR. As a result, volumes from the entire collections (1923 to 2018) are available online at: https://journals.lib.unb.ca/index.php/ihr.

41. **Recommendations.** BSHC Members are invited to submit papers for publication in the IHR.

42. Action Requested of BSHC:

a) **Note** this report.

b) **Consider** the recommendations proposed in this report.

c) **Review** entries related to IHO C-55 and P-5 (Yearbook) at least annually.

d) **Consider** submitting papers for publication in the International Hydrographic Review.

e) **Take any other actions** as considered appropriate.