SOUTH-WEST PACIFIC HYDROGRAPHIC COMMISSION

18th Meeting, by VTC, 17-19 February 2021

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 the South-West Pacific 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 SWPHC Conference the Republic of Ghana, Samoa and Lebanon acceded to the IHO Convention and the IHO membership now stands at 94. 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 non-IHO Member States of the SWPHC region are Cook Islands, Kiribati, Nauru, Niue, and Palau. All, except Cook Islands and Niue, are Member States of the UN. Cook Islands and Niue, as non-Member States of the UN, are required to seek the approval of the IHO Member States. The IHO Secretariat, in cooperation with the Department of External Relations of the Government of Monaco, stands ready to assist those non-IHO Member States with the application process for membership of the IHO.

IHO Council Activities

3. Due to COVID-19 restrictions, the fourth meeting of the IHO Council (C-4) took place on 19 November 2020 via video conference, just after the 2nd Assembly (A-2). The Council had been tasked with making the Strategic Plan real, a task that must be accomplished quickly to ensure that the IHO reaches its goals. Besides, the A-2 had also tasked the Council with implementation of the S-100 Roadmap, which included S-100 standards and offered increasing safety of navigation by ensuring that the most up-to-date information is available with the vision of its delivery to mariners seamlessly integrated with other data such as navigational aid information and weather. The A-2 had tasked the Council to work through the technical, operation and regulatory challenges associated with the transition from paper-based products and S-57 ENCs to the S-100 suite of standards and services. Summary report of the 4th Meeting of the IHO Council is available at the IHO web site.

4. According to Article 16 of the General Regulations of the IHO, the Secretary-General informed the SWPHC about the allocation of one Council Seat to the Commission. The SWPHC Chair informed the Secretariat on the Commission´s decision to select Australia for the seat. It is noted that the SWPHC members are well represented in the IHO Council, namely France (via MBSHC), the United Kingdom (via hydrographic interest) and United States of America (via hydrographic interest).

2nd 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 the forthcoming Assembly session and Council meeting as remote events. IHO ACL 19/2020 informed about the positive vote of the Member States in favour on the proposed scenario on the postponement of the 2nd Session of the IHO Assembly (A-2) and associated activities resulting from exceptional circumstances due to COVID-19 (IHO ACL 17/2020 refers). This scenario, approved by vote by 21 September 2020, is explained in the Assembly Circular Letter ACL29Rev1/2020.

6. 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). All the documents related to the 2nd Assembly are available at the IHO website and the Proceedings, when ready, will be available there as well.

7. At the 2nd Assembly the IHO Member States approved the new IHO Strategic Plan which lays out the organization's priorities for the coming years. The inclusion of Goal 3 related to participation in international initiatives on the sustainable use of the oceans, confirms that the IHO is now, also, clearly committed to reconciling the use and the preservation of the marine environment, in line with the global initiatives, such as UN Decade for Ocean Science and Seabed2030. Traditionally, hydrographic data was used mostly for the safety of navigation, but its use is each time more important by a wide variety of stakeholders, such as to monitor changes and effectively protect the Oceans.
Assembly participants approved the roadmap for the implementation of the IHO Universal Data Model (S-100) which can be utilized by all users of ocean data including navigation, marine energy, oceanography etc. The IMO e-navigation Strategy Implementation Plan requires that all Maritime Services be S-100 conformant, as it specifies the method for data modelling and developing product specifications.
Member States also approved the new project proposed by Canada on Empowering Women in Hydrography - EWH, which aims to increase gender equity and the number of women in leadership positions. The project will include training and communication on different hydrographic careers.
Finally, as clear example of how the Hydrographic Community is evolving and dealing with extraordinary circumstances, the Assembly approved the establishment of a new IHO e-learning centre hosted by the Republic of Korea at the Korea Hydrographic and Oceanographic Agency (KHOA). The organization had been wanting to increase the offering in terms of distance training for some time and the current pandemic highlighted the need for this.

8. **Recommendation**. SWPHC 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 as appropriate.

INT Chart and ENC Production Coordination - Region L

9. 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), SWPHC has been involved in the process.

10. Inputs and recommendations from the final report on the "Future of the Paper Nautical Chart", presented by the NCWG Chair (Mr Mikko Hovi, Finland) at HSSC12 VTC in October and then at the 2nd Assembly, deserve particular attention by the HOs and the RHCs. At HSSC12, it was agreed to add a work item in the programme of work of the NCWG to develop ways to enable or enhance HOs' ability to produce paper charts or raster chart images directly from S-101.

11. Discussions on the development of a new set of WEND100 Principles (applicable to S-100 based products) were held at WENDWG VTCs in April and September 2020, and then at IRCC12 and 2nd

Assembly. The development of WEND100 is an important and fundamental component of the S-100 Implementation Roadmap. WENDWG investigates the applicability of the WEND-like principles to production and dissemination of S-101 ENCs and of S-100 based products. WENDWG established a drafting group to re-write the WEND principles to include the full suite of navigation services. IRCC12 agreed to expand on existing principles and assist their unified application by an implementation guide.

12. **Recommendations**

12.1 SWPHC members are invited to check the quality of the information available in INToGIS II for Region L and report any discrepancies.

12.2 SWPHC members are invited to elaborate on the "Future of the Paper Nautical Chart" document, discussed at HSSC-12 and presented at the 2nd Assembly.

12.3 SWPHC is invited to follow the finalization of the WEND100 principles, which will be presented at the next IRCC13 in June 2021, through the active participation at the WENDWG works.

Capacity Building Programme

13. 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 on the 2020 CBWP and it is expected that the 2021 CBWP will require also an extensive review. The WP for 2020 was updated. Several projects could not be executed due to the COVID-19 pandemic, and most of them had to be postponed. It is expected that the 2021 CBWP will face comparable effects in suspensions of project activities planned for. However, the SWPHC besides cancelled two and had postponed one project of the 2020 CBWP, was able to execute the following two CB projects in the beginning of 2020:

- CBWP 2020 P-06 - Training for Trainers on MSI;

- CBWP 2020 P-09 - Technical Workshop on MSI for Managers & Disaster Framework for SWPHC.

15. Mr Matthew Borbash (USA) is the SWPHC CB Coordinator for planning and implementing the regional CB activities.

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

Crowdsourced Bathymetry

17. 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).

18. 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.

19. 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.

20. At the IRCC12 a submission has been made in coordination with GEBCO and Seabed 2030, for RHCs to identify regional coordinators 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. The regional coordinators 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.

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. 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.

23. **Recommendations**

23.1 SWPHC Members and Associate Members are invited to officialise and/or review their positions on the conduct of CSB in their waters of jurisdiction (IHO CL's 11/2019 and 20/2020) and to identify further potential sources of bathymetric measurements and survey data providers to facilitate the further completion of the DCDB data holdings.

23.2 SWPHC is invited to continue with its active participation in the initiatives such as UN Decade for Ocean Science (Calls for Decade Actions) and Seabed2030.

GEBCO support through Seabed 2030

24. 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.

25. The 2020 grid release showed 19% global coverage and is comprised primarily of existing data and some new data. The target for Year 4 coverage is 25% (6% growth), this is very ambitious in in the wake of challenges associated with COVID-19 shutdowns. The Grid update is anticipated to occur in June 2021. Primary challenges facing the Project throughout Year 4 and beyond include: a) the generation of new bathymetric data in deep water areas, b) access to existing embargoed data held by governments, industry and academic institutions.

26. Three new initiatives have been planned: a) Ocean Frontier Mapping, b) Crowd Sourcing and c) Technical Innovation. Ocean Frontier Mapping is a programme of five science missions, initially identified for Year 4; there is likely to be some adaptations made to the programme throughout the year depending on COVID-19 related logistical arrangements with operators. For Crowd Sourcing initiative, the Seabed2030 Director is working closely with Jennifer Jencks on the CSB programme, in her capacity as both Director of DCDB and Chair of the IHO Crowd Sourced Bathymetry Working Group. And finally, on Technical Innovation, the members of a Project Team are currently working with technology organisations, including Amazon Web Services, to facilitate future cloud based data storage/transfer/processing solutions. This aspect is increasingly important as we are handling ever increasing volumes of data.

27. **Recommendation.** SWPHC members are invited to consider the future invitation of Seabed 2030 project representatives to SWPHC meetings to discuss options for deepened cooperation and support. SWPHC 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 SWPHC 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 SWPHC Countries, including those provided for C-55 is as follows:

Country	P-5 –Yearbook Last update received	C-55 Last update received
Australia	January 2021	February 2018
Australia - Christmas Island	-	February 2019
Australia - Cocos (Keeling) Island	-	February 2019
Australia - Macquarie Island	-	February 2019
Australia - Norfolk Island	-	February 2019
Cook Islands	March 2020	February 2019
Fiji	June 2020	January 2019
France	January 2021	October 2018
France - French Polynesia	-	January 2021
France - New Caledonia	-	January 2021
France - Wallis and Futuna Islands	-	January 2021
Kiribati	March 2020	January 2019
Marshall Islands	January 2020	December 2016
Micronesia (Federated States of)	No information	No information
Nauru	March 2020	January 2019
New Zealand	March 2020	February 2019
New Zealand - Tokelau	-	March 2014
Niue	June 2020	February 2020
Palau	February 2019	February 2019
Papua New Guinea	March 2020	December 2016
Samoa	March 2020	December 2016
Solomon Islands	March 2020	January 2020
Timor-Leste	September 2016	May 2016
Tonga	September 2019	March 2014
Tuvalu	April 2017	January 2019
United Kingdom	July 2020	December 2020
United Kingdom - Pitcairn Dependencies	-	January 2019
United States	September 2019	December 2016
United States - American Samoa	-	February 2018
United States - Howland & Baker Islands	-	February 2018
United States - Jarvis Island	-	February 2018
United States - Kingman Reef & Palmyra Island	-	February 2018
Vanuatu	September 2019	January 2018

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. **Recommendation.** Countries in the SWPHC 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. As announced at the 2nd Assembly and endorsed by the fourth IHO Council meeting, the Secretary General proposed the following theme for WHD 2021: "*One hundred years of international cooperation in hydrography"*. The theme is designed to highlight progress in knowledge and technology over the past 100 years, while celebrating the ground-breaking work which was done during this period. The goal is to highlight the past, present, and future of hydrography. In CL 37/2020, the Secretariat also invited Member States to share historical pictures of their work, as well as pictures/footage using modern technologies such as autonomous vehicles and drones.

IHO Centenary Celebrations (IHO-100)

34. 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.

35. The IHO Secretariat has already organized an exhibition on "Historical Nautical Charts and Mediterranean" which was displayed at the Monaco Yacht Club from 1 to 14 April 2019, an international Symposium on "A Historical Approach for Measurements and Protection of Oceans and World Waters'' at the Oceanographic Museum of Monaco from 20 to 21 June 2019 (in conjunction with the World Hydrography Day), and has published an IHO Prestige Book on "100 Years of International Cooperation in Hydrography" (English and French versions have already been delivered to H.S.H. Prince Albert II of Monaco). 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. 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

36. 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. Mr Mike Prince (Australia) is representing SWPHC on the IHR Board.

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

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

38. 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.

39. To promote and modernize the distribution of the content of the IHR the IHO Secretariat is working in the development of a new IHR website with Geomares.

40. **Recommendation.** SWPHC Members are invited to submit papers for publication in the IHR.

41. Action Requested of SWPHC:

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.