

**INTERNATIONAL HYDROGRAPHIC
ORGANIZATION**



**ORGANISATION HYDROGRAPHIQUE
INTERNATIONALE**

THIS CIRCULAR LETTER REQUIRES YOU TO VOTE

IHB File N° S3/8151/HSSC

**CIRCULAR LETTER 102/2012
29 November 2012**

**OUTCOME OF THE FOURTH MEETING OF THE HYDROGRAPHIC SERVICES
AND STANDARDS COMMITTEE (HSSC)
AND ASSOCIATED IHO ECDIS STAKEHOLDERS' FORUM**

Reference: CL 59/2012 dated 5 June - *HSSC4 and IHO ECDIS Stakeholders' Forum*

Dear Hydrographer,

1. The fourth meeting of the Hydrographic Services and Standards Committee (HSSC) took place in Taunton, United Kingdom, hosted by the UK Hydrographic Office, from 25 to 28 September 2012. The meeting, chaired by Dr Mathias Jonas (Germany), was attended by 60 delegates representing 24 Member States and the IHB and 9 delegates representing 6 organizations accredited as observers. They were joined by 46 representatives from 39 different entities for the IHO Stakeholders' Forum on "Realizing the full potential of ECDIS, ENCs and digital hydrographic data" which was held on the afternoon of 26 September and the morning of 27 September.

2. The final minutes of HSSC4, together with all documents referred to at the meeting, are available from the HSSC Section of the IHO website:

(http://www.iho.int/mtg_docs/com_wg/HSSC/HSSC4/HSSC4Docs.htm). The Committee reviewed the activities, proposals, and work plans of its working groups and the decisions of other bodies and organizations affecting its work, with particular attention being paid to critical areas. The main points discussed at the meeting are summarized below.

S-100 and related Product Specifications

3. The development of the S-100 Universal Hydrographic Data Model and associated Product Specifications was discussed. The Committee tasked the working groups concerned to prepare a master plan document for framing this development. Besides the S-101 ENC product specification nearing completion, the Committee established a new working group for developing a surface current product specification and focused the future work of the Standardization of Nautical Publications Working Group on developing S-100 based data models and product contents. The Committee endorsed the principle to support the development of S-101 test plan and portrayal related tasks from the IHO budget. It invited the IHB to contract out these activities based on the appropriate statements of requirements to be provided by TSMAD and DIPWG. The Committee endorsed draft edition 1.1.0 of IHO Publication S-99 - *Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry* (see also paragraphs 13 to 16).

Data protection scheme

4. The Committee noted that some data servers had not moved to the current edition 1.1 of IHO Publication S-63 - *IHO Data Protection Scheme* adopted in 2008 and that a lot of legacy systems were still using edition 1.0. It invited the IHB, as scheme administrator, to inform all S-63 accredited OEMs

and data servers that using S-63 edition 1.0 beyond 1 January 2014 will result in termination of their protection scheme agreement.

Increasing technical capacity at the IHB

5. The IHB reported its views on the implementation of Decision 6 of the XVIIIth International Hydrographic Conference which requests that “... *the Directing Committee, in consultation with HSSC, develop proposals to ensure that there is appropriate technical capacity within the Bureau to support the Organization through a period of significant change ...*”. The Committee agreed to consider an IHO-wide approach encompassing both the technical capacity of the IHB and the additional resources required to implement the IHO technical programme. Three critical areas were identified (portrayal component of S-100; expert advice to non-IHO stakeholders developing S-100 based product specifications; HDWG membership) and potential mitigation measures were acknowledged.

HSSC Work Plan

6. The Committee reviewed its draft Work Plan for 2013-2014. Accordingly, a revised draft was prepared by the IHB in liaison with the working group chairs after the meeting and submitted to HSSC members by correspondence for approval. The final version is available on the HSSC page of the IHO website (http://www.iho.int/mtg_docs/com_wg/HSSC/HSSC_Misc/HSSC_Work_Plan_2013_V1.pdf).

Other topics

7. Other notable topics discussed by HSSC included:

- the conclusion of the Correspondence Group on the definition and length of coastline;
- the endorsement of draft edition 3.1.0 of IHO Publication S-57 - Appendix B1 - Annex A - *Use of the Object Catalogue for ENC* (see also paragraphs 11 and 12);
- the implementation of CATZOC in areas of mobile seabed and areas affected by extreme events;
- the coordination of the TWLWG work plan with the relevant activities conducted under the auspices of other organizations such as IOC;
- the outcome of the IHO Stakeholders’ Forum (see also paragraph 9);
- the implementation of HSSC working level performance indicators.

Election of Chair and Vice-Chair

8. The Committee elected Dr Mathias Jonas (Germany) as Chair, and Mr Mike Prince (Australia) as Vice-Chair for the next five years.

IHO Stakeholders’ Forum

9. The theme of the IHO Stakeholders’ Forum was dealt with in some twenty presentations from the IHB, IHO Member States and industry addressing a variety of issues such as the global status of surveys, ENC coverage issues, GIS and cloud-based services, and S-100 related developments. The presentations are available on the IHO web site (http://www.iho.int/mtg_docs/com_wg/HSSC/HSSC4/Stakeholders_Forum_Presentations/SF5_Presentations.htm). A poll on “What the IHO should be doing but is not?” identified some forty thought-provoking ideas for further consideration by the IHO. HSSC reviewed the outcomes of the Forum. HSSC supported the continuation of the Forum, subject to reconsidering the structure of the event to improve the attractiveness, connect with a broader spectrum of stakeholders (notably active mariners), and encourage more interactivity. It was noted that some of the responses to the poll showed a misconception of the object of the IHO.

Actions arising from HSSC4

10. The list of actions arising from HSSC4 is provided in Annex A to this letter. Those actions that require input from Member States are reviewed below.

Approval of new editions of IHO Publications

11. HSSC had recommended at its 2nd meeting to “unfreeze” S-57 - Appendix B1 - Annex A - *Use of the Object Catalogue for ENC (UOC)*. IHO Member States approved this recommendation and the introduction of edition 3.0.0 as reported in CL 65/2011 of 25 October. In accordance with its terms of

reference, TSMAD has prepared a new edition of this publication to reflect Encoding Bulletins released since edition 3.0.0 was drafted.

12. As reported in paragraph 7 of this letter, HSSC endorsed the draft new edition 3.1.0 and invited the IHB to seek Member States' approval (action HSSC4/08). In accordance with IHO Resolution 2/2007, as amended, Member States are requested to review and consider the draft edition 3.1.0 of S-57 - Appendix B1 - Annex A which is available for inspection on the IHO website at:

http://www.iho.int/iho_pubs/draft_pubs/Draft_S-57_Appendix_B.1_Annex_A_UOC_Ed3_1_0_Red_Line.pdf
(with changes highlighted)

http://www.iho.int/iho_pubs/draft_pubs/Draft_S-57_Appendix_B.1_Annex_A_UOC_Ed3_1_0_Final.pdf
(clean copy).

Member States are requested to indicate their decision by returning the Voting Form, provided in Annex B, by **31 January 2013**.

13. IHO Publication S-99 - *Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry*, describes the roles, responsibilities and procedures for operating and managing the S-100 Geospatial Information Registry and its component Registers. S-99 edition 1.0.0 was adopted by Member States in January 2011 as reported in CL 05/2011 of 12 January. TSMAD has considered a number of revisions and minor editorial amendments to this edition to take into account feedback and experience in the practical use of the S-100 registry.

14. The proposed revisions are primarily theoretical in nature rather than substantive and concern the way of conceptualising the notion of domains. In the current version of S-99, the registry is described as a structure containing two classes of information - arranged in *main* and *supplementary* registers. This description was introduced as a means of indicating to potential users of S-100 and to potential Submitting Organizations that the IHO S-100 registry was open to non-IHO users on an open and non-restrictive basis. Preliminary work to develop appropriate S-100-based product specifications by other organizations such as IALA has shown that the artificial subdivision of the registry into *main* and *supplementary* registers is misleading and could lead to unnecessary confusion and even deter some potential users of the registry. This is because, in reality, all entries in the registers are available to all users. Furthermore, proposals to amend any entries in the registers, except the Data Producer Code register, can be submitted by any of the Submitting Organizations recognised by the IHO. Accordingly, it is proposed to delete the distinction between the two classes of registers.

15. The one substantive change is to extend the time allowed to raise objections to proposals from 30 days to 60 days in order to allow stakeholders a longer period to circulate the documentation and consider their responses, if any.

16. As reported in paragraph 3 of this letter, HSSC endorsed the draft new edition 1.1.0 and invited the IHB to seek Member States' approval (action HSSC4/09). In accordance with IHO Resolution 2/2007, as amended, Member States are requested to review and consider the draft edition 1.1.0 of S-99 which is available for inspection on the IHO website at:

http://www.iho.int/iho_pubs/draft_pubs/Draft_S-99_Ed1.1.0_Rules_for_Management_of_GI_Registry.pdf
(with changes highlighted)

http://www.iho.int/iho_pubs/draft_pubs/Draft_S-99_Ed1.1.0_Rules_for_Management_of_GI_Registry_clean_copy.pdf
(clean copy).

Member States are requested to indicate their decision by returning the Voting Form, provided in Annex C, by **31 January 2013**.

Participation in IHO Working Groups

17. Based on a proposal submitted by Canada, HSSC agreed to establish a working group to develop a surface current product specification based on S-100. The terms of reference are attached in Annex D. As requested by HSSC (action HSS4/13), the Directing Committee invites Member States to consider participating in this new working group and inform Canada (HindsS@DFO-MPO.GC.CA) of their intention, with copy to the IHB (info@iho.int), no later than **31 December 2012**.

18. HSSC noted that the implementation of its work plan, derived from the IHO approved work programme, is hindered by limited participation in a number of existing working groups. Two working groups are of specific concern: DPSWG (Data Protection Scheme Working Group) and HDWG

(Hydrographic Dictionary Working Group). As requested by HSSC (actions HSSC4/17 and 34), the Directing Committee invites Member States to review their participation in these two working groups, including nomination of candidate office bearers¹ and expert contributors from Industry and report on their intention to the IHB (info@iho.int), with copy to the Chair of the relevant working group (DPSWG: jonathan.pritchard@ukho.gov.uk; HDWG: jerry.mills@noaa.gov), no later than **31 December 2012**.

Encoding of magnetic variation information in ENC

19. When discussing a proposal to consider an additional work item on the development of an S-100 based product specification for magnetic variation information, HSSC noted complaints about different encoding procedures in S-57 ENCs which makes it difficult for the user to access the information. In order to make magnetic variation information more easily available to ECDIS users, Encoding Bulletin (EB) 44 (http://www.iho-ohi.net/mtg_docs/enc/enc_prod/S-57EncodingBulletins.htm#EB44) recommends encoding this information using MAGVAR objects of type area. Encoding this information using the area primitive rather than a point or line primitive, ensures that the user can interrogate the ENC data using the ECDIS Pick Report function at any chart location to identify the value of magnetic variation at that location. At the request of HSSC (action HSS4/12), the Directing Committee invites ENC producers to implement this recommendation at their earliest convenience. EB44 is incorporated in the draft edition 3.1.0 of S-57 - Annex A - Appendix B1.

Next HSSC Meeting

20. At the kind invitation of the Maritime Safety Administration of the People's Republic of China, the next HSSC meeting (HSSC5) will be held from 4 to 8 November 2013, in Shanghai, China.

Actions requested of Member States

21. The actions requested of Member States are as follow:

- decide by **31 December 2012** on their participation in the new Surface Current Working Group (see paragraph 17 and Annex D);
- review by **31 December 2012** their participation in the Data Protection Scheme Working Group (see paragraph 18);
- review by **31 December 2012** their participation in the Hydrographic Dictionary Working Group (see paragraph 18);
- decide by **31 January 2013** on the proposed new edition 3.1.0 of IHO Publication S-57 - Annex A - Appendix B1 (see paragraphs 11 and 12 and Annex B);
- decide before **31 January 2013** on the proposed new edition 1.1.0 of IHO Publication S-99 (see paragraphs 13 to 16 and Annex C);
- implement ENC Encoding Bulletin 44 at their earliest convenience (see paragraph 19).

On behalf of the Directing Committee

Yours sincerely,



Gilles BESSERO
Director

- Annexes:
- A. List of Actions from HSSC4 (*in English only*)
 - B. Voting Paper - Adoption of Edition 3.1.0 of S-57 - Annex A - Appendix B1
 - C. Voting Paper - Adoption of Edition 1.1.0 of S-99
 - D. Terms of Reference of HSSC Surface Current Working Group

¹ It is worth noting that both working groups lack a Vice-Chair and that the outgoing Chair of HDWG will retire on 1st January 2013.

LIST OF ACTIONS FROM HSSC4

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT
3	Actions from HSSC3	HSSC4/01	IHB to survey Member States again in 2013 regarding their progress in implementing the recently approved Guidelines for Encoding T&P ENC Updates and to communicate the results to MS (former action HSSC3/20).	Report to HSSC5
3	Length of coastline	HSSC4/02	Correspondence Group on Definition and Length of Coastline to submit a paper describing a method of calculation of the length of coastline, based on ENCs, to the International Hydrographic Review editor before the end of January 2013.	Publication in IHR May 2013
4.1	Performance Indicators	HSSC4/03	Contributions for the 2012 period to be provided by HSSC WG Chairs (Performance Indicators no 2 and 3) and WEND WG Chair (Performance Indicator no 5) by 31 January 2013.	31 Jan 2013
4.1	Performance Indicators	HSSC4/04	IHB to include the HSSC Working level Performance Indicators (WPIs) in the IHO monitoring report for 2012.	IHO Annual Report 2012
4.1	Performance Indicators	HSSC4/05	HSSC5 to revisit the usefulness of the Working level Performance Indicators (WPIs) adopted by HSSC4.	HSSC5
4.3	Technology Updates	HSSC4/06	Secretary to change the title of HSSC agenda item 10 to “review of new developments and other information papers” and move it to after item 7 of the agenda of future HSSC meetings.	HSSC5 (draft agenda)
5.1.1	TSMAD Work Plan	HSSC4/07	TSMAD Chair to include in the TSMAD work plan an additional work item to produce a roadmap (using mind map), taking into account the S-101 impact study and showing key tasks that have to be completed in order to implement S-100, and indicating interaction between the tasks and the implications for stakeholders.	TSMAD25
5.1.1	Use of Object Catalogue	HSSC4/08	IHB to circulate the draft edition 3.1.0 of S-57 Appendix B1 Annex A <i>Use of the Object Catalogue for ENC</i> (UOC) to Member States for approval.	30 Nov 2012
5.1.2	S-99	HSSC4/09	IHB to circulate the draft edition 1.1.0 of S-99 <i>Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry</i> to Member States for approval.	30 Nov 2012

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT
5.1.3	Ocean Forecasts	HSSC4/10	IHB to approach the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) to elaborate a joint strategy to develop S-100 based multi-disciplinary products in the context of the implementation of the e-navigation strategy.	Report to HSSC5
5.1.4	Identifiers for S-100 based P.S.	HSSC4/11	TSMAD to develop, with IHB support and in consultation with the relevant stakeholders, a nomenclature for S-100 based product specifications as part of the GI registry management, and revise S-100, taking into account the following guidance: <ul style="list-style-type: none"> • S-100 to S-199 should be reserved for IHO product specifications; • Non IHO product specifications identifiers should be assigned by the registry manager on a first come first served basis from S-200 onwards. 	Report to HSSC5
5.1.5	Magnetic Variations	HSSC4/12	IHB to invite Member States to implement Encoding Bulletin 44 dealing with magnetic variations.	30 Nov 2012
5.1.6	Surface Currents	HSSC4/13	IHB to invite Member States to consider participating in the working group on surface current product specifications and inform Canada no later than end of 2012.	30 Nov 2012
5.1.7	S-101 Test Plan Funding	HSSC4/14	TSMAD to draft a statement of requirements for the development of S-101 test plan and submit it to the IHB for tendering.	TSMAD25
5.1.7	S-101 Test Plan Funding	HSSC4/15	IHB to prepare and award a contract for the development of S-101 test plan within the allocated IHO budget.	31 March 2013
5.1.8	AIS AtoN and ENCs	HSSC4/16	TSMAD to develop an Encoding Bulletin that describes how to encode virtual AIS Aids to Navigation using the New Object (NEWOBJ) feature.	TSMAD25
5.2	DPSWG	HSSC4/17	IHB to invite Member States to nominate experts and candidate office bearers to participate in the work of the DPSWG.	30 Nov 2012
5.2	S-63 Edition 1.0	HSSC4/18	IHB , as scheme administrator, to inform all S-63 accredited OEMs and Data Servers that using S-63 Edition 1.0 beyond 1 January 2014, will result in the termination of their protection scheme agreement in accordance with clause 8.1.2 of the agreement.	31 Dec 2012
5.3.1	DIPWG Work Plan	HSSC4/19	DIPWG Chair to amend the title of work item A.5 in the DIPWG work plan, to read: "Develop new Presentation Library Version 3.5 and coordinate with TSMAD for appropriate changes to S-64".	DIPWG5

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT
5.3.1	Portrayal Modelling	HSSC4/20	DIPWG Chair to send a note to OEMs to clarify the objectives of a side meeting on portrayal modelling issues, to be held in conjunction with the ECDIS anomalies workshop (London, UK, 15-16 October 2012).	8 Oct 2012
5.3.1	Portrayal & PL Issues	HSSC4/21	UK (Mr Jonathan PRITCHARD) to provide the DIPWG Chair with all the feedback and information gained from ECDIS anomalies analysis, concerning portrayal and Presentation Library issues. If there is an issue that needs immediate action, DIPWG to issue a portrayal bulletin.	31 Dec 2012
5.3.1	DIPWG Work	HSSC4/22	DIPWG Chair to liaise with the IHB to agree how best to expedite the work of DIPWG (especially the S-100 portrayal model work) by facilitating the attendance of key persons to focus group meetings.	31 Dec 2012
5.3.2	Contracting out Portrayal & PL enhancements	HSSC4/23	DIPWG to draft a statement of requirements for each of the following tasks and submit them to the IHB for tendering: a. correction of errors in the hydrographic portrayal register; b. updating the digital presentation files; and c. creation of an S-100 portrayal catalogue builder.	31 Dec 2012
5.3.2	Contracting out Portrayal & PL enhancements	HSSC4/24	IHB to prepare and award a contract for the following tasks, in using the PL fund and/or other available resources: a. correction of errors in the hydrographic portrayal register; b. updating the digital presentation files; and c. creation of an S-100 portrayal catalogue builder.	31 March 2013
5.3.3	S-100 & S-101 Master Plan	HSSC4/25	TSMAD and DIPWG Chairs to produce, by the end of January 2013, a "master plan" document for the development of S-100 and S-101, in accordance with the life cycle diagram included in resolution 2/2007, incorporating sequencing with DQWG and DPSWG, and scheming the implications for stakeholders.	31 January 2013
5.4	SNPWG Master Plan	HSSC4/26	SNPWG to prepare a master plan for developing electronic nautical publications, with priority assigned to defining data models and product contents in order to coordinate the scheduling of deliverables with the implementation of S-101.	Report to HSSC5
5.4	Nautical Publications related P.S.	HSSC4/27	SNPWG to provide an estimate of the number of potential product specifications related with nautical publications.	Report to HSSC5

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT
5.5	CSPCWG ToR	HSSC4/28	IHB to amend Clause 2 of the CSPCWG terms of reference, to read (changes underlined): “This WG is a subsidiary of the Hydrographic Services and Standards Committee (HSSC). Its work is subject to HSSC approval. <u>In respect of the current cycle of revision of S-4 and in the interests of procedural efficiency</u> , the WG has authority to reach decisions on the maintenance and updating of <u>this document for which it is responsible</u> and to seek direct endorsement of its proposals by IHO Member States via the IHB. This does not include matters that may have a strategic or financial implication for Member States or other interested stakeholders.”	30 Nov 2012
5.6.2	Change to the Use of Object Catalogue	HSSC4/29	TSMAD to apply to S-57 Appendix B.1 Annex A (Use of the Object Catalogue for ENC), the changes identified in section 8 of HSSC4-05.6B and dealing with reflecting the impact of extreme events through CATZOC.	TSMAD25
5.6.3	Training on the quality aspects of the practical use of ENCs	HSSC4/30	DQWG to review, in liaison with training institutions, the adequacy of existing HOs’ publications on the quality aspects of the practical use of ENCs.	Report to HSSC5
5.6.3	Training on the quality aspects of the practical use of ENCs	HSSC4/31	IHB to investigate how to interface with STW for improving training on the quality aspects of the practical use of ENCs.	Report to HSSC5
5.7.3	“Introduction to MSDI” Training Course	HSSC4/32	MSDIWG to consider, within its work plan, the development of content for an “introduction to MSDI” training course.	MSDIWG4
5.8	TWLWG coordination with other organizations	HSSC4/33	TWLWG to report at HSSC5 on the coordination of its work plan with the relevant activities conducted under the auspices of other organizations, such as IOC.	Report to HSSC5
5.9	HDWG Membership	HSSC4/34	IHB to invite Member States to provide experts to HDWG and report, in liaison with HDWG, to HSSC5 on the options for continuing the maintenance of the Hydrographic Dictionary (S-32).	30 Nov 2012
5.9	Definitions of Altitude, Elevation and Height	HSSC4/35	HDWG to review the approved definitions of Altitude, Elevation and Height, in light of HSSC4-05.9B.	Report to HSSC5
8.1	Stakeholders’ Forum	HSSC4/36	IHB to report to the Forum participants its views on the issues raised in the poll.	31 Dec 2012
8.1	Stakeholders’ Forums	HSSC4/37	IHB to reconsider the format for future Stakeholders’ Forum events, to improve interest and interaction with stakeholders.	Report to HSSC5
9	HSSC Work Plan	HSSC4/38	IHB , in liaison with the working group chairs, to revise the draft HSSC work plan (HSSC4-09A) for distribution with the meeting minutes.	30 Nov 2012

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)	TARGET DATE/EVENT
9	Implementation of S-100 based products and services	HSSC4/39	IHB , in liaison with HSSC chair, to develop an outline of the regulatory process associated with the implementation of S-100 based products and services.	Report to HSSC5
9	e-Navigation	HSSC4/40	Secretary to add an item on e-navigation in the draft agenda of HSSC5.	HSSC5 (draft agenda)
12	Date & location of 2013 meeting	HSSC4/41	Member States to consider hosting HSSC5 and inform the IHB of possible venues before 1 February 2013	31 Jan 2013

VOTING FORM
(to be returned to the IHB by 31 January 2013
E-mail: info@iho.int - Fax: +377 93 10 81 40)

**Member
State:**

Contact:

E-mail:

ADOPTION OF EDITION 3.1.0 OF S-57 – Annex A – Appendix B1

1. Do you approve the adoption of edition 3.1.0 of S-57 - Appendix B1 - Annex A - *Use of the Object Catalogue for ENC (UOC)*?

YES

NO

Comments (if required)

VOTING FORM
(to be returned to the IHB by 31 January 2013
E-mail: info@iho.int - Fax: +377 93 10 81 40)

**Member
State:**

Contact:

E-mail:

ADOPTION OF EDITION 1.1.0 OF S-99

1. Do you approve the adoption of edition 1.1.0 of S-99 - *Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry?*

YES

NO

Comments (if required)

HSSC SURFACE CURRENT WORKING GROUP
Terms of Reference

1. Objective

To develop standards for the delivery and presentation of navigationally relevant current information.

2. Authority

The Working Group (WG) is a subsidiary of the Hydrographic Services and Standards Committee (HSSC) and its work is subject to HSSC approval.

3. Procedures

a. The WG should:

- (1) develop S-100 based product specifications, including content and display requirements with technical characteristics, for navigationally relevant currents;
- (2) advise on matters concerning the exchange, distribution and use of navigationally relevant current data;
- (3) liaise with relevant IHO WG's to ensure technical feasibility and compatibility of relevant developed proposals.

b. The WG should work primarily by correspondence; may meet face to face if required in conjunction with another convenient IHO forum.

c. The WG should liaise with other international bodies as appropriate.

4. Composition and Chairmanship

a. The WG shall comprise of representatives of IHO Member States (MS), Expert Contributors and accredited NGIO Observers, all of whom have expressed their willingness to participate, and a representative of the IHB.

b. Member States, Expert Contributors and accredited NGIO Observers may indicate their willingness to participate at any time. A membership list shall be maintained and confirmed annually.

c. Expert Contributor membership is open to entities and organizations that can provide a relevant and constructive contribution to the work of the WG.

d. The Chair and Vice-Chair shall be a representative of a Member State. The election of the Chair and Vice-Chair should normally be decided at the first meeting following each ordinary session of the Conference (Conference to be replaced by Assembly when the revised IHO Convention enters force) and, in such case, shall be determined by vote of the Member States present and voting.

e. Decisions should generally be made by consensus. If votes are required on issues or to endorse proposals presented to the WG, only MS may cast a vote. Votes shall be on the basis of one vote

per MS represented. In the event that votes are required between meetings or in the absence of meetings, including for elections of the Chair and Vice-Chair, this shall be achieved through a postal ballot of those MS on the current membership list.

- f. If a secretary is required it should normally be drawn from a member of the WG.
- g. If the Chair is unable to carry out the duties of the office, the Vice-Chair shall act as the Chair with the same powers and duties.
- h. Expert Contributors shall seek approval of membership from the Chair.
- i. Expert Contributor membership may be withdrawn in the event that a majority of the MS represented in the WG agree that an Expert Contributor's continued participation is irrelevant or unconstructive to the work of the WG.
- j. All members shall inform the Chair in advance of their intention to attend meetings of the WG.
- k. In the event that a large number of Expert Contributor members seek to attend a meeting, the Chair may restrict attendance by inviting Expert Contributors to act through one or more collective representatives.