

12th MEETING OF THE IHO INTER-REGIONAL COORDINATION COMMITTEE
IHO-IRCC12
VTC, 6-7 October 2020

REPORT

1. Opening Remarks, Introductions and Administrative Arrangements

Docs: IRCC12-01A List of Documents (Secretariat)
IRCC12-01B List of Participants (Secretariat)
IRCC12-01C List of IRCC Members (Secretariat)

The 12th Meeting of the IHO Inter-Regional Coordination Committee (IRCC) originally scheduled to be held in Gdansk, Poland in June 2020, due to the COVID-19 pandemic was held in a virtual format on 6 and 7 October 2020. The meeting was chaired by Dr Parry Oei (Singapore) and attended by 94 participants from 32 Member States and two observing Organizations. All Regional Hydrographic Commissions (RHCs) and all subordinate bodies of IRCC were represented.

The meeting was opened by the Chair Dr Parry Oei. He welcomed the participants and highlighted that this meeting due to the COVID-19 pandemic had to be adapted to an unusual format. This situation required also a significant change in the items to be discussed. Due to the need to shorten the meeting he highlighted the main issues where the meeting have to focus on and expressed the need to concentrate on decisions.

The IHO Secretary-General (SG) - Dr Mathias Jonas mentioned the importance of this meeting during these difficult times, where the need to continue strengthening the collaboration amongst the Member States at regional and global level is very important. He regretted that it was not possible to have this meeting in the traditional format and joining the Polish Hydrographic Office in the centennial celebrations.

The IHO Director Luigi Sinapi highlighted the fact that the next months will be very challenging for the IHO and the Hydrographic community, with the major events occurring in the next two months: the IRCC and HSSC meetings in October, the Assembly (A-2) and the Council (C-4) in November. He also pointed out that the IRCC meeting has to be condensed and focused on the main points and the results will be submitted to the 2nd session of the Assembly.

2. Approval of Agenda

Doc: IRCC12-02 Agenda and Timetable (Secretariat)

Participants were invited to comment on the agenda and timetable in case updates were necessary. Agenda was adopted.

3. Matters arising from Minutes of IRCC10 Meeting

Docs: IRCC12-03A Minutes of IRCC11 (Secretariat)
IRCC12-03B Status of Action List from IRCC11 (Secretariat)

Chair invited the meeting to comment and approve of the IRCC11 Minutes. List of Actions from IRCC11 was reviewed and updated.

Decision 1: Approved the Minutes of IRCC11 (doc. IRCC12-03A).

Decision 2: Approved the Updated Status of the List of Actions from IRCC11 (doc. IRCC12-03B).

3.1 HSSC Report

Docs: IRCC12-03C HSSC REPORT (HSSC Chair)

Presented by Mr Magnus Wallhagen, Chair of the HSSC. He mentioned that there was no HSSC meeting since May 2019 and the next is scheduled for this October 2020.

Mr Wallhagen reported on the developments that affect the HSSC and the need to progress by correspondence due to the HSSC12 postponement. He also referred on the new editions of the standards recently adopted, namely the S-44, the S-49 and the first edition of S-67 Mariners' Guide to Accuracy of Depth Information in Electronic Navigational Charts (ENC).

The key HSSC priorities at operational and strategic level were introduced, as the review on how the Revised IHO Strategic Plan impact on HSSC at the level of the Strategic Performance Indicators (SPI), the S-100 implementation Roadmap and the transition from S-57 to the S-101, and then the future of Paper charts. At operational level, the priorities are on the development of the S-1xx Product Specifications and operationalization of S-1xx framework, the new edition of S-44 and in the increase of need for Data Quality descriptions.

After the presentation, the Chair opened the floor for comments and Mr Evert Flier suggested an action in the outreach of S-67 within the educational and the Marine institutions.

The Chair summarized enhancing the importance of the S-100 implementation, the paper on the Future of Paper Charts and the need to promote the S-67 outreach to the RHCs.

Decision 3: Noted the HSSC report (doc. IRCC12-03C).

Action 1: RHC to Instruct MS in the promotion and distribution of publication of S-67 Mariners' Guide to Accuracy of Depth Information in Electronic Navigational Charts (ENC) to the Marine Institutions and Education Schools.

Action 2: Member States to review the paper on the Future on Paper Charts and provide feedback on it.

4. Regional Hydrographic Commissions (RHCs)

4.1 RHC Reports

Docs: IRCC12-04.1A IHO RHC Reports Secretariat Summery (IHO Secretariat)
IRCC12-04.1B Nordic HC (NHC Chair)
IRCC12-04.1C North Sea HC (NSHC Chair)
IRCC12-04.1D East Asia HC (EAHC Chair)
IRCC12-04.1E US/Canada HC (USCHC Chair)
IRCC12-04.1F Mediterranean and Black Seas HC (MBSHC Chair)
IRCC12-04.1G Baltic Sea HC (BSHC Chair)
IRCC12-04.1H Eastern Atlantic HC (EAtHC Chair)
IRCC12-04.1I South-East Pacific Regional HC (SEPRHC Chair)
IRCC12-04.1J South-West Pacific HC (SWPRHC Chair)
IRCC12-04.1K Meso American - Caribbean Sea HC (MACHC Chair)
IRCC12-04.1L Southern Africa and Islands HC (SAIHC Chair)
IRCC12-04.1M North Indian Ocean HC (NIOHC Chair)
IRCC12-04.1N ROPME Sea Area HC (RSAHC Chair)
IRCC12-04.1O South West Atlantic HC (SWAtHC Chair)
IRCC12-04.1P Arctic Regional HC (ARHC Chair)
IRCC12-04.1Q Hydrographic Commission on Antarctica (HCA Chair)

IHO Director Luigi Sinapi summarized the most important aspects of the RHC reports. His report was based on the 16 reports submitted to the A-2 by RHC and HCA, eight of which were updated at the IRCC12 meeting.

He started with the sharing of the achievements, namely in the new technologies with some experiences with autonomous survey vehicles and satellite derived bathymetry shared and discussed and the establishment of vertical reference frames. With regard to MSDI, initiatives are being synergized, and new website portals are implemented with data available for non-navigation proposes. The adoption of UNGGIM Shared Guiding Principles are in progress in some Regions and there has been an increase of data provided to the IHO DCDB and to the Seabed2030. He highlighted the importance of the ENCs overlaps issue which would

require bilateral discussions and agreements. He also mentioned the importance of the regional cooperation and joint projects, especially in special case of a crisis affecting one or several Members within a Region. He also highlighted the importance to extend the cooperation between adjacent regions. Sometimes this collaboration can be catalyzed by “Relevant Oceans Initiatives”.

Director Sinapi mentioned the high level of industry participation that has been experienced in RHC meetings and the contributions of Member States to the IHO activities. He expressed the importance of the Capacity Building in the enlargement of the regional and IHO membership and for contributing to increase the hydrographic awareness along with the need to continue with the provision of intensive Capacity Building activities (i.e. courses, technical and high level visits, workshops). He also mentioned the benefits of establishing a common set of criteria at regional level, on which an individual recognition scheme for Hydrographers and Cartographers should be based on, which can be applied at international level.

In relation with the challenges faced and difficulties encountered in the RHC, the vastness and remoteness of some MS pose a unique operating environment. It is a challenge to some RHC and hydrographic offices due to the high cost of carrying out surveys with the limited national budgets. In some RHC the lack of involvement of MS in the regional conferences and working group meetings, as well as at IHO working group meetings was also a challenge. The availability of CSB, tide and current information in some cases may require a review of national legislations.

He also highlighted the concern expressed by RHC on the impact of the COVID pandemic in the training opportunities. In spite of the Capacity Building initiatives, there was no corresponding development in the hydrographic capacity in some RHC. Hence, the need of training in some RHC to adapt to the S-100 standards has also been a concern. The role of the IHO and its RHC in Seabed2030, as well as the contribution of Seabed2030 to the UN Decade of Ocean Science, societal goals have not been well understood and recognized. In addition, there have been difficulties in the coordination of the INT chart schemes and ENC coverage.

In relation to the lessons learned, it was noted that there have been some on enhanced value in the increased collaboration across RHC (especially adjacent RHC) and regional partnerships for Capacity Building training, Seabed2030, MSDIWG and others.

It was noted that there is still a need to provide data to INT Chart producer Nations which could be used towards the development of a Disaster Response Framework to improve the response in case of future disasters.

Director Sinapi took the opportunity to update the meeting on the changes in the date and format of the next IHO Assembly and the activities related with the IHO centenary celebrations (IHO-100).

The Chair commented on the difficulties in attempting to summarize the key points across the RHC due to either different priorities or challenges experienced in each of the RHC. In any case, he was encouraged on the progress made within the RHC, especially in improvements in the areas of CB and the effort to harmonize and share the data. He strongly urged the RHC to continue collaborating and solving the issues such as overlapping of ENC cells. He also urged RHC to capitalize on VTC technology to increase participation in the IHO and RHC committees and working groups meetings. He added that this has given unprecedented opportunity for more persons to participate and understand the direction and work of the IHO.

Decision 4: Noted the IHO RHC Reports Secretariat Summary (doc. IRCC12-04.1A).

Decision 5: Noted all the reports from agenda item 1.1 (docs. IRCC12-04.1B, 04.1C, 04.1D, 04.1E, 04.1F, 04.1G, 04.1H, 04.1I, 04.1J, 04.1K, 04.1L, 04.1M, 04.1N , 04.1O, 04.1P and 04.1Q).

Action 3: Member States strongly encouraged to continue updating C-55.

Action 4: RHC to implement the IHO Resolution 2/1997 as amended by A-2.

Recommendations:

1. Member States encouraged to proceed with the projects to the establishment of vertical Reference Frames, not only at a national level but also at a Regional level and in understanding the differences at national boundaries and how to reduce it.
2. Member States to proceed or implement MSDI Regional initiatives. RHC requested to include MSDI as a permanent agenda for their meetings.
3. Member States to increase the data contributions to the IHO DCDB and to the Seabed2030.
4. Member States to promote the bilateral discussions regarding the ENC overlapping issues.
5. Member States to promote the regional cooperation in different activities.
6. Member States to improve their contribution to the work of the IHO, providing active participants to IHO working groups.
7. RHC to continue with the provision of intensive Capacity Building activities (i.e. courses, technical and high level visits, workshops) and also to actively seek Capacity Building partnerships.
8. RHC to promote the enlargement of the regional membership assisting in the recruitment of new IHO Member States
9. RHC to establish a common set of criteria on which an individual recognition scheme of individual competence for hydrographers and nautical cartographers should be based on, to be then applied at international level.
10. RHC to develop a Disaster Response Framework.

5. The consequences of the pandemic on RHC activities and business continuity of the IRCC Subordinate Bodies

Chair introduced the topic and opened the floor for interventions.

Sri Lanka as the present chair of NIOHC informed its compelling desire to conduct the intended NIOHC-20 meeting in 2021 with the concurrence of MS of NIOHC and will inform the IHO secretariat of the outcome.

Mr Shigeru NAKABAYASHI acting as representative from EAHC shared two cases of capacity building in their region. The first was the CB Seminar hosted by Brunei, a very recent member of IHO, with the support from Republic of Korea (RoK) and Indonesia in December 2019. The other was the interregional Seminar on MSI organized in the end of 2019 due to the fact that the NAVAREA coverage is geographically different from the RHC areas.

ARHC Chair RAdm Shepard SMITH reported that they have switched over to a series of virtual meetings with a full RHC conference in August. This was combined with a Science day with around 150 participants and a more confined Hydrographic day celebration. Some important advantages of the face-to-face meetings were lost but the Commission's work had to continue.

WWNWS Chair Mr Christopher JANUS shared the important contributions of the previous Chair, Mr Peter Doherty for the last 18 years. He went on to report on a study made using data from the past years which showed an annual increase of about 5,5% in the navigational warnings issuance. However, after the start of the COVID pandemic there was a drop, but he is expecting an increase in about 9% for 2020. He added that a more detailed report will be presented at IRCC13 and would focus on how the CB had supported the increase of navigational warnings.

MACHC Chair Mrs Kathryn RIES mentioned that MACHC will have the first virtual meeting from 30 November to 3 December with simultaneous translation. The Region had an impact in the CB activities, but an important course in Spanish related with tides and waters levels will have to be postponed to 2021. She also mentioned the four webinars conducted on Seabed 2030 with the records and presentations already available.

SAIHC Chair RAdm Peter SPARKES reported that SAIHC meeting held in September by VTC had a significant increase in the participation and some members that normally won't participate due to travel costs

but now able to participate. He proposes to consider in the future to have in the face-to-face meetings also a VTC participation option.

NIOHC Chair RAdm YN Jayarathne reported that their RHC meeting has been postponed to 2021.

Recommendation:

11. RHC consider having in their meetings, in addition to the regular face-to-face participation the possibility of VTC participation, to allow more delegates to participate.

6. Capacity Building, IHO Education Requirements and E-Learning

6.1 The level of CB activities will be presented and considered (doc. IRCC12-06A)

Presented by Mr Evert FLIER, Chair of the CBSC. He started to mention that the COVID 19 pandemic had a significant impact in the CB activities, then he summarized other topics that will be under point 6, the e-Learning Center and the Empowering Women in Hydrography program proposed by Canada. He also mentioned the intention to add a fourth item: the action item for the C-4, with regard to the performance indicators. In relation to this last point, the direct effects of Capacity Building are often hard to measure. Providing training can sometimes result in personnel changing to better-paid jobs outside the hydrographic office or hydrographic offices not fully embracing the opportunities of getting better trained and more knowledgeable personnel back on their staff. But sometimes newly trained staff does get the opportunity to contribute to improve operations at their HO. It is therefore valuable to analyze the relationship between CB training provided to a certain country and the countries provision of maritime safety information. CBSC will reach out to and work together with the WVNWS on this issue.

He mentioned the sources of funds to the CB Program and thanked the generous financial contribution from RoK and Japan. For the 2020 CBWP, the Republic of Korea (RoK) contributed with more the 320.000 Euros with almost all funds earmarked to sponsor students from IHO Member States for the Category "A" Hydrographic Survey Program at USM, the Training for Trainers (TFT) project and a Category "B" Hydrographic Survey Program held at KHOA, Busan, RoK. Japan continuous to provide its important contribution through the Nippon Foundation (NF) by funding CB training projects. The NF has provided a financial contribution to the IHO to fully fund the NF-IHO GEOMAC Project. The NF is substantially funding other projects outside the direct context of the IHO CB. Several MS provide direct contribution or support for IHO CB activities. This can be a.o. the provision of facilities, trainers, other personnel, advice, etc. The CB programme depends on these contributions.

The WP for 2020 has been updated. Several projects could not be executed due to the CoVID-19 pandemic. Most of them have to be postponed. The big surplus estimated for the end of 2020 will therefore urgently be needed to execute the 2021 WP. In relation with the 2021 WP the accepted submissions would need funds of about 1,520,000 € and the Work Programme allocates about 1,260,000 €. He also mentioned the appeal to ascertain a minimum level of funds that has led to a significant attention and fruitful discussions on all levels of the IHO.

In CBSC18, Decision 9 was related to the recognition of the importance and very high potential of the offer from Republic of Korea to establish and support an IHO e-Learning Center.

During the interventions, Mr Thomas DEHLING (Vice-Chair of IRCC) enhanced the importance of CBSC18 Decision 9 and the hope that it finds support from the IRCC members.

The Chair proposed that in some CB training activities in addition to the face-to-face participation to try incorporating e-Learning in order to optimise the limited funds available and could also allow increase in the participation.

The IHO SG Mentioned that the proposal from RoK in establish an IHO e-Learning Center is the proposal PRO-3.3 to the Assembly and is expected that the support from the IRCC could be expressed. He also stated the need and importance of the Performance Indicators (PI) for CB. He expressed some concerns with the level of the CB activities for the next year due to the eventual effects of the pandemic.

Mr Thomas DEHLING as former CBSC Chair shared that some work has been done on the PI based on the results reported by the CB coordinators. This system is already in place but would need some refinement to meet IHO's requirements.

Director Sinapi mentioned that the GEOMAC course will start in December 2020 at the UKHO, and the Cat. A Hydrography course will start in 2021 at USM. He also proposed that the CBSC should review the CB Strategy.

- Decision 6: Noted the CBSC Report (doc. IRCC12-06A).
- Decision 7: Endorsed the decisions and actions on PRO-3.3 to A-2 (Establishment of an IHO e-Learning Center).
- Decision 8: Noted the significant effort from CB Coordinators to assess the needs in the region, to identify national and regional projects that may contribute to the CBWP and to coordinating the support for countries in need.
- Action 5: Will forward CBSC18 decision 9 on the Establishment of an IHO e-Learning Center to A-2.
- Action 6: Invited the Member States who have experience in developing and providing e-Learning contents to share their resources and experiences to the e-Learning PT.
- Action 7: Revision of the CB Strategy in order to be aligned with the new IHO Strategic Plan.

Recommendations:

12. Consider developing and implementing a system with face-to-face and also e-Learning activities in the CB training.
13. To set up a system of performance indicators to measure the effectiveness and efficiency of CB activities.

ACTION C3/25 - CB activities - The Council invited the IRCC to instruct the CBSC to develop a system of performance indicators to measure, under the conduct of the CBSC and in accordance with the Revised Strategic Plan, the effectiveness and efficiency of CB activities. This system should be oriented by the expected effects of CB support, not on the achievement of the CB activities. (to report on C4). **It is an ongoing item, to implement a system to measure the results of some CB actions with the CB Coordinators. However, some refinement work needs to be done.**

6.2 The education requirements and difficulties for hydrographic surveying and nautical cartography trainings (doc. IRCC12-06B)

Presented by Mr Ron FURNESS, Chair of the IBSC. He started by explaining the role of the Board and mentioned the working program for 2019-2020. During the last year, in addition to the annual meeting the IBSC issued the companion document Frequently Asked Questions to contribute to the Right First Time principle, i.e. assisting institutions to improve the quality of submissions; (IBSC Work Plan Q2 2019 to Q2 2020, approved IRCC11, Decision 26), review the IBSC standards and maintain IBSC Publications (Task 3.8.4, IHO 3 year Work Programme 2018-2020). Also at the IBSC42 Conditional Recognition submissions were reviewed (IBSC Work Plan Q2 2019 to Q2 2020, approved IRCC11, Decision 26) and the Board realized on-site visits to provide guidance and assistance to institutions in China and Belgium (IBSC Work Plan Q2 2019 to Q2 2020, approved IRCC11, Decision 26).

In 2020, the IBSC issued the Guidelines for the Implementation of the Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (Ed 2.1.1, March 2020) and the Frequently Asked Questions (FAQ) (Edition 1.0.0, March 2020).

At the IBSC43 meeting fifteen submissions were reviewed, 1 was recognized, 5 recognized with conditions and 9 not recognized. In October-November 2019 the Board also held a workshop meeting in Singapore to review some inter-sessional submissions, the annual reports and work on the standards companion documents.

The main problem encountered remains with the quality of submissions which implies an increased work for the institutions, but also for the Board. For each program submitted there would be normally more than one review.

He also reported on the changes in the IBSC membership.

In relation with the impact of the COVID-19 on the work of the IBSC and the teaching delivery strategies of the recognized programmes was immediate and disruptive from early 2020. The IBSC43 Meeting held in Colombia was conducted with the participation of two members by VTC. All presentations were conducted by VTC as the important presence of the delegations was not possible although it is always useful and an important added value to the respective submission's revision. The IBSC attempted to minimize the impact of these measures with additional time allowed for clarifications. Due to the close of the borders the meeting was interrupted before the end and the review of two submissions had to be postponed and be conducted subsequently conducted by VTC.

Understanding that COVID-19 will have an impact in the running of programmes, the IBSC issued a message in the IHO web page expressing the Board availability to help the institutions to adapt to the situation, but at the same time maintaining, as much as possible, the required level of the learning outcomes.

The Board received letters from several institutions regarding their necessary modified teaching strategy to deal with the impact of the COVID-19. In summary, it is possible to mention that the institutions adapted very quickly and well, developing and implementing remote learning strategies for the theoretical classes and delayed the delivering of the practical classes for the end of the respective lockdowns with the necessary safety measures implemented.

In the future, the workshop in next November is expected to be by VTC with the respective limitations that VTC with participants from very different time zones have. In case the next annual meeting IBSC44 is conducted by VTC, this would have a seriously disruptive effect with grave consequences in the conduct of the Board's programme for the renewal of recognitions and the consideration of new programmes for recognition.

Decision 9: Noted the IBSC Report (doc. IRCC12-06B).

Decision 10: Acknowledged the work done by the Board in the delivery of the companion document *Guidelines for the Implementation of the Standards of Competence for Hydrographic Surveyors and Nautical Cartographers Ed. 2.1.1 (May 2020)* and the new document *Frequently Asked Questions, Ed. 1.0.0 (March 2020)*.

Decision 11: Agreed with the IBSC Proposed Work Plan – Q2 2020 to Q2 2021 (IRCC12-06B Annex B).

Recommendations:

14. Member States and submitting institutions are encouraged to engage with the IHO Secretariat early in the process of them preparing submissions for programme recognition.
15. Member States and submitting institutions are encouraged to consult the Guidelines, the FAQs and the White Paper (IHR-Nov-2017 – Article: Maintaining the Standards of Competence for Hydrographic Surveyors and Nautical Cartographers) early in the process of preparing submissions for programme recognition.

6.3 The use of online courses, seminars and potential e-Learning activities will be discussed. IHO e-Learning Center proposed by RoK to A-2 (Pro 3.3) will be presented to the participants (doc. IRCC12-06C)

Presented by Mr Peter Hak, from the Republic of Korea (RoK). He started with a video on the e-Learning center project. A center that could store, manage, providing adequate guidelines the e-Learning training materials and make available the contributions of several different contributors, about different subjects. He also highlighted the importance of this project, especially in this COVID pandemic situation. RoK submitted PRO 3.3 Establishment of an IHO e-Learning Center to the 2nd session of the IHO Assembly. According to ACL19, it was advised to discuss the PRO 3.3 and following amendments during the Capacity Building Sub-Committee meeting, to then submit it for consideration to the Assembly. At CBSC-18 it was decided to establish an e-Learning Project Team (PT) with 10 members from the CBSC, IBSC, IHO Secretariat and

interested Member States to work together with IBSC and KHOA “in the development of the structure and framework of an IHO e-Learning Center and report to IRCC12”. Mr Hak also mentioned the system architecture proposed and the proposed implementation timeline.

The Project Team decided that, if PRO 3.3 be approved at A-2, the establishment of the IHO e-Learning Center should be under the CBSC, setting up a Steering Committee and a Secretariat for efficient implementation, the initial requirements were established and was also agreed to consider the practical exercise (or face-to-face) aspects when developing the e-Learning guideline and curriculum as required by the nature of hydrography. The PT will continue to work with RoK to establish the Center by A-3. Meanwhile, Member States who have experience in developing and providing e-Learning contents are invited to actively share the resources and experience.

After the presentation the Chair expressed his view on the importance of this project and then opened the floor. USCHC Chair, Dr Geneviève BECHARD commended RoK and all involved in the project and mentioned that in the next USCHC will be discussed how the regional members could contribute. WNNWS Chair also expressed his commend to the project and the intention that WNNWS participates in the PT and mentioned that they are working in the conversion of an MSI course in an e-Learning format.

Mr Thomas DEHLING highlighted that the definition of e-Learning is wider and different kinds of training contents could be included in this definition, which will allow the inclusion of several training materials available to the Member States.

IBSC Chair expressed his concerns with the assurance that the expected e-Learning outcomes are achieved, the practical classes and the consistency of the materials that may come from different sources, mentioning that the expectations should be well managed. The Chair agreed but stated that this was a work in progress.

MSDIWG Chair mentioned that MSDI has already some e-Learning materials and also would like to participate.

IHO SG asked if the intention is to have only open source materials or also more sophisticated and paid courses.

Mr Peter Hak stated that the system will be ready to deal with different contents, but it is expected that, at least, most of them would be free.

Mr Evert FLIER observed that it will be interesting to look at the other organizations, IALA, IOC, etc. and how they engage with the Members States.

RAdm Peter SPARKES expressed that this will be a great opportunity to look at the e-Learning materials and mentioned that also UKHO are now preparing some parts of their courses in e-Learning format.

Decision 12: Noted the progress made by the CBSC, e-Learning Project Team, and RoK.

Decision 13: Supported the e-Learning Project Team in establishing the IHO e-Learning Center and developing an e-Learning guideline in cooperation with RoK.

Recommendations:

16. Invite the Member States who have experience in developing and providing e-Learning contents to share the resources and experience to the PT.
17. To contact with other organizations that may want to participate and contribute with contents.

6.4 The Empowering Women in Hydrography (EWH) project (docs. IRCC12-06D.1 and IRCC12-06D.2).

Ms Annie Biron from the Canadian Hydrographic Office presented this item, stating the need to enhance the large imbalance in the participation of women in maritime related domains such as Hydrography. She also mentioned that recently many maritime related organizations have started this change with symposiums, programs and activities with this theme, providing several examples. Organizations are encouraged in

removing barriers for women, increasing the representation of women at higher echelons, as subject matter-experts and in policy-making process taking advantage of having gender-diverse teams at all levels.

She shared that under the UN decade of the Ocean Canada a special grant and contribution fund that could go up to 68000 euros/year during three years, to which IHO could apply. The fund finances up to 75% of the project costs. It will be important to have also the collaboration of other member states, not only to reach the necessary 25% but to increase the dimension of the project. As an example, it was shared that NOAA had provided in-kind support and already participated in this project with a letter that is already a document of this meeting (IRCC12-06D.2). Ms Biron provided some examples initiatives that this work item could include, expressed that a workshop schedule for May 2021 will be to present and discuss proposals. She invited IRCC to:

- a) Support the adoption of this new work item to the Capacity Building Work Plan from 2021, subject to approval by the forthcoming 2nd IHO Assembly.
- b) Invite the Assembly to approve an action for the Secretariat to negotiate and sign a Cooperation agreement with Directory of Fisheries and Oceans Canada for funding.
- c) Subject to Assembly approval task the CBSC to work out the project plan in further detail including coverage of relevant parts to be funded, to propose project management arrangements and define suitable key performance indicators.

IHO Director Sinapi thanked Canada for the project and expressed that IHO will work with them in the implementation. The inclusion of EWH project in the IRCC Agenda is the first step, followed by the inclusion of the project into the CBSC program. He also thanked NOAA for the supportive letter sent.

Decision 14: Supported the adoption of this new work item, EWH to the Capacity Building Work Plan from 2021, subject to approval by the forthcoming 2nd IHO Assembly.

Action 8: Invite the Assembly to approve an action for the Secretariat to negotiate and sign a Cooperation agreement with Directory of Fisheries and Oceans Canada for funding.

Action 9: Subject to Assembly approval, to task the CBSC to work out the EWH project plan in further detail, including coverage of relevant parts to be funded, to propose project management arrangements and define suitable key performance indicators.

Recommendations:

18. MS to consider to participate in the Empowering Women in Hydrography project.

7. MSDI and update on UN-GGIM activities

7.1 Importance of MSDI activities (docs. IRCC12-07A.1, IRCC12-07A.2 and IRCC12-07A.3)

Presented by Mr Jens Peter Hartmann, Chair of the MSDI WG. He reported on the last and next planned meetings and expressed the advantages of having the meetings connected with the meetings of the OGC Marine DWG and the UN-GGIM Working Group on Marine Geospatial Information. He also mentioned the main topics of the last meeting and that during the meeting some use cases were developed and presented at the UN-GGIM meeting which focused on Marine Spatial Planning. The change has been reflected in the ToR .

Stated that one of the issues is how MSDI could contribute to UN Sustainable Development Goals and what kind of data should be available at national and regional levels. He also expressed that one of the concerns is to have a better alignment and integration with IGIF and other UN-GGIM structures/publications. There are numerous common elements within IGIF and MSDI WG and simple connections could be made which would bring the definitions section up to date. As a consequence, there is a need for updating/modifying the IHO publication C-17 in response to the IGIF initiatives.

It was also mentioned the importance of the data security and integrity and the requirement for robust and comprehensive measures that ensure that the data is protected from the producers and also the end user perspective. The recent developments in the S-100WG further address the problem and could help by adding data integrity measures to realtime data supply. These measures do not wholly address the needs of the MSDI community though and the all-important area of data transformation requires further insights and work to come up with tangible, practical solutions. The MSDI WG will continue to focus on data security

and integrity from a MSDI perspective.

Mr Hartmann also presented the joint OGC/IHO Federated Marine SDI Demonstration Pilot: FMSDI Land/Sea Interface with the objective to show how MSDI can provide data to other than traditional users and also the impact in the OGC and relevant S-100 IHO Standards. He expressed the need to support the projects and the intention is to start it in the second quarter of 2021. Some of the results of the MSDI questionnaire sent to the Member States last year were presented, with the issue that in most of the countries the HO is not the entity responsible for the MSDI.

Decision 15: Noted the MSDI WG report.

Action 10: Take note of the proposed joint "OGC – IHO Federated Marine SDI Demonstration Pilot: FMSDI Land/Sea Interface", described in the document IRCC12-07A.2 and give guidance on the way ahead.

Action 11: Promote the discussion of any item with relevance to SDI/MSDI/MSP and to take appropriate actions.

Recommendation:

19. MS to engage with MSDI WG to have a more active collaboration.

7.2 Update on UN-GGIM activities (docs. IRCC12-07B)

Presented by Dr Mathias Jonas, IHO Secretary General that explained the activity on the The United Nations Committee of Experts on Global Geospatial Information Management (UNGGIM) and the objective of trying to force any kind of activity related with Geo information and contribute to improve the use of Geo information. He also referred the last UNGGIM remote session and the respective activities in special the Integrated Geospatial Information Framework which is a kind of a series of cookbooks explaining what to do with geo spatial information nowadays and a document called Future Trends in Geospatial Information Management. IHO made a substantial contribution through the Working Group on Marine Geospatial Information and the meeting took note on the ongoing efforts of the Working Group to implement the Integrated Geospatial Information Framework (IGIF) within the marine domain. The notice that IHO is about to establish an Innovation and Technology Laboratory in Singapore was very well received.

Decision 16: Noted the Update on UN-GGIM activities report.

Decision 17: Commended the activity of the UNGGIM Working Group on Marine Geospatial Information and its Chair.

8. Ocean Mapping Activities

8.1 Crowd Sourced Bathymetry (docs. IRCC12-08A.1 and IRCC12-08A.2)

Presented by Ms Jennifer JENCKS, Chair of the CSBWG that started to describe the last meetings CSBWG8 in October 2019, in Monaco and CSBWG9 in June-July 2020, via VTC with more than 40 participants. The IHO Data Center for Digital Bathymetry enhancements were described and the systems to collect data and the current CSB efforts and projects along with the Seabed 2030 funded CSB pilot programs. She resumed the CSB Guidance and outreach. Ms JENCKS enhanced the issue of the IHO e-publication publication B-12 Guidance on Crowdsourced Bathymetry that could be an example for other IHO publications and also the document IRCC12-A.2 CSBWG a paper on raising the awareness of CSB within RHC and proposed actions within RHC to support the IHO CSB initiative and the considered best ways to engage HOs during the RHC meetings. The need of have Regional coordinators for Seabed 2030 and CSB was also strongly encouraged.

IHO SG congratulated the CBSWG on the improvements and achievements so far and appealed to all MS to positively contribute. He mentioned that contact made with the International Seabed Authority that coordinates the deep sea exploration. He was positive that this would allow to additional data to be received from some of their contacts.

Mr Evert Flier suggested that MS that have not or not yet responded positively on bathymetric data sharing

to actively find ways to resolve the issue. For example, by establishing what data resolution would be acceptable.

The Chair recounted an earlier suggestion made at the last meeting on how to provide incentives to contributors of data and encouraged the WG to look into this possibility.

- Decision 18: Noted the contents of the CSBWG report.
- Decision 19: Endorsed the e-publication of B-12 and allow its use as an example for other IHO publications.
- Action 12: Consider CSB and Seabed 2030 initiatives be permanently added as an agenda item at future RHC meetings.
- Action 13: Encourage Member States to support the CSB initiative with positive actions, such as requiring all research vessels to collect bathymetric data for later uploading, when on passage or when it does not interfere with other research activities.
- Action 14: Support the modification of the current “RHC Seabed 2030 Coordinator” to a joint “RHC CSB/Seabed 2030 Coordinator” and provide the identification of the Coordinators.
- Action 15: Encourage the GEBCO GC to liaise with Seabed 2030 Project Team and with the RHC CSB/Seabed 2030 Coordinators, in order to establish a common methodology and provide regional analysis prior to RHC meetings.
- Action 16: Encourage MS to release datasets or subsets into the public domain via the IHO DCDB.
- Action 17: RHC's to promote the vital need to map the entire seabed.
- Action 18: Consider the amendment of the structure of the National Reports to the RHC included in Resolution 2/1997 as amended, in order to include the CSB activities.

Recommendations:

20. Encourage all Member States to review and respond to IHO CL 21/2020
21. Encourage all Coastal States to review and respond to IRCC CL 1/2020
22. To set up a proactive management and monitoring procedure of dataflow between stakeholders proactive management and monitoring procedure of involved in crowdsourced bathymetry notably as part of the support provided to the NF-GEBCO Seabed 2030 project.

8.2 Update on Seabed 2030 project (docs. IRCC12-08B)

Presented by Mr Jamie McMichael-Phillips Director of the Seabed 2030 project. He thanked the meeting for the invitation to participate and congratulated IRCC for the enormous participation. He mentioned the huge part of the ocean floor have not mapped yet and explained that Seabed 2030 is a collaborative project between the Nippon Foundation and GEBCO. The project is to inspire the complete mapping of the world's ocean by 2030 and to compile all bathymetric data into the freely available GEBCO Ocean Map that had started in 2017. The complex network of this project was explained along with the data ingestion in the system and that the Ocean mapping coverage now stands at 19% and when the project began was only at 6%. Now the project is focused on mapping the gaps with three different initiatives: the Ocean Frontier Mapping, the Crowd Sourced Bathymetry and the Technology Innovation. He also explained the alumni engagement and concluded asking for the promotion of the need to map the entire seabed and to encourage the organizations to make the data available, the data that they can provide ideally with high resolution but if not possible, the resolution that can be provided.

- Decision 20: Noted the contents of the Seabed2030 report.
- Action 19: Encourage all Member States to make existing seabed mapping data available for use by Seabed 2030 in the GEBCO Grid.

8.3 Update on the UN Decade of Ocean Science for Sustainable Development 2021-2030 (docs.

IRCC12-08C)

IHO Director Sinapi shared that the objective is to present the relations and the common aspects between the UN Ocean Decade global initiatives and the IHO competencies and initiatives. He synthesized the UN Ocean Decade general motivation as the bridge of the Decade Scientific Objectives between the Ocean we have and the Ocean that we want. The phases of this initiative were introduced mentioning the plan that was presented and approved by the UN Assembly with the kick off planned for 2021. Then was showed a synthesis of the relations between the UN Ocean Decade four objectives and the IHO competencies and initiatives, resuming that the link between the UN Ocean Decade actions and the IHO is based on the IHO strategic plan - proposed Goal 3-"Participating actively in international initiatives related to the knowledge and the sustainable use of the Ocean". Then, to conclude the UN Ocean Decade actions and the connection with the IHO new strategic targets were also presented.

Decision 21: Noted the report on update on the UN Decade of Ocean Science

Action 20: RHC to participate at Regional level in those actions of the UN Ocean Decade matching with IHO's new strategic targets (IRCC12-08C).

9. WEND-100 principles

9.1 Progress on WEND-100 principles (docs. IRCC12-09A)

Presented by Mr John Nyberg (USA) Chair of the WENDWG. Started with the WEND 100 principles background and indicated that the draft version of the WEND-100 Principles, will be submitted for the review of this commission during this meeting. The Principles will be followed by an implementation guide with some specifications. The principles encourage data availability anywhere in the world, distribution along with data protection and also addresses the avoidance of service duplication, coordinated data management, quality management, and assistance and training. The principles also noted the capacity Building. To finalize Mr Nyberg presented his view on the path to completion.

The Chair commended the work of the team and highlighted that the draft was a result of some compromises made, in particular on the issues of addressing overlapping ENCs, which is a particular concern under the S-100 framework.

Decision 22: Noted the WENDWG 100 principles report.

Decision 23: Agree that the revision of WENDWG TORs and ROPs can be put on hold at the moment.

Decision 24: Agree that current IHO Resolution 1/1997 as amended should remain in force until the sunset of S-57 ENCs.

Action 21: Endorse the attached draft 3.1 as version 1.0 and path forward of the new WEND-100 Principles (agree on current structure)

Action 22: Consider the impact of these new WEND100 Principles on the S-100 Implementation Strategy for discussion at A-2 (before C-4) and subsequently provide an update to the IRCC report to A-2 if appropriate.

10. Next IRCC Meetings (Venue and Date)

The Chair invited the participants to consider the dates and venue for IRCC13, IRCC14 and IRCC15. Participants were invited to offer to host IRCC15. The meeting considered several possibilities and agreed on the following:

Decision 25: Hold the next meetings of the IRCC in the following venues and dates:

IRCC13: 22-24 June 2021 - Monaco

IRCC14: May/June 2022 - Ecuador or Japan (TBC) (IHO Secretariat to contact Ecuador)

IRCC15: May/June 2023 - Japan or Indonesia (TBC)

11. Any other business

No other business items were presented.

12. Review of the Actions and Decisions

Docs: IRCC12-12A Draft List of Actions from IRCC12 (Secretariat)
IRCC12-12B Draft List of Decisions from IRCC12 (Secretariat)
IRCC12-12C Draft List of Recommendations to RHC (Secretariat)

Secretary presented the draft lists of actions, decisions and recommendations agreed during the meeting in docs. IRCC12-12A, IRCC12-12B and IRCC12-12C that were drafted during the meeting. The final List of Actions, List of Decisions and List of Recommendations to RHC are in Annexes A, B and C to this report.

Decision 26: Approved the draft List of Actions, Decisions and Recommendations to RHC as discussed during the meeting (doc. IRCC12-12A, B and C).

13. IRCC Work Programme Management

Docs: IRCC12-13A IHO Work Programme for 2021-2023 (Secretariat)
IRCC12-13B Draft IRCC Work Programme (Secretariat)

IHO Director Sinapi, Secretary, presented the draft IRCC Work Programme for 2020-2021 (doc. IRCC12-13B) considering the impact of the IHO Work Programme 2020 and 2021-2023. Doc. IRCC12-13A was uploaded before the meeting. Final IRCC Work Programme 2020-2021 is in Annex D to this report.

Decision 26: Approved the draft IRCC Work Programme as discussed during the meeting (doc. IRCC12-13B).

14. Election of Chair and Vice-Chair

During the period established for IRCC members to present candidates for the positions of Chair and Vice-Chair (between 2 and 6 October) no candidates were presented. The only candidates were the ones presented before for the following positions:

IRCC Chair: Mr Thomas DEHLING (Germany);

IRCC Vice-Chair: Mr John Nyberg (USA).

With one candidate for each position and having nothing to object from the IRCC members, the candidates were elected unanimously.

15. Closure

Chair ended the meeting.

ANNEXES:

Annex A: List of Actions

Annex B: List of Decisions

Annex C: List of Recommendations

Annex D: IRCC Work Programme for 2020-2021