



6th MEETING OF THE IHO COUNCIL
IHO C-6
Monaco, 18 – 20 October 2022

SUMMARY REPORT
(Version 1, 26 October 2022)

Note: while the 6th meeting of the IHO Council was conducted according to the timetable, this summary report is in line with the sections of the agenda.

Annex A: *List of Registered Participants*

Annex B: *Agenda*

Annex C: *List of Decisions and Actions*

1. OPENING

1.1. Secretary-General Opening remarks

Docs: C6-01A List of Documents
C6-01B List of Participants
C6-01.4A Membership Contact List

The **Secretary-General** of the IHO, **Dr Mathias Jonas**, welcomed participants to the sixth session of the Council, which was taking place in person once again after two years of hybrid meetings. Three members were unable to attend and had provided apologies, however two of these members were listening in via live stream. The session had reached a quorum, with 26 Council Member States registered and present. He confirmed that no Red Book, containing prior comments on Proposals to Council, had been prepared, as no comments had been received.

He appealed to members to show flexibility and to express their views freely. The silence procedure adopted during the previous virtual session still applied; accordingly, members not explicitly objecting to a proposal were deemed to have accepted it. The Council's main task was to formulate clear and decisive recommendations for the 3rd Session of the IHO Assembly, scheduled for May 2023.

1.2. Adoption of the Agenda and Timetable

Docs: C6-01.2A Rev2.1 Agenda
C6-01.2B Timetable

The **Chair** presented the proposed agenda and timetable, with minor changes from the version distributed in advance. It was announced that a film crew from the local television station, Monaco Info, would record visuals, but not sound, on the second day of the session, 19 October.

Decision C6/01: The **Council** welcomed the proposal to be informed on Day 2 by Mr Pierre Bahurel, Director General of Mercator Ocean International, about the Digital Twin of the Ocean initiative.

Decision C6/02: The **Council** adopted the agenda and the timetable as proposed, and agreed to consider the information papers (Docs. C6-07.6A, and 07.7A), when appropriate or at the end of some sessions, time permitting.

1.3 Chair's Opening remarks

Docs: C6-01.3A

The **Chair** of the Council, **Dr Geneviève Béchar**d, welcomed members, including a special welcome to the delegation from Albania, which had become the 98th Member State of IHO in May 2022; and congratulated the Italian Hydrographic Institute on its 150th anniversary. She thanked His Serene Highness Prince Albert II and the Government of Monaco for financing the renovation of the IHO offices during the pandemic. Important issues at the current session of the Council included the recommendations to be transmitted to the 3rd Session of the IHO Assembly, progress in implementing the IHO Strategic Plan and proposed revisions to the S-100 Roadmap. The Council would consider the proposed IHO Work Programme and Budget for 2023 and the three-year Work Programme and Budget for the period 2024–2026. It would also identify priorities for the Council over the next three years.

Decision C6/03: Council Members welcomed the opening addresses by Dr Geneviève Béchar, Council Chair and the Secretary-General and agreed on the participation of RENC representatives (IC-ENC) as observers.

1.4 Administrative Arrangements

Docs: C6-01.4A *Membership Contact List & Useful References – Marked-up Basic Docs (IHO Convention, General Regulations, Assembly ROP, Council ROP)*

The **IHO Secretariat** invited all members to check the Council membership list and confirm their individual details, explained the process and timelines of the Council Summary Report and the work of the précis-writers and five rapporteurs kindly appointed by France, Germany, United Kingdom, United States of America and the IHO Secretariat.

Decision C6/04: IHO Member States having a seat at the Council to provide the IHO Secretariat with their updates to the IHO Council List of Contacts.

2. ITEMS REQUESTED BY THE 2nd IHO ASSEMBLY

2.1 Decision A2/08: Update on the Joint IHO-Singapore Laboratory – Proposals from the Council to the Governing Board (*To be discussed under agenda item 4.5*).

2.2 Decision A2/12: Report on the Application of ISO 9001 Principles (*To be discussed through the reports of HSSC and IRCC under agenda items 4.1 and 4.2*).

2.3 Update on the best way forward for the definition of hydrographic interest (Decision A2/14)

The **Chair** informed that, after informal discussions between the interested Members, it had been agreed that more work was needed on a possible revision of the definition of hydrographic interest, if possible with the participation of more countries. Since the present Council would be dissolved at the end of the current session, she declared the agenda item closed and suggested that it should be taken up again at some point in the future, when more detailed solutions have been developed.

Decision and Action C6/05: The Council Chair to report at A-3 on the situation (as requested by Decision A2/14) and to recommend that this topic is put on hold until interested parties work out a mature proposal for a revised definition (deadline: 20 December 2022 for submission to A-3).

2.4 Decision A2/20: Status report on the appropriateness and applicability of the new Strategic Performance Indicators (*To be discussed under agenda item 6.1, taking into account recommendations from Secretary-General for Programme 1, HSSC and IRCC Chairs for Programmes 2 and 3*).

2.5 Decisions A2/30&A2/31: Proposed version 2.x of the Roadmap for the S-100 Implementation Decade (*To be discussed under agenda item 4.4*).

2.6 Decision A2/33: Update on the Dual-Fuel Concept (transition from S-57 to S-101 ENCs) (*To be discussed under agenda item 4.3*).

2.7 Cumulative List of A-2 Decisions affecting the Council (Decisions A2/02¹, A2/04², A2/06², A2/08, A2/11², A2/12, A2/14, A2/20, A2/30, A2/31, A2/33).

For Reference only. See Publication P-6, volume 1 ([link](#)).

3. ITEMS REQUESTED BY THE IHO COUNCIL

3.1. Review of the status of Decisions and Actions from C-5

Doc: C6-03.1A

The **IHO Secretariat** reported that most decisions and actions from C-5 had been implemented while all pending would be discussed under the relevant item.

4. ITEMS REQUESTED BY SUBSIDIARY ORGANS

4.1 Report and proposals from HSSC

Doc: C6-04.1A Report from HSSC

- Annex A: Proposed New IHO Resolution xx/2023 on the S-100 Implementation
- Annex B: Draft revised version of the Roadmap for the S-100 Implementation Roadmap, Annex 2, version 2.0, 12 July 2022
- Annex C: Proposed Annex 4 to the Roadmap for the S-100 Implementation Decade (2020-2030), Executive Summary of Dual Fuel Concept for S-100 ECDIS

Doc: C6-04.1B Submission (USA et al) Guidelines for ENC derived Paper Charts

Doc: C6-04.1C Submission ROK S-100 Testbed project in 2022

4.1A The **Chair of HSSC** reported on the work of the Committee for the current cycle of the Council. All Working Groups were requested to hold at least one face-to-face meeting before HSSC15, which would take place in Finland on 5–9 June 2023.

Decision C6/07: The **Council** noted the report and commended the HSSC, its Working Groups and supporting organizations for the achievements since C-5.

Decision C6/09: Following up on Decision A2/33, the **Council** noted the publication, for implementation and testing, of Ed.1.0.0 of Annex B to S-65 - S-57 ENC to S-101 Conversion Guidance and commended the ENCWG and Mr Jeff Wootton in particular (TSSO, IHO Secretariat) for this outstanding achievement.

¹ Complete.

Decision and Action C6/14: The **Council** endorsed the recommendation by **HSSC** by which Goal 1 and its Targets in the IHO Strategic Plan should have the highest priority in the 2023–2026 Work Programme. The **Council Chair** to report to A-3 accordingly for approval (deadline: 20 December 2022 for submission to A-3).

At its ninth meeting in 2022 (NCSR9), the Sub-Committee on Navigation, Communications, Search and Rescue of the International Maritime Organization (IMO) had endorsed and transmitted to the IMO Maritime Safety Committee (MSC) the proposal, initiated by IHO, to include S-100 compatible data sets as a valid format in ECDIS. Controversial content on functionalities for route exchange included in the initial proposal had been deleted. Of particular note is the intended timeline for S-100 ECDIS. It was essential to encourage IHO Member States and wider stakeholders to actively support the development of S-101 and other S-1xx Product Specifications and, potentially, accelerate delivery of operational versions of S-128, S-164 and S-98².

Decision C6/11: The **Council** noted the outcome of the 9th session of the IMO NCSR on the revision of MSC.1/Circ.1503/Rev1 – ECDIS Guidance for Good Practice and Revision of MSC.232(82) – ECDIS Performance Standard (IHO CL 31/2022 refers) and took note of the associated commitments made towards the IMO and the IEC in particular (transition period for S-100 ECDIS, to become legal to use after 1 January 2026 and from 1 January 2029, new systems must comply with the new IMO Resolution on ECDIS Performance Standards)³.

IHO Director Kampfer urged members to liaise with their counterparts in the IMO Maritime Safety Committee to promote the timely development of S-101 and the importance of the S-100 Roadmap and support the proposed amendments to ECDIS Performance Standards, with the associated in force dates endorsed by NCSR9, at the upcoming MSC meeting.

Action C6/12: The **Council** invited the **Members** to consider approaching their representatives in IMO to provide their support on the amendments to ECDIS Performance Standard at the next MSC106. (deadline: 2 November 2022)

The **Council** was invited to endorse an overarching draft Resolution on S-100 (see Annex A to the HSSC report to C-6) for subsequent adoption by A-3. The draft Resolution calls upon IHO Member States to respect the IMO Resolution on Performance Standards for ECDIS and the agreed in-force dates, understanding that the rapidly growing S-101 ENC coverage and appropriate complementary S-100 data/products services would be expected when S-100 ECDIS becomes operational.

Decision and Action C6/08: Following up on Decision A2/32 (PRO2.3 by the ROK), the **Council** noted the progress made on existing IHO Resolutions (IHO CL 38/2022) and endorsed the proposal for a new generic IHO Resolution on S-100 Implementation (Annex A to HSSC Report to C-6 refers). **Council Chair**, in her report to A-3, to submit the new IHO Resolution on S-100 Implementation for the approval of Member States, and indicate in the context the adoption of some amendments to existing Resolutions (IHO CL 38/2022). (deadline: 20 December 2022 for submission to A-3).

In the subsequent discussion related to the report, one participant expressed concern about possible inconsistencies, when implementing S-98, between S-101 and corresponding S-102 data. It was understood that further testing and development is needed before the interoperability standard S-98 becomes operational. Another suggested that the draft Resolution on S-100 should clearly assign responsibilities to the relevant IHO body (HSSC, IRCC, etc.).

Decision and Action C6/13: The **Council** endorsed the strategic change in S-100 ECDIS with Electronic Navigational Data Services (ENDS) and interacting navigational data layers, enabled by the Interoperability Specification S-98. **Council Chair** to report to A-3 accordingly for approval

² See List of S-100 based Product Specifications ([link](#))

³ If approved at MSC106 in November 2022.

(deadline: 20 December 2022 for submission to A-3).

The posts of Chair and Secretary of the Data Quality Working Group are currently vacant, and there was a risk that the Working Group's activities would have to be put on hold. One nomination had been received from China just before the Council meeting.

The Baseline Symbology Project Team of the Nautical Cartography Working Group aims to develop a baseline symbology to support the automated production of paper charts from S-101 data. The Council was invited to discuss whether an alternative approach was needed for the future of the paper chart, to be approved by A-3. (Refer to summary of discussions on document C6-4.1B below.)

Actions C6/15: The **Council** to continue the monitoring of the implementation by HSSC of the recommendations on the Future of the Paper Nautical Chart as appropriate (deadline: HSSC-15 June 2023 / C-7). **Council Chair** to report to A-3 on the matter (Decisions A-2/27 & 28 refer) (deadline: 20 December 2022 for submission to A-3).

4.1B USA introduced a joint proposal for new guidance on the continued use of paper charts derived from ENCs (document C6-4.1B). Three use cases were envisaged: ECDIS backup on SOLAS vessels, albeit only while the vessel navigated to a safe place to await assistance; safety of navigation for non-SOLAS vessels; and non-safety-related functions such as planning. In the view of the sponsors of the proposal, an endorsed use case or (preferably) basic guidelines for a simplified paper chart product from IHO would provide consistency for the many hydrographic offices, private producers and others currently involved in chart production, including those from low-resource countries. The minimum content required was specified in document HSSC 14-05.4C. It was suggested that a new standard was not required.

In the subsequent discussion, participants supported the proposal to prepare guidelines and advised against the creation of a new standard. They noted that navigation training supported by paper charts compliant with S-4 regulations would continue to be required in view of the latter backup function, especially in coastal navigation. Moreover, many stakeholders outside IHO and IMO still make extensive use of paper charts. Planning, resources and internal capacity for dual production of paper charts and ENCs would be required. It was regarded essential to standardize the content and layout (for example, use of colour). One participant felt that regional or national production of paper charts might be sufficient in regions where such charts were used mainly in the leisure market. Others noted that paper charts could also be derived from sources other than directly from ENCs, such as national databases. Opinions were divided on the advisability of amending S-4, Regulations for International (INT) Charts and Chart Specifications of the IHO, instead of developing new guidance or use cases.

The **Secretary-General** noted that creating formal IHO guidance might introduce issues of liability and that use cases would be more advisable. The **Chair of HSSC** said that the US proposal was not entirely consistent with the views of HSSC, which had considered it more important to focus on automated production of paper chart from S-101 ENCs. The **IHO Secretariat** noted that A-2 had called for priority to be given to the development of formal guidance on the issue, and that any changes would therefore require endorsement by A-3.

Decision C6/16: The **Council** noted the recommendations made by **HSSC** on the automated production of paper charts and confirmed the Decision made at A-2 by which priority is to develop guidelines for the automated production of paper charts meeting S-4 chart minimum content requirements from S-101 ENC data.

Decision C6/17: The **Council** endorsed the offer of the **USA** (supported by **AU, DE, DK, KR, and NZ**) to document use cases and develop associated guidelines, as well as identify challenges with S-4, to achieve automated production of derived paper charts from ENC content databases and submit them to the HSSC/NCWG for their consideration.

Decision and Action C6/18: The **Council** to monitor the progress of the task given to **HSSC** to prepare (*done*) and maintain the synoptic summary report on the various options offered to HOs for future production of S-101 ENCs in conjunction with S-57 maintenance/production (Decision A2/33 refers). The **Council Chair** in liaison with **HSSC Chair** to report on this task at A-3 (deadline: 20 December 2022 for submission to A-3).

4.1C The **Republic of Korea** reported on the progress of the S-100 testbed project which, in 2022, focused on interoperability with S-98, the dual-fuel mode, up-to-datedness of S-100 data measured by the S-128 dataset, and the usability and economic efficiency of the S-100 service. Recommendations included taking the S-98 Interoperability Catalogue as part of the S-164 test dataset (TDS) for type approval and developing a technical guideline for indicating the boundaries between S-57 ENC and S-101 ENC when they are displayed simultaneously on the screen. Usability had been tested qualitatively through voyage-planning missions of varying difficulty and quantitatively through eye-tracking technology; the S-100-based product service had proved considerably more usable than traditional products. The S-100 data service also demonstrated large economic savings in a test involving the planning of a navigation route in an area with strong tides, compared with a standard route and a low-risk route.

Participants welcomed the results of the testbed project and suggested that greater emphasis should be placed not only on the economic advantages, but also on the environmental benefits, of S-100 data services. Information on geographical coverage of S-100 services would also be valuable. One participant asked about possible tie-ins with the work of the joint IHO-Singapore Laboratory. **Canada** declared its intention to join the testbed project.

Decision and Action C6/19: The **Council** welcomed the information provided by the Republic of Korea on the S-100 Testbed Project and agreed that it is a critical component of the Roadmap. The **Council** invited IHO Member States to participate in this S-100 testbed project and in addition, to consider whether other criteria than those proposed by KHOA (Doc. C6-04.1C refers) should also be considered (expected geographical coverage implementation rate compared to existing S-57 ENCs, distribution and update mechanisms and NPubs coverage, for instance) (deadline: end of December 2022).

Decision and Action C6/20: Considering the timelines between HSSC-15 and IRCC-15 meetings in 2023 and the countdown for submission of reports and proposals to C-7, **the Council** invited **HSSC and IRCC Chairs** to prepare their 2023 meeting minutes with the view that it will be used/submitted directly as reports and proposals to be considered at C-7 (deadline: July 2022).

4.2 Report and proposals from IRCC

Doc: C6-4.2A

- Annex A: IHO Capacity Building Strategy

- Annex B: Guidelines on the Implementation of the WEND-100 Principles, version 1.0, April 2022
- Annex C: IRCC Chair proposal regarding SPI allocated to IRCC

4.2A The **Chair of IRCC** reported that the 14th Interregional Coordination Committee had been held in a hybrid format in Bali, Indonesia. The Covid-19 pandemic continued to affect the ability to conduct work and capacity building was constrained by the limited availability of funds. The IRCC's main concerns related to the need for IHO Strategic Plan gap analysis, the determination of SPI values at regional level, and collaboration and coordination in implementation of the S-100 Roadmap. The South West Pacific Hydrographic Commission (SWPHC) Chair had been requested to investigate organizing a workshop on environmental emissions from shipping, in line with a COP-26 outcome, and on cyber security. IRCC had noted the proposal by the Hydrographic Commission on Antarctica (HCA) for recognition of the *Southern Ocean* to be progressed by means of an IHO Resolution to be proposed to the Assembly at its forthcoming session and invited the HCA to initiate the debate on how climate-change related activities could be investigated within the remit of the IHO.

Decision C6/21: The **Council** noted the report and commended the IRCC, the RHCs, and IRCC Sub-Committees for their achievements as well as for the outcome of the IRCC April Workshop on the Strategic Performance Indicators and the new TORs of the IBSC.

Decision C6/23: The **Council** noted the completion of S-124 (MSI) Edition 1.0.0, ready for approval by the next HSSC.

Decision C6/27: The **Council** to monitor the progress made by **IRCC** to establish an IHO e-Learning Center based on A-2 PRO 3.3 and the related recommendations of IRCC/CSBC (deadline: C-7). **Council Chair** in liaison with **IRCC Chair** to report to A-3 on the matter (deadline: 20 Dec. 2022 for A-3)

Argentina raised several procedural objections in relation to action HCA 18/45, adopted within the framework of the 18th Conference of the Hydrographic Commission on Antarctica (HCA) held in May 2022, which had agreed to propose to the 3rd session of the Assembly the approval of a resolution on the recognition of the *Southern Ocean* as the maritime area surrounding Antarctica.

The **Secretary General**, speaking in the capacity of standing Chair of the HCA, confirmed that the intention had not been to reactivate the naming discussion but to initiate an open discussion with a view to finding a way forward on this item pending since many decades; the forthcoming Assembly offered a good opportunity to have the necessary discussions, anticipating the question to be raised in relation to the polygonal demarcation of global sea areas (S-130 authoritative data set).

Decision C6/24: The **Council** noted the statement made, and concerns raised by **Argentina** on the information provided in the IRCC report on HCA activities by which a submission of a proposed new IHO Resolution on the recognition of the *Southern Ocean* is planned to be submitted to A-3.

The IHO World Wide Navigation Warning Service Subcommittee (WWNWS) Chair had reported on the approval of the IMO NAVTEX Manual for submission to the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR 9). More work was needed in relation to SPI 3.1.1, as only 62% of Coastal States provided information internally to the NAVAREAs by the end of 2021, compared to the target of 90% (143 Coastal States out of 230). The new version of the Joint IMO/IHO/WMO Manual on MSI was expected in January 2024. Coastal States had expressed concern that MSI providers were compelled to bear the burden of all additional costs incurred from implementing Iridium Safetycast services.

Decision C6/22: The **Council** noted the concern of Member States (as Maritime Safety Information providers), that, should they implement Iridium SafetyCast services, they are compelled to bear the burden of all additional costs, as a consequence of the approval by IMO Member States of the Iridium SafetyCast as an Recognized Mobile Satellite Service (RMSS).

The **Chair of IRCC** acknowledged the generous contributions to the Capacity Building Fund made by Republic of Korea and the Nippon Foundation, and by Canada to the Empowering Women in Hydrography project. The IHO e-learning centre at KHOA had made a significant effort towards addressing learning needs and the Chair appealed for Member States in possession of suitable e-learning material to share it through the centre. The total funds available for capacity building for non-earmarked projects limited the attribution of funds to the activities submitted by the RHCs. The current value of the capacity building fund included funds carried over due to projects not yet executed due to COVID-19 pandemic. However, once those projects were executed the capacity building fund would be significantly diminished.

IHO Director Sinapi said that the priorities of the capacity-building programme were in line with the Strategic Plan. Recalling that the importance of capacity building had been acknowledged by the Council since its very first meeting, he noted the significant decline in capacity building funding that was being witnessed, in the face of constant or rising demand. He said there was an evident need to take note of this reality and promote to the Assembly the importance of capacity building. The success of the Empowering Women in Hydrography project had been recognized; the results of the CL 26/22 Survey on leadership positions of women were already available and numbers would be formalized very soon.

Decision and Action C6/25: The **Council** endorsed the new proposed Capacity Building Strategy. The **Council Chair** in liaison with **IRCC Chair** to submit the proposed CB Strategy to the 3rd Session of the IHO Assembly for approval. (Annex A). (deadline: 20 December 2022 for submission to A-3)

Decision C6/26: The **Council** noted the decrease of Capacity Building fund over the last few years.

Good progress had been made on the Empowering Women in Hydrography project. Information was being collected on the percentage of employees of hydrographic offices that are female and especially those in leadership roles.

Decision and Action C6/28: The **Council** to monitor the progress made by IRCC on the CBSC work item of Empowering Women in Hydrography (EWH). The **Council Chair** in liaison with **IRCC Chair** to report to A-3 on the matter. (deadline: 20 December 2022 for submission to A-3)

The Marine Spatial Data Infrastructures (MSDI) Working Group held a joint meeting with the Open Geospatial Consortium and the United Nations Working Group on Marine Geospatial Information (WG-MGI, UNGGIM). The Working Group was attached to the importance of FAIR principles (Findable, Accessible, Interoperable and Reusable). The concept of Maritime Digital Twins was included in the workplan of the MSDI Working Group.

Decision and Action C6/71: The **Council** invited the **IRCC** to identify a theme on which ISO 9001 Principles should be applied and to propose it to **Council** for endorsement (deadline: IRCC15/C-7). The **Council** noted the task given by the IRCC to the MSDIWG to identify a theme in their portfolio of activities, where ISO 9001 basic principles could be applied and be beneficial (deadline: IRCC-15).

The IHO-EU network working group had celebrated its 10th anniversary on 6 May 2022. Maritime Spatial Planning (MSP) had been a major topic of interest and consideration of how European Directive 2019/2024 on open data and the reuse of public sector information, whereby high level datasets were considered as open data, could impact Hydrographic Offices (HOs) if it applied to ENC data.

The poor quality of numerous initial submissions to the FIG/IHO/ICA International Board on

Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC), reflecting difficulties in interpreting the new standards, was creating a heavy workload for intersessional revisions. Only 3 out of 10 submissions had been recognized, with the remainder requiring intersessional revision. The Terms of Reference of the IBSC had been revised to add 2 members from the ICA to the Board.

The Crowdsourced Bathymetry Working Group (CSBWG) had approved the publication of Edition 3.0.0 of the IHO Publication B-12. Member States were reminded to respond to the Circular Letter (IHO CL25/2020). The CSBWG encouraged the establishment of a Seabed 2030/CSB Coordinator on every Regional Hydrographic Commission. The General Bathymetric Chart of the Oceans (GEBCO) Guiding Committee reported that the main challenge was the question of how to map the remaining 77% of the planet's unmapped ocean seafloor. More seabed mapping should be promoted and contributions of data to Seabed 2030 were encouraged.

The introduction of IRCC workshops - the first on the Strategic Plan, the second on the SPI – had been successful; the next workshop was planned for December on how to engage with international and regional agencies, development partners and coastal states to support knowledge and understanding of hydrography and the value associated with open data policies.

4.2B

Doc: C6-4.2B - Submission (France): Avoid any ambiguity for S-100 based products that do contribute to navigation, by clearly distinguishing them from products using the same data format with a content for other purposes

France explained the importance of ensuring that there was no potential for ambiguity between S-100-based products that contributed to the safety of navigation and those that used the same data format for other purposes, such as ocean modelling, given the goal to increase the use of hydrographical information in society. France suggested that careful development of naming conventions was needed to avoid potential ambiguity and recommended that IHO investigate the issue with a view to developing any appropriate actions. The **HSSC Chair** commented that some of the concerns expressed by France would be alleviated because S-128 would be part of the critical framework and was already established as a tool used for navigation; however, it was for Member States to decide whether a different naming convention was needed.

Decision and Action C6/31: The **Council** endorsed the recommendation made by France by which S-1xx naming corresponding to S-1xx Product Specification to be used for safe navigation, which encompasses data format *and* content, should carry S-1xx names (Doc. C6-04.2B refers). The **Council** tasked the **HSSC**, in liaison with **IRCC** when appropriate, to ensure that a clear distinction is made in the future in the naming between *S-1xx products* (- data format and content - that meet requirements for safe navigation) and products used for other purposes (Goal 2 for instance) even if they use the S-100 based format. (deadline: C-7, ... C-X as and when appropriate)

4.3 Update on the Dual-Fuel Concept (transition from S-57 to S-101 ENCs)

Covered under 4.1

4.4 Proposed version 2.x or v3.0 of the Roadmap for the S-100 Implementation Decade

Doc: C6-4.4A

- Proposed Annex 1, v2.0, July 2022

- *Proposed Annex 2 (See Annex B of Doc. C6-04.1A)*
- *Proposed Appendix 1 to Annex 3 (See Annex B of Doc. C6-04.2A)*
- *Proposed Annex 4 (See Annex C of Doc. C6-04.1A)*

In accordance with **Decision C6/37 (Permanent) - Council/HSSC/IRCC Chairs/SecGen supported by subject matter experts and Member States as appropriate to maintain the S-100 Implementation Roadmap as an incremental version-controlled document (including narrative and timelines) on an annual basis** – the **Council** reviewed the proposed amendments to the different Annexes of the Roadmap for the S-100 Implementation Decade as proposed by the **Secretary-General** (for Annex 1), the **HSSC Chair** (Annex 2 and new Annex 4), and the **IRCC Chair** (Annex 3).

IHO Assistant Director Guillam drew the attention of the Council to the current version 2.0 of the Roadmap for the S-100 Implementation Decade, presented on the webpage of C-6, which included the three annexes to the Roadmap for approval by the Council. After C-6 approval of the three proposed amended annexes a 2.1 version of the S-100 Roadmap will be published. He clarified that version 3.0 of the Roadmap, to include an additional proposed Annex 4 on the dual fuel Concept for S-100 ECDIS, would appear only after approval by the forthcoming Assembly.

The **Secretary-General**, introducing the amended version of Annex 1, said that it presented the various organizations that had already associated themselves with the S-100 framework and started to draft product specifications. The Annex showed the success of IHO's collaborative efforts, with IMO, WMO, IALA, the UN Law of the Sea, International Electrotechnical Commission (IEC), the Inland ENC Harmonization Group, and the International Harbour Masters Association all contributing to a collaborative ecosystem for developing and applying S-100 based products. The field of oceanography was notably absent; one explanation for this had been the lack of an identifiable partner with which to work. He hoped that Mercator Ocean International may prove to be a potential partner in that regard to enable the network of partnerships to extend into the area of oceanographic nowcasts and forecasts. Annex 1 also included a timeline, which was on track.

The **Council Chair** acknowledged the work that had gone in to establishing the necessary collaborations.

Decision C6/32: The Council approved the proposed amendment to the S-100 Implementation Roadmap with the updated version 2.0 dated July 2022 of Annex 1 as provided in Doc. C6-04.4A

The **HSSC Chair** outlined some proposed amendments to the S-100 Implementation Roadmap. There was now an Executive Summary on the Dual Fuel Concept for S-100 ECDIS. There was recognition that increasing support was needed to speed up the development of the critical framework, which included: IHO Geospatial Information registry; S-98 Interoperability specification; S-100 Universal Hydrographic Data Model; S-128 Catalogue of Nautical Products; S-164 Test Data Set for S-100 and ECDIS Type Approval. There had also been some minor adjustments made to the S-100 timeline.

Decision C6/33: The Council approved the proposed amendment to the S-100 Implementation Roadmap with the updated version 2.0 dated 12 July 2022 of Annex 2 as provided in Annex B of the HSSC report.

The **IRCC Chair** reported that consensus had not yet been reached on the Global Common Grid Scheme. The WENDWG had agreed on the proposed way forward on the development of INT_oGIS III to become S-128 compliant. It was recommended that a S-100 coordinator role be established in

the RHCs, either as a separate role or combined with the role of Chart Coordinator. The first iteration of the *Guidelines on the Implementation of WEND-100 Principles* version 1.0 presented to and approved by the IRCC, was to be included as an appendix 1 to Annex 3 of the S-100 Implementation Roadmap.

Decision C6/29: Following IRCC's endorsement, the **Council** approved version 1.0 of the *Guidelines on the Implementation of the WEND-100 Principles*. **Council Chair** in liaison with **IRCC Chair** to report at A-3 (deadline: 20 December 2022 for submission to A-3).

Decision C6/34: The **Council** approved the amendment (addition of Appendix 1 to the Annex 3 – version 1.0 of *Guidelines on the Implementation of WEND-100 Principles*) of the S-100 Implementation Roadmap as proposed by the WENDWG and contained in Annex B of the IRCC report.

Decision C6/30: The **Council** noted that the efforts on establishing a common global gridding system could not reach consensus and is put on hold.

The **HSSC Chair** outlined the work that had been done to develop the Dual Fuel Concept for S-100 ECDIS, which had culminated in the development of a dual fuel governance document intended to help facilitate understanding of the dual-fuel environment, which was proposed to be added as a new Annex 4.

In the discussions, **USA** strongly supported the work presented on the Dual-Fuel Concept, noting there was evidence that the coordinator role was already being introduced. He expressed hopefulness that consensus on the global grid scheme was within reach. **Japan** expressed broad support for the document, but raised a specific concern regarding the wording used to describe the need for consistency in using the “same producer”, given the multiple kinds of producers might exist within Member States. **France** said that the main concern was not to ensure that the same producer was used for each S-100 product but to ensure that any such products were produced under the responsibility of the national hydrographic office. **Sweden** clarified that there was already an agreement with IMO that ensured any data produced for usage in ECDIS must be recognized by an authorized hydrographic office. The **Council** agreed that the guidelines would not be final but would need further development and that such considerations would be taken into account in the next update of the guidelines.

Decision and Action C6/10: Still following up on Decision A2/33, the **Council** endorsed the Dual Fuel Concept for S-100 ECDIS Executive Summary and the full report. **Council Chair** in liaison with **HSSC Chair**, in her report to A-3, to submit the Dual Fuel Concept for S-100 ECDIS Executive Summary and the full report for the approval of Member States (deadline: 20 December 2022 for submission to A-3). Prior to the submission, the **Council** requested the **HSSC** (supported by **S-100 WG**) to amend the S-57/S-101 image in fig. 2 in section 2.6.1 of the Dual Fuel Concept by a better one as those available in Doc. C6-04.1C (Testbed Project) (deadline: 1 December 2022).

Decision C6/35: The **Council** approved the principle of adding a new Annex 4 (Dual-Fuel Concept for S-100 ECDIS – Executive Summary) to the S-100 Implementation Roadmap based on version 1.0 dated 1 July 2022 as provided in Annex C of the HSSC report.

Decision C6/36: **IHO Secretariat** to upload version 2.1 of the Roadmap including approved amendments to Annexes 1, 2 and 3 (Deadline: 31 Jan. 2023). Once the final version of Annex 4

(Dual Fuel Concept on S-100 ECDIS) is approved by A-3, **IHO Secretariat** to upload version 3.0 of the Roadmap (Deadline: May 2023 after A-3).

Several **Members** requested guidance on the best way to prepare the operational implementation phase of S-100 data services within their Regional Hydrographic Commissions.

Decision C6/39: The Council noted the WEND100-IGIF matrix (WENDWG CL 02/2022 refers) as a tool to describe the status, the progresses and the needs in introducing S-100 based products.

Decision C6/41: The Council noted the progress on S-128 (Catalogue of Nautical Products) development by the S-128 Task Group led by the Republic of Korea (KHOA) under the NIPWG umbrella.

4.5 Update on the Joint IHO-Singapore Innovation and Technology Laboratory – Proposals from the Council to the Governing Board.

Doc: C6-4.5A

The **IHO-Singapore-Laboratory's Governing Board Chair** summarized the progress made by the Joint IHO-Singapore Innovation and Technology and its objectives. The Governing Board, which had now held four meetings, had established clear procedures, including for submission of project proposals. Project proposals should be mature proposals with a clear sense of the contributions needed; ideally proposals would not only comprise an idea, but also come with the resources needed to enable delivery. The involvement of industry stakeholders was encouraged.

France said that the conversion from S-57 to S-101 and from S-101 to S-57 were two sides of the same coin and consideration should be given to both; the **IHO-Singapore-Laboratory Board Chair** confirmed that both conversions would be included.

Canada and **USA** expressed support for the work of the **IHO-Singapore-Laboratory**. **USA** suggested that storm surge modelling might be an example of other areas in which projects were needed; the Chair said he looked forward to receiving a specific proposal in that regard.

Decision C6/42: The Council noted the update on the Joint IHO-Singapore Innovation and Technology Laboratory and noted the progress made on the following projects:

- S-131 Marine Harbour Infrastructure Database (MHID)
- Development of S-57 to S-101 Conversion Guidance Document
- Creation and Test-Bedding of ECDIS capable of displaying S-102 on S-101 ENC's

and the joint IHO-IALA proposed proof-of-concept project:

- Demonstration Interoperability of S-101 and S-125 at sea using wireless updating via 4G/5G Telecommunications links.

Decision C6/43: The Council endorsed the recommendation from the Governing Board of the Lab encouraging more stakeholders to identify collaborative projects, especially with other organisations and industry partners.

5. IHO ANNUAL WORK PROGRAMME AND BUDGET

5.1. Monthly Financial Reporting Statement (September 2022)

Docs: C6-5.1A

The **Secretary-General**, reviewing the current financial status of the Organization, said that 77.8% of Member States' contributions due in 2022 had been received by end of September, which was lower than at the same point the previous year and below average for the previous 5 years. One Member State had not yet paid its 2019-2020 contributions; five Member States had not yet paid their contributions for 2021.

Decision C6/44: The Council noted the information provided on the current financial status as of September 2022.

5.2. Proposed IHO Work Programme for 2023

Doc: C6-5.2A

The **Secretary-General**, introducing the item, noted that the proposed IHO Annual Work Programme for 2023 was based on the third year of the three-year Work Programme (2021-2023) that had been approved by A-2. The proposal covers all three Work Programme elements – Corporate Affairs (Work Programme 1), Hydrographic Services and Standards (Work Programme 2) and Interregional Coordination and Support (Work Programme 3) and takes into account all activities that had taken place under the respective work programme items since Council C-5. The Secretary-General highlighted the most relevant outcome which is to allocate more material and human resources to the further work on S-100 based standards, required technical infrastructure and the planning for future data services based on S-100. The Council was also asked to take note of the proposed theme for World Hydrography Day 2023: "*Hydrography – underpinning the digital twin of the ocean*", would also form the theme for the Assembly. A circular letter to all Member States would provide an opportunity to comment.

Norway expressed support for the report and the strategic thinking it reflected, as well as support of the chosen theme for the World Hydrography Day 2023.

Decision C6/45: The Council agreed to and approved the IHO Work Programme for 2023, as presented by the **Secretary-General**.

Decision and Action C6/46: The Council noted the proposed theme for the 2023 World Hydrography Day by the **Secretary-General** "*Hydrography - underpinning the digital twin of the ocean*". The **IHO Secretariat** to circulate the theme for 2023 to the **IHO MS** by IHO CL and fine tune language of the theme if needed. (deadline: end of October 2022)

5.3 Proposed IHO Budget for 2023

Doc: C6-5.3A

The **Secretary-General**, introducing the item, noted that the proposed budget estimates were based on the third year of the approved three-year IHO budget 2021-2023. An additional 41 shares provided by the five new Member States raised the planned income by €165 000 compared to the estimate made in 2020. That additional planned income would cover the extra provision for the new external retirement scheme, increased premiums for medical insurance and the moderate increase in operational costs.

Global developments since the submission of Document C6-05.3A in July 2022, namely cost increases due to inflation, had required some adaptations to the proposed budget, which were outlined. Noting that the budget was designed to cover the operational costs of the Secretariat, he

said that the difference had been found by reducing the Capacity Building Fund back to the level originally approved, and re-allocating money from the Special Project Fund, the balance of which was deemed to be sufficient to cover the planned special projects.

Decision C6/47: The **Council** approved the budget estimates provided by the **Secretary-General**, including the proposed adaptations to respond to the inflation effects.

5.4 Proposal to be submitted to A-3 for the IHO 3 year Work programme and 3 year Budget 2024-2026

The **Secretary-General**, introducing the proposed Work Programme and Budget, said that Work Programme 1, covered ongoing digitalization of IHO's work (such as INToGIS, online registration, SCUFN-Gazetteer) and the modernization of IHO's communication, social media presence and website. IHO's increased presence in the ocean science scene, through participation and contributions in various formats, including presence at the 2022 UN Ocean Conference, had proven to be a very effective way of interfacing with those in need of hydrographic information, and the value of investing in increased engagement was demonstrated by growth in the membership from 93 to 98 Member States. Work Programme 2 covered aspects such as the incorporation of S-100 into the IMO instruments for ECDIS, the ongoing S-100 framework, infrastructure and standards developments, and the establishment of the IHO-Singapore Innovation and Technology Laboratory. Work Programme 3 covered the continuation of education and training programmes, the introduction and enhancement of e-learning provision, intensified collaboration in GEBCO/Seabed-2030 which had resulted in ocean mapping coverage rising from just 6% to 23.4% of the seabed mapped.

The 3-year work programme was based on the IHO Strategic Plan. However, whereas the Strategic Plan focused on the Organization's priorities, the Work Programme listed the entire range of IHO activities. Strategic discussions were required on the focus and prioritized resource allocation within the IHO Work Programme prior to A-3. The cycle for revision of the IHO Strategic Plan for 2027 to 2032 would start 6 months after A-3.

The proposed budget estimates were based on the annual budget estimates for 2023 as defined in July 2022. The proposal considered known factors such as expected variations in staff salaries and costs for the social benefits granted to the IHO Secretariat staff. The proposed budget assumed no further increase in income through expanding membership or through increases in the value of contribution shares, as neither were guaranteed. Presenting a figure that illustrated how budget, staff costs, salary costs and medical costs had increased between 2008 and 2022, he noted that a large part of the difference was explained by a significant increase in medical costs. Most concerning was a rapid spike in the inflation rate for Monaco over the previous two years amounting to 20.6% increase since 2008.

Given the volatility of global inflation and the risks that global and local inflation posed for the IHO budget, the Council was invited to request A-3 to renew the Council's entitlement to increase Member States' contributions within the inter-assembly period up to 3%, subject to the Council's annual review of the budget, with the earliest potential increase being for 2024. He recalled that A-2 had granted the Council such entitlement but that it had not been necessary for the Council to exercise that option due to new memberships and cost-savings.

USA requested clarification as to whether the proposal to A-3 would request a ceiling of up to 3% over 3 years, or as agreed previously, 1% per year. The Secretary-General explained that the idea had been to create flexibility, by asking for 3% in total to leave the same ceiling in place but create greater leeway for the Council to decide how best to make use of it if required. Norway expressed support for such flexibility.

France, Australia and UK asked whether, in the light of the very high inflation rate shown, 3% would be adequate to allow IHO to maintain its operations and what mechanism was in place, if any, for further intersessional revision if the 3% ceiling proved too low. It was suggested that different scenarios might be presented to Member States, including one that would allow for the Organization to grow its operations, such as capacity-building. A contingency sum might also be advisable. **USA** recommended keeping the ceiling at 3%, as asking for more than 1% per year may meet resistance; he noted that his Government would ask for complete transparency, strong justification and demonstration of efforts and efficiencies before approving any increase.

The **Secretary-General** commented that he was mindful of striking a balance between the difficulty of asking for more money when national budgets are under global inflationary pressures and ensuring the Secretariat could function in a healthy manner, and so had sought to request a realistic figure. He hoped that any difference could be resolved by recruiting more Member States to join. He understood that there was in principle endorsement of the suggestion to ask A-3 to empower the Council to approve an increase in Member States contribution, with some concerns that 3% may not be enough. It was clarified that an increase of 3 % means 120 euros only per share. If the Council endorsed the proposal in principle, he undertook to develop the concept further in his submission to the A-3 in the light of the comments made.

In terms of there being any mechanism for further revision of the budget before A-4, he said that as the Council was by convention tasked with supervision of the Organization on an operational and annual basis, he had confidence in the Council to come to a wise decision should that need arise.

Decision and Action C6/48: The **Council** endorsed the proposed 3-year Work Programme and Budget* provided by the Secretary-General for submission at A-3 by **Council Chair** for the approval of Member States. (deadline: 20 December 2022 for submission to A-3),

** subject to an update prior to submission to A-3 by 20 December 2022 in consideration of the volatility of the global finance situation.*

Decision and Action C6/49: The **Council** endorsed the recommendation made by the **Secretary-General** to request A-3, for renewal of Council's entitlement, for an increase of Member States contribution up to 3% subject to the Council's annual budget review between 2024 and 2026, with 2024 as the earliest. (deadline: 20 December 2022 for submission to A-3)

6. IHO STRATEGIC PLAN REVIEW

6.1 Strategic Performance Indicators: Status

Docs: C6-6.1A

The Secretary-General reported on the new Strategic Performance Indicators (SPI), adopted by A-2 in the Revised Strategic Plan, in respect of Work Programme 1 (Corporate Affairs).

One major issue had arisen under Goal 2, increasing the use of hydrographic data for the benefit of society. Target 2.1 under that goal was to build a portal to support and promote regional and international cooperation in marine spatial data infrastructures (MSDI). The portal was still at the design stage, and the challenges of collecting and updating information about national MSDI infrastructures, as originally envisaged, had led the Secretariat to suggest a change in strategy. The recommendation is to move away from an aggregated collection of links to national infrastructure and focus on global thematic layers of information that are genuine to the IHO scope, such as those already provided under various digital services in place such as INTOGIS and the SCUFN Gazetteer. New types of information, such as a repository of Marine Protected Areas relevant for safe navigation, for example, could be included in the portal. The Council was invited to endorse that

change of strategy, which he would then submit to A-3 for approval.

IHO had greatly expanded its digital presence, especially on social media, with a dedicated public relations and communications officers. IHO had a presence on LinkedIn, Twitter and Facebook, with content tailored to the interests of each audience. The management and fostering of relations with intergovernmental and other international organizations could be measured both quantitatively and qualitatively in terms of the amount and type of outreach.

Participants agreed with the proposal to focus the MSDI portal on products controlled by IHO. It was important to know how hydrographic data were used, and by whom. Information on new areas of interest, such as “green” spatial planning, would help to increase IHO’s visibility.

Decision and Action C6/52: The Council noted the Status Report on Performance Monitoring available as Annex B to the IHO Annual Report (Publication P-7). The **Council Chair**, in liaison with **Secretary-General** (WP1), **HSSC Chair** (WP2), and **IRCC Chair** (WP3) to report at A-3, on the basis of the IHO Annual Report 2022. (deadline: May 2023 A-3)

Action C6/53: The Council agreed on the recommendation from the Secretary-General to refocus the function and the layout of a future MSDI portal. (deadline: C-7)

Decision C6/54: The Council noted the continued increase of IHO visibility via IHO website and social media activities and the amount of notable outreach activities under WP1 in four categories.

In his report, the **Chair of HSSC** presented the SPIs allocated to HSSC and the way they are monitored.

Decision C6/50: The Council noted the dashboard (target 2026, value as of 31 Dec. 2021) on SPIs 1.1.1, 1.1.2, 1.2.1, and 2.2.2 allocated to HSSC.

The **Chair of IRCC** reported on the Strategic Performance Indicators allocated to IRCC (Work Programme 3). One indicator which had provoked a great deal of discussion was SPI 1.2.2, Percentage of navigationally significant areas for which the adequacy of hydrographic knowledge is assessed through the use of appropriate quality indicators. IRCC had defined a “navigationally significant area” as one in usage bands 3 to 5, and had agreed on a quality indicator, namely the percentage of an area in which the Category of Zone of Confidence in Data (CATZOC) was other than *Unassessed*. The relevant calculations were already undertaken regularly by the IHO Secretariat. He used the example for a Regional Hydrographic Commission, where approximately 70% of navigationally significant areas appeared to have no CATZOC values. He explained that this score had nothing to do with the adequacy of hydrographic knowledge, but that it was simply due to the absence of CATZOC values in the data used by the IHO Secretariat for the calculation.

Decision C6/51: The Council noted the progress made by IRCC in the development of the methodologies and metrics for SPIs allocated to IRCC and endorsed the proposals (definitions, metrics, action plan...) as reported in IHO CL 23/2022.

For SPI 2.2.1, percentage of adequately surveyed area per coastal state, the IHO Secretariat would regularly derive figures from C-55 for “adequately surveyed”, per coastal state. The results would be expressed as a percentage per coastal state and would be summarized in a strategic overview. The General Bathymetric Chart of the Oceans (GEBCO) Guiding Committee would be requested to provide an additional figure for each Regional Hydrographic Commission on the Seabed 2030 information. For the definition of “adequately surveyed area” IRCC and HSSC had agreed to use the definition in the Hydrographic Survey Standard, S-44.

IC-ENC deplored the high number of areas without CATZOC values, although the rules might soon be changed to make submission of CATZOC information the default option rather than a deliberate choice. Some regions had very few IHO Members, and their usage data were barely sufficient to qualify for band 3. The **IHO Secretariat** said that it collected CATZOC data also from primary

charting authorities, even if the country concerned was not an IHO Member, and evaluated it for internal use only.

Decision C6/55: The Council invited all Member States to consider providing their CATZOC values through the RENCs to support the Secretariat in the process of SPI 1.2.2.

The Sub-Committee on the World-Wide Navigational Warning Service (WWNWS-SC) would soon begin to monitor the quality of communication with coastal States and integrate the information into C-55 data. One participant noted that the GMDSS website of the IMO Global Integrated Shipping Information System (GISIS) was not regularly updated and other organizations lacked the administrator rights required to contribute to it, even though it was a potentially valuable source of information for many countries.

Responding to the points raised, the **Chair of IRCC** agreed that the SPI would show up areas where some Member States required extra support, which would require coordination with IHO's capacity-building strategy. The contribution of the regional hydrographic commissions and capacity-building coordinators would be essential, particularly in regions with fewer resources and many coastal States that were not IHO Members. The joint training sessions organized by IHO and IMO also provided valuable opportunities for outreach.

6.2 Review of the Strategic Plan in preparation of A-3 (Reference B, article 1)

Docs: C6-6.2A

The **Secretary-General** noted that the current Strategic Plan is valid until 2026, however, it would be necessary to apply slight adaptations. The main priorities of this adaptations are the transition to S-100 and the change in focus in the future MSDI portal.

One participant noted the need for flexibility in interpreting the SPIs since the situation in the real world might well change rapidly. The **Council** agreed that the development of the next Strategic Plan to be put in place for 2027 – 2032 should be considered at C-7, should receive guidance from A-3, should be drafted after C-8, approved by C-9, and adopted by A-4.

Decision and Action C6/56: The Council noted the mid-term obligation made by the Planning Cycle (IHO Resolution 12/2002 as amended), to review the Strategic Plan at each ordinary session of the Assembly and the recommendation from the **Council Chair** to continue with the SP 2021–2026 as it is at the moment, noting the implementation of SPI in progress, while focusing the efforts on the directions to be provided at A-3 to the next Council for the preparation of the SP 2027–2032 (deadline: 20 December 2022 for submission to A-3).

7. OTHER ITEMS PROPOSED BY A MEMBER STATE OR BY THE SECRETARY-GENERAL

7.1 Update on the implementation of Decision A2/07 Gender-inclusivity

Docs: C6-7.1A

The **Secretary-General** said that, pursuant to Decision A2/07 of the 2nd session of the IHO Assembly, the Secretariat, with the assistance of Canada, had reviewed the English version of IHO Basic Documents M-1 and M-3 from the perspective of gender inclusivity, using the United Nations Guidelines on gender-inclusive language. Only a few changes had been required, and they had not affected the overall understanding of the documents. The Secretariat recommended that new documents, or documents requiring revision, should be edited for consistency with the United Nations Guidelines (summarized in the annex to the report on the agenda item). Since the Guidelines were not yet available in French, the official gender-inclusivity guidelines of the *Académie française*,

when available, would be used for French documents. A draft resolution to that effect would be submitted to A-3.

Decision C6/57: The Council thanked Canada for the assistance provided to the IHO Secretariat on this theme and took note of the test applications of gender-inclusivity to M-1 and M-3 and to the additional workload in the creation process of IHO documents and communications.

Decision and Action C6/58: The **Council** endorsed the proposed amendments to IHO Resolution 1/2020 and the **Secretary-General** to submit the proposal to A-3. (deadline: 20 December 2022 for submission to A-3)

Decision and Action C6/59: If and once amendments on IHO Resolution 1/2020 are approved at A-3, **IHO Secretariat** to implement the gender-inclusive language in M-1 as a first step (deadline C-7) and **Committees and Working Groups** to review their TORs and ROPs in application of the new IHO Resolution. (deadline: As and when appropriate in 2024)

7.2 Update on the implementation of Decision A2/25: S-130 Polygonal demarcations of global seas areas.

Docs: C6-7.2A Useful references: IHO CL 33/2021

The **Secretary-General** noted that, pursuant to Decision A2/25, the S-130 Project Team, under the excellent leadership of the Chair from **Belgium**, had met four times in 2022, with a further meeting scheduled for late October. Edition 1.0.0 of the product specification is due to be submitted to HSSC-15 for approval in June 2023; assuming that approval was forthcoming, the authoritative S-130 dataset and Edition 2.0.0 of the product specification would be finalized by the end of 2024, endorsed by HSSC and submitted to Member States for approval in the first quarter of 2025. He reminded at this occasion that the objective of the S-130 Project team was not limited to the Product Specification but to the provision of the S-130 authoritative dataset itself.

In reply to a point raised by a participant, he confirmed that, as decided by A-2 in Decision A2/24, S-23 would remain publicly available.

Decision and Action C6/60: The Council commended the S-130 PT for the achievements since C-6 and noted the timeline for the development of the S-130 Product Specification and Implementation.

Action C6/61: Secretary-General to report on implementation of PRO 1.9 (future of S-23) at the 3rd Session of the Assembly (Decision A2/24&25 refer) (deadline: 20 December 2022 for submission to A-3).

7.3 Preparation steps of the establishment of the new Council 2023-2026 and Update on the preparation of A-3

Doc: C6-7.3A Provisional list of deliverables for consideration/approval at A-3

Doc: C6-7.3B Update on the preparation of the 3rd Session of the IHO Assembly: countdown, programme, general information

Doc: C6-7.3C Preparation steps for the establishment of the next Council

7.3A The **Secretary-General** listed the deliverables allocated to the Council since A-2, which would be reported to A-3, either in the Chair's report or separately.

Decision C6/62: In preparation of A-3, the **Council** noted the provisional list of deliverables for

consideration/approval at A-3.

7.3B IHO Director Sinapi gave an overview of arrangements for A-3, now scheduled for 2–5 May 2023 at the Grimaldi Forum, Monaco, as a fully in-person meeting. An exhibition space would be provided for Member States and industry exhibitors; the deadline for any special requests is 1 December 2022.

On the 1st of May there would be a meeting of the Finance Committee, a special event on Empowering Women in Hydrography (EWH) and a meeting of the Heads of Delegations. On the 2nd of May, the Albert Ist Medal will be awarded to an outstanding hydrographic contributor; Member States were invited to send their nominations to the Secretariat by 20 December 2022. On the 4th of May, panel discussions will take place in three thematic blocks, namely ocean mapping, S-100 digitalization of hydrographic information, and hydrography underpinning the digital twin of the ocean. Several receptions are scheduled, including one onboard a US ship. The countdown to prepare the Red Book for A-3 was presented, with the deadline for Member States to provide their comments to A-3 proposals being 20 January 2023.

Decision C6/63: The Council noted the countdown, programme and the general information planned in preparation of A-3.

7.3C The IHO Secretariat outlined the procedure for the appointment of the next Council. Each regional hydrographic commission should notify the Secretariat of the Member States eligible for membership of the Council by the end of January 2023. The final list will be endorsed by A-3. The regional commissions appoint two thirds of the Council members, with the remaining third being selected on hydrographic interest and the registered national flag tonnage.

Decision C6/64: The Council noted the preparation steps for the establishment of the next Council.

7.4 Proposal for the Revision of Article 8.e of the General Regulations of the IHO – Membership of the IHO Hydrographic Commission on Antarctica (HCA)

Docs: C6-7.4A

The **Secretary-General** reported that, at its 18th Conference in May 2022, the Hydrographic Commission on Antarctica (HCA) had made changes to its Statutes which had implications for Article 8.e of the IHO General Regulations. It was accordingly proposed that the wording of Article 8.e, referring to the provision of resources and data for IHO INT Chart coverage only, should be replaced by the following wording: “the provision of hydrographic data, products and services supporting marine safety of navigation within, and/or the wider marine geospatial information of the Antarctic region”. He would submit the proposed change to A-3 in his capacity as Chair of HCA.

Decision and Action C6/65: The Council endorsed the amendments of Art 8.e of the GR as proposed by the HCA and tasked the **Council Chair** to submit them to A-3 to the approval of Member States. (deadline: 20 December 2022 for submission to A-3).

7.5 Secretariat’s proposed revision of the Staff Regulations IHO Publication M-7

Docs: C6-7.5A

The **Secretary-General**, introducing the item, said that the driver for the proposed revision of the Staff Regulations IHO Publication M-7 had been the introduction of teleworking as a regular option, to reflect the new global reality since the COVID-19 pandemic. The revisions also covered certain changes necessary to maintain staff medical and retirement benefits. Consultations on the proposed

revisions had been undertaken with those directly affected, namely the Secretariat workforce, and the result shared with the Finance Committee as FCCL02/2022. Comments would be taken into account before preparing submission of the final draft to A-3 for approval. He explained that the need to adapt to the realities of the new global way of working meant that the Organization was in fact already in a transitional phase of staff management, whereby teleworking had already been introduced: there was a need to formalize arrangements already introduced.

Decision and Action C6/66: The **Council** noted the information and the way forward for the preparation of Edition 9.0.0 (amendments related to application of the changes made for health and retirement provisions) of M-7 – *Staff Regulations* to be submitted by the **Secretary-General** to A-3 for Member States' approval. (deadline: 20 December 2022 for submission to A-3).

7.6 Information (ROK & Canada): Establishment of a National S-100 Committee

Docs: C5-07.6A INF

Republic of Korea and **Canada** shared their experiences of establishing a national S-100 committee. ROK's aim was to create an environment in which many stakeholders could cooperate to facilitate wider implementation of S-100 services. The twice-yearly meetings brought together maritime administrations, research institutes and industry in the fields of nautical publications, aids to navigation, e-navigation and marine weather. Canada's national S-100 committee met every month. Its aim was to nationally coordinate the implementation of S-100, develop a national S-128 catalogue of services, share knowledge – particularly relating to international S-100 activities – and build momentum within the country to meet S-100 roadmap targets. Canada would share the minutes of its meetings with interested members to give an idea of the way it worked.

Both committees had made progress in the development of standards and created opportunities to encourage discussion and cooperation. A plan for cooperation in standards development in different fields had been drawn up.

Responding to questions and comments from the floor, **ROK** said that most members of the S-100 committee were producers, although it regarded participants from the navigation community as users of the information on domestic navigation. Members of the committee were invited to participate by means of an official letter. Canada said that new members were usually encouraged to join its committee by word-of-mouth recommendation. Other participants described their own S-100 committees or similar bodies; for instance, **UK** has an internal S-100 committee within the UK Hydrographic Office and a joint working group with the regulator, the Maritime and Coastguard Agency. It also maintains links with original equipment manufacturers. **Australia** has established a national S-100 committee which is currently focused on production of S100 and is happy to share information on it. **Finland** informed about ongoing work on "National Coordination on S-100 Implementation". The mission of the Finnish Hydrographic Office's taskforce is to share information about IHO S-100 standardisation framework and various product standards to agencies and companies who currently holds or will be responsible for production of S-100 datasets or provide e-Navigational services. The coordination will continue actively and plan is to contact end-users (i.e. via Finnish Shipowners' Assosiation) as well. Italy intends to organize a meeting of partners in 2023 and, in the meantime, places great reliance on its coastguard's agency, which also represented the country at IMO.

Decision and Action C6/67: The **Council** welcomed the strategy presented by **Canada** and the **Republic of Korea** through the establishment of their National S-100 Committees and noted the expected benefits of such approach. The **Council** invited **Member States** to share their national strategies with regard to the establishment of similar national S-100 committees, as appropriate (deadline: C-7).

7.7 Information (UK): Understanding the drivers, solutions and enablers within the shipping industry

Docs: C6-7.7A INF

The **UK** introduced a white paper it had published on drivers, solutions and enablers within the shipping industry. The current drivers were predominantly decarbonization and digitalization, the former being driven by instruments such as the IMO Carbon Intensity Indicator. Possible solutions included optimization of operational efficiency and reduced carbon emissions including, in the long-term, alternative sources of fuel. The enablers of the optimization process included real-time, secure data feeds, improved Internet connectivity and appropriate training for mariners. The key findings of the report included the growing international commitment to decarbonization and the increased availability and rapidly reducing costs of high-speed Internet services, as well as the importance of cyber security. Hydrographic offices could contribute by producing safe and secure data sets that supported decarbonization and S-100 data standards readable by both humans and machines and by providing relevant training for the hydrographic office community.

The **UK** had sought to create a response that was resilient and sustainable, providing appropriate data solutions and working together with partners. It was reducing the carbon footprint of its navigation products and services and exploring the potential of S-100 data services in collaboration with industry partners and users. It had taken the difficult decision to phase out the production of paper charts by 2026, and was working with the national regulator, the Maritime and Coastguard Agency, to develop regulations for the transition to digital alternatives. Any solution it arrived at would be consistent with IHO standards. Although paper charts, and the training required to use them, would persist for some time to come, the UK was preparing for a future in which paper charts would be obsolete.

Participants commended the steps taken by the UK to promote “green” shipping, which was a topic likely to enjoy popular support, as shown by the adoption of the Clydebank Declaration for green shipping corridors, adopted at the United Nations climate change conference (COP26) in 2021. The Declaration would tie in well with IHO’s work on S-131 at the Singapore laboratory. However, they expressed serious concern at the prospect of a Member State ceasing the production of paper charts altogether, which they felt would have serious implications for the safety of navigation. Paper charts were still used for navigation, including compliance with SOLAS and national regulatory requirements. **IHO Director Kampfer** encouraged Member States to become involved in the ongoing activities to produce paper charts derived from S-101 data, by participating in the work of the Nautical Cartography Working Group and its Baseline Typology Project Team.

Decision and Action C6/68: The Council thanked the UK for sharing their white paper on shipping industry drivers, solutions, and enablers. The Council invited the UK to identify the lessons learned from this study and consider the possibility to provide inputs against the IHO Strategic Plan and IHO Work Programme as appropriate through the relevant WGs and Committees in which they are involved. (deadline: HSSC15/IRCC15).

8. NEXT MEETING

8.1 Dates and venue for the 7th meeting of the IHO Council

The **Secretary-General** suggested that the new Council should meet for the seventh session in Monaco at the IHO Secretariat on 17–19 October 2023.

Decision C6/69: The Council agreed to hold C-7 in Monaco, at the IHO Secretariat, from 17 to 19 October 2023. (deadline: go no go decision - 17 June 2023)

9. ANY OTHER BUSINESS

9.1 Information: Towards the digital twin of the Ocean – how hydrographic knowledge and oceanographic modelling become building blocks (Mercator Ocean International)

The **Director-General of Mercator Ocean International, Mr Pierre Bahurel**, presenting the Digital Twin of the Ocean concept, first explained that the organization he represented was a global ocean prediction centre, a non-profit organization owned by public institutions from five countries that received funding from both Members and the European Commission. The organization planned to transition to intergovernmental organization (IGO) status, however, reflecting the growing realization of the importance of ensuring that the science reached the policymakers.

Mercator Ocean International had been delivering an operational service since 2015. By connecting a network of data producers to a single port, it currently enabled observations to be updated every ten minutes on a 1 billion grid point digital ocean, translated by experts into verified data, with 400 000 users worldwide and 40 000 subscribers. The scope of the project spanned not only “Blue Ocean” data (such as salinity, temperature...) but also “White Ocean” (such as ice) and “Green Ocean” (such as (chlorophyll-a production, acidity...)). The data produced was open and free and the service provided was worldwide; although most users were in Europe the number of users outside Europe was growing rapidly and subscriber information indicated that data was already being utilised by hydrography users.

He said that the goal of the Digital Twin of the Ocean was to develop a consistent, high-resolution, multi-dimensional and near real-time virtual representation of the ocean that could make ocean knowledge open-access, available to citizens, scientists and policy makers around the world, and provide a platform for global cooperation. As a concept that could be understood by and had already caught the attention of politicians, the Digital Twin of the Ocean could serve as a bridge between scientific knowledge and policy making.

In moving from ocean prediction to a digital twin ocean, the idea was to automate processes so that feedback provided from the digital twin could help decision-makers to make informed decisions in relation to the real ocean. There was therefore a need to improve and diversify the information content of the digital twin, with the vision being to set up a platform that various data systems could be plugged into, connecting community and services with robust, interoperable systems worldwide. In terms of international standards, the ocean prediction community had some standards that were operational, such as using the same format and key performance indicators, but were not yet set into a recognized framework. The S-100 Universal Hydrographic Data Model was therefore of interest, along with the analogue frameworks such as S-300 of the UNESCO IOC domain, S-400 for WMO, or the S-500 NATO Geospatial Maritime Working Group for Additional Military Layers. For example, using S-111 standards to inform surface currents data in the development of dynamic hydrographic products could help to eliminate the barrier posed by the use of differing formats.

In the discussions, the **Council** lauded the project. **Norway** said that the Digital Twin of the Ocean demonstrated how hydrography and oceanography could work together for mutual benefit, with hydrography being a building block for the digital twin. The General Bathymetric Chart of the Oceans (GEBCO) was another area of collaboration. **USA** said that the digital twin project was taking a great leap forward into what had been envisaged in the S-100 framework. He asked what funding mechanism was envisaged. **Japan** wished to know what kind of bathymetric data were of interest. **USA** recommended that Mercator Ocean International consider engaging with the Committee of Experts on Global Geospatial Information Management (UN-GGIM) for possible integration with

what was being done on land. **Sweden** invited the Mercator Ocean International to cooperate in the working group that would develop the product specification S-126 Marine Physical Environment. The **Secretary-General** observed that the standards framework could be thought of as providing data containers that could also be filled with oceanographic information; the standards framework could thus serve to ensure interoperability of information such as “Green Ocean” data, which might provide new information of benefit to maritime users. The S-411 Sea Ice Information product specification would also be relevant area for collaboration. **Canada** suggested that a starting point for bringing standardization to the modelling might be to apply standards to the inputs.

The **Director-General of Mercator Ocean International** said that current funding came from the public institutions involved for the innovation part, with the majority of funding coming from European Commission for the entire operational part, which had identified the beneficial leverage effect in providing infrastructure to which others would contribute. The transformation to IGO was needed because the success of the project required not only scientific and technological excellence, but also the connection between the technology and the policy. IGO status provided the visibility needed for this. The hope was that member States would support the project but that funding from European commission would not be lost. He emphasized that the project was open worldwide and was open to collaboration to support national authorities to see what data could be provided regionally. In some cases, it was possible to first identify a data need – such as on ocean currents – and then identify a potential partner who might provide it. Lastly, he expressed openness to further collaboration with IHO.

The **Council** expressed support for pursuing further collaboration between IHO and Mercator Ocean International, including through an invitation to the forthcoming 3rd session of the Assembly and exploring the possibility of a Memorandum of Understanding to formalize the collaboration.

Decision and Action C6/70: The **Council** welcomed the presentation on the Digital Twin Ocean by the Director General of Mercator Ocean International, and noted the intention to create a new IGO. When appropriate, the **Council** invited the **Secretary-General** of the IHO to consider whether a MoU between the two organizations (when established) would be useful to develop synergies in the future. (deadline: A-3 to be confirmed)

10. REVIEW OF ACTIONS AND DECISIONS OF THE MEETING

IHO Assistant Director Guillam went through the identified actions, providing brief comments and explanations for actions and decisions where necessary including those permanent or pending from previous Council meetings (**Decision C6/38, C6/40**) (see Annex C).

On the advice of **Director Kampfer**, **Decision C6/42** was amended to reflect that testing would only be conducted on S-102, as testing on S-104 would come in the next phase. At the suggestion of **USA**, the wording of Action C6/49 was amended to clarify that the timeframe of the 3% ceiling in a potential increase of the value of Member States contributions shares was between A3 and A4.

11. CLOSURE OF THE MEETING

The **Secretary-General** said that the long list of actions and decisions resulting from the Council’s deliberations were evidence of its effectiveness. He expressed his appreciation and gratitude to the Secretariat, the working groups, the Council, and to the Chair for her able management of the session. The **Chair**, noting that it was the last meeting of the triennial Council, said that notwithstanding the necessity of innovating in response to the COVID-19 pandemic, it was a

measure of the Council's success that all of the actions that had been entrusted to it by the Assembly at its 2nd session could be reported back at the 3rd session.

Key messages she planned to convey on the Council's behalf included: the need for IHO to make the transition to S-100, and in particular from S-57 to S-101, a priority for 2023-2026; that the Strategic Plan 2021-2026 and its associated SPIs had been tested and so could move to reporting achievements against each of the goals – with one SPI requiring a refocus; and that capacity building must remain a priority. The reduction in funding available for capacity building remained a concern and would require creativity. As 2026 is getting closer, preparing for and communicating the worldwide picture of dual-fuel ENC provision will become vital, ensuring that no Member State was left behind. The Digital Twin of the Ocean project had embarked IHO on a path to explore collaboration with colleagues in oceanography on the delivery of S-100 services.

The **Council** expressed its appreciation for the Head of delegation of Portugal, RAdm Mário Simões Marques, who retired a week before, after a long and distinguished career; he commended the IHO community on its friendliness and its commitment to making the oceans safer.

The **Chair** went on to thank the five rapporteurs and the IHO Secretariat for their contributions to the smooth orchestration of the meeting and faithful reporting of its work, commending the successful live streaming of the meeting. She thanked all the presenters, the chairs of HSSC and IRCC, and all the members of Council for their many contributions to the work achieved, and declared the session closed.

LIST OF REGISTERED PARTICIPANTS

6th Meeting of the IHO Council 18-Oct-2022 – 20-Oct-2022

6th Meeting of the IHO Council Face-to-face, 18-Oct-2022 ~ 20-Oct-2022

No	Category	Country	Organization / Company	Name	Status	E-mail	Date
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2	IHO Member State	Albania	ALBANIAN HYDROGRAPHIC SERVICE (AHS)	Elvis CENKA	Member of delegation	elviscenko@gmail.com	2022-06-14
3	IHO Member State	Argentina	SERVICIO DE HIDROGRAFIA NAVAL	Gustavo Jorge ALMAZÁN	Member of delegation	galmazan@hidro.gov.ar	2022-05-22
4	IHO Member State	Argentina	SERVICIO DE HIDROGRAFIA NAVAL	Valentin Alejandro SANZ RODRIGUEZ	Head of delegation	directorshn@hidro.gov.ar	2022-06-10
5	IHO Member State	Australia	AUSTRALIAN HYDROGRAPHIC OFFICE	Stewart DUNNE	Head of delegation	stewart.dunne@defence.gov.au	2022-06-06
6	IHO Member State	Australia	AUSTRALIAN HYDROGRAPHIC OFFICE	Hilary THOMPSON	Member of delegation	hilary.thompson@defence.gov.au	2022-08-02
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8	IHO Member State	Brazil	DIRECTORATE OF HYDROGRAPHY AND NAVIGATION	RODRIGO OBINO	Member of delegation	obino@marinha.mil.br	2022-05-11
9	IHO Member State	Canada	CANADIAN HYDROGRAPHIC SERVICE	Annie BIRON	Member of delegation	annie.biron@dfo-mpo.gc.ca	2022-05-16
10	IHO Member State	Canada	CANADIAN HYDROGRAPHIC SERVICE	Doug BRUNT	Head of delegation	douglas.brunt@dfo-mpo.gc.ca	2022-06-14
11	IHO Member State	Canada	CANADIAN HYDROGRAPHIC SERVICE	Geneviève BÉCHARD	Member of delegation	genevieve.bechar@dfo-mpo.gc.ca	2022-07-12
12	IHO Member State	Croatia	HRVATSKI HIDROGRAFSKI INSTITUT (Hydrographic Institute of the Republic of Croatia)	Vinka KOLIC	Head of delegation	vinka.kolic@hhi.hr	2022-06-09
13	IHO Member State	Cyprus	HEADQUARTERS OF DEPARTMENT OF LANDS AND SURVEYS	GEORGIOS KOKOSIS	Head of delegation	gkokosis@dls.moi.gov.cy	2022-08-04
14	IHO Member State	Denmark	DANISH GEODATA AGENCY - GEODATASTYRELSEN (GST)	Pia HØJGAARD	Head of delegation	pdh@gst.dk	2022-08-26
15	IHO Member State	Denmark	DANISH GEODATA AGENCY - GEODATASTYRELSEN (GST)	Sophie HOHWÜ-CHRISTENSEN	Member of delegation	sohoh@gst.dk	2022-08-26
16	IHO Member State	Finland	FINNISH TRANSPORT AND COMMUNICATIONS AGENCY	Rainer MUSTANIEMI	Head of delegation	rainer.mustaniemi@traficom.fi	2022-06-03
17	IHO Member State	France	SERVICE HYDROGRAPHIQUE ET Océanographique DE LA MARINE	LAURENT KERLEGUER	Head of delegation	laurent.kerleguer@shom.fr	2022-06-07
18	IHO Member State	France	SERVICE HYDROGRAPHIQUE ET Océanographique DE LA MARINE	Julien SMEECKAERT	Member of delegation	julien.smeekaert@shom.fr	2022-06-14
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20	IHO Member State	Germany	BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE	Thomas DEHLING	Head of delegation	thomas.dehling@bsh.de	2022-05-21
21	IHO Member State	Greece	HELLENIC NAVY HYDROGRAPHIC SERVICE	Dimitrios EFSTATHIOU	Head of delegation	director_hnhs@navy.mil.gr	2022-06-10
22	IHO Member State	Greece	HELLENIC NAVY HYDROGRAPHIC SERVICE	Panagiotis GKIONIS	Member of delegation	panagiotis.gkionis@hnhs.gr	2022-06-10
23	IHO Member State	India	NATIONAL HYDROGRAPHIC OFFICE	Adhir ARORA	Head of delegation	ia-inho@navy.gov.in	2022-08-05

No	Category	Country	Organization / Company	Name	Status	E-mail	Date
24	IHO Member State	India	NATIONAL HYDROGRAPHIC OFFICE	Kuldeep SINGH	Member of delegation	ia-inho@navy.gov.in	2022-09-29
25	IHO Member State	Indonesia	HYDROGRAPHY AND OCEANOGRAPHY CENTRE, INDONESIA NAVY (Pushidrosal)	Fajar RUSDIANTO	Member of delegation	fajar.rusdianto@pushidrosal.id	2022-06-03
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27	IHO Member State	Indonesia	HYDROGRAPHY AND OCEANOGRAPHY CENTRE, INDONESIA NAVY (Pushidrosal)	Danar PRATAMA	Member of delegation	int.pushidrosal@gmail.com	2022-07-22
28	IHO Member State	Iran (Islamic Republic of)	PORTS AND MARITIME ORGANIZATION (PMO)	Nader PASANDEH	Member of delegation	npasand44@gmail.com	2022-06-20
29	IHO Member State	Iran (Islamic Republic of)	PORTS AND MARITIME ORGANIZATION (PMO)	Majid ALI NAZI	Head of delegation	malinazi@pmo.ir	2022-06-20
30	IHO Member State	Italy	ISTITUTO IDROGRAFICO DELLA MARINA	Nicola Marco PIZZEGHELLO	Member of delegation	nicolam.pizzeghello@marina.difesa.it	2022-06-10
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32	IHO Member State	Japan	Japan Coast Guard (JCG)	Shigeru NAKABAYASHI	Member of delegation	lao@jhod.go.jp	2022-05-30
33	IHO Member State	Japan	Japan Coast Guard (JCG)	Masayuki FUJITA	Head of delegation	lao@jhod.go.jp	2022-05-30
34	IHO Member State	Malta	HYDROGRAPHIC OFFICE, PORTS AND YACHTING DIRECTORATE, TRANSPORT MALTA	Godwin L. BORG	Member of delegation	godwin-louis.borg@transport.gov.mt	2022-10-25
35	IHO Member State	Malta	HYDROGRAPHIC OFFICE, PORTS AND YACHTING DIRECTORATE, TRANSPORT MALTA	Mark A. CHAPELLE	Head of delegation	mark.chapelle@transport.gov.mt	2022-10-25
36	IHO Member State	Netherlands	Hydrographic Service - Royal Netherlands Navy	Leendert DORST	Member of delegation	LL.Dorst@mindef.nl	2022-06-03
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38	IHO Member State	Nigeria	NIGERIAN NAVY HYDROGRAPHIC OFFICE	Olugbenga Bidemi Fahad OLADIPO	Member	dhydro@navy.mil.ng	2022-09-14
39	IHO Member State	Norway	NORWEGIAN HYDROGRAPHIC SERVICE	Evert FLIER	Member of delegation	Evert.Flier@statkart.no	2022-06-22
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41	IHO Member State	Oman	NATIONAL HYDROGRAPHIC OFFICE (ONHO)	YAHYA AL BALUSHI	Head of delegation	ahmed.a.albadi@mod.gov.om	2022-08-05
42	IHO Member State	Oman	NATIONAL HYDROGRAPHIC OFFICE (ONHO)	AHMED ALBADI	Member of delegation	ahmed.a.albadi@mod.gov.om	2022-08-05
43	IHO Member State	Peru	DIRECCION DE HIDROGRAFIA Y NAVEGACION	César ZELADA	Head of delegation	cesar.zelada@marina.mil.pe	2022-06-03
44	IHO Member State	Peru	DIRECCION DE HIDROGRAFIA Y NAVEGACION	Juan TERRY	Member of delegation	jterry@dhn.mil.pe	2022-06-03
45	IHO Member State	Portugal	INSTITUTO HIDROGRAFICO	João VICENTE	Member of delegation	dt.hi.chf@hidrografico.pt	2022-06-03
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No	Category	Country	Organization / Company	Name	Status	E-mail	Date
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48	IHO Member State	Republic of Korea	KOREA HYDROGRAPHIC AND OCEANOGRAPHIC AGENCY (KHOA)	Kwan Chang LIM	Member of delegation	kclim00@korea.kr	2022-10-05
49	IHO Member State	Republic of Korea	KOREA HYDROGRAPHIC AND OCEANOGRAPHIC AGENCY (KHOA)	Jaeyoung BYEON	Head of delegation	infokhoa@korea.kr	2022-06-14
50	IHO Member State	Singapore	Maritime and Port Authority of Singapore (MPA)	Pearlyn PANG	Head of delegation	pearlyn_pang@mpa.gov.sg	2022-06-24
51	IHO Member State	Singapore	Maritime and Port Authority of Singapore (MPA)	Ying-Huang THAI LOW	Head of delegation	Hydrographic@mpa.gov.sg	2022-06-24
52	IHO Member State	South Africa	South African Navy Hydrographic Office (SANHO)	Christoff THEUNISSEN	Head of delegation	hydrosan@iafrica.com	2022-08-02
53	IHO Member State	Spain	INSTITUTO HIDROGRAFICO DE LA MARINA (IHM)	Salvador MORENO	Member of delegation	smorenos@fn.mde.es	2022-06-03
54	IHO Member State	Spain	INSTITUTO HIDROGRAFICO DE LA MARINA (IHM)	Salvador ESPINOSA GONZALEZ-LLANOS	Head of delegation	sespinosa@fn.mde.es	2022-06-03
55	IHO Member State	Sweden	SJOFARTSVERKET	Magnus WALLHAGEN	Member of delegation	magnus.wallhagen@sjofartsverket.se	2022-06-03
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57	IHO Member State	Thailand	HYDROGRAPHIC DEPARTMENT, ROYAL THAI NAVY	Pathomphote KAENCHAN	Head of delegation	hydrotechhdtrn@gmail.com	2022-06-01
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59	IHO Member State	United Kingdom of Great Britain and Northern Ireland	UNITED KINGDOM HYDROGRAPHIC OFFICE	Helena PATTON	Member of delegation	helena.patton@ukho.gov.uk	2022-09-20
60	IHO Member State	United Kingdom of Great Britain and Northern Ireland	UNITED KINGDOM HYDROGRAPHIC OFFICE	Jake THACKER-PUGSLEY	Member of delegation	jacob.ThackerPugsley@ukho.gov.uk	2022-09-20
61	IHO Member State	United Kingdom of Great Britain and Northern Ireland	UNITED KINGDOM HYDROGRAPHIC OFFICE	Clare LAIN	Member of delegation	clare.lain@ukho.gov.uk	2022-06-07
62	IHO Member State	United States of America	National Oceanographic and Atmospheric Administration (NOAA)	John NYBERG	Head of delegation	john.nyberg@noaa.gov	2022-06-17
63	IHO Member State	United States of America	NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY (NGA)	John LOWELL	Member of delegation	john.e.lowell@nga.mil	2022-06-02
64	IHO Member State	United States of America	National Oceanographic and Atmospheric Administration (NOAA)	Jonathan JUSTI	Member of delegation	Jonathan.Justi@noaa.gov	2022-06-24
65	IHO Member State	United States of America	COMMANDER, NAVAL METEOROLOGY AND OCEANOGRAPHY COMMAND (CNMOC)	Matthew BORBASH	Member of delegation	matthew.borbash2.civ@us.navy.mil	2022-07-01
66	IHO Secretariat	-	International Hydrographic Organization	Leonel MANTEIGAS	Staff	leonel.manteigas@iho.int	2022-10-13
67	IHO Secretariat	-	International Hydrographic Organization	Luigi SINAPI	Staff	luigi.sinapi@iho.int	2022-09-22
68	IHO Secretariat	-	International Hydrographic Organization	Rebekka YATES	Staff	rebekkayates@yahoo.co.uk	2022-09-20
69	IHO Secretariat	-	International Hydrographic Organization	Rémy ROQUEFORT	Staff	remy.roquefort@iho.int	2022-10-13
70	IHO Secretariat	-	International Hydrographic Organization	Jeff WOOLTON	Staff	jeff.woolton@iho.int	2022-09-14

No	Category	Country	Organization / Company	Name	Status	E-mail	Date
71	IHO Secretariat	-	International Hydrographic Organization	Mathias JONAS	Staff	sg@iho.int	2022-09-20
72	IHO Secretariat	-	International Hydrographic Organization	Teresa LANDER	Staff	tb_lander@yahoo.co.uk	2022-09-20
73	IHO Secretariat	-	International Hydrographic Organization	Yves GUILLAM	Staff	yves.guillam@iho.int	2022-05-02
74	IHO Secretariat	-	International Hydrographic Organization	Caroline FONTANILI	Staff	caroline.fontanili@iho.int	2022-09-14
75	IHO Secretariat	-	International Hydrographic Organization	Yong BAEK	Staff	yong.baek@iho.int	2022-08-08
76	IHO Secretariat	-	International Hydrographic Organization	Insung PARK	Staff	pok@iho.int	2022-06-22
77	IHO Secretariat	-	International Hydrographic Organization	Abri KAMPFER	Staff	dtech@iho.int	2022-07-26
78	IHO Secretariat	-	International Hydrographic Organization	Sam HARPER	Staff	adso@iho.int	2022-07-12
79	Other Observers	-	Mercator Ocean International (MOI)	Pierre BAHUREL	Observer	pierre.bahurel@mercator-ocean.fr	2022-09-15

6TH MEETING OF THE IHO COUNCIL**18 – 20 October 2022****FINAL AGENDA**

- References:** A. Rule 8 of the Rules of Procedure of the Council.
B. IHO Resolution 12/2002 as amended – *Planning Cycle [for Assembly Years]*.

1. OPENING

- 1.1 Secretary-General Opening Remarks.
- 1.2 Adoption of the Agenda and Timetable.
- 1.3 Chair's Opening Remarks.
- 1.4 Administrative Arrangements.

2. ITEMS REQUESTED BY THE 2ND IHO ASSEMBLY

- 2.1 Decision A2/08: Update on the Joint IHO-Singapore Laboratory – Proposals from the Council to the Governing Board (*To be discussed under agenda item 4.5*).
- 2.2 Decision A2/12: Report on the Application of ISO 9001 Principles (*To be discussed through the reports of HSSC and IRCC under agenda items 4.1 and 4.2*).
- 2.3 Decision A2/14: Update on the best way forward for the definition of hydrographic interest.
- 2.4 Decision A2/20: Status report on the appropriateness and applicability of the new Strategic Performance Indicators (*To be discussed under agenda item 6.1, taking into account recommendations from Secretary-General for Programme 1, HSSC and IRCC Chairs for Programmes 2 and 3*).
- 2.5 Decisions A2/30&A2/31: Proposed version 2.x of the Roadmap for the S-100 Implementation Decade (*To be discussed under agenda item 4.4*).
- 2.6 Decision A2/33: Update on the Dual-Fuel Concept (transition from S-57 to S-101 ENCs) (*To be discussed under agenda item 4.3*).
- 2.7 Cumulative List of A-2 Decisions affecting the Council (Decisions A2/02⁴, A2/04², A2/06², A2/08, A2/11², A2/12, A2/14, A2/20, A2/30, A2/31, A2/33).

⁴ Complete.

3. ITEMS REQUESTED BY THE IHO COUNCIL

3.1 Review of the status of Decisions and Actions from C-5.

4. ITEMS REQUESTED BY SUBSIDIARY ORGANS

4.1 A. Report and proposals from HSSC including:

Annex A: Proposed New IHO Resolution xx/2023 on the S-100 Implementation

Annex B: Draft revised version of the Roadmap for the S-100 Implementation Roadmap, Annex 2, version 2.0, 12 July 2022

Annex C: Proposed Annex 4 to the Roadmap for the S-100 Implementation Decade (2020-2030), Executive Summary of Dual Fuel Concept for S-100 ECDIS

4.2 A. Report and proposals from IRCC including:

Annex A: IHO Capacity Building Strategy

Annex B: Guidelines on the Implementation of the WEND-100 Principles, version 1.0, April 2022

Annex C: IRCC Chair proposal regarding SPI allocated to IRCC

4.2 B. Proposed Recommendation (France): Avoid any ambiguity for S-100 based products that do contribute to navigation, by clearly distinguishing them from products using the same data format with a content for other purposes

4.3 Update on the Dual-Fuel Concept (transition from S-57 to S-101 ENCs).

4.4 Proposed version 2.x of the Roadmap for the S-100 Implementation Decade.

4.5 Update on the Joint IHO-Singapore Laboratory – Proposals from the Council to the Governing Board.

5. IHO ANNUAL WORK PROGRAMME AND BUDGET

5.1 Review of the Current Financial Status of the IHO.

5.2 Proposed IHO Work Programme for 2023.

5.3 Proposed IHO Budget for 2023.

5.4 Proposal to be submitted to A-3 for the IHO 3-year Work Programme and 3-year Budget 2024-2026.

6. IHO STRATEGIC PLAN REVIEW

6.1 Implementation and discussion of adaptations of the IHO Work programme and other affected IHO instruments resulting from the Strategic Plan 2021-2026. Status report on the appropriateness and applicability of the Strategic Performance Indicators.

6.2 Review of the Strategic Plan in preparation of A-3 (Reference B, article 1, amendments if any).

7. OTHER ITEMS PROPOSED BY A MEMBER STATE OR BY THE SECRETARY-GENERAL

7.1 Update on the implementation of Decision A2/07: gender-inclusivity.

7.2 Update on the implementation of Decision A2/25: S-130 Polygonal demarcations of

global sea areas.

- 7.3 Preparation of the 3rd Session of the IHO Assembly: List of deliverables to A-3, Countdown, Programme, General Information and Preparation steps of the establishment of the new IHO Council 2023-2026.
- 7.4 Proposal for the Revision of Article 8.e of the General Regulations of the IHO – *Membership of the IHO Hydrographic Commission on Antarctica (HCA)*
- 7.5 Proposal to amend Publication M-7 - Staff Regulations (application of the changes made for health and retirement provisions).
- 7.6 Information (ROK, Canada): Establishment of a National S-100 Committee.
- 7.7 Information (UK): Understanding the Drivers, Solutions and Enablers within the Shipping Industry.

8. NEXT MEETING

- 8.1 Dates and venue for the 7th meeting of the IHO Council (17-19 October 2023, Monaco) (Decision A2/11).

9. ANY OTHER BUSINESS

- 9.1 Towards the digital twin of the ocean - how hydrographic knowledge and oceanographic modelling become building blocks (Mr Pierre Bahurel, Director General, Mercator Ocean International).

10. REVIEW OF ACTIONS AND DECISIONS OF THE MEETING

11. CLOSURE OF THE MEETING

LIST OF DECISIONS and ACTIONS FROM C-6

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
1. OPENING					
1.1 Secretary-General Opening remarks and introductions					
1.2 Adoption of the agenda					
	Observers	C6/01	The Council welcomed the proposal to be informed on Day 2 by Mr Pierre Bahurel, Director General of Mercator Ocean International, about the <i>Digital Twin of the Ocean</i> initiative.		Decision
	Agenda	C6/02	Subsequently, the Council adopted the agenda and the timetable as proposed, and agreed to consider the information papers (Docs. C6-07.6A, and 07.7A), when appropriate or at the end of some sessions, time permitting.		Decision
1.3 Chair's Opening Remarks					
	Opening	C6/03	Council Members welcomed the opening addresses by Dr Geneviève Béchar, Council Chair and the Secretary-General and agreed on the participation of RENCs representatives (IC-ENC this time) as Observers.		Decision
1.4 Administrative Arrangements					
	Contact List	C6/04	IHO Member States having a seat at the Council to provide the IHO Secretariat with their updates to the IHO Council List of Contacts.	Permanent	
2. ITEMS REQUESTED BY THE 2nd IHO ASSEMBLY					
2.1 Update on the Joint IHO-Singapore Laboratory – Proposals from the Council to the Governing Board (Decision A2/08)					
			<i>See section 4.5</i>		
2.2 Report on the Application of ISO 9001 Principles (Decision A2/12)					
			<i>See sections 3.1 and 4.1</i>		

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
2.3 Discussion on the best way forward on the definition of hydrographic interest (Decisions A2/04 and A2/14).					
	Definition of Hydrographic Interest	C5/04	The Council thanked Council Chair for the update on the ongoing work by the interested parties AR, BR, IN and UY and invited them to submit a consolidated report on possible ways forward, including impact assessment on IHO Basic Documents.	C-6 (- 3 months)	Closed
	Definition of Hydrographic Interest	C4/08	Council noted the task given by the A-2 to consider the best way forward with proposals A-2 PRO-1.4 and A-2 PRO-1.5 on the definition of hydrographic interest and report to A-3 in 2023 and by which the Council was empowered to establish a working group for this specific purpose.	A-3	Closed
	Definition of Hydrographic Interest	C4/09	Council invited interested parties (Argentina, Brazil, India, Uruguay ...) in the development of a definition of hydrographic interest, to consider IHC17 outcome, PRO1.4 and 1.5, and come back with a single consolidated proposal to C-5 or C-6 for possible consideration at A-3 (deadline C-5, C-6).	C-5, C-6	Closed
	Definition of Hydrographic Interest	C6/05	The Council Chair to report at A-3 on the situation (as requested by Decision A2/14) and to recommend that this topic is put on hold until interested parties work out a mature proposal for a revised definition.	20 Dec. (for A-3)	Decision
2.4 Status report on the appropriateness and applicability of the new Strategic Performance Indicators (Decision A2/20)					
			<i>See section 4.2 Annex C and 6.1</i>		
2.5 Proposed version 2.x of the Roadmap for the S-100 Implementation Decade (Decisions A2/30&A2/31)					
			<i>See section 4.4 which embraces all proposals</i>		
2.6 Update on the Dual-Fuel Concept (transition from S-57 to S-101 ENCs) (Decision A2/33)					

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
			<i>See section 4.1 , Paragraph 11, 12 and Annex C</i>		
2.7 Cumulative List of Assembly Decisions affecting the Council.					
			<i>For reference only</i>		
3. ITEMS REQUESTED BY THE IHO COUNCIL					
3.1 Review of the status of Decisions and Actions from C-5 (pending actions)					
	Application of ISO 9001 principles	C6/71 (former C5/08, C4/40)	<p>The Council invited the IRCC to identify a theme on which ISO 9001 Principles should be applied and to propose it to Council for endorsement.</p> <p>The Council noted the task given by the IRCC to the MSDIWG to identify a theme in their portfolio of activities, where ISO 9001 basic principles could be applied and be beneficial.</p>	IRCC-15/C-7	Decision A2/12
	--	C6/06	<i>Left blank intentionally</i>		
4. ITEMS REQUESTED BY SUBSIDIARY ORGANS					
4.1 Report and proposals from HSSC					
	Report of HSSC	C6/07	The Council noted the report and commended the HSSC , its Working Groups and supporting organizations for the achievements since C-5.		Decision
	IHO Resolutions on S-100	C6/08 (former C5/05, C4/12)	<p>Following up on Decision A2/32 (PRO2.3 by the ROK), the Council noted the progress made on existing IHO Resolutions (IHO CL 38/2022) and endorsed the proposal for a new generic IHO Resolution on S-100 Implementation (Annex A to HSSC Report to C-6 refers).</p> <p>Council Chair, in her report to A-3, to submit the new IHO Resolution on S-100 Implementation for the approval of Member States, and indicate in the context the adoption of some amendments to existing Resolutions (IHO CL 38/2022).</p>	20 Dec. 2022 (deadline for submission to A-3)	Decision

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
	Conversion S-57 to S-101	C6/09	Following up on Decision A2/33, the Council noted the publication, for implementation and testing, of Ed.1.0.0 of Annex B to S-65 - <i>S-57 ENC to S-101 Conversion Guidance</i> and commended the ENCWG and Mr Jeff Wootton in particular (TSSO, IHO Secretariat) for this outstanding achievement.		Decision
	Dual Fuel Concept for S-100 ECDIS	C6/10 (former C5/10)	<p>Still following up on Decision A2/33, the Council endorsed the Dual Fuel Concept for S-100 ECDIS Executive Summary and the full report.</p> <p>Council Chair in liaison with HSSC Chair, in her report to A-3, to submit the Dual Fuel Concept for S-100 ECDIS Executive Summary and the full report for the approval of Member States.</p> <p>Prior to the submission, the Council requested the HSSC (supported by S-100 WG) to amend the S-57/S-101 image in fig. 2 in section 2.6.1 of the Dual Fuel Concept by a better one as those available in Doc. C6-04.1C (Testbed Project).</p>	<p>20 Dec. 2022 (deadline for submission to A-3)</p> <p>1 Dec. 2022</p>	Decision

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
	IMO Documents on S-100 ECDIS	C6/11 (former C5/11)	The Council noted the outcome of the 9 th session of the IMO NCSR on the revision of MSC.1/Circ.1503/Rev1 - <i>ECDIS Guidance for Good Practice</i> and Revision of MSC.232(82) - <i>ECDIS Performance Standard</i> (IHO CL 31/2022 refers) and took note of the associated commitments made towards the IMO and the IEC in particular (<i>transition period for S-100 ECDIS, to become legal to use after 1 January 2026 and from 1 January 2029, new systems must comply with the new IMO Resolution on ECDIS Performance Standards</i>) ⁵ .		Decision
	MSC106	C6/12	The Council invited the Members to consider approaching their representatives in IMO to provide their support on the amendments to <i>ECDIS Performance Standard</i> at the next MSC106.	2 November 2022	
	Changes in S-100 ECDIS, S-98	C6/13	The Council endorsed the strategic change in S-100 ECDIS with Electronic Navigational Data Services (ENDS) and interacting navigational data layers, enabled by the Interoperability Specification S-98. Council Chair to report to A-3 accordingly for approval.	20 Dec. 2022 (for A-3)	
	IHO Work Programme 2023-2026	C6/14	The Council endorsed the recommendation by HSSC by which Goal 1 and its Targets in the IHO Strategic Plan should have the highest priority in the 2024 – 2026 Work Programme. Council Chair to report to A-3 accordingly for approval.	20 Dec. 2022 (for A-3)	Decision

⁵ If approved at MSC106 in November 2022.

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
	Future of the Paper Nautical Chart	C6/15 (former C5/12, C4/10)	The Council to continue the monitoring of the implementation by HSSC of the recommendations on the Future of the Paper Nautical Chart as appropriate. Council Chair to report to A-3 on the matter.	HSSC-15 / C-7 20 Dec. (for A-3)	(Decisions A2/27&28 refers)
	Future of the Paper Nautical Chart	C6/16	The Council noted the recommendations made by HSSC on the automated production of paper charts and confirmed the Decision made at A-2 by which <u>priority</u> is to develop guidelines for the automated production of paper charts meeting S-4 ⁶ chart minimum content requirements from S-101 ENC data.		Decision
	ENC derived paper charts	C6/17	The Council endorsed the offer of the US (supported by AU, DE, DK, KR, and NZ) to document use cases and develop associated guidelines, as well as identify challenges with S-4, to achieve automated production of derived paper charts from ENC content databases and submit them to the HSSC/NCWG for their consideration.		
	S-57, S-101	C6/18 (former C5/13, C4/11)	The Council to monitor the progress of the task given to HSSC to prepare (<i>done</i>) and maintain the synoptic summary report on the various options offered to HOs for future production of S-101 ENCs in conjunction with S-57 maintenance/production. Council Chair in liaison with HSSC Chair to report on this task at A-3.	20 Dec. (for A-3)	(Decision A2/33 refers)

⁶ S-4 is already a standard for « minimum » chart content.

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
	S-100 Testbed	C6/19 (former C5/60)	<p>The Council welcomed the information provided by the Republic of Korea on the S-100 Testbed Project and agreed that it is a critical component of the Roadmap.</p> <p>The Council invited IHO Member States to participate in this S-100 testbed project and in addition, to consider whether other criteria than those proposed by KHOA (Doc. C6-04.1C refers) should also be considered (expected geographic coverage implementation rate compared to existing S-57 ENC's, distribution and update mechanisms and NPubs coverage, for instance).</p>	End of December 2022	
	HSSC&IRCC Reports and Proposals to C-6	C6/20 (same as former C5/14, ...and C1/06)	<p>Considering the timelines between HSSC-15 and IRCC-15 meetings in 2023 and the countdown for submission of reports and proposals to C-7, the Council invited HSSC and IRCC Chairs to prepare their 2023 meeting minutes with the view that it will be used/submitted directly as reports and proposals to be considered at C-7.</p>	July 2022	
4.2 Report and proposals from IRCC					
4.2	Report of IRCC	C6/21	<p>The Council noted the report and commended the IRCC, the RHCs, and IRCC Sub-Committees for their achievements as well as for the outcome of the IRCC April Workshop on the Strategic Performance Indicators and the new TORs of the IBSC.</p>		<u>Decision</u>

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
4.2	Maritime Safety Information	C6/22	The Council noted the concern of Member States (as Maritime Safety Information providers), should they implement Iridium SafetyCast services, they are compelled to bear the burden of all additional costs, as a consequence of the approval by IMO Member States of the Iridium SafetyCast as an Recognized Mobile Satellite Service (RMSS).		Decision
4.2	Maritime Safety Information	C6/23	The Council noted the completion of S-124 (MSI) Edition 1.0.0, ready for approval by the next HSSC.		Decision
4.2	Southern Ocean	C6/24	The Council noted the statement made and concerns raised by Argentina on the information provided in the IRCC report on HCA by which a submission on the recognition of the Southern Ocean is planned to be submitted to A-3.		
4.2	Capacity Building Strategy	C6/25	The Council endorsed the new proposed Capacity Building Strategy. Council Chair in liaison with IRCC Chair to submit it to A-3 for approval.	20 Dec. 2022 (for A-3)	Decision
4.2	Capacity Building	C6/26	The Council noted the decrease of Capacity Building fund over the last few years.		Decision
4.2	IHO e-Learning Centre	C6/27 (former C5/16, C4/14)	The Council to monitor the progress made by IRCC to establish an IHO e-Learning Center based on A-2 PRO 3.3 and the related recommendations of IRCC/CSBC. Council Chair in liaison with IRCC Chair to report to A-3 on the matter.	C-7 20 Dec. 2022 (for A-3)	(Decision A2/42 refers).

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
4.2	Women in Hydrography	C6/28 (former C5/17, C4/16)	The Council to monitor the progress made by IRCC on the CBSC work item of Empowering Women in Hydrography (EWH). Council Chair in liaison with IRCC Chair to report to A-3 on the matter.	C-7 20 Dec. 2022 (for A-3)	(Decision A2/35 refers).
4.2A	Guidelines on Implementation of WEND-100 Principles	C6/29	Following IRCC's <i>endorsement</i> , the Council approved version 1.0 of the Guidelines on the Implementation of the WEND-100 Principles. Council Chair in liaison with IRCC Chair to report at A-3	20 Dec. 2022 (for A-3)	
4.2	Guidelines on Common Global Gridding System	C6/30	The Council noted that the efforts on establishing a common global gridding system couldn't reach consensus and is put on hold.		Decision
4.2B	WEND-100, Guidelines on Implementation of WEND-100 Principles,	C6/31	The Council endorsed the recommendation made by France by which S-1xx naming corresponding to S-1xx Product Specification to be used for safe navigation, which encompasses data format and content, should carry S-1xx names (Doc. C6-04.2B refers). The Council tasked the HSSC , in liaison with IRCC when appropriate, to ensure that a clear distinction is made in the future in the naming between <i>S-1xx products</i> (- data format and content - that meet requirements for safe navigation) and products used for other purposes (Goal 2) even if they use the S-100 based format.	C-7, ... C-xx, if and when appropriate	Decision
4.3 Update on the Dual-Fuel Concept (transition from S-57 to S-101 ENC)					
			Covered under agenda 4.1 (See HSSC Report to C-6, paragraph 11.		Decision A2/33 refers
4.4 Proposed version 2.x (or 3.0) of the Roadmap for the S-100 Implementation Decade					

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
	S-100 Implementation Strategy – Roadmap Annex 1	C6/32	The Council approved the proposed amendment to the S-100 Implementation Roadmap with the updated version 2.0 dated July 2022 of <u>Annex 1</u> as provided in Doc. C6-04.4A.		Decision
	S-100 Implementation Strategy - Roadmap Annex 2	C6/33	The Council approved the proposed amendment to the S-100 Implementation Roadmap with the updated version 2.0 dated 12 July 2022 of <u>Annex 2</u> as provided in Annex B of the HSSC report.		Decision
	S-100 Implementation Strategy – Roadmap Annex 3	C6/34	The Council approved the amendment (addition of Appendix 1 to the <u>Annex 3</u> – version 1.0 of <i>Guidelines on the Implementation of WEND-100 Principles</i>) of the S-100 Implementation Roadmap as proposed by the WENDWG and contained in Annex B of the IRCC report.		Decision
	S-100 Implementation Strategy – Roadmap Annex 4	C6/35	The Council approved the principle of adding a new <u>Annex 4</u> (Dual-Fuel Concept for S-100 ECDIS – Executive Summary) to the S-100 Implementation Roadmap based on version 1.0 dated 1 July 2022 as provided in Annex C of the HSSC report.		Decision
	Roadmap for S-100 Implementation Decade	C6/36	IHO Secretariat to upload version 2.1 of the Roadmap including approved amendments to Annexes 1, 2 and 3. Once the final version of Annex 4 (Dual Fuel Concept on S-100 ECDIS) is approved by A-3, IHO Secretariat to upload version 3.0 of the Roadmap.	31 January 2023 May 2023 (after A-3)	

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
	S-100 Implementation Strategy	C6/37 (former C5/24, ..., C3/13)	Council/HSSC/IRCC Chairs/SecGen supported by subject matter experts and Member States as appropriate to maintain the S-100 Implementation Roadmap as an incremental version-controlled document (including narrative and timelines) on an annual basis.	Permanent	
	S-100 Implementation Strategy	C6/38 (former C5/25, C4/20)	SG, Council Chair, HSSC, IRCC Chairs to maintain the three annexes related to the IHO WP 1, 2 and 3 to S-100 Implementation Roadmap.	C-7	(Decision A2/31 refers)
	S-100 Implementation Strategy	C6/39	The Council noted the WEND100-IGIF matrix (WENDWG CL 02/2022 refers) as a tool to describe the status, the progresses and the needs in introducing S-100 based products.		<u>Decision</u>
	S-100 Implementation Strategy	C6/40 (former C5/26, C4/27)	The Assembly having noted the update on interrelations and tasks, Secretary-General to continue to liaise with [IMO and] other relevant stakeholders and organizations involved in the development of other S-100 based products.	Permanent	(Decisions A2/40&41 refer)
	S-100 Implementation Strategy	C6/41	The Council noted progress on S-128 (Catalogue of Nautical Products) development.		Decision

4.5 Update on the Joint IHO-Singapore Innovation and Technology Laboratory – Proposals from the Council to the Governing Board (Decision A2/08)

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
	IHO-Singapore Innovation and Technology Laboratory	C6/42 (former C5/27)	The Council noted the update on the Joint IHO-Singapore Innovation and Technology Laboratory and noted the progress made on the following projects: <ul style="list-style-type: none"> - S-131 Marine Harbour Infrastructure Database (MHID) - Development of S-57 to S-101 Conversion Guidance Document - Creation and Test-Bedding of ECDIS capable of displaying S-102 on S-101 ENC's and the proposed project Proof of Concept: IHO-IALA Collaboration to Demonstration Interoperability of S-101 and S-125 at sea using wireless updating via 4G/5G Telecommunications links		(Decision A2/08 refers)
	IHO-Singapore Innovation and Technology Laboratory	C6/43	The Council endorsed the recommendation from the Governing Board of the Lab encouraging more stakeholders to identify collaborative projects, especially with other organisations and industry partners.		
5. IHO ANNUAL WORK PROGRAMME AND BUDGET					
5.1 Review of the Current Financial Status of the IHO					
	Financial Reporting Statement	C6/44	The Council noted the information provided on the current financial status as of September 2022.		<u>Decision</u>
5.2 Proposed IHO Work Programme for 2023					
	Proposed IHO WP for 2023	C6/45	The Council agreed to and approved the IHO Work Programme for 2023, as presented by the Secretary-General .		<u>Decision</u>

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
	World Hydrography Day	C6/46	The Council noted the proposed theme for the 2023 World Hydrography Day by the Secretary-General <i>“Hydrography - underpinning the digital twin of the ocean”</i> IHO Secretariat to circulate the theme for 2023 to the IHO MS by IHO CL and fine tune language of the theme if needed.	End of October 2022	Decision
5.3 Proposed IHO Budget for 2023					
	2023 IHO Budget	C6/47	The Council approved the budget estimates provided by the Secretary-General , including the proposed adaptations to respond to the inflation effects.		Decision
5.4 Proposal to A-3: IHO Work Programme and Budget for 2024-2026					
	2024 - 2026 IHO Budget	C6/48	The Council endorsed the proposed 3-year Work Programme and Budget* provided by the Secretary-General for submission at A-3 by Council Chair for the approval of Member States. * subject to an update prior to submission to A-3 by 20 December 2022 in consideration of the volatility of the global finance situation.	20 Dec. 2022 (for A-3)	
	2024 - 2026 IHO Budget	C6/49	The Council endorsed the recommendation made by the Secretary-General to request A-3, for renewal of Council’s entitlement, for an increase of Member States contribution up to 3% subject to the Council’s annual budget review between 2024 and 2026, with 2024 as the earliest.	20 Dec. 2022 (for A-3)	
6. IHO STRATEGIC PLAN REVIEW					
6.1 Implementation and discussion of adaptations of the IHO Work programme and other affected IHO instruments resulting from the revised Strategic Plan with a specific focus on Goal 2 and Goal 3. Status report on the appropriateness and applicability of the new Strategic Performance Indicators					

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
6.1	SPIs allocated to HSSC	C6/50	The Council noted the dashboard (target 2026, value as of 31 Dec. 2021) on SPIs 1.1.1, 1.1.2, 1.2.1, and 2.2.2 allocated to HSSC.		Decision
6.1	SPIs allocated to IRCC	C6/51	The Council noted the progress made by IRCC in the development of the methodologies and metrics for SPIs allocated to IRCC and endorsed the proposals (definitions, metrics, action plan, ...) as reported in IHO CL 23/2022.		Decision
	Strategic Plan 2021-2026 - Performance Monitoring	C6/52	The Council noted the Status Report on Performance Monitoring available as Annex B to the IHO Annual Report (Publication P-7). Council Chair , in liaison with Secretary-General (WP1) , HSSC Chair (WP2) , and IRCC Chair (WP3) to report at A-3, on the basis of the IHO Annual Report 2022.	A-3	Decision (Decisions A2/12&19 refer)
	MSDI portal	C6/53	The Council agreed on the recommendation from the Secretary-General to refocus the function and the layout of a future MSDI portal.	C-7	
	IHO visibility	C6/54	The Council noted the continued increase of IHO visibility via IHO website and social media activities and the amount of notable outreach activities under WP1 in four categories.		
	SPI 1.2.2	C6/55	The Council invited all Member States to consider providing their CATZOC values through the RENCs to support the Secretariat in the process of SPI 1.2.2.		
6.2 Review of the Strategic Plan in preparation of A-3					

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
	Strategic Plan 2021-2026	C6/56	The Council noted the mid-term obligation made by the Planning Cycle (IHO Resolution 12/2002 as amended), to review the Strategic Plan at each ordinary session of the Assembly and the recommendation from the Council Chair to continue with the SP 2021-2026 as it is at the moment, noting the implementation of SPI in progress, while focusing the efforts on the directions to be provided at A-3 to the next Council for the preparation of the SP 2027-2032.	20 Dec. (deadline for A-3)	
7. OTHER ITEMS PROPOSED BY A MEMBER STATE OR BY THE SECRETARY-GENERAL					
7.1 Update on the implementation of Decision A2/07: gender-inclusivity					
	Gender-inclusive Language	C6/57	The Council thanked Canada for the assistance provided to the IHO Secretariat on this theme and took note of the test applications of gender-inclusivity to M-1 and M-3 and to the additional workload in the creation process of IHO documents and communications.		Decision
	Gender-inclusive Language	C6/58	The Council endorsed the proposed amendments to IHO Resolution 1/2020. Secretary-General to submit the proposal to A-3.	20 Dec. 2022 (for A-3)	Decision
	Gender-inclusive Language	C6/59	If and once amendments on IHO Resolution 1/2020 are approved at A-3, IHO Secretariat to implement the gender-inclusive language in M-1 as a first step... ...and Committees and Working Groups to review their TORs in application of the new IHO Resolution.	C-7 When, and as appropriate (2024)	
7.2 Update on the implementation of Decision A2/25: S-130 Polygonal demarcations of global sea areas					

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
	S-130 PT	C6/60	The Council commended the S-130 PT for the achievements since C-5 and noted the timeline for the development of the S-130 Product Specification and Implementation.		Decision
	S-23, A2 PRO1.9 follow-up	C6/61 (former C5/57, C4/07)	Secretary-General to report on implementation of PRO 1.9 ⁷ .	20 Dec. 2022 (for A-3)	(Decision A2/24&25 refer)
7.3 Preparation steps of the establishment of the new Council 2023-2026 and Update on the preparation of A-3					
	7.3A	C6/62	In preparation of A-3, the Council noted the provisional list of deliverables for consideration/approval at A-3.		
	7.3B	C6/63	The Council noted the countdown, programme and the general information planned in preparation of A-3.		
	7.3C	C6/64	The Council noted the preparation steps for the establishment of the next Council.		
7.4 Proposal for the Revision of Article 8.e of the General Regulations of the IHO – Membership of the IHO Hydrographic Commission on Antarctica (HCA)					
	Art. 8.e of the General Regulations	C6/65	The Council endorsed the amendments of Art 8.e of the GR as proposed by the HCA and tasked the Council Chair to submit them to A-3 to the approval of Member States.	20 Dec.2022 (for A-3)	Decision
7.5 Proposed revision of IHO Publication M-7 - Staff Regulations					

⁷ Future of S-23.

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
	M-7 - Staff Regulations	C6/66	The Council noted the information and the way forward for the preparation of Edition 9.0.0 (amendments related to application of the changes made for health and retirement provisions) of M-7 – <i>Staff Regulations</i> to be submitted by the Secretary-General to A-3 for Member States' approval.	20 Dec. 2022 (for A-3)	
7.6 Information: Establishment of a National S-100 Committee (Canada, Republic of Korea)					
	National S-100 Committees	C6/67	The Council welcomed the strategy presented by Canada and the Republic of Korea through the establishment of their National S-100 Committees and noted the expected benefits of such approach. The Council invited Member States to share their national strategies with regard to the establishment of similar national S-100 committees, as appropriate.	C-7	
7.7 Information: Understanding the Drivers, Solutions and Enablers within the Shipping Industry (UK)					
	Drivers, Solutions and Enablers within the Shipping Industry	C6/68	The Council thanked the UK for sharing their whitepaper on shipping industry drivers, solutions, and enablers. The Council invited the UK to identify the lessons learned from this study and consider the possibility to provide inputs against the IHO Strategic Plan and IHO Work Programme as appropriate through the relevant WGs and Committees in which they are involved.	HSSC-15/IRCC-15	
8. NEXT MEETING					
8.1 Dates and venue for the 7th Meeting of the IHO Council					
	C-7	C6/69	The Council agreed to hold C-7 in Monaco, at the IHO Secretariat, from 17 to 19 Oct. 2023.	Go no-go decision 17 June 2023	<u>Decision</u>

AGENDA ITEM	SUBJECT	DECISION or ACTION No.	DECISION or ACTIONS (in bold, action by)	TARGET DATE/EVENT	STATUS (at October 2022)
9. ANY OTHER BUSINESS					
9.1 Information: Digital Twin of the Ocean					
	Digital Twin of the Ocean	C6/70	<p>The Council welcomed the presentation on the Digital Twin Ocean by the Director General of Mercator Ocean International, and noted the intention to create a new IGO.</p> <p>When appropriate, the Council invited the Secretary-General of the IHO to consider whether a MoU between the two organizations would be useful to develop synergies in the future.</p>	A-3 (<i>to be confirmed</i>)	
10. REVIEW OF ACTIONS AND DECISIONS OF THE MEETING					
11. CLOSURE OF THE MEETING					