

**14th Meeting of the Hydrographic Services and Standards Committee
(HSSC-14)
Denpasar, Bali, Indonesia, hybrid event, 16 – 19 May 2022**

Contribution to the IHO Work Programme 2021	
Task 2.1.1	Organize, prepare, and report annual meetings of HSSC

The 14th meeting of the Hydrographic Services and Standards Committee (HSSC) was held in Denpasar, Bali, Indonesia, in a hybrid format (VTC) from 16 to 19 May 2022, hosted by Pushidrosal, the Hydrographic and Oceanographic Centre of the Indonesian Navy.

The meeting was chaired by Mr Magnus Wallhagen (SMA¹, Sweden) and attended by 123 registered participants from 35 Member States (Australia, Bangladesh², Belgium, Brazil², Canada², Chile, China, Denmark, Ecuador, Egypt, Estonia, Fiji, Finland², France², Germany², India², Indonesia², Italy, Japan, Mexico, Netherlands, New Zealand, Norway², Peru², Poland, Portugal, Republic of Korea², Romania², Singapore², South Africa, Spain², Sweden², Turkey, United Kingdom², and United States of America²) and 7 Partner Organizations (OGC², CIRM, INTERTANKO, ICPC², RTCM, ISO, IALA) and 4 subject matter experts (IC-ENC², PRIMAR, SevenCs, and IIC Technologies²). The IHO Secretariat was represented by Director Abri Kampfer (HSSC Secretary) and Assistant Director Yves Guillam (HSSC Assistant Secretary) in-person, Mr Yong Baek (Assistant Director) and Mr Jeff Wootton (Technical Standards Support Officer) via VTC.

VAdm Nurhidayat, Chief Hydrographer of Pushidrosal, welcomed the participants in Bali and highlighted the importance of this meeting for the development of new S-100 based standards. He informed the participants that this international event was strongly supported by the Indonesian Government in support of Bali's citizens who suffered a lot from the economic consequences of the pandemic. On behalf of the IHO Member States and IHO Secretariat, Director Abri Kampfer expressed his gratitude to Pushidrosal for hosting such important IHO events.

¹ Swedish Maritime Administration.

² In-person.



"If we are alone we can go fast, if we are together we can go far"
(VAdm Nurhidayat in his opening address).

The HSSC Chair started the meeting and indicated his intention to capture, from the reports of the Chairs of the HSSC Working Groups, the possible amendments to the Roadmap for the S-100 Implementation Decade to be submitted at the 6th meeting of the Council (C-6) as well as the inputs for the 3-year IHO Work Programme that will be submitted at the 3rd Session of the Assembly in 2023.

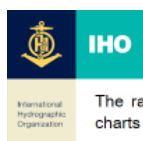
All the HSSC's Working Groups and Project Teams reported on progress made over the year and on outstanding achievements, since 9 major IHO standards were submitted this year either for endorsement or approval, for new editions or in their 1st edition: S-100, S-98, S-99, S-102, S-57, S-58, S-65, S-44 and S-128. The standards approved as Edition 1.0.0 are now ready for experimenting and testing in liaison with industry partners. This is the case for S-98, which is a core component of the S-100 Implementation Roadmap, as it deals with *Data Product Interoperability in S-100 Navigation Systems*. This standard determine how S-100 based products such as S-102 - *Bathymetric Surface*, S-104 - *Water Level Information for Surface Navigation*, S-111 - *Surface Current* and S-124 - *Navigational Warnings*, will work together with S-101 ENC's and are displayed on the S-100 ECDIS.

The HSSC ISO 9001 Cell and the S-101 Project Team raised the awareness of the committee on possible resilience issues of the IHO Geospatial Information Registry. Recommendations for establishing a more robust situation in the long term are under consideration.

For most Hydrographic Offices, the main question is how and when they should start investing resources in the transition phase for moving from S-57 ENC's production to S-101 ENC's development, and other S-100 based products?

This was addressed on several occasions. To pave the way, a 1st version of a governance document named “Dual-Fuel Concept for S-100 ECDIS” was endorsed by HSSC for submission to the IHO Council in October.

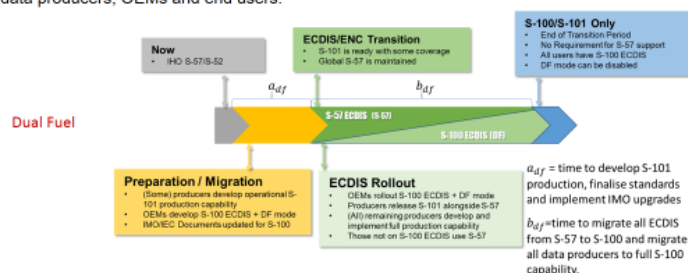
Work items and guidelines for ENC conversion from S-57 to S-101 and vice-versa are now on track for being developed towards operational stages.



WHY DO WE NEED DUAL FUEL?

The rationale of Dual Fuel Mode as the means of delivering transition from S-57 to S-101 charts is that:

- The challenge of migrating ENC chart production from the S-57 form to the new S-101 form, is simply not perfect nor complete
- Waiting until all data producers have fully transitioned to S-101 entails substantial delays for both data producers, OEMs and end users.



Following up on a pending proposal made by the Republic of Korea at the 2nd Session of the Assembly for amending several existing IHO Resolutions in order to promote the S-100 concept, the IHO Secretariat suggested a consolidated way forward that was endorsed by the Committee.

With regard to a proposal made by the United States (US) to task the NCWG for establishing minimum guidelines for automated paper chart output from ENC, noting the other priorities, the HSSC invited the US to keep the NCWG informed. A number of IHO Member States were however in support of the US statement to reconsider what the Future of the Nautical Paper Chart should be.


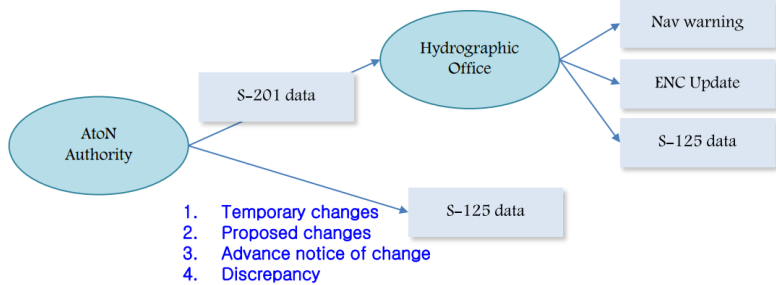

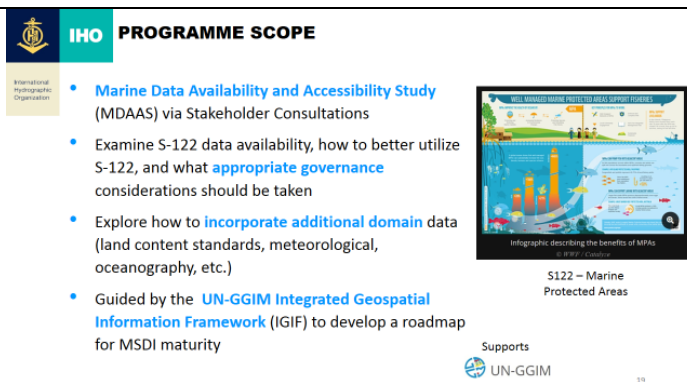
HSSC also decided that the term “*hydrospatial*” shall not be included in the Hydrographic Dictionary as it was definitely not a technical term. This term should be considered only as a slogan which can be used solely to promote hydrography and its associated aspects.

Participants endorsed a revision of S-44 - *IHO Standards for Hydrographic Surveys* - submitted by the new Hydrographic Surveys Working Group (HSWG). This new Edition includes clarifications on several terms (reference frame/system, uncertainty component, etc.) and some insertions (total vertical uncertainty equation, etc.). The HSSC also welcomed the establishment of 2 new Project Teams within the HSWG, one in charge of the revision of C-13 - *Manual on Hydrography* and the second on Satellite Derived Bathymetry.

The new Maritime Autonomous Surface Ships (MASS) Navigation Project Team, responsible for the analysis of MASS navigation requirements on current hydrographic standards, provided a very promising update on its work plan.

The representatives of IEC, CIRM, IALA, and OGC, among others, provided very good updates on matters affecting the IHO and HSSC in particular, all being essential to prepare the evolution of the IHO S-100 eco-system.

	<p>IMO process around S-421 Route plan</p> <p>Introduction of S-100 into IEC 61174 ECDIS standard</p>
	<p>Preparation of NCSR-9:</p> <ul style="list-style-type: none"> - Revision of MSC.1/Circ.1503/Rev.1 - ECDIS performance standard MSC.232(82) is being amended to introduce support for S-101 ENCs

	HD ENCs, a solution to address limited availability of depth data in current ECDIS.
	 <p>S-125 derived from S-201 data</p> <p>Joint IALA/IHO Workshop on S-100/200 development and portrayal in Ålesund, Norway 5-9 September 2022.</p>
	 <p>The IHO-OGC Federated MSDI Pilot</p>

This HSSC meeting was the first in person gathering after two years of pandemic, offering opportunities to participants to debate and discuss in the margins. The participants unanimously applauded Pushidrosal for their hospitality and the excellent hosting arrangements.

The Committee welcomed the confirmation from Finland for its offer to host HSSC-15 in Helsinki, in May 2022. The offer by Japan, for hosting HSSC-16 in May 2024, was also noted.



Participants in HSSC-14