

7th Meeting of the Hydrographic Services and Standards Committee
10-13 November 2015, Busan, Republic of Korea

Report of NCWG to HSSC7
Nautical Cartography Working Group

Submitted by: Chair, NCWG
Related Documents: IHO Circular Letter 37/2015 (7th Meeting of the HSSC)
Related Projects: Not applicable

Chair: Jeff Wootton, Australia
Vice Chair: Nick Webb, UK
Secretary: Andrew Heath-Coleman, UK
Member States: Australia, Brazil, Canada, Chile, Colombia, Denmark, Finland, France, Germany, Greece, India, Indonesia, Iran, Italy, Japan, Korea (Rep of), Latvia, Netherlands, New Zealand, Norway, Pakistan, Russia, South Africa, Spain, Sweden, Turkey, Ukraine, UK, USA (=29).
Expert Contributors: IHB (Y Guillam), CBSC/ICA
Organisations: ESRI, Jeppesen Marine

See Annex A for full details of membership

1. Meetings Held During the Reporting Period

- 1.1 CSPCWG11/NCWG1, 27-30 April 2015, held in Rostock, Germany. The full record of this meeting can be found on the NCWG page of the IHO web site.
- 1.2 Planned: NCWG2, 26-29 April 2016, IHB, Monaco back-to-back with a workshop¹ for INT Chart/ENC Co-ordinators on 25 April 2016; NCWG3, Veracruz, Mexico, 2017.
- 1.3 A short meeting of the INT1 Sub-Working Group was held at the conclusion of CSPCWG11/NCWG1. No meeting of the INT1 Sub-Working Group is planned before NCWG2 in April 2016.

2. Election of Officers

- 2.1 As the CSPCWG11/NCWG1 meeting held in April 2015 was the last meeting of the CSPCWG and effectively the first meeting of the NCWG under the revised structure of HSSC Working Groups, election of Officers for the NCWG was held. The meeting agreed by acclamation that the existing CSPCWG officers should continue as executive officers of NCWG, that is:
 - Chair: Jeff Wootton
 - Vice Chair: Nick Webb
 - Secretary: Andrew Heath-Coleman

¹ IHO CL 59/2015 refers.

3. NCWG Terms of Reference

- 3.1 As a result of the revised structure of HSSC Working Groups and renaming of the Working Group from the CSPCWG to the NCWG as approved at HSSC6, it was required to revise the Working Group's Terms of Reference. The revised Terms of Reference of the NCWG are included at Annex B for consideration of the HSSC.

4. Work Programme

The programme is based on the priorities assigned within the detailed Work Plan (Annex E refers). Since HSSC6, the principal activities have been:

4.1 S-4 Chart Specifications of the IHO and Regulations for International (INT) Charts:

- 4.1.1 Edition 4.5.0, October 2014, was reported to HSSC6. IHO CL 58/2013 and 32/2014 refer.
- 4.1.2 It is proposed that a further revision, Edition 4.6.0, be approved by the HSSC to proceed to IHO member States for adoption. This version includes all changes approved by the NCWG since the publication of Edition 4.5.0. Proposed revisions are included in Paper HSSC7-05.6D for consideration of the HSSC; all changes considered to be clarifications to S-4 will also be included in the full draft version to be prepared for submission to IHO Member States.
- 4.1.3 Additional revisions and clarifications to S-4 are currently being discussed by the Working Group. The record of discussions, related actions and items in the NCWG Work Plan can be found in the NCWG1 Record on the NCWG page of the IHO web site.

4.2 S-4 supplementary publications INT 1, INT 2 & INT 3:

- 4.2.1 INT1 *Symbols, Abbreviations and Terms used on Charts*. There are three official language versions of INT1. No revisions have been published within the reporting period. Their current status is:
- Spanish language version published by ES/IHM: Edition 4, October 2011; Edition 5 planned publication late 2015.
 - French language version published by FR/SHOM: Edition 5, January 2012; Edition 6 planned publication late 2015/early 2016.
 - English language version published by DE/BSH: Edition 7, January 2011; Edition 8 in print at time of this report.
- 4.2.2 INT2 *Borders, Graduations, Grids and Linear Scales*. There are no current plans for a revision of Edition 4, 2007, published by NL.
- 4.2.3 INT3 *Use of Symbols and Abbreviations*. There are no current plans for a revision of Edition 5, 2011, published by UK.

4.3 S-11 Part A Guidance for the Preparation and Maintenance of International Chart Schemes

- 4.3.1 Current status is Edition 2.0.5, published May 2012. A draft revision has been prepared, in collaboration with NSEHWG and engagement with the WENDWG, to develop and incorporate guidance on the preparation and maintenance of ENC schemes (in pursuance of Work Plan item B.3). This draft (as "red line" and "clean" versions) is included as Annexes to Paper HSSC7-05.6E for consideration of the HSSC.
- 4.3.2 In addition to NCWG deliberations, the draft was also circulated by the IHB to Regional INT Chart Coordinators/ICCWG for consideration and comment. Comments considered by the NCWG Executive to be significant in relation to HSSC deliberation were submitted by Chile, and these have been included in Paper HSSC7-05.6E, along with NCWG Executive comments and possible options for further NCWG work. The HSSC is requested to consider these (and any other) options and advise the NCWG of a way forward.

4.4 S-49 Standardization of Mariners' Routing Guides

- 4.4.1 As a result of the HSSC Working Group restructure and Working Group Work Plans approved at HSSC6, responsibility for S-49 has transferred to the NIPWG.

4.5 Lessons learned from Marine Incidents

4.5.1 The final investigation report of the grounding of the passenger ship *Deutschland* in January 2012 was discussed at CSPCWG11/NCWG1. The report did not recommend any general action for charts and the meeting considered that navigators venturing into waters close to glaciers and charted as 'unsurveyed' (or empty of soundings) should be well aware of the dangers. However, it was considered that some advice in an associated publication, such as a mariners' handbook, might be useful. There were no NCWG actions.

4.5.2 The IHB drew attention to the media reporting of the grounding of the *Vestas Wind* to CSPCWG11/NCWG21, in order to ensure that NCWG members were aware of the 'List of incidents' held by DQWG. There has been no recommendation of action required for charts included in the report on this grounding. However, as there was some adverse comment in the media regarding the adequacy of charts, it was reported that there is a need to consider how the IHO should respond to such media reports.

5. **Progress on HSSC Action Items**

5.1 Action HSSC6/09: NCWG to report on its continuance after 2015 and if required propose amendments to the current CSPCWG TORs.: done.

6. **Problems Encountered**

6.1 Ongoing resource stretch at participating HOs.

6.2 Delays and confusion in progressing NCWG actions related to S-4 and associated publications due to interpretation and application of IHO Resolution 2/2007 (see 7.1 below).

7. **Any Other Items of Note for Consideration of HSSC**

7.1 S-4 and Resolution 2/2007.

7.1.1 Concern was raised at NCWG1 that the requirement to strictly comply with IHO Resolution 2/2007 will be adding unnecessary additional levels of bureaucracy when developing a new version of S-4, resulting in considerable delays in the approval by IHO Member States of changes to be made in the next Edition. This was identified as a particular area of concern for the publishers of S-4 supplementary publication INT1, who require all changes in their national versions of INT1 to be first approved for inclusion in S-4 by IHO Member States. This has resulted in the situation whereby none of the changes to S-4 affecting INT1 that have been approved by the NCWG since CSPCWG10 (January 2014) can be included in the official language versions of INT1 to be published during 2015.

7.1.2 Discussion prior to and at NCWG1 indicated that there were differences in the interpretation of Resolution 2/2007 between IHB and the Working Group, particularly in relation to the life cycle diagram. It was also noted that concern has also been raised by other HSSC Working Groups in the past related to the interpretation and application of Resolution 2/2007. Draft detailed Procedures for the Working Group reflecting the NCWG interpretation of conformance to Resolution 2/2007, as discussed at NCWG1, are included at Annex C; attention of HSSC is drawn in particular to paragraphs 4.7 to 4.12, which summarize NCWGs view of how Resolution 2/2007 should be interpreted most effectively with reference to S-4.

7.1.3 While the NCWG is not advocating a return to the "exemption" status for S-4 that was in place during the systematic CSPCWG review of S-4 Part B, it is considered that the rigorous propose/develop/test/implement/transition process, punctuated by incremental Committee/IHO approval and overlapping extensive stakeholder feedback/evaluation, should not be subject to a "one size fits all" approach as it is being applied across the range of IHO technical standards and specifications. The NCWG supports a standard approach to maintenance and updating (i.e. in line with IHB wishes), however there could be improvement to the way that Resolution 2/2007 is interpreted and applied so as to be of benefit to the HSSC, IHO Technical Working Groups, the IHB, IHO Member States and other Stakeholders.

7.1.4 NCWG proposes that a full revision of Resolution 2/2007 be initiated, with input from all HSSC Working Groups responsible for the development and maintenance of IHO technical standards

and specifications, in order to provide unambiguous, fit for purpose guidelines for the development and maintenance of these IHO technical standards and specifications, and recognising individual specific impacts and requirements.

7.2 Information Overlay Services.

7.2.1 Discussion of paper HSSC6-05.5D at HSSC6 resulted in the approval of additional Work Items for the NCWG Work Plan related to standardization issues associated with information overlay services, in line with the recommendations included at paragraph 10 of the paper. The resultant Work Items were included as items A22 and A23. The subject of information overlay services, and in particular the UKHO Admiralty Information Overlay (AIO) Service, was included in the Agenda for the NCWG1 meeting to progress these items, and resulted in an extended and robust discussion on the merits (or otherwise) of the AIO Service. However, noting that the AIO Service is an optional additional service being included by an ENC Service Provider, it was considered that this discussion was outside the remit of the NCWG.

7.2.2 With advice of the HSSC Chair, who was present for these discussions, it was agreed that the first 2 recommendations included in HSSC6-05.5D, relating to changes to S-4, were relevant to the NCWG. The 3rd recommendation, "Recommending that information overlay services must not be produced where the ENC Producer has included the equivalent of paper chart (T) and (P) NMs as part of their ENC Update service", is to be addressed most appropriately by the WENDWG and the IRCC. This is to be progressed as WENDWG Actions 1 and 2 (refer HSSC6-05.6B).

7.3 The Future of the Paper Chart.

7.3.1 The NCWG Chair presented a paper (CSPCWG11-13.1A) summarising activities and discussions related to the increasing use of ENC and ECDIS as the primary navigation product for SOLAS vessels and the possible impact of this on the future of the paper chart as a primary navigation product. It was agreed to establish an NCWG Correspondence Group to further develop the issues raised in the paper and possible options for the future direction of the paper chart, with the aim of submission of the results of discussions to HSSC8.

7.4 The Future of S-4.

7.4.1 Paper CSPCWG11-09.6A, included for information and reference of HSSC7 as paper HSSC7-05.6F, was intended to stimulate consideration of work that may be undertaken to further review S-4. In addition to the conclusions and recommendations made in the paper, the NCWG further noted that:

- S-4 was in an old fashioned format; if major alterations are to be done to the content of S-4, it may be better first to convert it to a web-based document, with links to other IHO standards, rather than attempt to duplicate guidance from those standards into S-4;
- Consideration should be given to publishing S-4 Part A (Regulations of the IHO for International (INT) Charts) as a separate document;
- Much of the guidance in S-4 part C (Chart Specifications of the IHO for Small-Scale International (INT) Charts) was a duplication of guidance contained in S-4 part B. Consideration should be given to incorporate any remaining unique guidance from S-4 part C into Part B; and
- The title of S-4 may be misleading and could be improved.

7.4.2 It was agreed that further discussion of the future format, style and content of S-4 was warranted, which would extend additionally into the future activities of the NCWG. The suggestion is that this work be progressed by a small Project Team under the NCWG. Draft Terms of Reference and a draft Work Plan for a Project Team are included at Annex D for consideration of the HSSC.

8. Any Other Items of Note for Information of HSSC

8.1 The activity of NCWG continues at a high level:

- The volume of detailed input to NCWG's work is extensive and thanks are recorded to all contributor MS' representatives.
 - NCWG has the highest MS participation of any HSSC WG and this is matched by a very high level of active participation in its meetings and deliberations. (The latest two meetings of the WG have been attended by 12 and 17 MS, plus industry representatives and IHB/ADCS. WG correspondence routinely receives considered responses from >20 participants.) I interpret this to be a continuing indicator of the relevance and value to each participating MS. This is supported by the fact that MS remain supportive of the WG when personnel change (e.g. the reporting period has seen the replacement of 7 WG members).
- 8.2 Advice and guidance continues to be exchanged with S-100WG, ENCWG, NIPWG and DQWG as required, enhancing the collaboration between the WGs. The NCWG Chair continues to provide perspectives and liaison across NCWG, S-100WG, ENCWG, NIPWG and HDWG and advice on the technical consequences of decisions for each, although liaison with the HDWG has been negligible. The NCWG Chair has also established a direct line of contact with the IBSC and ICA to provide a two-directional advisory capacity with these groups.
- 8.3 NCWG discussions are progressing regarding greater 'cross-format' engagement and maintaining and supporting the continued relevance of nautical cartography, including the future of the paper chart (see 7.3 above).
- 8.4 The NCWG Executive continues to provide responses to a variety of miscellaneous enquirers. This includes providing advice to ICCWG/RCG coordinators and to individual MS on charting matters and the application of IHO specifications and standards. As suggested in the IHO CL 64/2015 (§7.a) and if endorsed by the HSSC, the NCWG will consider at NCWG2 a new work item for the preparation of a *"basic quality assurance check-list template" for use by INT Chart Coordinators/ICCWG in support of the review of new INT charts*.

9. Conclusions and Recommended Actions

- 9.1 HSSC7 is invited to endorse the continued activity of the WG under its revised Terms of Reference at Annex B.
- 9.2 HSSC7 is invited to approve the Work Plan as submitted at Annex E. This Work Plan was formally reviewed in detail at NCWG1, April 2015 and has been updated in the version at Annex E. Following any direction or guidance from HSSC7, this will be subject to further review and revision at NCWG2, April 2016.
- 9.3 HSSC7 is invited to approve the revisions to S-4 Edition 4.5.0 as submitted at paper HSSC7-06.5D; and approve the submission of Edition 4.6.0 to IHO Member States for publication.
- 9.4 HSSC7 is invited to discuss the draft revision of S-11 Part A as included in paper HSSC7-06.5E and related response from Chile, and advise NCWG of a way forward.
- 9.5 HSSC7 is invited to consider initiating an urgent review of IHO Resolution 2/2007, taking into account the issues raised in 7.1 above.
- 9.6 HSSC7 is invited to note that recommendation 3 included in paper HSSC6-05.5D is not within the remit of the NCWG, and is being addressed by the WENDWG and the IRCC (see 7.2 above).
- 9.7 HSSC is invited to approve the establishment of a Project Team under the NCWG to further investigate the future style and content of S-4 (see 7.4 above and paper HSSC7-05.6F), under the draft Terms of Reference and Work Plan submitted at Annex D.

10. Justification and Impacts

- 10.1 Justification for the continued activity of the WG is to fulfil the remit of its Terms of Reference which includes:
- Improving the standardization and currency of nautical charts (in accordance with SOLAS V (2002, regulation 9));

- Improving the guidance provided to nautical chart compilers, whatever the product's format, including support for 'Capacity Building';
- Improving the interface and, where feasible, commonality of presentation between physical and digital chart products, whilst acknowledging their inherent differences.

10.2 The principal impact is the resource commitments of participating HOs.

11. Action Required of HSSC

The HSSC is invited to:

- **Note** this report;
- **Endorse** the continued activity of the WG;
- **Approve** the Terms of Reference of the NCWG at Annex B;
- **Approve** the Work Plan at Annex E;
- **Approve** the proposed revisions to S-4 Edition 4.5.0 at paper HSSC7-05.6D; and submission of Edition 4.6.0 to IHO Member States via IHO CL for approval to publish.
- **Discuss** the draft revision of S-11 Part A as included in paper HSSC7-05.6E and related response from Chile, and **advise** NCWG of a way forward.
- **Note** the concerns of the NCWG over the interpretation and application of IHO Resolution 2/2007, and **initiate** an urgent review of this Resolution.
- **Note** that recommendation 3 included in paper HSSC6-05.5D is not within the remit of the NCWG, and is being addressed by the WENDWG and the IRCC.
- **Approve** the establishment of a Project Team under the NCWG, operating under the draft Terms of Reference and Work Plan at Annex D, to further investigate the future style and content of S-4.

Annexes:

- A. Membership of NCWG (at 22 September 2014)
- B. Draft NCWG Terms of Reference
- C. Draft NCWG Detailed Procedures
- D. Draft Future of S-4 Project Team Terms of Reference and Work Plan
- E. NCWG Work Plan

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(at 14 October 2015)

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Draft NCWG Terms of Reference
NAUTICAL CARTOGRAPHY WORKING GROUP (NCWG)
 (Formerly the Chart Standardization and Paper Chart Working Group - CSPCWG)

- Ref: 1) 1st HSSC Meeting (Singapore, October 2009)
 2) 4th HSSC Meeting (Taunton, United Kingdom, September 2012)
 3) 6th HSSC Meeting (Viña del Mar, Chile, November 2014) (name change only)
 4) 7th HSSC Meeting (Busan, Republic of Korea, November 2015)

1. Objectives

- a) To provide expert and authoritative advice and guidance to relevant IHO bodies and non-IHO entities on the concepts of nautical cartography, including
 - (i) Its application to nautical charts existing in any physical or digital form;
 - (ii) The development of specifications for symbolization of any data required to be displayed on nautical charts;
 - (iii) The integration of the nautical chart and other cartographic products for e-Navigation. This includes resolving portrayal issues related to the simultaneous display of a nautical chart in combination with navigational information and non-navigational information within an integrated navigation system.
- b) To provide expertise to the International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers (IBSC) on the standards of competence for cartographers when deemed necessary.
- c) To monitor the development of other relevant international standards.

2. Authority

This WG is a subsidiary of the Hydrographic Services and Standards Committee (HSSC). Its work is subject to HSSC approval.

3. Composition and Chair

- a) The WG shall comprise representatives of IHO Member States (MS), Expert Contributors (EC), observers from accredited Non-Governmental International Organizations (NGIO), and a representative of the IHB (“IHB” to be replaced by “IHO Secretariat” when the IHO Secretariat is established). A membership list shall be maintained and posted on the IHO website.
- b) The Chair will monitor membership to ensure that each Regional Hydrographic Commission is invited to be represented on the WG.
- c) EC 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 each be a representative of a MS. The election of the Chair and Vice-Chair shall be decided at the first meeting after each ordinary session of the International Hydrographic Conference (IHC) (Conference to be replaced by Assembly when the revised IHO Convention enters into force) and shall be determined by vote of the MS present and voting.
- e) A Secretary should be appointed to ensure the smooth running of WG business; to administer consultation and collation of members’ views; and may act as Editor of the WG’s publications. The position is normally filled by a member of the WG.

- f) 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. If the position of Chair or Vice-Chair becomes vacant before the next ordinary IHC, inter-conference elections may be conducted at the next NCWG meeting or by correspondence between Working Group meetings.
- g) ECs shall seek approval of membership from the Chair.
- h) EC membership may be withdrawn if a majority of the MS represented in the WG agrees that an EC's continued participation is irrelevant or unconstructive to the work of the WG.
- i) All members shall inform the Chair in advance of their intention to attend meetings of the WG.
- j) 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.

4. Procedures

- a) The WG's main tasks are listed at (1) above and are amplified here:
 - (i) Keep under continuous review the IHO publication S-4 'Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO', in order to advise the HSSC on their updating, design and format and the portrayal of symbols. Note: S-4 is supplemented by:
 - INT 1 'Symbols, Abbreviations and Terms used on Charts'
 - INT 2 'Borders, Graduation, Grids and Linear Scales'
 - INT 3 'Use of Symbols and Abbreviations'
 These supplementary documents are maintained by individual MS, under the supervision of NCWG.
 - (ii) Advise the HSSC on suggestions put forward by MS to update S-4, in accordance with IHO Specification B-160, with the goal of achieving the maximum possible adherence by MS to the Regulations and Specifications.
 - (iii) Keep under continuous review S-11 Part A 'Guidance for the Preparation and Maintenance of International Chart Schemes' in order to advise the HSSC on its updating.
 - (iv) Advise the IHB ("IHB" to be replaced by "IHO Secretariat" when the IHO Secretariat is established) and Regional Hydrographic Commissions, as appropriate, on the work of International Charting Coordination Working Groups (ICCWG) or Regional Charting Groups (RCG) in order to promote the production of international (INT) charts.
 - (v) Offer advice based on the WG experience to ICCWG/RCG and individual MS, on chart schemes and cartographic work, in order to strongly encourage adherence to IHO charting specifications.
- b) The WG conducts its business mainly by correspondence. It will also plan to hold meetings at least once every two years, dependant on membership support and business needs. When meetings are scheduled, and in order to allow any WG submissions and reports to be submitted to HSSC on time, WG meetings should not normally occur later than nine weeks before a meeting of the HSSC.
- d) Decisions shall generally be made by consensus. If votes are required on issues or to endorse proposals presented to the WG, votes shall be taken by a simple majority of the MS present and voting. When dealing with inter-sessional matters by

correspondence, a simple majority of responding MS shall be required. Each MS shall have one vote.

- e) The date and venue of WG meetings shall normally be announced by the Chair at least six months in advance.
- f) The draft record of meetings shall be distributed by the Chair (or the secretary) within six weeks of the end of meetings and participants' comments should be returned within three weeks of the date of despatch. Final minutes of meetings should be posted on the IHO website within three months after a meeting.
- g) Sub-working groups and project teams may be created by the WG or proposed to HSSC to undertake detailed work on specific topics. The terms of reference and rules of procedure of the sub-working groups and project teams are determined or proposed by the WG as appropriate.
- h) The WG will maintain close liaison with other HSSC WGs, particularly those developing and maintaining S-100 based products, and other international and IHO bodies, as appropriate and as instructed by HSSC.
- i) The WG should prepare annually a report on its activities and a rolling two-year work plan, including expected time frame.

NCWG DETAILED PROCEDURES

(Updated 2015, following CSPCWG11-NCWG1 meeting)

1. Correspondence

- 1.1. The working **language** of the Working Group (WG) is English.
- 1.2. Correspondence (including formal NCWG letters) will normally be by email. Respondents are encouraged to use the 'Reply to all' option for responses, to ensure the full Working Group membership is aware of developing discussions.
- 1.3. It is necessary to ensure that personal address lists are updated when updated membership and contact lists are issued from time to time. These are dated and posted on the NCWG section of the IHO website.
- 1.4. Hard copies of NCWG correspondence will only be mailed if specifically requested by a WG member.
- 1.5. Significant correspondence will be supplied to other HSSC WG Chairs and/or Secretaries as appropriate, for their WGs' information and seeking their input.

2. Timescales

- 2.1. Except where there is good reason for shortening the timescales, **8 weeks** will normally be allowed for responding to the first correspondence on a new subject. Thereafter, **4 weeks** will be allowed for responding to further correspondence on the same subject. The Chairman may extend the times allowed for complex issues at his discretion. The Secretary will ensure that the response date (if any) is clearly shown on all correspondence.

3. Meetings

- 3.1. Meetings of NCWG will be held at least once every two years. A meeting should last approximately three days.
- 3.2. It is important to have issues which would benefit from a face-to-face discussion on the agenda, which may not be known until near the meeting time. However, the venue and date of the next meeting shall be considered at the previous meeting, in order to facilitate participants' travel arrangements.
- 3.3. Meetings will be hosted either by invitation of a WG member, or at the IHB in Monaco. If more than one invitation is available, the venue will be agreed by vote at the earliest opportunity.
- 3.4. NCWG Meetings will not be held in the 9 week period before an HSSC meeting.

4. Publications

- 4.1. NCWG is responsible for maintaining IHO publications S-4 (The International Chart Regulations and Specifications) with its supplementary documents, INT1, INT2 and INT3; and S-11 Part A. The principles and procedures for making changes to IHO technical standards and specifications are set out in IHO Resolution 2/2007 as amended (Res.2/2007) and apply to S-4 and S-11 Part A.
- 4.2. The principal task of NCWG is to maintain S-4 to reflect the developing requirements of nautical charting, including changing navigational procedures and developments in cartographic techniques (S-4 B-160). These may be New Editions, Revisions or Clarifications, as defined by Res.2/2007:5.
- 4.3. Any new work items that require significant resources and time (such as the addition of a new section to S-4 or a change of style, resulting in a New Edition) will

require approval from HSSC before work is commenced (in accordance with Res.2/2007:3.2).

- 4.4. Suggestions for updates (Revisions and Clarifications as defined in Res.2/2007: 5.1) to the specifications or proposals for new symbols may be received from IHO Member States (MS) or WG members at any time. Preliminary discussions about such suggestions will be held during NCWG meetings (or by correspondence if the matter is urgent) when a decision will be taken on whether a suggestion merits further work. An accumulation of such changes will eventually be included in a 'Revised Edition' of S-4.
- 4.5. Clarifications will be noted by the Editor of the publication (currently the Secretary) for inclusion at next Revised Edition. Draft revisions will be prepared by Chairman and Editor in 'MS Word' format, changes to existing specifications shown as 'track changes', and circulated to all WG members by NCWG Letter. Where specific guidance is required, WG members may be asked to vote on their preference in an Annex to the Letter.
- 4.6. Feedback from WG members within the timescales above is considered by the Chairman and Editor and incorporated into a revised draft as appropriate. Further drafts are circulated if necessary, until no further or minimal amendments are suggested.
- 4.7. In accordance with Res.2/2007: 3.2.4, relevant stakeholders should be invited to comment and participate as appropriate. IHO MS are the most significant stakeholders for changes to S-4; therefore any proposed revisions should be submitted for review by IHO Circular Letter (CL) as soon as possible. A period of three months is allowed for MS to comment.
- 4.8. A final version of the revisions is prepared by the Chairman and Editor, taking account of any comments from MS, and promulgated by a second IHO CL. This enables MS to implement the changes immediately, before publication of the next New or Revised Edition of S-4.
- 4.9. Unless urgent, Clarifications will await inclusion at the next New or Revised Edition. Where a new version of S-4 incorporating Clarifications only is considered necessary (n.n.n), the NCWG has the authority to publish the new version without seeking HSSC and MS approval (Res.2/2007: 5.1 and 5.2).
- 4.10. When a significant change has been introduced, and/or sufficient Revisions to S-4 have accumulated, the Chairman will propose to HSSC that a New or Revised Edition of S-4 should be published. As MS have already had the opportunity to comment on the proposed changes, the New or Revised Edition can be prepared as soon as HSSC approval is obtained.
- 4.11. The Secretary supplies to IHB, by email, **a pdf file of the complete S-4**, which is given a New Edition (n.0.0) or Revision number (n.n.0), as appropriate (Res.2/2007: 5.1 and 5.2).
- 4.12. IHB issues a CL to announce the New or Revised Edition and explain the changes, also drawing attention to any significant Clarifications which the WG has decided to incorporate.
- 4.13. IHB make and retain a CD of each New or Revised Edition of S-4, as an international archive of the development of S-4.
- 4.14. The Secretary will also supply copies of all changes, including minor editorials, to France and Spain to assist with translation work.
- 4.15. NCWG is also responsible for maintaining S-11 Part A. Any changes will be progressed in a similar way to the above. Any major revision may be facilitated by the establishment of a subWG.

- 4.16. Official INT1 revisions are undertaken by France, Germany and Spain. They consult within the INT1 subWG, with the aim of achieving consistency (eg in English terms and descriptions). New editions are announced by IHO CL and in the 'IHO News' panel on the IHO website home page. Notice to Mariners updates to INT1 are posted on the IHO website, with links from the Publications download list.
- 4.17. INT2 and INT3 are published by Netherlands and UK respectively, on behalf of IHB. Raster files are provided to IHB for display in a password protected section of the IHO Website.
- 4.18. Revisions of INT1, INT2 and INT3 are not subject to HSSC approval. NCWG is the authority for all terms and descriptions used in official S-4 supplementary publications. This authority is delegated to the INT1 subWG for maintaining INT1, and similarly to the producers of INT2 and INT3, except where they deem it necessary to refer to the whole WG. Terms and descriptions in S-4's supplementary publications must be strictly in accordance with the specifications agreed by IHO Member States for incorporation into S-4. In INT1 however, they may be abridged to provide only the information essential to the chart user.
- 4.19. WG members are encouraged to advise the Secretary at any time of errors or omissions noticed in publications or information messages for which NCWG is responsible.

FUTURE OF S-4 PROJECT TEAM TERMS OF REFERENCE (DRAFT)

Reference: 1st NCWG Meeting Rostock, April 2015

1. Objective

To consider and develop a strategy for the future format, structure and content of S-4, taking into account the increasing uptake of ENC and ECDIS and associated changes in the requirements of nautical cartography.

2. Authority

This Project Team is a subsidiary of the Nautical Cartography WG (NCWG). Its work is guided by the Work Plan established by NCWG and subject to its approval.

3. Composition and Chairmanship:

- a) The Project Team shall comprise representatives of IHO Member States (MS), Expert Contributors (EC) and observers from accredited NGIO. The IHB may also be represented ("IHB" to be replaced by "IHO Secretariat" when the IHO Secretariat is established). A membership list shall be maintained and posted on the IHO website.
- b) The Chair is designated by the parent body.
- c) If a secretary is required it should normally be drawn from a member of the Project Team.
- d) EC membership is open to entities and organizations that can provide a relevant and constructive contribution to the work of the Project Team. ECs shall seek approval of membership from the Chair.
- e) EC membership may be withdrawn in the event that a majority of the members in the Project Team agrees that an EC's continued participation is irrelevant or unconstructive to the work of the Project Team.

4. Procedures:

- a) The Project Team shall work primarily by correspondence and teleconferences. If a face to face meeting is required, it shall be held in conjunction with an NCWG meeting.
- b) Decisions should be made by consensus. Dissenting opinions if any should be reflected in the Project Team report to the NCWG.
- c) The Project Team should liaise with other IHO bodies, international organizations and industry to ensure the relevance of its work.
- d) The Project Team should report to the NCWG in accordance with its Work Plan.

Future of S-4 Project Team Work Plan (Draft)

Project Team Tasks

A	Investigate the future format for S-4, including the possibility of development as a web based service
B	Review the structure of S-4 (Parts A, B and C) and recommend appropriate changes
C	Investigate options and evaluate resource requirements for transition of S-4 to a more generic (paper chart and ENC) specification
D	Investigate and evaluate the impact of evolving ENC/ECDIS navigation techniques on the principles of nautical cartography
E	Provide results to the NCWG for further consideration

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	Related Pubs / Standard	Remarks
A.1	Sample conversion of section of S-4 to XML	M		2015	2016	P	PT Chair	S-4	May be relevant to other IHO Standards and Specifications
A.2	Determine task resource requirements	M		2016	2016	P	PT Chair	S-4	Based on results of A.1. Determination as to whether required resources to complete the task are available
B.1	Consider publication of Part A as a separate document	M		2015	2016	P	PT Chair	S-4	

C.1	Sample expansion of section of S-4 to include ENC specific guidance (including graphics)	M		2015	2016	P	PT Chair	S-4	
C.2	Determine task resource requirements	M		2016	2016	P	PT Chair	S-4	Based on results of C.1. Determination as to whether required resources to complete the task are available
D.1	Initiate discussion with mariners to assess changes in navigation techniques when using ENC/ECDIS	M		2016	2016	P	PT Chair	S-4	

NCWG Work Plan
September 2015
(updated following CSPCWG11/NCWG1)

- *Objectives, Tasks and Work Items are pursued in accordance with IHO Work Programme 2013-2017, Programme 2 (Services and Standards):*
 - *Element 2.3. Nautical Cartography:*
 - *Task 2.3.1 Conduct annual meetings of relevant HSSC WGs dealing with nautical cartography.*
 - *Task 2.3.2 Maintain and extend the relevant IHO standards, specifications and publications.*
- *The focus is on maintaining and enhancing cartographic standards and specifications for nautical charts to suit the needs of the modern mariner in support of safe navigation and protection of the marine environment.*
- *As a Plan it will and should evolve; accordingly, contributions from WG members and others are welcomed at any time.*

NCWG Tasks

- A Maintain and extend Publication S-4 'Chart Specifications of the IHO & Regulations of the IHO for INT Charts' (IHO Task 2.3.2)
- B Maintain and extend Publication S-11 Part A 'Guidance for the Preparation and Maintenance of INT Chart schemes' (IHO Task 2.3.2)
- D Development of new (and revised) symbology (IHO Task 2.3.2)
- E Maintenance of S-4 supplementary publications INT 1, 2 & 3 (IHO Task 2.3.2)
- G Conduct meetings of NCWG (IHO Task 2.3.1)

Tasks and numbers from IHC XVIII Conf.18/Rep/01 and updated in accordance with EIHC-5 document CONF.EX5/REP.04 - Annex B - Appendix 1.

No	Work item	Priority H-high M-medium L-low	Next Milestone	Start Date	End Date	Status P-Planned O-Ongoing C-Completed	Contact Person(s)	Affected Pubs/Standard	Remarks
A.6	Revise S-4 Part B Section 500	M	Publish S-4 Ed 4.5.0	2012	2014	C	Sec CSPCWG	S-4 / B-500	CL38/2014 Retain until HSSC7
A.11	Clarify guidance on dredged/maintained areas	M	HSSC/MS approval & include in next revision S-4	2011	2016	O	Sec NCWG	S-4, INT1	CSPCWG9 Action 43 CSPCWG10 Action 10 WG Ltrs 09 & 13/14
A13	Provide guidance on charting maximum authorized draught	M	HSSC/MS approval & include in next revision S-4	2012	2016	O	Sec NCWG	S-4, INT1	Draft guidance approved by WG. CSPCWG10 Action 12. WG Ltrs 09 & 13/14 – see 09/14 for changes to specs; NCWG1 Agenda 08.3; NCWG1 Action 17; WG Ltrs 02 & 08/2015.
A14	Provide guidance on updating large scale charts first	M	Publish S-4 Ed 4.5.0	2012	2014	C	Sec CSPCWG	S-4 / B-100.5	CL32/2014 Retain until HSSC7
A16	Consideration of the 'future of the paper chart'	M	Set up Correspondence Group	2014	2017	O	Chair NCWG	tbd	CSPCWG10 Action 36 NCWG1 Action 54
A17	Provide guidance on charting wind farms under construction at sea	M	HSSC/MS approval & include in next revision S-4	2014	2016	O	Sec NCWG	S-4 B-445	CSPCWG10 Action 20 WG Ltrs 10 & 14/2014
A18	Provide guidance on charting covered berths	M	WG letter for revised S-4 draft	2014	2016	O	Sec NCWG	S-4 B-300	CSPCWG10 Action 21 WG Ltrs 10 & 14/2014 NCWG1 Action 15; WG Ltr 04/2015
A19	Provide additional guidance on charting AIS where on most AtoN in region	M	HSSC/MS approval & include in next revision S-4	2014	2016	O	Sec NCWG	S-4 B-489	CSPCWG10 Action 28 WG Ltrs 10 & 14/2014

A20	Provide guidance on use of QR codes	M	HSSC/MS approval & include in next revision S-4	2014	2016	O	Sec NCWG	S-4 B-243	CSPCWG10 Action 38 WG Ltrs 11/2014 & 01/2015
A21	Provide guidance on adding reminder about T & P NMs on charts	M	HSSC/MS approval & include in next revision S-4	2014	2016	O	Sec NCWG	S-4 B-252	CSPCWG10 Action 41 WG Ltrs 11/2014 & 01/2015
A22	Consider standardization issues related with additional information overlay services and provide recommendations as appropriate	H	Report on NCWG1 discussions to HSSC7	2014	2015	O	Chair NCWG/UK		HSSC6-05.5D rev1 refers NCWG1 Action 42
A23	Specify "consistency" of charted information between paper charts and corresponding ENCs	M	WG letter for S-4 draft	2015	2016	P	Sec NCWG	S-4 Part B Sections 100 and 600	NCWG1 Action 43 WG Ltrs 03 and 10/2015
A24	Provide guidance on the use of seals of non- IHO members on INT charts	M	WG letter for S-4draft	2014	2016	P	Sec NCWG	S-4	HSSC6-05.5C & F refer NCWG1 Action 46 WG Ltrs 02 & 08/2015
A25	Buildings above the water	M	WG letter for S-4draft	2015	2016	P	Sec NCWG	S-4	NCWG1 Action 29 WG Ltr 04/2015
B.3	Develop guidelines for preparation & maintenance of small / medium scale ENC schemes.	H	Review NSEHWG draft	2009	2017	O	Sec/Chair NCWG IHB	S-11A	Draft by NSEHWG; keep WENDWG engaged NCWG1 Agenda 10.1 and Action 47-49 IHO CL 51/2015 and email to ICCWG coordinators WG Ltr 06/2015
D32.1	Lights issues: Major lights, Direction lights, Highlighting	M	Publish S-4 Ed 4.5.0	2012	2014	C	Sec CSPCWG	S-4 / B-470	CL32/2014 Retain until HSSC7

D32.2	Interrupted lights	M	Publish S-4 Ed 4.5.0	2012	2015	C	Sec NCWG	S-4 / B-470	CSPCWG9 Action 13 CSPCWG10 Action 22,23 Retain until HSSC7
D32.4	Reinstate (simplified) symbol for light vessels	M	HSSC/MS approval & include in next revision S-4	2012	2016	O	Sec NCWG	S-4 / B-474, INT1	CSPCWG9 Action 18; CSPCWG10 Action 16 NCWG1 Action 34
D34	Devise new symbol for 'Maximum authorized draught'	M	Inform HSSC	2014	2015	Cancelled	Chair NCWG	S-4 / B-400	CSPCWG10 Action 12; see also A13. WG Ltrs 09 & 13/14, Action deleted
D35	Dangerous cargo berth	M	HSSC/MS approval & include in next revision S-4	2014	2016	O	Sec NCWG	S4 / B-300	CSPCWG10 Action 18 WG Ltrs 10 & 14/2014
E.1	Maintain official INT 1s		Planning for next editions by INT1 sub-WG (following Cadiz meeting July 2013)	2013	2015	O	DE: S Spohn FR: S Guillou ES: F. Yanguas	INT 1	English version 2011 (Ed 7) French version 2012 (Ed 5) Spanish version 2011 (Ed 4)
E.4	Symbols for vacant entries in INT 1	L	INT1subWG to supply list to Chair		2016	O	INT1subWG, Chair	INT 1, S-4 part B	NCWG1 Action 14
E8	Reorganize INT1 to exclude composite symbols	L				P	INT1 sub-WG	INT1	Not to be progressed at present; use CSPCWG10-11.2A when progressed.
E9	Develop new section V for INT1 for 'data quality'	M	Draft to WG	2014	2016	O	Chair NCWG	INT1	CSPCWG10 Action 35

* Allowing for approval via HSSC (in accordance with Resolution 2/2007) before MS and publication.

G. CSPCWG Meetings (IHO T2.3.1 refers)

Date	Location	Meeting	Date	Location	Meeting
03-05 Nov 04	IHB, Monaco	CSPCWG 1	23-26 Nov 10	Simon's Town, S Africa	CSPCWG 7
19-21 Oct 05	IHB, Monaco	CSPCWG 2	29 Nov–02 Dec 11	Turku, Finland	CSPCWG 8
22-24 Nov 06	IHB, Monaco	CSPCWG 3	13-16 Nov 12	Seoul, Rep of Korea	CSPGWG 9
13-15 Nov 07	IHB, Monaco	CSPCWG 4	21-24 Jan 2014	Wellington, New Zealand	CSPCWG 10
18-21 Nov 08	Sydney, Australia	CSPCWG 5	28-30 April 2015	Rostock, Germany	CSPCWG 11/NCWG1
01-03 Dec 09	IHB, Monaco	CSPCWG 6	26-29 April 2016	IHB, Monaco	NCWG2

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