

11th IHO-HSSC Meeting

**Report and Recommendations of the HSSC Project Team on
Standards for Hydrographic Surveys (HSPT)**

Submitted by:	Chair, HSPT
Related Documents:	S-44
Related Projects:	None

Chair:	Christophe Vrignaud, France
Vice-Chair:	Nickolás de Andrade Roscher, Brazil
Secretary:	David Wyatt, IHO
Member States:	Australia, Brazil, France, Germany, Italy, Netherlands, Sweden, Portugal, Republic of Korea, Sweden, United Kingdom and United States.
Expert Contributor:	International Federation of Hydrographic Societies (IFHS), Fugro, iXblue, AML, Geoscience Australia, EGS Survey Pty Ltd and EOMAP
	See <i>Annex A - HSPT3 participants</i> <i>Annex B - Workplan 2019 – 2020</i> <i>Annex C - HSWG ToR</i>

Meetings Held During Reporting Period

HSPT2	3 – 6 July 2018	Niteroi, Brazil
HSPT3	12 - 15 March 2019	Wollongong, Australia

Future Meetings

HSPT4	tbc December 2019	Silver Spring, USA
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Objective of the HSPT

The Project Team on Standards for Hydrographic Surveys (HSPT), is tasked by the IHO Hydrographic Services and Standards Committee (HSSC) to “...review the existing edition (5th) of the IHO publication S-44 Standards for Hydrographic Surveys, identify deficiencies...” and “...when undertaking this task, to consider, as a minimum,...” the need to prepare a draft for the 6th Edition “...in support of safety of navigation data products and services...” (HSPT TORs refer) for subsequent approval by IHO Member States.

Outcomes from the second and third meetings

Since HSSC10 (May 2018 - Ottawa), the project team has had two meetings (HSPT2 and HSPT3), with relatively substantial intersessional work.

- Intersessional work between HSPT1 and HSPT2: following HSPT1, the questionnaire was finalized, distributed and analyzed. A presentation of these results was made during HSSC10. The analysis of the questionnaire is available online at the HSPT website (https://www.iho.int/mtg_docs/com_wg/HSSC/HSPT/General/HSPT-S-44_Questionnaire_analysis-v2.0.pdf). In parallel, various draft matrices were developed by a subgroup of CAN/BRA/PRT.
- HSPT2 was hosted by the Brazilian Hydrographic Service in Niteroi – 3-6 July 2018. During this meeting, the analysis of the questionnaire was discussed as well as the different approaches for the matrix. The 10 limitations identified at HSPT1 were discussed again. It was agreed that the S-44 5th Edition should

be completely revised and that the matrix approach was a means of correcting some of the limitations identified. Based on these various discussions, a preliminary summary of the future edition was defined. For each of the chapters a subgroup was created. Each sub-group started working on the drafting during the meeting. For this drafting work, the Chair advised to keep in mind: "make it simple, make it practical and usable!". The question of a possible future Hydrographic Surveys Working Group was considered. This Working Group appears essential to the HSPT and a set of draft ToR proposed were developed (see Annex C). The HSPT2 report is available on the HSPT website (https://www.iho.int/mtg_docs/com_wg/HSSC/HSPT/HSPT/HSPT2/HSPT2-13-Final%20Report-Full.pdf). Below is the preliminary summary of the 6th Edition, with the corresponding subgroups (the contact point of the subgroup is marked in bold):

- Preface - **Chair**
 - Glossary/Acronyms – **AML/GER/Argans/FRA**
 - Chapter 1 – Classification of Surveys - **CAN/PRT/ITA/GBR**
 - Chapter 2 – Horizontal and Vertical Positioning - **NOAA/NLD/SWE**
 - Chapter 3 – Depths - **BRA/PRT/SWE**
 - Chapter 4 – Features and Nature of the bottom - **NGA/iXblue/Fugro**
 - Chapter 5 – Tides, Water Levels and Currents - **iXblue/Fugro/NLD/NAVO/CAN**
 - Chapter 6 – Topographic Surveys - **SWE/CAN**
 - Chapter 7 – Metadata - **AUS/iXblue/Fugro/FRA**
 - Chapter 8 – Table 1 and Matrix - **CAN/BRA/NGA/Fugro/iXblue/GBR**
 - Annex A – Quality Control - **NLD/FRA/iXblue/CCOM-JHC/CAN/NAVO/BRA/AML/PRT**
 - Annex B – Data Processing - **NLD/FRA/iXblue/CCOM-JHC/CAN/NAVO/BRA/AML/PRT**
 - Annex C – Grid Considerations - **NAVO/NOAA/PRT/AUS/CCOM-JHC/Fugro/BRA/SWE**
- Intersessional work between HSPT2 (July 2018) and HSPT3 (March 2019): work on drafting the chapters continued between the two HSPT meetings. Below is the schedule of actions carried out during this period:
 - **Mid-September 2018:** Groups release Chapters 1st version
 - **End September 2018:** Members provided comments on the 1st chapters released
 - **Beginning November 2018:** Groups released Chapters 2nd version
 - **Mid November 2018:** Members provided comments on the 2nd chapters released
 - **End of December 2018:** Groups released Chapters 3rd version to the Coordinating Editors
 - **Beginning of February 2019:** Coordinating Editors merged all chapters and released 6th Edition draft v1.0
 - **End of February 2019:** Members provide comments on the draft v1.0
 - HSPT3 was organized by the Australian Hydrographic Office - 12-15 March. During this meeting, all comments received at the end of February on version 1.0 of the 6th Edition were discussed. All the comments were recorded by the Coordinating Editors in a spreadsheet. Among these remarks, members highlighted some redundancies in Chapters 2, 3 and 4 and it was shown that the matrix approach needed to be consolidated. In accordance with the comments received and the discussions of participants, the summary has been slightly revised, as well as the drafting of some chapters. The matrix has been revised into a simplified and more readable version. The task to consider the establishment of a future Hydrographic Surveys Working Group was considered and the proposed draft ToRs were confirmed (see Appendix C). The HSPT3 report is available on the HSPT website (https://www.iho.int/mtg_docs/com_wg/HSSC/HSPT/HSPT/HSPT3/HSPT3_2019_EN_Report_Final_v1.1.pdf). The Chair proposed an internal HSPT competition to design and create the cover page of the future S-44 6th Edition - the choice could take place during HSPT4 by a vote - HSSC agreement to be requested. At the end of this meeting, a consolidated version v1.5 of the 6th Edition was published. Below is the summary of the project v1.5 of the 6th Edition:
 - Preface
 - Introduction

- Glossary
- Chapter 1 - Classification of safety of navigation surveys
- Chapter 2 - Horizontal and vertical positioning
- Chapter 3 - Depth, features and nature of the bottom
- Chapter 4 - Tides, water levels and currents
- Chapter 5 - Surveys above the vertical chart datum
- Chapter 6 - Metadata
- Chapter 7 - Tables and reference matrix
- Annex A – Guideline for use of this standard
- Annex B – Guidelines for Quality Management
- Annex C – Guidance on a priori and a posteriori quality control
- Annex D – Gridded bathymetry considerations

Work Programme

After HSPT3, it was agreed that Chapters 1, 2 and Annex A should be consolidated during the months of April and May. It was also agreed that in June, a version v1.7 could be proposed to the HSSC Chair for circulation to the hydrographic community stakeholders for a period of about 4 months, in order to obtain feedback and the various opinions. Comments will be received by the Chair/Vice Chair and Coordinating Editors and circulated to members prior to the December HSPT4 meeting. HSPT4 will be hosted by NOAA, probably in Silver Spring (to be confirmed). After HSPT4 the HSPT team should be ready to produce a v2.0 version of the S-44 6th Edition project. In accordance with Resolution 2/2007, as amended, this version will be sent to the HSSC in March 2020, and then, in July 2020, it is anticipated the HSSC will propose this version to the IHO Council for approval at IHO C4.

Progress on HSSC Action Items

All related actions from HSSC10 for the HSPT have been completed.

Problems Encountered

No IHO secretariat representative at HSPT3:

Despite the high priority given by the HSSC and the IHO Council to the work of the HSPT, the PT strongly regretted the absence of the representative of the IHO Secretariat (despite Art 4.a / HSPT ToRs) whose role as the secretary of the PT is crucial, especially within a few months of the submission of the final report.

Should this situation persist, there is a risk that the PT will need to reconsider its schedule.

Any Other Items of Note

Conclusions and Recommended Actions

Based on the resources available, the HSPT Chair recommends the following course of action:

- Step 1: finalise the work on draft v1.5 in order to propose a draft v1.7 to HSSC Chair (June 2019)
- Step 2: gather remarks/comments from stakeholders and provide a spreadsheet for analysis (November 2019).
- Step 3: HSPT4 update of the v1.7 S-44 6th Edition to the new v1.8 version (December 2019)
- Step 4: after HSPT4, and before March 2020: release v2.0 S-44 6th Edition

Justification and Impacts

Action Required of HSSC

The HSSC is invited to:

- a) Note this report.
- b) Endorse the continuation of HSPT to pursue its work under its Terms of Reference.
- c) Review and endorse the work program at Annex B.
- d) Support HSPT from IHO Secretariat during the lifelong of the project – including HSPT4
- e) Propose an agreement to circulate final draft version of the 6th Edition to all stakeholders for informal review and comments (June 2019).

- f) Give comments on the HSWG ToR proposal (see Annex C).
- g) Propose agreement on the “HSPT contest for the S44 6th Edition Front Page” (provide regulations if it needs be).

ANNEX A - HSPT3 Participants

MEMBERS			
Member State	Organization	Name	E-mail
Australia	AHS	Andrew Coulls	andrew.coulls@defence.gov.au
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Ob	Geoscience Australia	Kim Picard	kim.picard@ga.gov.au

ANNEX B - STANDARDS for HYDROGRAPHIC SURVEYS PROJECT TEAM (HS PT) WORK PLAN 2019-2020

Work item	Title	Priority H-high M-medium L-low	Next milestone	Start Date	End Date	Status P-planned O-ongoing C-completed S-Superseded	Contact Person(s)	Related Pubs / Standard	Remarks
A-1	Review the existing edition of S-44 (5 th edition) and identify any deficiencies in either the standards or explanatory content.	H	HSSC 9	2016	2017	P O C	Chair	S-44 Edition 5	
B-1	Identify Orders of Surveys (in terms of horizontal and vertical uncertainty requirements, feature detection requirements, and statistical confidence levels), which are required to meet certain user requirements, noting that user requirements include, but are not limited to, the differing levels of CATZOC (S-57) / Quality of Bathymetric Data (S-10X).	H	HSSC 10 & 11	2017	2018 2019	P O O	Chair / MS	S-44 Edition 5 S-57	
C-1	Define, if and as appropriate, a relationship between survey orders in the IHO S-44 Publication and CATZOC used in S-57 ENC and Quality of Bathymetric Data in S-101 ENC.	M	HSSC 9, 10 & 11	2017 2018	2018 2019	P O C	MS / Experts	S-44 Edition 5 S-57 S-101	
C-2	Define, if and as appropriate, a relationship between survey orders in the IHO S-44 Publication and S-5 in order to mitigate the human element factor.	M	HSSC 9, 10 & 11	2017 2018	2018 2019	P O O	MS / Experts	S-44 Edition 5 S-5	

Work item	Title	Priority H-high M-medium L-low	Next milestone	Start Date	End Date	Status P-planned O-ongoing C-completed S-Superseded	Contact Person(s)	Related Pubs / Standard	Remarks
D.1	Following review, update the content and structure of S-44 to the extent identified during the review, with the intention of publishing revisions as a sixth edition of S-44.	H	HSSC 4 11	2018	2019	P O	MS / Experts / IHO Bodies	S-44 Edition 5	
E-1	Identify any other emergent requirements not addressed within the scope of tasks A to D, and develop a proposal and recommendations on whether the Hydrographic Survey Project Team should close, continue working on specific tasks, or be migrated to a standing Working Group with an expanded Work plan.	H	HSSC 4 11	2018	2019	P O C	Chair / MS	C-13	
F-1	On completion of publication of a sixth edition of S-44, submit a proposal and recommendation to HSSC on whether the Project Team should continue as a standing Working Group and, if so, what tasks have been identified to justify transition to a standing Working Group.	H	HSSC 9, 10, 11	2017	2019	P O C	MS/HSSC Bodies	C-13	
G-2	Start the discussion on the way forward. Presenting a TOR & ROC to HSSC	H	HSSC 4 & 11	2018	2019 2020	P O 0	MS/HSSC		

ANNEX C – Project of the “Hydrographic Surveys Working Group” ToR

TERMS OF REFERENCE OF THE HYDROGRAPHIC SURVEYS WORKING GROUP (HSWG)

Reference: 8th meeting of the HSSC, Monaco, November 2016
9th meeting of HSSC, Canada, November 2017

1. Introduction

The International Hydrographic Organization (IHO) is an intergovernmental consultative and technical organization that was established in 1921 to support safety of navigation and the protection of the marine environment. The objectives of the IHO are:

- a. Promote the use of hydrography for the safety of navigation and all other marine purposes and to raise global awareness of the importance of hydrography;
- b. Improve global coverage, availability and quality of hydrographic data, information, products and services and to facilitate access to such data, information, products and services;
- c. Improve global hydrographic capability, capacity, training, science and techniques;
- d. Establish and enhance the development of international standards for hydrographic data, information, products, services and techniques and to achieve the greatest possible uniformity in the use of these standards;
- e. Provide authoritative and timely guidance on all hydrographic matters to States and international organizations;
- f. Facilitate coordination of hydrographic activities among its Member States; and
- g. Enhance cooperation on hydrographic activities among States on a regional basis.

At the 5th meeting of the IHO Hydrographic Services and Standards Committee (HSSC5 meeting) it was noted that after the restructuring of the HSSC Working Groups, there was not a single WG focused on hydrographic surveying. At HSSC8 a Project Team on Standards for Hydrographic Surveys (HSPT) was established to review IHO publication S-44 – *Standards for Hydrographic Surveys* – with the task of preparing a draft 6th Edition. In addition the HSPT was tasked to submit a proposal and recommendation on whether the HSPT should continue as standing working group with details of appropriate tasks for the proposed working group to undertake.

At HSSCx it was agreed that there was a need for a standing working group, a Hydrographic Surveys Working Group (HSWG), whose focus should be on all aspects related to the conduct of hydrographic surveys and the maintenance of relevant IHO publications.

2. Objective

- a. To maintain IHO publication S-44 – *Standards for Hydrographic Surveys* – preparing and proposing revisions and amendments to reflect changes in the demands of hydrographic data users, particularly those pertaining to data quality and standards;
- b. Maintain IHO publication C-13 – *IHO Manual on Hydrography* - to reflect current techniques,

methodologies and survey systems, in particular to ensure harmonization with the standards articulated in S-44, close to IBSC;

- c. Lead the translation task for S-44 and C-13 to enable their widest possible application and use;
- d. Maintain close liaison and other HSSC working groups, in particular the work of the Data Quality Working Group (DQWG) and the presentation/visualization of nautical data to the maritime customer;
- e. Lead the education on the use of S-44 and develop supporting documentation to articulate best practice guidance on the application of the standards contained in S-44;
- f. Identify new systems, technologies and methodologies and exchange experiences, best practice and challenges amongst member states in line with the IHO objectives; and
- g. Act as a focal point for industry engagement with the IHO.

3. Authority

This WG is subordinate to the HSSC. Its work is subject to HSSC approval.

4. Composition and Chairmanship

- a) The HSWG shall comprise representatives of IHO MS, Expert Contributors (EC), observers from accredited non-governmental international organizations (NGIO), and a representative of the IHO Secretariat. A membership list shall be maintained and posted on the IHO website.
- b) EC membership is open to entities and organizations that can provide a relevant and constructive contribution to the work of the HSWG.
- c) The Chair and Vice-Chair shall be a representative of a MS. The election of the Chair and Vice-Chair shall be decided at the first meeting after each Assembly and shall be determined by vote of the Members present and voting.
- d) If a Secretary is required it should normally be drawn from a Member of the HSWG.
- e) If the Chair is unable to carry out the duties of the office, the Vice-Chair shall assume the Chair with the same powers and duties.
- f) ECs shall seek approval of membership from the Chair.
- g) EC membership may be withdrawn in the event that a majority of the Members represented in the HSWG agrees that an EC's continued participation is irrelevant or unconstructive to the work of the HSWG.
- h) All Members shall inform the Chair in advance of their intention to attend meetings of the HSWG.
- i) In the event that a large number of EC Members seek to attend a meeting, the Chair may restrict attendance by inviting ECs to act through one or more collective representatives.

5. Procedures

- a) The HSWG should work by correspondence, teleconferences, group meetings, workshops or symposia. The HSWG should meet about once a year. When meetings are scheduled, and in order to allow any HSWG submissions and reports to be submitted to HSSC on time, HSWG meetings should not normally occur later than nine weeks before a meeting of the HSSC.
- b) Decisions should generally be made by consensus. If votes are required on issues or to endorse proposals presented to the HSWG, only Members may cast a vote. Votes at meetings shall be on

the basis of one vote per Member represented at the meeting. Votes by correspondence shall be on the basis of one vote per Member represented in the HSWG.

- c) The HSWG should liaise with other IHO bodies, international organizations and industry to ensure the relevance of its work and timely notice of changes to the standards.
- d) The HSWG should report to HSSC on its activities and submit a rolling two-year work plan, including expected time frame.