

**Paper for Consideration by
63rd NHC Conference
IHO Secretariat Report**

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

Operations of the Organization under the IHO Convention since the last NHC Conference (NHC62) in April 2018

1. The amendments to the IHO Convention and its supporting Basic Documents entered into force on 8 November 2016. Since last NHC Meeting the second meeting of the Council (C-2) was held in London during October 2018. The main outcomes of the 2nd meeting of the IHO Council were reported in CL 51/2018.
2. Regional Hydrographic Commissions are established in their own right by statutes and are recognized by the Assembly (Article 8 of IHO General Regulations). They are sovereign to identify tasks, ways and means to address the specifics of hydrography within their respective region. With regard to the interrelation between the Regional Hydrographic Commissions and the Assembly, Regional Hydrographic Commissions enjoy the right to report to the Assembly directly. However, the applicable IHO Resolution 2/1997 is currently under review. The Secretariat proposes to discuss how reporting items of relevance shall be synchronized with the Council Chair report to the Assembly which is largely based on the annual IRCC Chair report put forward to the Council.
3. **Recommendation.** NHC to consider and discuss how the NHC report to the Assembly shall be synchronized with the Council Chair report to the Assembly.

Preparation of the Second IHO Assembly

The second IHO Assembly is scheduled to take place from 21 to 24 April 2020. The announcement and draft agenda of the Assembly-2 will be issued in April 2019. The IHO Work Programme and budget for the next 3 year (2021-2023) will be prepared for approval of the Assembly.

Status of Membership of the IHO

4. 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. In 2017 **Malta, Vanuatu, Seychelles** and in 2018 **Bulgaria** acceded to the IHO Convention and became the 86th, 87th, 88th and 89th Member States of the IHO respectively. On 1 January 2018, the **Dominican Republic** was reinstated as Member State, having been suspended since 1983. Unfortunately there are still three Member States remaining suspended, Democratic Republic of the Congo, Serbia and regrettably Syria was recently suspended from Member States rights, being in arrears in its contributions now for two consecutive years.

INT Chart and ENC Production Coordination

5. Early January 2018, the IHO Secretariat informed the Chart Coordinators that the project INTToGIS Phase II was underway, thanks to the outstanding support provided by KHOA (Republic of Korea). INTToGIS Phase II aims to provide a very useful scheming tool, putting together ENC and INT charts, new base maps and some useful tools for a more efficient and consistent INT chart and ENC scheming (AIS data base, overlap checker, etc.). As agreed at the WENDWG meeting, some Chart Coordinators are now experimenting INTToGIS II before it is commissioned and made available

to all, hopefully by August 2019.

6. At its 14th meeting in Monaco (February 2019), the Data Quality Working Group discussed best practices on the way CATZOC values are populated for S-57 ENC's by Hydrographic Offices. In order to facilitate the harmonization and prepare the future transition to S-101 ENC's, it is recommended that NHC ENC Producers provide their guidelines to the DQWG. So far only an input from Norway.

7. **Recommendation.** NHC to consider providing regional CATZOC practices to the DQWG.

Maritime Safety Information Services

8. Inmarsat – stated coverage 76°N - 76°S via three geo-stationary I-4 satellites, although up to 78°N has been achieved.

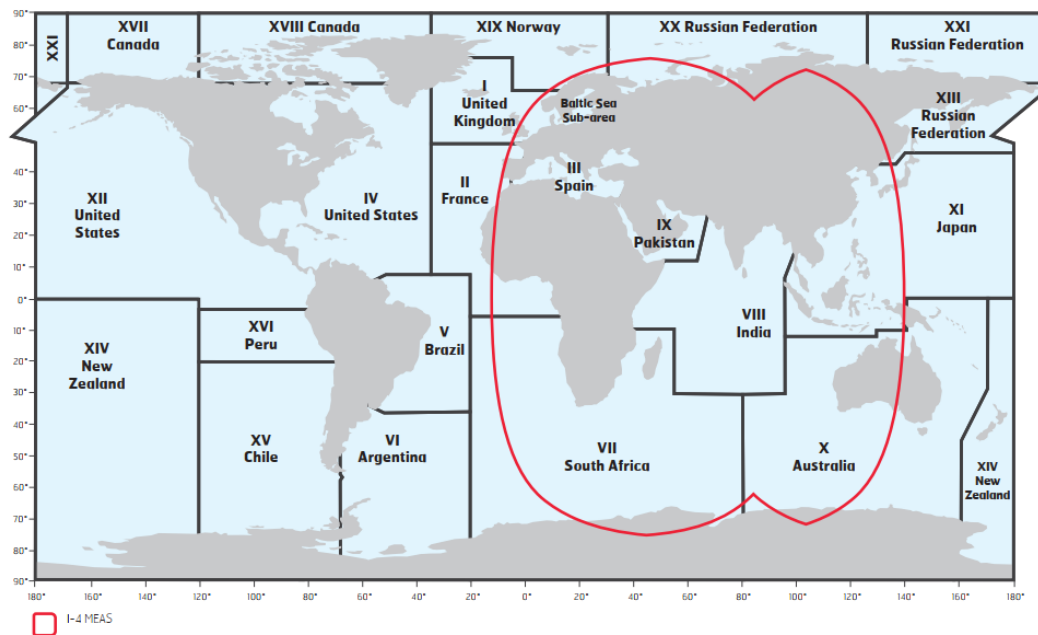
SafetyNET Services. Two systems are now available and in use by all information providers (NAV and MET Area Coordinators and RCCs):

SafetyNET – SafetyNET messages are submitted by registered information providers for promulgation to the appropriate satellite Ocean Region(s) via an Inmarsat C Land Earth Station (LES) through the I4 satellites to vessels at sea.

SafetyNET II – provides an interactive web portal for MSI providers to promulgate their MSI messages over the Inmarsat EGC system direct to I4 satellites via web interface. SafetyNET II messages are submitted by registered information providers via a secure interface to the Inmarsat network.

Fleet Safety – MSC 99 adopted resolution MSC.450(99) on Statement of Recognition of Maritime Satellite Services provided by Inmarsat Global Ltd. The Committee noted that the Inmarsat Fleet Safety service was at present a regional service covering the Indian Ocean region, but it is anticipated that it will become a global service in late 2019.

Fleet Safety is the digital satellite communications system comprising of a FleetBroadband Ship Earth System, (SES) and type approved Maritime Safety Terminal (MST) for use within the GMDSS, enabling ships to meet the majority of the satellite communications requirements of the GMDSS including distress alerting, reception of MSI and SAR related information, voice distress and general communications.



Fleet Safety GMDSS approved area until Inmarsat 6 satellite constellation deployed

9. Iridium – global coverage through constellation of low orbiting satellites.

MCS 99 adopted resolution MSC.451(99) on Statement of Recognition of the Maritime Mobile Satellite Services provided by Iridium Satellite LLC, recognized the maritime mobile satellite services provided by the Iridium Safety Voice, Short-Burst Data and enhanced group calling services, for use in GMDSS, now called generically Iridium SafetyCast services. Constellation nearly completed with spare satellites.

System service manual comprehensively reviewed at Document Review Work Group immediately after NCSR 6. Draft interim preliminary text was agreed and will be presented to MSC 101 for wider publication to allow Initial Operational Certificates (IOC) to be issued to selected NAV and MET Area Coordinators and RCCs, which will enable operational testing of the system and services. It is proposed that an expanding number of certificates will be issued throughout 2019 so that Full Operational Certificates (FOC) can be issued around the end of 2019.

The necessary SOLAS amendments are planned to come into force on 1 January 2020, after which Iridium can commence full operational service on receipt of the IMSO Letter of Compliance and the signing of the Public Service Agreement.

All NAV and MET Area Coordinators and RCCs will be required to provide MSI and SAR services via all recognized mobile satellite service providers, a point which will be included in the new FOCs issued by the IMO Enhanced Group Call (EGC) Coordinating Panel (formerly the International SafetyNET Coordinating Panel).

10. BeiDou – MCS 99 considered an application by China for the recognition of the BeiDou Message Service System (BDMSS) and use in GMDSS. The Committee referred the application to the NCSR Sub-Committee for evaluation of the detailed information, to be provided to the Sub-Committee in due course, and authorized the Sub-Committee to invite IMSO to conduct the Technical and Operational Assessment, as appropriate. BeiDou is the Chinese developed version of Inmarsat and Iridium, intended to provide GMDSS services as well as other communications capabilities in the same manner that Inmarsat and Iridium do.

11. All information providers will be required to transmit their messages via both Inmarsat and Iridium, and in the future via all other IMO appropriate recognized mobile satellite service providers, global or regional coverage, such as BeiDou and the UAE based Thuraya satellite system, which has applied for recognition for the Gulf region. Note at present, unlike GNSS, there are no multi-system capable ship receivers available.

Capacity Building Programme

12. The level of activity of the IHO Capacity Building (CB) Programme increased in 2018. Expenditure in the IHO 2018 CB Work Programme (861 000 Euros) was 37% bigger than the budget for the previous year. 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. The Secretariat is continuing its campaign to find additional donor States and funding organizations. In 2018, 81% of the budgeted work program was executed and paid for.

13. Member States in the region have been instrumental in developing hydrographic services in developing states directly or by means of their national funding agencies (e.g. Norway provided support to Mozambique, Montenegro and Albania, Denmark funded an online MSDI course to support the IHO CB Programme).

14. Recommendations. NHC to consider:

How the NHC Members can engage with their national funding agencies or directly contribute to the CB Programme.

Crowdsourced Bathymetry

15. In accordance with Decision 8 of the EIHC5, IRCC7 established the Crowdsourced Bathymetry Working Group (CSBWG) to provide guidelines on the collection and use of crowdsourced bathymetry. Member States and other interested parties were invited to nominate representatives to participate in the CSBWG (see IHO CL 42/2015). The CSBWG has developed the draft IHO publication B-12 – IHO Guideline on Crowdsourced Bathymetry, which has completed extensive stakeholder and IHO Member State consultation. Edition 1.0.0 was presented to IRCC10 for endorsement and subsequently endorsed by the IHO Council-2 with the caveat that "This document provides technical guidelines only that in no way supersede or override national or international laws and regulations". Work has been completed on the draft of Edition 2.0.0 and IHO CL 11/19 has been promulgated to request approval from Member States and indicate acceptance of CSB in waters of national jurisdiction.

16. The web-based interface portal to the IHO Data Center for Digital Bathymetry, hosted by the USA in Boulder, Colorado, as part of its commitment to the system of World Data Centres, is being upgraded to be compatible with the crowdsourced bathymetry concept. This will enable an IHO-led CSB infrastructure to be established and promoted in the IMO and across the wider maritime community.

17. **Recommendations.** NHC members are invited to identify further potential sources of bathymetric measurements and survey data providers to be facilitate the further completion of the DCDB data holdings.

GEBCO support through Seabed 2030

18. The Nippon Foundation (NF)-GEBCO 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 14 years through The Nippon Foundation – University of New Hampshire (UNH) training project. Through Seabed 2030, GEBCO's role will be recognized and reinforced as the authoritative international initiative for mapping the World Ocean, from the coasts to the deepest trenches. The project will champion, develop and nurture the technical and human capacity to complete this task by 2030.

19. Seabed 2030 has established a network of 4 regional centres. Each centre focuses on discovering, gathering and assembling all available bathymetric data from their region to produce regional datasets and resulting products. The Atlantic and Indian Oceans are covered by the centre located at the Lamont Doherty Earth Observatory (LDEO). 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.

20. **Recommendations.** NHC members are invited to consider the future invitation of Seabed 2030 project representatives to NHC meetings to discuss options for deepened cooperation and support.

IHO GIS and Databases

21. Work has continued on the development of the IHO GIS which is composed of two main parts:

- a country information database, and
- a regional information database.

22. The country information database has been progressively upgraded to include additional administrative information and facilitate the maintenance of the IHO Yearbook (IHO Publication P-5) and related lists posted on the IHO website. Countries in the NHC Region are invited to review their entry in the Yearbook on an annual basis and provide the IHO Secretariat with the appropriate updates or report no change. The status of updates in the IHO Country Information Database

concerning the NHC Countries, including those provided for C-55, is as follows:

Country	P-5 –Yearbook Last update received	C-55 Last update received
Denmark	Jan 2019	31 May 2017
Finland	Jan 2019	18 March 2018
Iceland	May 2017	17 November 2016
Norway	Aug 2017	28 February 2018
Sweden	Sept 2017	5 September 2017

23. An Esri-based GIS solution is being implemented to develop further the regional information database. This will enable access to various layers of information through the IHO website and through cloud-based on-line GIS options. The IHO ENC Catalogue and the IHO GIS for Antarctica have been transferred to this new environment.

24. 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 (see IHO CL 52/2015), CATZOC data was provided by PRIMAR - on behalf of IC-ENC, PRIMAR and Canada, Singapore, Sweden and Thailand. Useful options for visualizing the data in the IHO C-55 GIS are being investigated.

25. The IHO Secretariat is developing an online form to allow Member States to input data to the Yearbook and to C-55. The online forms will also allow Member States to vote in response to CLs. A CL will shortly be issued to provide instructions on its use.

26. **Recommendations.** Countries in the NHC 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.

IHO Outreach

27. World Hydrography Day: Taking into account the discussions at the first IHO Council meeting held in Monaco in October 2017, the theme of the World Hydrography Day for 2019, as announced by IHO CL 52/2018, is:

“Hydrographic information driving Marine knowledge”

28. As part of the report on the proposed Work Programme 2019 at the 2nd Council, the Secretary-General introduced the priorities, which he had defined with the associated issues and risks, for Work Programme 1 (Corporate Affairs). One of the priorities was to plan and start a complete overhaul of the IHO website including incorporation of GIS-services.

29. The Secretariat conducted an internal workshop in December 2017, to assess the deficiencies of the IHO website in place, the up-to-dateness of the underlying technology and future requirements. The workshop resulted into a comprehensive list of topics to be addressed by an overhaul of the IHO website. In the course of the workshop it turned out that the reshape should not be limited to the establishment of a newsfeed mechanism, to the website structure and design only. Instead, a holistic approach covering IHO’s corporate design of all media channels in digital and print was concluded as the appropriate scope of action. A report was presented at the second IHO Council in London in October (doc. C2/7.2 refers).

30. It was concluded further that the current IHO communication strategy is completely lacking the provision of social media. The Secretariat therefore gladly accepted the temporary secondment of the social media expert through NOAA (USA) to assist the future set up and maintenance of such a component.

International Hydrographic Review

31. 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. NHC is represented by Cdr Lars HANSEN (Denmark).

32. Papers for consideration for publication in the IHR should be forwarded directly to the editor (ihreview@iho.int, copy to ian.halls1@defence.gov.au). The deadlines are:

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

33. 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>.

34. Based on the considerations raised in the course of the communication overhaul discussions (paragraph 33), the Secretariat proposes a digital revamp of the International Hydrographic Review (IHR). First consultations were held with the Editor in Chief of the IHR, Mr Ian Halls. The following principal changes are proposed jointly:

- Design and building new separate website www.ihr.iho.int using the new corporate design.
- Design the International Hydrographic Review as online publication and printable version (PoD).
- Facilitate technical options to create customized topical compilations from the digital repository of IHR articles for pdf-download and print.

35. Further and more detailed information was presented at and endorsed by the second IHO Council meeting in London in October (Decision C2/46 refers).

36. **Recommendations.** NHC Members are invited to submit papers for publication in the IHR.

IHO Centenary Celebrations (IHO-100)

37. The years 2019 and 2021 will be important in the history of the International Hydrographic Organization. 2019 will mark 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.

38. 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.

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

- To hold an exhibition on "Historical Nautical Charts and Mediterranean" which will be displayed at the Monaco Yacht Club from 1 to 13 April 2019,
- To organize an international Symposium on "A Historical Approach for Measurements and Protection of Oceans and World Waters" is scheduled to be held at the Oceanographic Museum of Monaco from 20 to 21 June 2019 (in conjunction with the World Hydrography Day), Call for Papers of this Symposium has already been circulated.
- To highlight the centenary celebrations as part of the media and press-campaign associated 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”.

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.

Action Requested of NHC:

- a) **Note** this report
- b) **Consider** the recommendations on Council/Assembly interactions as presented in **Paragraph 3**
- c) **Consider** the recommendations on Charting as presented in **Paragraph 7**
- d) **Consider** the recommendations on Capacity Building in **Paragraph 14**
- e) **Consider** the recommendations on Crowd Sourced Bathymetry in **Paragraph 17**
- f) **Consider** the recommendations on Seabed 2030 collaboration in **Paragraph 20**
- g) **Review** entries related to IHO C-55 and P-5 (Yearbook) at least annually (**Paragraph 26**)
- h) **Consider** submitting papers for publication in the International Hydrographic Review (**Paragraph 36**)
- i) **Take any other actions** as considered appropriate