

1st meeting of the HSSC Project Team on Standards for Hydrographic Surveys (HSPT1)

20 - 22 June 2017, Palais de la Porte Dorée, Paris, France

(Paragraph numbering is the same as the Agenda Item numbering and does not necessarily reflect the order in which matters were discussed.)

1 Opening

Christophe Vrignaud and Nickolás de Andrade Roscher were confirmed as Chair and vice-Chair respectively. They both introduced themselves. The Chair asked if there were any volunteers to take on the role of Secretary. David Wyatt, Assistant Director at IHO Secretariat, indicated the IHO Secretariat was prepared to take on the role on the understanding the PT identified a coordinating Editor for any publication which the PT identified as needing review and revision.

The Chair, M Christophe Vrignaud, welcomed all participants and thanked them for coming to this 1st meeting of the IHO HSSC Project Team for Hydrographic Surveys (HSPT1) here at the Palais de la Port Dorée in Paris. He gave a brief description of the history of the Palais de la Porte Dorée and then an introduction to the HSPT and a brief back ground to how it was established.

2 Administrative Arrangements

The Chair provided details of the programme for the day and how he wished to proceed, particularly how he wished the presentations to be focused. He explained how he intended to work with breakout sessions during Day Two and what output would be expected.

3 Introduction of participants

All participants introduced themselves and provided brief details of their background and organizational interest in the HSPT work.

Apologies were received from FIG Commission 4 WG4.1

The agenda was approved.

4 Review of current S-44 status

The Chair highlighted the main task directed to the HSPT by HSSC, which was to review S-44 and identify whether the publication required revision and why, subsequently the participants could consider ways to address any identified limitations. Generally participants identified the following areas of interest to their organizations:

- a. ensure S-44 remains current with respect to developments in techniques for hydrographic surveying;
- b. influence direction in which development of standards may take;
- c. be engaged with HSPT;
- d. ensure standards enable validation of national hydrographic data;
- e. relationship with national survey requirements;
- f. enable quality control of national survey activities;
- g. ensure standards remain relevant to safety of navigation requirements;
- h. achieve clarity over object detection criteria; and
- i. consider how new and developing techniques and technologies can be accommodated and initiate general review of standards.

IHO Secretariat gave a broad prospective on S-44 and the HSSC requirements, challenging the participants to approach the task in a holistic and open minded way. Participants were asked to focus on data and metadata standards and associated errors rather than be equipment/system driven standards. A suggested new matrix approach to replace the current Table 1 was proposed, which had previously been presented at Shallow Survey 2015. The Chair noted his intention to present a similar concept as an alternative approach for consideration by the HSPT. This generated numerous questions and comments with a wide ranging discussion on the ideas presented.

Vice-Chair gave a presentation on the work undertaken by H2SPT during its original review of S-44. He highlighted the need to follow the requirements of resolution 2/2007 when revising S-44. He provided a chronology of the development of S-44 from the 1st edition to 5th edition, highlighting how the standards and focus had evolved. He emphasised that S-44 articulated the minimum standards required for safety of navigation surveys and should be applicable to all IHO member states, regardless of their stage of development.

5 Presentations

The Chair introduced the day of presentations, explaining it as a way to start discussions on specific topics related to S-44, with a wide scope of speakers and organisations involved. He thanked the speakers in advance for their proposals.

Chair gave a presentation on SHOM's MBES/SBES and LIDAR quality management with reference to S-44. He detailed the background to the Orders of survey used by SHOM and the data management processes, including the personal training flow and the equipment testing laboratory to assess system accuracy capabilities. The equipment test reference sites in the Brest and Toulon areas were described. This generated numerous questions and comments with a wide ranging discussion on the ideas presented.

iXblue gave a presentation covering the referencing and use of S-44 for commercial surveys. He gave some examples of how the standards were used and the way the projects often describe and require the standards, usually in vague terms with minimal supporting requirements or indication of actually what is really required. Clients often request a certain Order and then change individual properties to a lesser standard, causing inconsistency between projects which is made more challenging as there is often confusion between 'accuracy, precision and resolution'.

AUS gave a presentation on CATZOC S-57 in which he explained the selection process for a CATZOC and how it relates between survey and chart data. He briefly highlighted the progression to S-101, it was noted S-102 would demand more clarity and supporting detail for both the data and the metadata. He highlighted limitations as being a lack of metadata, inconsistencies, survey processing techniques, clarity on the actually purpose of the survey and a mismatch between survey order and CATZOC allocation, which is the result of the misalignment between S-44 and S-57. He questioned the need to continue with the depth specific approach and suggested not linking S-44 to survey technology and that there needed to be close liaison with the DQWG.

CAN gave a presentation on the CHS Exclusive Order expanded survey standard. He commenced with a brief overview of the CHS structure and responsibilities as well who were the main customers (commercial shipping, recreational boating, fishing and defence); he explained where the survey standards guidelines impacted on the hydrographic projects. He then explained in more detail the Exclusive Order and the challenges of undertaking surveys in remote areas.

Fugro gave a presentation on standards for LIDAR surveys; he provided a brief overview of the development of LIDAR technologies and their uses as well as limitations. He highlighted the errors sources and showed how they were similar to those which impact on traditional acoustic methods. He noted that seabed texture classification from LIDAR data was now possible, although there were limitations compared to acoustic systems.

KOR provided a presentation on Unmanned Survey Platforms, highlighting that S-44 does not define standards covering this type of technology as it is understood that the standards refer to manned survey vessels. It was noted that autonomous vessel technology is advancing rapidly and will be a major platform usage in the near future. Questions were raised on how data should be treated, particularly autonomous underwater vehicles with their excellent target and feature detection capabilities but high horizontal and vertical uncertainties. KOR was keen to see S-44 applicable to new and innovative technologies with appropriate standards for the resultant data. Nevertheless, the HSPT agreed that the surveyor will remain an essential component of the workflow even with unmanned vehicles.

ARGANS gave a presentation on Satellite Derived Bathymetry (SDB) and the efforts to create data which meets current S-44 standards. He gave a brief background on the development of technology and methodology, which was followed by results of data obtained against acoustic data, indicating that Order 2 was achievable but in shallow water, an area not covered by S-44 currently which in theory limits order 2 to depths of more than 100 metres, although it was possible that SDB might never be entirely compliant with S-44 in its current format, but should normally provide a reliable security threshold similar to wire survey of old. It was noted that lower quality data in shoal areas needs to have an articulated standard so that it can be used; particularly if no other data is available.

FRA gave a presentation covering EMODnet and CSB, in which he gave the background to the CSB initiative. He highlighted the guidance document and requested participants to provide comments and feedback to the Chair of the CSBWG. He noted that not all data is derived from HO sources and that this data has a value, therefore this data needs to be given a recognisable and meaningful quality definition. He also noted that S-44 is not widely understood by surveyors and end users. This generated numerous comments and a wide ranging discussion on the use and portrayal of data.

AUS provided a presentation on behalf of Precision Hydrographic Services (PHS) and the relation of S-44 to commercial port surveys, noting the gaining an additional few centimetres of under keel clearance had significant economic and safety impacts in port operations. He highlighted a number of issues which it was considered needed addressing, including linking to S-5A & B (*Standards of Competence for Category "A" and "B" Hydrographic Surveyors*) and M-2 (*The Need for National Hydrographic Services*), addressing modern methodologies. He noted that technological advances increase the accuracy of survey data as well as reducing the uncertainty.

See https://www.iho.int/mtg_docs/com_wg/HSSC/HSPT/HSPT1/HSPT1.htm for the presentation.zip for pdf versions for all presentations.

6 Discussions

The Chair provided a summary of the presentations and the issues raised, see presentations - *HSPT1-5-Day_One_outcomes-FRA*. He also highlighted various sections of previous versions of S-44, which potentially could be reviewed and then revised. He presented the initial draft of the Questionnaire for comments and additional input. There was considerable discussion on whether to modify the current Table 1 or create a completely new matrix format. NLD articulated some thoughts on Table 1 and how it is potentially used, NOR highlighted that HOs now are becoming focused on other uses of data beyond Safety of Navigation which

are not covered by S-44 presently. NLD suggested reinterpretation of the Table to allow for additional data standards with greater flexibility of use. BRA and PRT suggested a combination of the current Table 1 and a new matrix version could be developed; they considered this would maintain the present focus on safety of navigation, whilst allowing expansion to cover both more restrictive standards as well as making it possible to give lower quality, but nonetheless valuable, data a recognised and meaningful standard for other uses. The Chair noted there would be a need to liaise with the Data Quality Working Group (DQWG) as well as other IHO Working Groups, such as S-100WG, to ensure proposed revisions were harmonized with other relevant IHO publications.

It was agreed to divide the participants into three groups to address the main issues identified, which also addressed the main tasks required by HSSC:

- a. What are the limitations of S-44?
- b. Why are they limitations?
- c. How can these limitations be addressed and what are potential standards frameworks could be considered? Amend the current Table 1, create a new Matrix format of categories and properties or combine the current table with a type of matrix format.

The Chair described how he intended to conduct the post breakout session discussions. The group coordinators presented the outcomes of the discussions of each group, which initiated wide ranging comments and further discussions.

Group coordinators presented outcomes on the limitations and why they were considered to be weaknesses.

The Chair asked the Groups to consider how these limitations can be addressed and what standards frameworks could be used to overcome them.

This was followed by each group presenting the results of their discussions on options for revising the Table 1 – updating current Table, creating a matrix type version or combination of both – the advantages and disadvantages of each were also provided. There followed a discussion on how these conclusions should be presented to HSSC and whether draft versions of each should be created.

The Chair summarized the comments and issues generated from the groups, see presentation - *HSPT1-6-Day_Two_summary+outcomes-FRA*, noting that essentially 10 significant limitations had been identified initially, although as the work progressed this was likely to increase. In addition regarding the limitations related to the Table 1 of the S-44, the three potential standards framework proposals, which had been defined in outline, would be presented to HSSC9. Regarding the Table1, the Chair acknowledged no clear consensus was reached on how to address the identified limitations with very diverse views being expressed, ranging from minimal revision to a radical new approach; in particular no consensus was reached on the scope of application of S-44, inclusion of more restrictive standards and whether (and thus how) to approach the Table 1. He proposed to explain in outline the current three options under consideration. He noted some members of the HSPT were strongly opposed to inviting the HSSC to direct a particular standards framework that did not have the unanimous support of the HSPT membership, thus he would seek advice from HSSC on the way forward to ensure the multiple solutions under consideration were in line with the expectations and directions anticipated by the HSSC. **Action Chair**

BRA, CAN and PRT agreed to develop draft versions for each of the three potential formats under discussion to modify or replace the current Table 1.

The details of the three options currently under consideration were acknowledged to be:

- i. a document that preserves the current structure, maintaining the table, with some updates to take into account the development of new technologies and methods and that potentially allows expansion for the classification of the surveys undertaken for other purposes other than the safety of navigation;
- ii. a completely new approach that uses a matrix to classify the survey data according to the assessed quality achieved; and
- iii. a document with hybrid approach, that maintains the table to classify surveys made specifically for safety of surface navigation and the protection of the marine environment as well as present a broader matrix that can be used to classify more demanding surveys (engineering / dredging) and also for all the other less demanding (environment, pollution, biology, habitats, etc.)

7 Customer Questionnaire

The groups then discussed the draft proposed questionnaire providing amendments and additions. It was agreed that all comments and input from the discussion groups would be consolidated into a final version for distribution by HSPT members. **Action IFHS and All**

IFHS provided a short presentation on a survey undertaken of their members by the IFHS. AUS suggested clarification on whether individuals or organizations were expected to respond. As a result of IFHS previous experience and knowledge, it was agreed that IFHS would lead the questionnaire final development and distribution. IFHS also agreed to collate the results and present them to the next meeting. **Action IFHS**

It was agreed that the Chair would report to HSSC that a questionnaire had been distributed and the results would be used to guide the next stages of work. Regarding the time schedule generally necessary for this type of questionnaire, the results would be discussed at the next meeting of the HSPT (HSPT2).

8 Review of ToRs

The IHO displayed the current ToRs. It was agreed that the Introduction needed to be harmonized with the Introduction of the S-44. It was suggested liaison with other IHO bodies should be included; subsequently it was noted that this was a requirement already and that the ToRs included a wider remit of international organizations and industry bodies. **Action IHO**

9 Any other Business

IHO explained the role of the coordinating editor and how documents are usually developed with each sections/chapters lead by individuals supported by other group members. AUS volunteered to act as lead coordinating editor with assistance from GER. Chair and vice-Chair supported this proposal.

10 Work Plans

The IHO displayed the draft work programme for 2018-2019 which had been prepared in advance of the meeting. Amendments were made to reflect discussion and progress during this meeting, Annex F. It was noted that the updated version would be included in the meeting report and that all delegates would therefore have a further opportunity to comment before it was submitted to HSSC9 for approval. **Action Chair/IHO**

11 Draft report to HSSC9 / Draft Agenda for HSPT2

The IHO, the Chair and the Vice-Chair would prepare the final report to HSSC9 using the format required by HSSC. Representation of HSPT at the HSSC9 meeting would be discussed between the Chair and the Vice-Chair. **Action IHO, Chair & vice-Chair**

12 Venue and dates of the 2nd HSPT Meeting and intersessional activities

It suggested there would be a necessity to hold a meeting once the questionnaire replies had been received and initial analysis had been conducted. It was agreed early July 2018 was a suitable period and Brazil offered to host the meeting in Niterói. BRA agreed to investigate whether number limitations can be avoided. **Action BRA** It was note that this was after HSSC10, at which the Chair would need to report on intersessional activities.

13 Review of Action List and draft agenda for HSPT2

A draft list of Action Items from the meeting were reviewed and agreed. All Action Items are marked in this report and are collected together at Annex D. It should be noted that the list of action items does **NOT** include tasks that are in the HSPT Work Plan. An updated list of the Action Items will be maintained on the HSPT web page and all those who have actions to complete should keep the IHO and Chair informed of any progress. **Action ALL.**

It was agreed that the IHO would circulate a draft meeting report to all attendees by 30 June. **Action IHO.** Participants were requested to provide any comments by 14 July. **Action ALL.** It was intended the final meeting report would be published by 21 July. **Action IHO**

The Chair requested IHO to generate a draft Agenda and include as Annex G to the report. The draft Agenda may require further amendment following the outcome of HSSC9 and HSSC10.

14 Closing remarks

The Chair provided a summary of the three days, highlighting the topics and issues which had been discussed, see *HSPT1-14-Chair_meeting_summary*. He highlighted that the participants were in general agreement that there were some significant limitations to the current edition of S-44 and why these weaknesses needed to be addressed, he noted that there was no consensus of how to address these limitations with views ranging from minimal change was required through to a much more radical revision and approach; he acknowledged there were strong opinions expressed, which he felt was a positive sign as it indicated participants were engaged with the entire process and felt able to give their views and contribute to the discussions. He assured all that this breadth of views would be transmitted in a carefully balanced fashion to HSSC9 in his chair report. He indicated it was important that HSSC gained a clear understanding of, not only, what the HSPT had addressed and agreed but also the areas where no agreement had been reached and the diverse conflicting views expressed by the various member states, so that HSSC could provide suitable direction and guidance on how the HSPT should address the tasks during the next period. He outlined the next stages, the associated timeframe and the reports which will be generated. The Chair thanked everyone for coming to the meeting and for the effort and enthusiasm towards the task; he wished them a safe journey home.

The meeting closed at 1500.

The following Annexes are attached:

- A. List of Participants.
- B. HSPT1 – Agenda
- C. HSPT1 – List of Documents
- D. HSPT1 – List of Actions
- E. HSPT1 – Draft revised ToRs and RoPs
- F. HSPT1 – Draft Work Plan 2018-2019
- G. HSPT1 – Draft Agenda for HSPT2

**1st meeting of the IHO HSSC Project Team on Standards for Hydrographic Surveys
List of Participants HSPT1**

Member State	Organization	Name	E-mail
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Expert Contributor	University of Southern Mississippi	Maxim Frits Van Norden	maxim.vannorden@usm.edu
Expert Contributor	IIC Technologies	David Dodd	David.Dodd@IICTechnologies.com
Expert Contributor	ARGANS	Jean Laporte	JLaporte@argans.co.uk
Expert Contributor	Fugro	Hugh Parker	h.parker@fugro.com
Expert Contributor	Fugro	Marco Filippone	m.filippone@fugro.com

**1ST MEETING OF THE IHO HSSC PROJECT TEAM ON STANDARDS FOR HYDROGRAPHIC
SURVEYS (HSPT1)
SHOM, PARIS, FRANCE, 20 - 22 JUNE 2017**

1. Welcome and opening remarks by the Chair.
2. Domestic and administrative arrangements (*Secretary*).
3. Introduction of participants, apologies and approval of agenda.
4. Review of progress/outcomes from H2SPT
5. Presentations
6. Key topics for discussion:
 - .1 Current state of S-44;
 - .2 Scope of task;
 - .3 Consideration of methods/activities not presently covered;
 - .4 New technologies/methods to be considered;
 - .5 Format of next edition.
7. Completion of Customer Requirements Survey questionnaire.
8. Review of ToRs and RoPs.
9. Any other business.
10. Work Plan 2017-2018 up-dates.
11. Draft Report to HSSC9
12. Date and venue of next meeting – HSPT2 – and intersessional activities.
13. Review of Action List and draft agenda for HSPT2.
14. Closing remarks by Chair.

HSPT1 - List of Documents

Document No	Document Title
HSPT1-Invitation	HSPT1 Invitation letter
HSPT1-Registration	HSPT1 Registration Form (Word version)
HSPT1	Provisional List of Participants with presentations
HSPT1-3	HSPT1 Draft Agenda -v3.0
HSPT1-3	HSPT1 Draft Programme -v4.0
HSPT1-5	Presentations .zip
HSPT1-6.1	S-44 editions .zip
HSPT1-6.2	S-101 Bathy Data Quality Features
HSPT1-7	Questionnaire Draft
HSPT1-7	Questionnaire analysis example - IFHS
HSPT1-8	ToRs and RoPs
HSPT1-10	Work Plan 2017-2018
HSPT1-10	Work Plan 2018-2019 Draft

LIST OF ACTIONS – Updated 21 July 2017

Agenda Item	Subject	Status/Date	Comments	Action
HSPT1				
6	Table 1	3 Nov	Create draft examples of each options and circulate to HSPT	BRA/PRT/CAN
6	Table 1	2 Feb	Provide feedback and comments on draft examples	All
6	Table 1	30 Mar	Collate feedback and comments and circulate updated examples to HSPT	BRA/PRT/CAN/USA
6	Table 1	30 Mar	Comments and input to Chair for report to HSSC10	All
6	Table 1	HSPT2	Present revised draft examples for consideration and discussion, noting feedback/direction from HSSC9 and 10	USA
7	Customer Requirements Questionnaire	30 Jun Complete	Consolidate group inputs and amendments to generate final questionnaire version for HSPT to distribute	IFHS
7	Customer Requirements Questionnaire	30 Jun Complete	Circulate consolidated questionnaire for further comment	IFHS
7	Customer Requirements Questionnaire	14 Jul Complete	Provide feedback on final version	All
7	Customer Requirements Questionnaire	28 Jul	Distribute questionnaire colleagues and professional network	All
7	Customer Requirements Questionnaire	3 Nov	Provide consolidated feedback and comments from completed questionnaires to Chair	IFHS
7	Customer Requirements Questionnaire	1 Dec	Circulate feedback and results to HSPT	Chair/IFHS
7	Customer Requirements Questionnaire	HSPT2	Provide feedback to Chair/IFHS for discussion	All
8	ToRs	1 Sep Complete	Amend Introduction to be harmonized with Introduction in S-44	IHO
9	Intersessional activities	HSPT2	Identify chapters and sections of S-44 which need to be addressed in light of outcomes from HSPT1	All
9	Intersessional activities	HSPT2	Identify sections of S-44 which need to be transferred to other IHO publications, in particular for transfer to C-13	All
9	Intersessional activities	HSPT2	Identify references to and contents of other IHO publications requiring crosschecking and harmonization with S-44	All

9	Intersessional activities	HSPT2	Consider appropriate additional tasks which HSPT could address	All
11	Report to HSSC9	18 Aug	Draft report for review and amendment by Chair and vice-Chair	IHO
11	Report to HSSC9	1 Sep	Comments back to IHO to submission of final version to HSSC	Chair, Vice-Chair
11	Report to HSSC10	16 Mar	Draft report for review and amendment by Chair and vice-Chair	IHO
11	Report to HSSC10	6 Apr	Comments back to IHO to submission of final version to HSSC	Chair, Vice-Chair
12	HSPT2 venue and date	3 Nov	Investigate availability of facilities at DHN to avoid imposing limitations on attendance	BRA
12	HSPT2 venue and dates	1 Dec	Circulate an initial letter of invitation	IHO
13	Action List	HSPT2	Keep IHO informed of progress with allocated actions	13
13	HSPT1 Draft Report	30 Jun Complete	Draft to be circulated for comment	IHO
13	HSPT1 Draft Report	14 Jul Complete	All to provide comments on draft report to IHO	All
13	HSPT1 Final Report	21 Jul Complete	Publish final report	IHO

**TERMS OF REFERENCE
OF THE
IHO PROJECT TEAM ON STANDARDS FOR HYDROGRAPHIC SURVEYS (HS PT)**
November 2016

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

1. Introduction

S-44 provides minimum standards for ~~the execution of hydrographic surveys for the collection of data which will primarily be used to compile navigational charts to be used for the safety of surface navigation and the protection of the marine environment~~ hydrographic surveys for ~~nautical charting and other associated uses~~. It therefore needs to be reviewed on a periodical basis in order to take account of the developments in requirements and in surveying equipment and procedures. The following note is taken from the Preface to the 5th Edition (2008) of S-44: *“Finally it was the view of the WG that S-44 provides “Standards for Hydrographic Surveys” and that it is the responsibility of individual Hydrographic Offices / Organizations to prepare “Specifications” based on these Standards. Specifications will be more system specific and as such will be quite dynamic as systems change.”*

Comment [01]: Proposed amendment to harmonize with Introduction in S-44

2. Objective

To maintain IHO standards which apply to hydrographic surveys: to prepare a draft 6th Edition of IHO publication S-44 - *Standards for Hydrographic Surveys* for approval by IHO Member States (MS).

When undertaking this task the Project Team (PT) should consider, as a minimum, the following matters, in support of safety of navigation data products and services:

- (i) Review the existing edition of S-44 (5th edition) and identify any deficiencies in either the standards or explanatory content;
- (ii) 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 6th edition of S-44;
- (iii) On completion of publication of a 6th edition of S-44, submit a proposal and recommendation to the Hydrographic Services and Standards Committee (HSSC) on whether the PT should continue as a standing working group and, if so, what tasks have been identified to justify transition to a standing working group.

3. Authority

This PT is a subsidiary of the HSSC. Its work is subject to HSSC approval.

4. Composition and Chairmanship

- a) The PT 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 PT.
- 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 PT.
- 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 PT agrees that an EC's continued participation is irrelevant or unconstructive to the work of the PT.
- h) All Members shall inform the Chair in advance of their intention to attend meetings of the PT.
- 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 PT should work by correspondence, teleconferences, group meetings, workshops or symposia. The PT should meet about once a year. When meetings are scheduled, and in order to allow any PT submissions and reports to be submitted to HSSC on time, PT 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 PT, 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 PT.
- c) The PT 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 PT should report to HSSC on its activities and submit a rolling two-year work plan, including expected time frame.

STANDARDS for HYDROGRAPHIC SURVEYS PROJECT TEAM (HS PT) WORK PLAN 2018-19**Tasks**

A	Review the existing edition of S-44 (5 th edition) and identify any deficiencies in either the standards or explanatory content.
B	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).
C	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.
D	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.
E	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.
F	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.

Work items

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 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	2017	2018	P 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	2017 2018	2018 2019	P O O	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	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 10	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 10	2018	2019	P O	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	2017	2019	P O	MS/HSSC Bodies	C-13	
G-2	Start the discussion on the way forward.	H	HSSC 10	2018	2019	P O	MS/HSSC		

Meetings

Date	Location	Activity
20-22 June 2017	Paris, France	HSPT1

tbc	Niterói, Brazil	HSPT2
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PT Chair: Christophe Vrignaud

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PT Secretary: David Wyatt

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2ND MEETING OF THE IHO HSSC PROJECT TEAM ON STANDARDS FOR HYDROGRAPHIC SURVEYS (HSPT2)

Niterói, Brazil, ?? - ?? July 2018 (tbc)

1. Welcome and opening remarks by the Chair.
2. Domestic and administrative arrangements (*Host/Secretary*).
3. Introduction of participants, apologies and approval of agenda.
4. Review of action items from HSPT1 and HSSC9.
5. Presentations.
6. Key topics for discussion:
 - .1 Current state of S-44;
 - .2 Scope of task;
 - .3 Consideration of methods/activities not presently covered;
 - .4 New technologies/methods to be considered;
 - .5 Format of next edition.
7. Completion of Customer Requirements Survey questionnaire.
8. Review of ToRs and RoPs.
9. Any other business.
10. Work Plan 2019-2020.
11. Draft Report to HSSC10.
12. Date and venue of next meeting – HSPT3 – and intersessional activities.
13. Review of Action List and draft agenda for HSPT3.
14. Closing remarks by Chair.