

2nd NCWG MEETING Monaco 26-28 April 2016

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REPORT:

Notes:

The paragraph numbering is the same as in the agenda, although the order of taking the items was not exactly followed.

Meeting documents and associated presentations are listed in the report and are available on the NCWG2 page of the IHO website:

http://www.iho.int/mtg_docs/com_wg/NCWG/NCWG2/NCWG2docs.htm.

1. Welcome, Introductions and Administrative Arrangements

Docs: NCWG2-01B Rev3 Participants List

Gilles Bessero (Technical Director, IHB), welcomed the NCWG members to the IHB with a brief history of Monaco. He also stressed the importance of nautical cartography for the safety of the mariner and noted that for the foreseeable future paper charts and ENC would co-exist. He stressed that while ECDIS is becoming a mandatory carriage requirement for certain vessels, it is not a mandatory user requirement. Any changes to standards must meet the needs of chart users. He also invited participants to think “outside the box” when addressing some of the important work items on the agenda such as the future of the paper chart. Director Bessero and President Robert Ward participated in several of the discussions, providing useful views and guidance to the meeting participants.

Chair (Jeff Wootton, AU) then welcomed participants to the second meeting of the NCWG

Among other more general matters, Jeff stated:

This meeting sees the continuation of what I touched on in my introductory remarks to last years' NCWG1 meeting, which is the expansion of the focus of the Working Group to meet the challenges of an environment where navigation techniques are transitioning from static, terrestrial positioning methods utilizing paper charts to dynamic positioning and display utilising GNSS, ENC and ECDIS. Several papers have been submitted for this meeting that relate to the display of information in ECDIS or Integrated Bridge Systems, in addition to instruction from our parent HSSC to become more involved in developments related to the portrayal and interoperability of digital hydrographic-related information on vessels.

For the record, the NCWG is an IHO-WG subordinate to the HSSC and consequently our responsible Director is Mr Gilles Bessero (Director – Technical Programme) – in accordance with IHO CL 77/2012.

He welcomed the following representatives who were attending their first NCWG meeting:

From **Brazil**, Lt Alice MARINHO Etienne.

From **Canada**, Mr Daniel BROUSSEAU, who replaces long serving CSPCWG member Mr Dave PRINCE.

From **Egypt**, Mr Ahmed AZAB.

From the **Islamic Republic of Iran**, Mr Saeid PARIZI.

From **Italy**, Lt Cdr Carlo MARCHI and Ms Elena ARMANINO.

From **Japan**, Mr Kenichi NOGUCHI.

From the **Republic of Korea**, Mr Byungseong LEE and Ms Hyosun YOM, who replace Mr BYUNG-MOON and Mr Martin PARK.

From **Turkey**, Cdr Bülent GÜRSES.

From the **United Kingdom**, Mr James CAREY, who replaces recently retired Vic-Chairman Mr Nick WEBB; and

Chair also acknowledged the service of CSPCWG foundation member Mr Robert HEELEY (US), also recently retired.

Each meeting participant then introduced themselves.

Apologies were recorded from Denmark, Greece, New Zealand, Russian Federation, South Africa, and industry representative KRISO.

Chair thanked the IHB for hosting NCWG2, and Yves Guillam (IHB Assistant Director Charting and Services) and other IHB staff for making the logistical arrangements.

Chair stated the following **intentions of the meeting**:

- To exchange ideas;
- To help formulate guidance and proposals that can be taken forward by WG Letter and, subsequently, submission to the HSSC and/or inclusion in IHO CL;
- To seek consensus from our discussions. (If a vote is necessary, this to be on the basis of 1 vote per IHO MS in accordance with our Terms of Reference.)

Chair advised that this **record of the meeting** would focus on the main points, proposals and actions (with appropriate lead and timeframe).

2. Approval of Agenda

Docs: NCWG2-02A Rev4 Agenda

Chair reserved the right to postpone discussion on some lower priority items if necessary to ensure more important items were sufficiently discussed and would take some papers with common subjects together. He explained that the agenda order did not reflect any priority. He also advised that the record of last year's meeting had been subjected to comment at the time it was produced and could therefore be taken as read. The meeting accepted this.

3. Status of Actions from NCWG1

Docs: NCWG2-03A Status of Actions
NCWG2-03B NCWG1 Action 8

Chair updated the meeting on the actions which had been carried forward from CSPCWG9 and 10:

- WG9 Action 22 [AU to continue discussion on dividing regulatory from navigation restrictions (for S-101), keeping secretary informed] was now superseded by Agenda item 8.11.
- WG9 Action 58 [see Annex C] would be referred to the new Registry Manager in due course.
- WG10 Action 40 [see Annex C] to be carried forward.

Most NCWG1 Actions were reported by the Secretary (Andrew Heath-Coleman, UK) as completed or replaced by new agenda items for NCWG2. The exceptions were:

- Action 7: Chair would deal with out of session. [*After meeting note from Chair: This action was not progressed during the week due to time constraints and absence of the HDWG Secretary; the action is therefore carried forward – see Annex C*].
- Action 8: The meeting considered NCWG2-03B and accepted the recommendations from Chair HDWG to revise the entries in S-32 for Altitude, Elevation and Height. Action closed.
- Action 33: This action was for Chair NIPWG, but had been overtaken by events. It is therefore removed from NCWG action list. Action closed.
- Action 37: US had decided that it was unnecessary to resubmit this subject to NCWG. Action closed.

New NCWG2 actions were created:

Action NCWG2/1: Secretary to produce draft report of NCWG2 by end of May 2016, for participants to approve.

Action NCWG2/2: All WG members to make early bids for travel budget to NCWG3; advise Chairman if any difficulties.

Action NCWG2/3: All WG members to note agenda items for NCWG3 throughout the year (and forward to Secretary as they arise). Explanatory Notes may be sent before meeting calling letter.

Action NCWG2/4: Secretary or IHB to inform Chair HDWG that NCWG agrees that the revised definitions (for Altitude, Elevation and Height) should be submitted to HSSC8 with recommendation from NCWG to approve.

[After meeting note from IHB: Chair HDWG visited IHB on 4 May 2016, so opportunity was taken to report on Action NCWG2/04, which was thereby completed].

4. Relationship with HSSC

4.1. Notes from HSSC7 (Chair)

<i>Docs: NCWG2-04.1A</i>	<i>NCWG report to HSSC7 (HSSC7-05.6A)</i>
<i>NCWG2-04.1B</i>	<i>Report from HSSC7 of interest to NCWG</i>
<i>NCWG2-04.1C</i>	<i>Inputs to the IHO Strategic Plan and IHO 3 Year Work Plan</i>
<i>Presentations available</i>	

Chair reported briefly on outcomes of HSSC7 of relevance to NCWG. He then presented the need for input from NCWG to the future IHO Strategic Plan and 3-Year Work Programme (see paper 04.1C and associated presentation), noting the changing status of the WG. He proposed some sample inputs, which were discussed by the meeting, with the following outcomes agreed for inclusion in the NCWG input paper to the HSSC Chair Group meeting in June 2016:

- What is the future of the paper chart as a primary navigation tool?
- Transition to development and testing of ECDIS symbols for emerging requirements in addition to paper chart symbols. [After-meeting note: US (Harmon) suggested NCWG will primarily be engaged in 'design and specification', while S-100WG, ENCWG, and others will be doing development (the actual creation of the digital symbol file) and testing. As 'development and testing' was term used in submission to HSSC Chair Group meeting 1-2 June), Chair undertook to note for HSSC8 and Action NCWG2/5.]
- Portrayal requirements related to display of other (non-navigational) products in ECDIS in addition to ENC (interoperability).
- Changing requirements in nautical cartography for mariners navigating using ECDIS as their primary navigation tool.
- The future direction of S-4 as the chart specifications of the IHO.
- Minimum content for charts of any format.

4.2. Report from NIPWG (Chair, IHB)

<i>Docs: NCWG2-04.2A</i>	<i>Output from NIPWG Report to NCWG7</i>
<i>S-100WG1-10.2A</i>	<i>Interoperability Specification</i>
<i>Presentations available</i>	

Yves Guillam (IHB) and Chair each made presentations explaining some of the outcomes from NIPWG2. Some concern and uncertainty was expressed about the level of work that might accrue from the HSSC7 action on NCWG to 'compile portrayal requirements relating to product specifications in general as part of its programme of work'. It was believed that it is the responsibility of the relevant WG to develop general portrayal requirements and test data sets and ask the NCWG to provide the cartographic expertise in how to apply them and advice about prioritization in ECDIS display. It was

agreed that a small Portrayal subWG would be set up to study this action in more detail – to establish a protocol to assist developers of S-100-based product specifications in drafting portrayal submissions – and then refer back to the NCWG. Volunteers included Colby Harmon (US(NOAA)), Jackie Baronne (US(NGA)) and the Chair.

Action NCWG2/5: Chair to initiate a Portrayal subWG and liaise in first instance with the NIPWG Workshop on Visualization of Nautical Information at University of New Hampshire, USA (22-26 May 2017).

See also **Action NCWG/2/22.**

4.3. Report from S-100WG (**Chair**)
Presentation available

Chair gave a presentation about the 1st S-100WG meeting (14-18 March 2016). He commented that NCWG should have a representative on the Control Board for the Portrayal Register. He also reported on an S-100WG project to develop an “Interoperability Specification and Catalogue” for determining the interaction and display priority of information that is included in an ECDIS; and consideration of the NCWG providing advice/input to this project. No actions accrued.

4.4. Report from ENCWG (**Chair**)
Presentation available

Chair gave a presentation about the 1st ENCWG meeting (14-18 March 2016). He advised WG members to note ENC Encoding Bulletin 60 about overlapping ENC (different Navigational Purpose and same compilation scale). He also reported that ENC encoding for buildings above water had been developed and approved (ENC Encoding Bulletin 61).

The NCWG were asked to consider whether separate paper chart symbols for generic V-AIS (S18.1) and Special Purpose AIS (S18.6) are necessary. The Secretary pointed out the S18.6 was only applicable to IALA defined special purpose V-AIS, not to V-AIS of unknown or non-IALA purpose. Chair agreed to consider this further.

Action NCWG2/6: Chair to consider further the need for separate generic and IALA special purpose V-AIS symbols.

4.5. Report from HDWG (**Chair**)

There had been virtually no activity to report, besides re-establishing the link between different language definitions. A meeting is planned between IHB and HDWG Chair to consider the way forward for the group. Any retired HO staff interested in assisting this WG were encouraged to contact the IHB directly.

4.6. Report from DQWG (**IHB**)
Docs: NCWG2-04.6A Report from DQWG
Presentation available

Yves Guillam (IHB) gave a presentation about the activities of the DQWG. The WG, while struggling with few active members, has made progress in the development of the data quality elements of the IHO S-101 – *ENC Product Specification*. No actions accrued.

5. Terms of Reference

5.1. Changes consequent to HSSC7 (**Chair**)
Docs: NCWG2-05A NCWG Terms of Reference
Presentation available

The meeting agreed to accept the minor changes to the NCWG TOR by the HSSC for paragraphs 3f,

4b and 4h detailed in the paper. However, it accepted the recommendation from the NCWG Executive to insert, as a clarification, the word ‘responding’ in relation to voting at 4c.

Action NCWG2/7: IHB to amend TOR last sentence 4c to: ‘Votes by correspondence shall be on the basis of one vote per **responding** MS represented in the WG’ and refer to it as a clarification in the TOR header.

6. NCWG procedures

6.1. Changes consequent to HSSC7 (**Secretary**)

Docs: NCWG2-06A Rev1 WG Procedures

Secretary explained that detailed procedures are needed for the effective operation of the WG. At present, the former CSPCWG procedures are still in use, but need updating for some changes (including the change of name and the effect of the requirement to comply with Res.2/2007 following the completion of the major revision of S-4). Some suggested changes were offered in the paper.

As far as Res.2/2007 was concerned, some consideration was given to having a similar system to ENC Encoding Bulletins to disseminate proposed changes to S-4. Alternatively, the NCWG could issue NCWG Letters to MS and other stakeholders. Neither proposal seemed fully satisfactory.

The Chair advised that most decisions of the WG are ‘business as usual’. Only decisions involving major resources or a revision of S-4 should be referred to HSSC for allocation of a new Work Item to the NCWG Work Plan.

The meeting accepted changes recommended in the paper to the draft NCWG Procedures except that:

- The insertion at 1.2 should be ‘(including IHB, industry representatives and expert contributors)’;
- 3.1 should be aligned with the TOR 4b, that is ‘the WG should meet about once a year’;
- 4.7 and subsequent paragraphs should remain as drafted until after the HSSC Chair Group meeting in June had considered what changes are needed to Res.2/2007, after which Chair (in consultation with Secretary) would redraft the relevant paragraphs for further consideration by correspondence.

Action NCWG2/8: Chair (in consultation with Secretary) to redraft relevant paragraphs touching on Res.2/2007 for further consideration by correspondence, following meeting of HSSC Chair Group in June.

7. NCWG work plan

7.1. Summary of progress (**Secretary**)

Docs: NCWG2-07.1A NCWG Summary of Progress

Secretary summarised progress in relation to the latest version of the Work Plan, noting that those items already reported to HSSC7 as complete would be removed immediately after this meeting. Other items completed would be reported to HSSC8 before removal. It was noted that the priority of item A16 should be raised to High (HSSC7 decision) and it was agreed that item E8 should be declared redundant (and so reported to HSSC8 for removal). These changes have been included in the updated Work Plan at Annex E.

Action NCWG2/9: Secretary to raise priority of A16 to High and mark E8 as redundant in the NCWG Work Plan (at Annex E).

8. Chart content:

8.1. Radio-activated Aids to Navigation (**US, CA**)

*Docs: NCWG2-08.1A Radio Activated Aids to Navigation (+ 3 Annexes)
Presentation available*

Colby Harmon (US) gave a presentation on recommendations for charting mariner activated aids to navigation. The meeting accepted the recommendations as follows:

‘man’ approved as an INT abbreviation for ‘manually or mariner activated’

Example descriptions: Horn (man – see Note); Fl.G.3s (man – see Note).

Two example notes to be included in S-4 (as in paper).

Action NCWG2/10: Secretary to draft specifications for user activated AtoN and circulate to WG for comment and approval.

Action NCWG2/11: Pending HSSC approval, INT1 producers to include at P56, R2 and in the list of abbreviations.

8.2. Lite pipes **(UK)**

Docs: NCWG2-08.2A *High intensity LED lights in linear array*

Secretary presented the paper. Recommendation 10.2 was accepted and it was agreed that the brand name ‘Lite pipe’ should be avoided.

Action NCWG2/12: Secretary to draft clarification to S-4 about LED lights and circulate to WG for comment and approval and circulate to WG for comment and approval.

8.3. Abbreviation or full word for conspicuous features **(AU)**

Docs: NCWG2-08.3A *Abbreviations Used for Conspicuous Features*
Presentation available

Chair (on behalf of AU) gave a presentation based on his paper, pointing out the inconsistencies in S-4. Secretary pointed out that we need to determine which charting practice is preferred and then adjust S-4 and INT1 as necessary. The meeting decided Recommendation 1 should be accepted and also add ‘and conspicuous objects’ to B-540.1 (last sentence).

Action NCWG2/13: Secretary to amend S-4 B-340.3 and B-540.1 as a clarification re conspicuous features and circulate to WG for comment and approval.

Action NCWG2/14: INT1 producers to amend the water tower example at E2 to ‘WATER TR’.

8.4. Suspended submarine pipelines: *Presentation* **(TR)**

Docs: NCWG2-08.4A Rev2 *Suspended Submarine Pipeline*
Presentation available

Bülent Gürses (TR) showed some pictures of the construction phase of the sub-surface floating pipeline, which helped the meeting understand the details of this feature. The recommended addition to S-4 in the paper was generally accepted with the following amendments:

B-444.9 Sub-surface pipelines that are floating in the water column and anchored....

The example diagram should be adjusted to remove the appearance of buoys above the pipeline and to show the depth marker above the highest part of the arc.

Action NCWG2/15: Secretary to amend draft for sub-surface floating pipeline and circulate to WG for comment and approval.

Note: recommendation ‘c’ relating to ENC guidance is already in hand: no further action for NCWG.

8.5. Intermittent lakes **(Chair, for Saudi Arabia)**

Docs: NCWG2-08.5A *Intermittent Lakes*

Chair presented the paper on behalf of Saudi Arabia. In answer to a question from Saied Parizi (IR), he stated that he did not believe there is any legal implication to charting intermittent lakes (which are

non-navigable). The recommendations were accepted.

Action NCWG2/16: Secretary to draft clarification on intermittent lakes for S-4 and circulate to WG for comment and approval.

Action NCWG2/17: INT1 producers to agree an amended entry for intermittent lakes.

Action NCWG2/18: Chair to draft encoding guidance for intermittent lakes for S-57 and submit a proposal to the S-100WG (S-101 PT) for the addition of a status attribute to the Lakes feature.

8.6. Portrayal of data quality indicators (**Chairman, for NIPWG**)

Docs: NCWG2-08.6A Data Quality Indicators for Bathymetry

The Chair presented the paper on behalf of NIPWG, noting however that DQWG is going to do further work on this. Nevertheless, he considered it useful as an example of the sort of portrayal issue that NCWG may need to advise on in the future. In fact, all the options shown were considered to be non-intuitive and would be rejected by NCWG. The Chair commented that the existing 'hotel star' system is better (although could be made smaller as screen resolutions had improved significantly since S-52 was originally developed).

Colby Harmon (US) suggested an option based on the well-known 'emoticon faces', which the meeting considered to be more intuitive. Chair also commented that the DQWG rejection of the 'traffic light' colour code on the basis that 'it is to be used for Underkeel Clearance overlay' is suspect, as the two layers would not be displayed simultaneously. Robert Ward (IHB) suggested that the [International Cartographic Association](#) (ICA) might be interested, and have the expertise, to help with this sort of question and pointed to the Memorandum of Understanding which now exists between IHB and ICA. Chair offered to discuss it with Ron Furness (ICA), who is a corresponding member of the NCWG.

Action NCWG2/19: Chair to communicate to Chair NIPWG that none of the options for displaying DQ in S-101 were considered satisfactory.

Action NCWG2/20: Chair to discuss data quality options with Ron Furness (ICA)

Action NCWG2/21: IHB (Yves Guillam) to communicate Colby Harmon's suggestion about using emoticon faces to DQWG.

[After meeting note from IHB: This is to report that Action NCWG2/21 was completed during DQWG11 meeting. The DQWG well received the suggestions for portraying the data quality using "smileys" in general.]

8.7. Under Keel Clearance (**Chair**)

Docs: NCWG2-08.7A Under Keel Clearance

Chair presented his paper as an example of an S-10x product for information only. No actions accrued.

8.8. E-Navigation: Update on development of S-412, 'Weather Overlay' (**US**)

Docs: NCWG2-08.8A E-Navigation: Update on Development of S-412, "Weather Overlay"

Presentation available

Colby Harmon (US) presented his paper, drawing attention to the link to *Hydro International*, where more information can be found. This is another example of an S-10x product in development. Yong Baek (KR/IHB Special Projects Officer) advised that KHOA are assisting in the development of the SVG symbols and testing them overlaid on ENC data.

Yves Guillam (IHB) commented that it is necessary to establish protocols for considering submissions for advice on S-10x symbology, including, for example: which colours are to be reserved for ENC; what is the hierarchy between different S-10x specifications. This should be an early consideration for the Portrayal subWG.

Action NCWG2/22: Portrayal subWG to establish protocol for considering portrayal submissions from ENC and other producers of overlays.

8.9. Seaweed and Seagrass **(ES)**

Docs: NCWG2-08.9A Seagrass/Seaweed (Macro-Algae) (+ 2 Annexes)

Presentation available

Federico Yanguas Guerrero (ES) presented the paper. There was general support to approve a new INT abbreviation 'Sg' for seagrass. The proposed symbol was not approved (it is too complex), nor an alternative to use the marsh symbol (C33) as it is already also used for above water reed beds, which might be confusing to the chart user. It was also decided that Coralline Algae should remain at J10 (as far as the mariner is concerned, the difference is unimportant).

Action NCWG2/23: Secretary to circulate proposed revisions on seagrass to S-4 to WG for approval.

Action NCWG2/24: Chair to propose changes to definitions for seagrass and seaweed in S-32 to HDWG (and consider whether any related definitions, such as kelp, need adjusting).

8.10. Larger scale chart limits in yellow **(SE, NL)**

Docs: NCWG2-08.10A Presentation of chart boundaries

NCWG2-08.10B References to other charts

Andreas Andersson (SE) presented his 'A' paper on the colour used for chart boundaries (on multicolour charts). He advised the meeting that some magenta had been added to the yellow to make it clearer, following chart user feedback. Mikko Hovi (FI) also advised the meeting that user feedback had indicated that this method of de-cluttering was preferred to transferring the larger scale chart limits to a small diagram. The meeting agreed that this is a sensible method of de-cluttering the magenta layer and agreed it should be added as an option for multi-coloured charts.

Action NCWG2/25: Secretary to draft amendment to S-4 to allow use of yellow for chart limits and circulate to WG for comment and approval.

Ben Timmerman (NL) presented his 'B' paper on references to smaller scale charts. The meeting agreed that this option should be included in S-4. Mikko Hovi (FI) suggested an alternative (to avoid words) of showing the smaller scale/adjoining chart number flanked by arrows and this was also well received. Options to use legends, for example 'adjoining chart'; 'smaller scale chart'; just the chart number, were also considered as appropriate, depending on the national convention.

Action NCWG2/26: Secretary to draft amendment to S-4 to include all options for referencing smaller scale and adjoining charts for consideration by the WG.

8.11. Restrictions in Marine Reserves **(NL)**

Docs: NCWG2-08.11A Restrictions in ESSA-areas

NCWG2-08.11B(S-101PT1-03.3A) DCEG Restricted Area Proposal

Ben Timmerman (NL) presented his paper on colour usage for display of navigational restrictions concerned with ESSAs, followed by a brief from the Chair on the discussions related to sub-classification of restricted areas that took place at the S-100WG1 meeting (14-18 March 2016). There was a robust discussion, initially with conflicting views, but a consensus emerged that:

- Colours of symbols and limits must never be mixed (which accords with the present guidance at B-437.2B).
- Ideally, areas which are **permanently** entry prohibited for **all** classes of vessels should be charted in magenta. However, some cartographic judgment was needed in complex areas where seasonal restrictions apply or different restrictions apply to different parts of an ESSA.

Action NCWG2/27: Secretary to draft some clarifications to the various parts of S-4 which cover restricted area and ESSA symbology, to ensure no contradictions or ambiguities.

It was felt that no action is necessary for INT1.

[After-meeting note: The secretary has noted, however, that the INT1subWG should consider whether the note under N2.2 should be repeated for other entries, e.g. N20, N21 – or perhaps made more general to the whole section]

8.12. Use of symbol K24 'Stranded wreck' in tidal waters **(DE)**

Docs: NCWG2-08.12A *Wrecks almost not visible at level of Chart Datum*

Sylvia Spohn (DE) presented her paper. Secretary proposed an addition to S-4 B-422.2, allowing the use of K25-27 in such circumstances. This was agreed by the meeting.

Action NCWG2/28: Secretary to circulate draft amendment to B-422.2, allowing use of K25-27 for nearly invisible stranded wrecks, to WG for comment and approval.

Action NCWG2/29: Chair to suggest necessary changes to the S-57 UOC on attribute WATLEV.

8.13. Limitations in P/T presentations in ENC **(SE)**

Docs: NCWG2-08.13A *Limitations in P/T presentations in ENC*

Andreas Andersson (SE) presented his paper outlining problems concerning portrayal of (T) and (P)NM information on ENC. Several WG members shared their practices with the common view that CTNARE should be avoided if possible, but can be used if necessary (although not simply to highlight temporary information). Information should be included as with permanent ENC Updates, if practicable with DATSTA/DATEND attributes populated. A further update should be issued when the information no longer applies. No actions accrued.

8.14. Portrayal of newly Modelled Features in S-101 **(Chair, for S-100WG)**

Docs: NCWG2-08.14A *Portrayal of new Features*
NCWG2-08.14B *Items That Require Symbolology (Spreadsheet)*
NCWG2-08.14C *Extract of new Features*

Chair presented the paper on behalf of S-100WG and also showed the Excel spreadsheet listing features possibly requiring symbolization in S-101. He opined that most features would probably already have suitable symbols within S-52. He offered to work with Colby Harmon (US) to slim the list down. Colby suggested that the S-100WG should be asked to define more exactly what they require, rather than providing an unedited list; he offered to speak to his US colleague who had prepared the list. Chair asked for volunteers to share out the proposals once a slimmed down list is available. FI, US(NGA), DE, TU, IT all offered to help. A further action might be to ask other WG Chairs to seek volunteers from their WGs, to form a cross WG Project Team.

Action NCWG2/30: Colby Harmon to discuss with Julia Powell (Chair S-100WG) a requirement for a more refined request for help in designing symbols for S-101.

Action NCWG2/31: Chair and Colby Harmon to slim down the list of possibly required symbols for S-101 and then share them out among volunteers.

Action NCWG2/32: Chair to consider requesting other WG Chairs to form a PT to consider symbolization for S-101.

8.15. Depicting Virtual AIS AtoNs Out of Position **(AU)**

Docs: NCWG2-08.15A *V-AIS Out of Position*

Chair (on behalf of AU) presented the paper on depicting V-AIS AtoN out of position. Secretary pointed to S-4 B-125.2, which the meeting agreed largely covered the situation. It was decided that a cross reference to B-125.2, with a comment that a magenta pointer should be used, should be added to B-489.2.

Action NCWG2/33: Secretary to draft a clarification to B-489.2 to provide a cross reference to B-125.2 for V-AIS out of position for consideration by the WG.

9. S-4

9.1. Use of English for NMs **(IHB)**

IHB has received complaints from Ships Chandlers that some countries only publish NMs in their native language. YG summarized the guidance in S-4 B-631.4 and B-510.4 which require use of English. Secretary also commented that this derives from IMO SOLAS Regulation 14. IHB requested that a reminder should be included in this report, but the meeting decided it would be better to promulgate via IHO CL.

Action NCWG2/34: IHB to consult with Chair HSSC to gain approval to issue a reminder, advising MS that all NMs should be issued in English language within the IHO CL reporting on the outcome of HSSC8.

9.2. 'Hanging' light sectors **(UK)**

Docs: *NCWG2-09.2A* *Hanging light sectors*
NCWG2-09.2B *U.S. Response to UK Hanging Light Sectors Proposal*

Secretary presented the papers on 'Hanging light sectors' on behalf of UK. Although some concern was expressed, the meeting decided that the practice is legitimate in complex situations. The US more compact version (see 'B' paper) was accepted, with the associated graphics, except that the arrowheads should be removed from the 'hanging' ends of the sector arcs.

Action NCWG2/35: Secretary to include the clarification on hanging light sectors in S-4 for consideration by the WG.

It was noted that S-100WG is considering consistency issues about portrayal of light sectors between paper and ENC. A watching brief should be kept by NCWG on outputs from this study.

9.3. Polar code: Action HSSC7/40 **(IHB)**

Docs: *MSC 94/21/Add.1* *International Code for Ships Operating in Polar Waters*
Presentation available

Yves Guillam (IHB) gave a presentation on the Polar Code, detailing the small amount of navigational guidance contained within it. The presentation is available on the NCWG page of the IHO website. In response to HSSC7 Action 40 'NIPWG and NCWG to consider improvements to current IHO specifications or other actions which could facilitate the implementation of the provisions of the Polar Code related to charting issues' he recommended that no new work items for NCWG accrued from it. Secretary advised that he had done a similar exercise in examining the Polar Code and had reached the same conclusion. The meeting endorsed these conclusions. No actions accrued.

9.4. Possibility of excessive use of non-IHO seals on charts **(Secretary)**

Docs: *NCWG2-09.4A* *Potential for non-IHO organizations seals being included on charts*

Secretary presented the paper. The meeting confirmed the proposed clarification to S-4. No additional clarification was considered necessary in regard to 'acknowledgments'.

Action NCWG2/36: Secretary to apply clarification re non-IHO seals to S-4 for consideration by the WG.

10. S-11 Part A

10.1. New edition S-11 Part A (Task B3) **(Chair)**

Docs: *NCWG2-10.1A* *New Edition of S-11 part A*
NCWG2-10.1B *(HSSC7-05.6E) S-11 Part A*
NCWG2-10.1C *Suggestions from IHB*
NCWG2-10.1D *Consultation for INT chart production **(IN)***

Chair presented his paper. It was decided that the revised text of S-11A should be reviewed by Chair and Secretary by correspondence, to include changes to references as necessary; suggestions from US that were missed at the time of submission to HSSC; and a few other minor questions.

IHB presented suggestions for a new structure for S-11 (to be version 3.0.0). This was accepted, with minor changes to the title: add '(INT)' after first reference to international; include 'and ENCs', as shown in [].

Action NCWG2/37: Chair and Secretary to correspond to prepare further version of S-11A for approval of the WG and submission to HSSC8.

The 'D' paper submitted by India was considered, although no representative from India was present. The request to restore the previous consultation group for INT charts had been achieved through the separating of INT and ENC guidance. No further action is required.

10.2. Basic quality assurance check list for review of INT charts (Task B4) **(IHB)**

Docs: NCWG2-10.2A Review of New INT Charts by INT Charts Coordinators

Yves Guillam (IHB) presented the paper, stressing that this new checking procedure is unlikely to be a heavy work load for coordinators, as few new INT charts are being produced. He explained that 'step 2' was to avoid collateral consequences of newly published INT charts, for example when the new chart supersedes another chart produced by a different producer. He also explained that the checker cannot prevent publication (although the Coordinator might advise against it). If there is a serious contravention of IHO specifications, this should be reported to IHB, in order that the IHO crest can be protected. After the experimental procedure (see IHO CL64/2015 for details) has run its course, consideration would be given to any amendments required to IHO resolutions. Some suggestions for amendments to the draft check list were made. It was decided to forward these to Secretary to consolidate before supplying to IHB. Meanwhile, IHB (Yves Guillam) would report progress with this action to IRCC8.

Action NCWG2/38: ALL WG members to forward suggestions for changes to the INT chart checklist to Secretary **by end June** to consolidate and forward to IHB.

Action NCWG2/39: IHB to report progress with NCWG Task B4 to IRCC8.

10.3. Report from WENDWG6 on ENC overlaps **(IHB)**

*Docs: WENDWG6 draft list of actions: note action WENDWG6/03
WENDWG6-04.1A2 Overlapping data: Report on scenarios and test cases on
ECDIS (IC-ENC)*

Presentation available

Yves Guillam (IHB) presented a short report from WENDWG6, in particular warning of consequences of overlapping ENC of different Navigational Purpose but having the same compilation scale. Chair commented that this issue is being addressed by Encoding Bulletin 60. Meanwhile, WG members were encouraged to read the associated IC-ENC report (WENDWG6-04.1A2) and advise their home offices if appropriate. No actions accrued.

11. INT 1 / 2 / 3

11.1. Report of INT1 subWG **(Secretary)**

Docs: NCWG2-11.1A Report of NCWG INT1subWG

Secretary presented the INT1 subWG report. DE, ES and FR were congratulated on the production of the latest New Editions of INT1. Secretary noted that the problems with Res. 2/2007 had caused some frustration as changes agreed up to 2 years ago had not been available to incorporate into INT1 because of the delay in publishing a revised S-4. (Note: the new edition of the FR INT1 had been delayed, which allowed these changes to be included; on reflection it may have been better to delay the DE and ES versions too).

The meeting endorsed the continuation of the INT1 subWG.

Chair requested that the INT1 subWG should consider whether a change in the 'General Principles for Reviewing and Maintaining INT 1' could result in a closer link between publication times of S-4 and INT1.

Action NCWG2/40: INT1 subWG to consider a change to the 'General Principles for Reviewing and Maintaining INT1' to link publication of S-4 and INT1 more closely if possible.

The meeting considered that none of the recent changes to S-4 required NM action for INT1, although the producing HO makes the final decision on this.

The meeting decided that vacant entry INT1 numbers should not be re-used.

11.2. Vacant entries in INT1 (Task E4) **(Secretary)**

Docs: NCWG2-11.2A *Vacant entries in INT1*
 NCWG2-11.2B *US response re Fathoms and Compass Terms*
 NCWG2-11.2C *US response re Floating Barriers and Oil Retention Barriers*
Presentations available

Secretary presented the paper on vacant entries in INT1. Chair confirmed from participants that only US had some comments, after which Colby Harmon presented his papers.

On the 'B' paper, the meeting agreed that 'fm, fms' should be included as INT abbreviations for fathom(s) and included in INT1 at B48. However, as no INT abbreviations were agreed for the magnetic terms B60-67, it was decided these entries should be removed. If national HOs require them for national abbreviations, these should become lettered entries. Secretary pointed out that there is no requirement to put them at the end of the INT1 section, citing S-4 B-151.1.

Action NCWG2/41: INT1 producers to add fm, fms to INT1

Action NCWG2/42: Secretary to add fm, fms to list of INT abbreviations in S-4 and add remaining vacant entries to the 'retired' list at B-151.2.

Colby Harmon presented his 'C' paper on floating barriers. The meeting agreed:

- That the entries at F29.1 and N61 should be split to show barriers without and with pile supports. The example list at each entry should be the same (if INT1 subWG decides to retain both entries).
- That the 'oil barrier' entry at F29.2 should be replaced by the term 'Bubbler', using a magenta pipeline symbol with legend 'Bubbler'.
- INT1 subWG to consider whether terms such as 'e.g.' and similar can be made consistent throughout INT1.

Action NCWG2/43: Secretary to draft new spec for 'bubbler' and circulate to WG for comment and approval

Action NCWG2/44: INT1 subWG to decide on placement of 'barriers and bubblers' and on 'e.g.' consistency issues.

11.3. INT1 New section V **(Chair)**

Chair reported that unfortunately he had been unable to progress Section V (a new 'data quality' section for INT1). This had now been handed over to a colleague, but only recently, so no progress to report as yet.

11.4. INT1 Symbol Repository **(US)**

Docs: NCWG2-11.4A *Proposal for a Shared INT1 Symbol Repository*
 NCWG2-11.4B *Excerpts from CSPCWG meetings on shared INT1*
symbol repository
Presentation available

Colby Harmon presented the paper. The idea of a symbol library for the production of INT1 and similar documents was welcomed by the meeting. There was some debate about: how this could be made a reality; whose symbols should be used; whether multiple symbols should be available for selecting from. It is likely that this will be useful to emerging HOs and database providers. UK stated they would be happy to make vector versions of the symbols used in S-4 available (in response to recommendation 6 of the paper), although they would need to consult at home whether these would need to be in a 'members only access' part of the IHO website. Colby Harmon was asked to consider answers to the other recommendations.

Action NCWG2/45: UK to consult whether we can supply symbol set for universal use.

Action NCWG2/46: Colby Harmon to make recommendations regarding naming conventions and other library characteristics for implementing the symbol library.

Action NCWG2/47: FR to advise IHB which symbols to use in French S-4.

11.5. Future of INT3 (UK)

Docs: NCWG2-11.5A The future of INT3

Secretary explained why it is no longer possible or appropriate for UK to print two-sided versions of INT3. Consequently, UKHO had decided to no longer offer printed versions, only PDFs, to be available on the IHO website (which could be printed by HOs if desired). Several WG members present stated that INT3 is still useful to cartographers, but none indicated willingness to take on maintenance and printing of it.

Action NCWG2/48: UK to check whether the PDF of INT3 could be released from the password protected section of IHO website.

11.6. Improving the INT1 Routing Measures Graphic (US)

*Docs: NCWG2-11.6A Improving the INT1 Routing Measures Graphic
Presentation available*

Colby Harmon presented the paper. He suggested setting up a short term subWG to consider redesigning the INT1 M20 Routing graphic. The meeting agreed with the suggestion that Colby, the members of the INT1 subWG and a volunteer mariner should form the subWG. Ben Timmerman (NL) offered to ask a colleague to be involved.

Action NCWG2/49: INT1 subWG plus CH and volunteers to consider revising M20 graphic.

Action NCWG2/50: Ben Timmerman (NL) to ask colleague to contribute to discussions about M20.

12. Lessons learned from Marine Incidents

There were no entries for this agenda item. Chair stated that nevertheless this should remain as a standing item.

13. Strategic direction

13.1. Future of Paper Charts (Task A16) (Chair)

*Docs: NCWG2-13.1A Future of paper Charts
NCWG2-13.1B Future of the Paper Chart CG Reference Docs (zip file)*

The Chair presented the paper and stated that HSSC7 had raised the priority of this work item to HIGH, with a report required for HSSC8. He asked if anybody wished to be added to the list of corresponding members. FR, IT, NO, TU all requested to be added. Chair stated that the outcomes, which would expand on paper CSPCWG11-13.1A, would be shared with the whole NCWG before submission to HSSC8. Yves Guillam (IHB) stated that the HSSC Chair group would like a progress

report at their June meeting, so time scales would be tight. Chair stated that there would be a short meeting of those members of the CG available next morning (Friday 29 April) to get some preliminary ideas together.

[After meeting note from Chair: The CG meeting was held at the IHB from 0900-1130. The meeting was conducted as a “brainstorming” session, with the majority of CG members in attendance or represented. All thoughts and feedback collected at the meeting will be incorporated by the NCWG Chair into the draft report to HSSC8 for consideration of the CG and the full NCWG. Thanks are extended to all participants in the meeting.]

13.2. Future of S-4 (Chair)

Docs: NCWG2-13.2A

Report – Discussions on the Future of S-4

Chair stated that although the HSSC had ruled out immediate progress on considering the future of S-4, he felt it should nevertheless be added to the Work Plan, without start and end dates. (Added as work item A28.) He expected that it would not be started until the Future of Paper Charts CG had reported.

14. Review of Actions and Work Plan

14.1. Actions

The draft actions were reviewed and confirmed. IHB agreed to include the draft list of actions with the meeting papers, noting that there would be a few further actions and amendments to be added.

14.2. New items for Work Plan

One item noted at 13.2 (now work item A28). Chair and Secretary would decide which matters raised during the meeting warranted inclusion on the Work Plan, to be included with this report; see Annex E.

14.3. Priorities

The Chair and Secretary would consult to decide priorities and include in the Work Plan.

14.4. Timescales for tasks

The Chair and Secretary would consult to decide timescales and include in the Work Plan.

Action NCWG2/51: Chair and Secretary to include new items with priorities and timescales in the updated Work Plan to be attached to this report (at Annex E).

15. INF papers, reports and Any Other Business,

15.1. Update on DRTC (KR)

Presentation available

Yong Baek (KR) briefed the meeting on the latest developments with the Digital Reference Tool for Cartographers. He indicated that, unfortunately, there are no plans to produce a web-based version, which prevents some HOs from making use of it.

15.2. Information papers

INF1: Wave Glider (UK)

The meeting noted the paper.

INF2: Paper Chart Generalization Policy (UK)

Time precluded considering this paper.

INF3: Deletion of unwanted symbols (IN)

Time precluded considering this paper. The author was absent.

INF4: Depiction of an artificial structure for water flow control (MOSE)

Elena Armanino (IT) presented the paper, requesting advice on the depiction of a tidal barrier near Venice. The meeting endorsed the action proposed by Italy for paper charts and ENC. (Note: MOSE is an Italian language acronym.)

15.3. Election of Vice-Chair (**IHB**)

The need for a new Vice-Chair, prepared to become Acting Chair in September, had been set out in WG letter 1/2016. There were no volunteers.

Action NCWG2/52: All to consider whether they could volunteer for the Vice-Chair role and if so, indicate availability between now and September. (This will result in appointment, and if necessary election, by correspondence).

16. Date, duration and venue of next meeting

The date of the next meeting is expected to be May 2017 (after the IHC/General Assembly). No offers were received to host the meeting. Carlo Marchi (IT) stated that Italy may be able to host a meeting in 2018.

Action NCWG2/53: All to consider hosting NCWG meeting in May 2017 and 2018 and offer by 1 September.

The Chairman thanked everyone for their attendance and input; asked attendees to convey his thanks on behalf of the IHO to their home offices; and closed the meeting at 1700 on Thursday 28 April. He invited any who were interested to attend the meeting on the 'Future of the Paper Chart' Correspondence Group next morning.

**2nd NCWG MEETING
Monaco 26-28 April 2016**

AGENDA

1. Welcome, Introductions and Administrative Arrangements

Docs: NCWG2-01B rev2 Participants List

2. Approval of Agenda

Docs: NCWG2-02A rev5 Agenda

3. Status of Actions from NCWG1

*Docs: NCWG2-03A Status of Actions
NCWG2-03B NCWG1 Action 8*

4. Relationship with HSSC

4.1. Notes from HSSC7 (Chair)

*Docs: NCWG2-04.1A NCWG report to HSSC7 (HSSC7-05.6A)
NCWG2-04.1B Report from HSSC7 of interest to NCWG
NCWG2-04.1C Inputs to the IHO Strategic Plan and IHO 3 Year Work Plan*

4.2. Report from NIPWG Presentation (Chair)

*Docs: NCWG2-04.2A Output from NIPWG Report to NCWG7
S-100WG1-10.2A Interoperability Specification*

4.3. Report from S-100WG: Presentation (Chair)

4.4. Report from ENCWG: Presentation (Chair)

4.5. Report from HDWG (Chair)

4.6. Report from DQWG (IHB)

5. Terms of Reference

5.1. Changes consequent to HSSC7 (Chair)

Docs: NCWG2-05A NCWG Terms of Reference

6. NCWG procedures

6.1. Changes consequent to HSSC7 (Secretary)

Docs: NCWG2-06A rev1 WG Procedures

7. NCWG work plan

7.1. Summary of progress (Secretary)

Docs: NCWG2-07.1A NCWG Summary of Progress

8. Chart content:

8.1. Radio-activated Aids to Navigation (US, CA)

Docs: NCWG2-08.1A Radio Activated Aids to Navigation (+ 3 Annexes)

8.2. Lite pipes (UK)

Docs: NCWG2-08.2A High intensity LED lights in linear array

8.3. Abbreviation or full word for conspicuous features (AU)

Docs: NCWG2-08.3A Abbreviations Used for Conspicuous Features

8.4. Suspended submarine pipelines: Presentation (TR)

Docs: NCWG2-08.4A Suspended Submarine Pipeline

8.5. Intermittent lakes (Chair, for Saudi Arabia)

Docs: NCWG2-08.5A Intermittent Lakes

8.6. Portrayal of data quality indicators (Chair, for NIPWG)

Docs: NCWG2-08.6A Data Quality Indicators for Bathymetry

- 8.7. Under Keel Clearance **(Chair)**
Docs: NCWG2-08.7A Under Keel Clearance
 - 8.8. E-Navigation: Update on development of S-412, 'Weather Overlay' **(US)**
Docs: NCWG2-08.8A E-Navigation: Update on Development of S-412, "Weather Overlay"
 - 8.9. Seaweed and Seagrass **(ES)**
Docs: NCWG2-08.9A Seagrass/Seaweed (Macro-Algae) (+ 2 Annexes)
 - 8.10. Larger scale chart limits in yellow **(SE, NL)**
Docs: NCWG2-08.10A Presentation of chart boundaries
NCWG2-08.10B References to other charts
 - 8.11. Restrictions in Marine Reserves **(NL)**
Docs: NCWG2-08.11A Restrictions in ESSA-areas
NCWG2-08.11B (S-101PT1-03.3A) DCEG Restricted Area Proposal
 - 8.12. Use of symbol K24 'Stranded wreck' in tidal waters **(DE)**
Docs: NCWG2-08.12A Wrecks almost not visible at level of Chart Datum
 - 8.13. Limitations in P/T presentations in ENC **(SE)**
Docs: NCWG2-08.13A Limitations in P/T presentations in ENC
 - 8.14. Portrayal of newly Modelled Features in S-101 **(Chair, for S-100WG)**
Docs: NCWG2-08.14A Portrayal of new Features
NCWG2-08.14B Items That Require Symbolology (Spreadsheet)
NCWG2-08.14C Extract of new Features
 - 8.15. Depicting Virtual AIS AtoNs Out of Position **(AU)**
Docs: NCWG2-08.15A V-AIS Out of Position
- 9. S-4**
- 9.1. Use of English for NMs **(IHB)**
 - 9.2. 'Hanging' light sectors **(UK)**
Docs: NCWG2-09.2A Hanging light sectors
NCWG2-09.2B U.S. Response to UK Hanging Light Sectors Proposal
 - 9.3. Polar code HSSC7/40: Presentation **(IHB)**
Docs: MSC 94/21/Add.1 International Code for Ships Operating in Polar Waters
 - 9.4. Possibility of excessive use of non-IHO seals on charts **(Secretary)**
Docs: NCWG2-09.4A Potential for non-IHO organizations seals being included on charts
- 10. S-11 Part A**
- 10.1. New edition S-11 Part A (Task B3) **(Chair)**
Docs: NCWG2-10.1A New Edition of S-11 part A
NCWG2-10.1B (HSSC7-05.6E) S-11 Part A
NCWG2-10.1C Suggestions from IHB
NCWG2-10.1D Consultation for INT chart production **(IN)**
 - 10.2. Basic quality assurance check list for review of INT charts (Task B4) **(IHB)**
Docs: NCWG2-10.2A Review of New INT Charts by INT Charts Coordinators
 - 10.3. Report from WENDWG6 on ENC overlaps **(IHB)**
Docs: WENDWG6 draft list of actions: note action WENDWG6/03
WENDWG6-04.1A2 Overlapping data: Report on scenarios and test cases on ECDIS (IC-ENC)
- 11. INT 1 / 2 / 3**
- 11.1. Report of INT1 subWG **(Secretary)**
Docs: NCWG2-11.1A Report of NCWG INT1subWG
 - 11.2. Vacant entries in INT1 (Task E4) **(Secretary)**
Docs: NCWG2-11.2A Vacant entries in INT1
NCWG2-11.2B US response re Fathoms and Compass Terms
NCWG2-11.2C US response re Floating Barriers and Oil Retention Barriers

- 11.3. INT1 New section V **(Chair)**
- 11.4. INT1 Symbol Repository **(US)**
 - Docs: NCWG2-11.4A *Proposal for a Shared INT1 Symbol Repository*
 - NCWG2-11.4B *Excerpts from CSPCWG meetings on shared INT1 symbol repository*
- 11.5. Future of INT3 **(UK)**
 - Docs: NCWG2-11.5A *The future of INT3*
- 11.6. 11.6. Improving the INT1 Routing Measures Graphic **(US)**
 - Docs: NCWG2-11.6A *Improving the INT1 Routing Measures Graphic*

12. Lessons learned from Marine Incidents

13. Strategic direction

- 13.1. Future of Paper Charts (Task A16) **(Chair)**
 - Docs: NCWG2-13.1A *Future of paper Charts*
 - NCWG2-13.1B *Future of the Paper Chart CG Reference Docs (zip file)*
- 13.2. Future of S-4 **(Chair)**
 - Docs: NCWG2-13.2A *Report – Discussions on the Future of S-4*

14. Review of Actions and Work Plan

- 14.1. Actions
- 14.2. New items for Work Plan
- 14.3. Priorities
- 14.4. Timescales for tasks

15. INF papers, reports and Any Other Business,

- 15.1. Update on DRTC **(KR)**
- 15.2. Information papers
 - INF1: Wave Glider (UK)*
 - INF2: Paper Chart Generalization Policy (UK)*
 - INF3: Deletion of unwanted symbols (IN)*
 - INF4: Depiction of an artificial structure for water flow control (MOSE)(IT)*
- 15.3. Election of Vice Chair **(IHB)**

16. Date, duration and venue of next meeting

2nd NCWG MEETING
IHB, Monaco 26 - 29 April 2016

PARTICIPANTS

Member State	Name	Email
Australia	Mr Jeff WOOTTON (Chair)	jeff.wootton@defence.gov.au
Brazil	Lt Alice MARINHO Etienne	alice@chm.mar.mil.br
Canada	Mr Daniel BROUSSEAU	Daniel.Brousseau@dfo-mpo.gc.ca
Egypt	LtCdr Ahmed AZAB	Ahmed.h.azab@gmail.com
Finland	Mr Mikko HOVI	Mikko.Hovi@liikennevirasto.fi
France	Mr Stéphane GUILLOU	stephane.guillou@shom.fr
Germany	Ms Sylvia SPOHN	sylvia.spohn@bsh.de
Iran (Islamic Rep. of)	Mr Saeid PARIZI	sparizi@pmo.ir
Italy	LtCDR Carlo MARCHI Ms Elena ARMANINO	Carlo.marchi@marina.difesa.it elena_armanino@marina.difesa.it
Japan	Mr Kenichi NOGUCHI	?
Korea (rep of)	Mr Byungseong LEE Ms Hyosun YOM	? yomhs@korea.kr
Latvia	Mrs Ilona MARKUSA	ilona.markusa@lhd.lv
Netherlands	Mr Ben TIMMERMAN	B.Timmerman@mindef.nl
Norway	Mrs Inger TELLEFSEN	inger.tellefsen@kartverket.no
Spain	Cdr Federico YANGUAS Guerrero	fyangue@fn.mde.es
Sweden	Mr Andreas ANDERSSON	Andreas.Andersson@sjofartsverket.se
Turkey	Cdr Bülent GÜRSES	bgurses@shodb.gov.tr
United Kingdom	Mr James CAREY Mr Andrew HEATH-COLEMAN (Secretary)	james.carey@ukho.gov.uk andrew.coleman@ukho.gov.uk
USA (NOAA)	Mr Colby HARMON	colby.harmon@noaa.gov
USA (NGA)	Miss Jacqueline BARONE	jacqueline.barone@nga.mil
IHB	Mr Gilles BESSERO Mr Yves GUILLAM (Host) Mr Yong BAEK	dtech@iho.int adcs@iho.int pok@iho.int
Industry Observers		
ESRI	Ms Patricia (Trish) SHEATSLEY	PSheatsley@esri.com
Jeppesen	Mr Justin HORNBY	justin.hornby@jeppesen.com

28 persons (18 Member States, 2 Expert Contributors, 3 IHB)

NCWG2 MEETING
IHB Monaco 26-28 April 2016

ACTIONS

RETAINED ACTIONS from CSPCWG9

No	WG9 Agenda item	WG9 Action	Delegate	Status
58	14.6	WG9 58: AU to produce a sample INT1 register for next meeting.	AU	

RETAINED ACTIONS from CSPCWG10

No	WG10 Agenda item	WG10 Action	Delegate	Status
40	15.4	AU to forward CSPCWG10-INF4 on Ice product specification and discuss with S-100WG.	AU	

RETAINED ACTIONS from CSPCWG11/NCWG1

No	WG10 Agenda item	WG1 Action	Delegate	Status
7	4.4	Chair to progress the action about a revised definition for ED (in place of WG10 Action 25)	Chair	

NCWG2 ACTIONS

No	WG10 Agenda item	WG2 Action	Delegate	Status
1.	3	Secretary to produce draft report of NCWG2 by end of May 2016, for participants to approve.	Sec	
2.	3	All WG members to make early bids for travel budget to NCWG3; advise Chairman if any difficulties.	All WG members	
3.	3	All WG members to note agenda items for NCWG3 throughout the year (and forward to Secretary as they arise). Explanatory Notes may be sent before meeting calling letter.	All WG members	
4.	3	Inform Chair HDWG that NCWG has endorsed revised definitions for height, elevation and altitude, as in letter 02 HDWG 6/04/16.	Sec or IHB	Completed by IHB 4/05/2016
5.	4.2	Chair to initiate a Portrayal subWG and liaise in first instance with the NIPWG Workshop on Visualization of Nautical Information at University of New Hampshire, USA (22-26 May 2016).	Chair	

2nd NCWG Meeting – April 2016 in Monaco

No	WG10 Agenda item	WG2 Action	Delegate	Status
6.	4.4	Chair to consider further the need for separate generic and IALA special purpose V-AIS symbols.	Chair	
7.	5.1	IHB to amend TOR last sentence 4c to: 'Votes by correspondence shall be on the basis of one vote per responding MS represented in the WG' and refer to it as a clarification in the TOR header.	IHB (YG)	
8.	6.1	Chair (in consultation with Secretary) to redraft relevant paragraphs touching on Res.2/2007 for further consideration by correspondence, following meeting of HSSC Chair Group in June.	Chair/Sec	
9.	7.1	Secretary to raise priority of A16 to High and mark E8 as redundant in the NCWG Work Plan.	Sec	Completed
10.	8.1	Secretary to draft specifications for user activated AtoN and circulate to WG for comment and approval.	Sec	
11.	8.1	Pending HSSC approval INT1 producers to include at P56, R2 and in the list of abbreviations.	INT1 prod	
12.	8.2	Secretary to draft clarification to S-4 about LED lights and circulate to WG for comment and approval.	Sec	
13.	8.3	Secretary to amend S-4 B-340.3 and B-540.1 as a clarification re conspicuous features and circulate to WG for comment and approval.	Sec	
14.	8.3	INT1 producers to amend the water tower example at E2 to 'WATER TR'	INT1 prod	
15.	8.4	Secretary to amend draft for sub-surface floating pipeline and circulate to WG for comment and approval.	Sec	
16.	8.5	Secretary to draft clarification on intermittent lakes for S-4 and circulate to WG for comment and approval.	Sec	
17.	8.5	INT1 producers to agree an amended entry for intermittent lakes.	INT1 prod	
18.	8.5	Chair to draft encoding guidance for intermittent lakes for S57 and submit a proposal to the S-100WG (S-101 PT) for the addition of a status attribute to the Lakes feature.	Chair	
19.	8.6	Chair to communicate to Chair NIPWG that none of the options for displaying DQ in S101 were considered satisfactory.	Chair	
20.	8.6	Chair to discuss DQ options with Ron Furness (ICA)	Chair	

2nd NCWG Meeting – April 2016 in Monaco

No	WG10 Agenda item	WG2 Action	Delegate	Status
21.	8.6	IHB (Yves Guillam) to communicate Colby Harmon's suggestion about using emoticon faces to DQWG	IHB (YG)	Completed at DQWG11
22.	8.8	Portrayal subWG to establish protocol for considering portrayal submissions from ENC and other producers of overlays.	Portrayal subWG	
23.	8.9	Secretary to circulate proposed revisions on seagrass to S-4 to WG for approval.	Sec	
24.	8.9	Chair to propose changes to definitions for seagrass and seaweed in S-32 to HDWG (and consider whether any related definitions, such as kelp, need adjusting).	Chair	
25.	8.10	Secretary to draft amendment to S-4 to allow use of yellow for chart limits and circulate to WG for comment and approval.	Sec	
26.	8.10	Secretary to draft amendment to S-4 to include all options for referencing smaller scale and adjoining charts for consideration by the WG.	Sec	
27.	8.11	Secretary to draft some clarifications to the various parts of S-4 which cover restricted area and ESSA symbology, to ensure no contradictions or ambiguities.	Sec	
28.	8.12	Secretary to circulate draft amendment to B-422.2, allowing use of K25-27 for nearly invisible stranded wrecks, to WG for comment and approval.	Sec	
29.	8.12	Chair to suggest necessary changes to UOC on attribute WATLEV.	Chair	
30.	8.14	Colby Harmon to discuss with Julia Powell (Chair S-100WG) a requirement for a more refined request for help in designing symbols for S-101.	CH	
31.	8.14	Chair and Colby Harmon to slim down the list of possibly required symbols for S-101 and then share them out among volunteers.	Chair & CH	
32.	8.14	Chair to consider requesting other WG Chairs to form a PT to consider symbolization for S-101.	Chair	
33.	8.15	Secretary to draft a clarification to B-489.2 to provide a cross reference to B-125.2 for V-AIS out of position for consideration by the WG.	Sec	
34.	9.1	IHB to consult with Chair HSSC to gain approval to issue a reminder, advising MS that all NMs should be issued in English language within the IHO CL reporting on the outcome of HSSC8.	IHB	

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No	WG10 Agenda item	WG2 Action	Delegate	Status
35.	9.2	Secretary to include the clarification on hanging light sectors in S-4 for consideration by the WG.	Sec	
36.	9.4	Secretary to apply clarification re non-HO seals to S-4 for consideration by the WG.	Sec	
37.	10.1	Chair and Secretary to correspond to prepare further version of S-11A for approval of the WG and submission to HSSC8.	Chair, Sec	
38.	10.2	ALL WG members to forward suggestions for changes to the INT chart checklist to Secretary by end June to consolidate and forward to IHB.	ALL, Sec	
39.	10.2	IHB to report progress with NCWG Task B4 to IRCC8.	IHB	
40.	11.1	INT1 subWG to consider a change to the 'General Principles for Reviewing and Maintaining INT 1' to link publication of S-4 and INT1 more closely if possible.	INT1 subWG	
41.	11.2	INT1 producers to add fm, fms to INT1.	INT1 producers	
42.	11.2	Secretary to add fm, fms to list of INT abbreviations in S-4 and add remaining vacant entries to the 'retired' list at B-151.2.	Sec	
43.	11.2	Secretary to draft new spec for 'bubbler' and circulate to WG for comment and approval.	Sec	
44.	11.2	INT1 subWG to decide on placement of 'barriers and bubblers' and on 'e.g.' consistency issues.	INT1 subWG	
45.	11.4	UK to consult whether we can supply symbol set for universal use.	UK	
46.	11.4	Colby Harmon to make recommendations regarding naming conventions and other library characteristics for implementing the symbol library.	Colby Harmon	
47.	11.4	FR to advise IHB which symbols to use in French S-4.	FR	
48.	11.5	UK to check whether the PDF of INT3 could be released from the password protected section of IHO website.	UK	
49.	11.6	INT1 subWG plus CH and volunteers to consider revising M20 graphic.	INT1 subWG Colby HArmon	
50.	11.6	Ben Timmerman to ask colleague to contribute to discussions about M20.	Ben Timmerman	

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No	WG10 Agenda item	WG2 Action	Delegate	Status
51.	14	Chair and Secretary to include new items with priorities and timescales in the updated Work Plan to be attached to this report.	Chair/Sec	
52.	15.3	All to consider whether they could volunteer for the Vice-Chair role and if so, indicate availability between now and September.	ALL	
53.	16	All to consider hosting NCWG meeting in May 2017 and 2018 and offer by 1 September.	ALL	

LIST OF ACRONYMS AND ABBREVIATIONS USED AT NCWG2

AIS	Automatic Identification System
AtoN	Aid to navigation
AU	Australia
BR	Brazil
CA	Canada
CATZOC	Category of Zone of Confidence
CG	Correspondence Group
CL	Circular Letter (of IHO)
CSPCWG	Chart Standardization and Paper Chart WG (of HSSC)
CTNARE	Cautionary Area (ENC)
DCEG	Data Classification and Encoding Guide
DE	Germany
DIPWG	Digital Information Portrayal Working Group (of HSSC)
doc	NCWG2 document or paper associated with the meeting
DQ	Data quality
DQWG	Data Quality Working Group(of HSSC)
DRTC	Digital Reference Tool for Cartographers
ECDIS	Electronic Chart Display and Information System
ED	Existence Doubtful
EN	Explanatory note
ENC	Electronic Navigational Chart
ENDDAT	End date (ENC)
ES	Spain
ESSA	Environmentally Sensitive Sea Area
ESRI	Environmental Systems Research Institute
FI	Finland
FR	France
GNSS	Global Navigation Satellite System
HDWG	Hydrographic Dictionary Working Group (of HSSC)
HO	Hydrographic Office
HSSC	Hydrographic Services and Standards Committee (of IHO)
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
ICA	International Cartographic Association
ICCWG	(Regional) International Charting Coordination WG
IC-ENC	International Centre for Electronic Navigational Charts
IHB	International Hydrographic Bureau
IHO	International Hydrographic Organization
IHC	International Hydrographic Conference
IMO	International Maritime Organization
INF	Information paper associated with the meeting
INT	International
INT1	Symbols, Abbreviations, Terms used on Charts
INT2	Borders, Graduations, Grids and Linear Scales
INT3	Use of Symbols and Abbreviations - standard reference chart

IR	Islamic Republic of Iran
IRCC	Inter-Regional Coordination Committee
IT	Italy
KHOA	Korea Hydrographic and Oceanographic Agency
KR	Republic of Korea
KRISO	Korea Research Institute of Ships and Ocean Engineering
LED	Light Emitting Diode
LtV	Light Vessel
LV	Latvia
MPA	Marine Protected Areas
MS	Member State (of IHO)
NCWG	Nautical Cartography Working Group (of HSSC)
NGA	National Geospatial-Intelligence Agency (US)
NIPWG	Nautical Information Provision Working Group (of HSSC)
NL	Netherlands
NO	Norway
NOAA	National Oceanic and Atmospheric Administration (US)
NM	Notice to Mariners
NSEHWG	North Sea ENC Harmonization Working Group
PDF	Portable document format
(P)NM	Preliminary Notice to Mariners
PT	Project Team
Res.	Resolution (of the IHO)
Rev	Revision (of a paper)
S-4	Chart Specifications of the IHO and Regulations for International (INT) Charts
S-11	Guidance for the Preparation and Maintenance of International Chart Schemes and Catalogue of International (INT) Charts
S-32	Hydrographic Dictionary
S-52	Specifications for Chart Content and Display Aspects of ECDIS
S-57	IHO Transfer Standard for Digital Hydrographic Data
S-100	IHO Geospatial Standard for Hydrographic data
S-101	ENC Product Specification
SE	Sweden
Sec	Secretary (of NCWG)
SOLAS	Safety of Life at Sea
STADAT	Start date (ENC)
subWG	Sub-working group (of relevant HSSC WG)
SVG	Scalable Vector Graphics
(T)NM	Temporary Notice to Mariners
TOR	Terms of Reference
TR	Turkey
UK	United Kingdom of Great Britain and Northern Ireland
UOC	Use of Object Catalogue for ENC
US	United States of America
V-AIS	Virtual Automatic Identification System (aid to navigation)

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WENDWG	World-wide ENC Database Working Group
WG	Working Group (of IHO)

2nd NCWG MEETING
IHB, Monaco 26-29 April 2016

NCWG Work Plan
(Updated following NCWG2)

- *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.

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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.11	Clarify guidance on dredged/maintained areas	M	Report to HSSC8 and remove.	2011	2016	C	Sec NCWG	S-4, INT1	CSPCWG9 Action 43 CSPCWG10 Action 10 WG Ltrs 09 & 13/14 Included in S-4 4.6.0
A13	Provide guidance on charting maximum authorized draught	M	Report to HSSC8 and remove.	2012	2016	C	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. Included in S-4 4.6.0
A16	Consideration of the 'future of the paper chart'	H	Report progress to NCWG before advising HSSC8 of outcome	2014	2017	O	Chair NCWG		CSPCWG10 Action 36 NCWG1 Action 54 Meeting following NCWG2
A17	Provide guidance on charting wind farms under construction at sea	M	Report to HSSC8 and remove.	2014	2016	C	Sec NCWG	S-4 B-445	CSPCWG10 Action 20 WG Ltrs 10 & 14/2014 Included in S-4 4.6.0
A18	Provide guidance on charting covered berths	M	Report to HSSC8 and remove.	2014	2016	C	Sec NCWG	S-4 B-300	CSPCWG10 Action 21 WG Ltrs 10 & 14/2014 NCWG1 Action 15; WG Ltr 04/2015 Included in S-4 4.6.0
A19	Provide additional guidance on charting AIS where on most AtoN in region	M	Report to HSSC8 and remove.	2014	2016	C	Sec NCWG	S-4 B-489	CSPCWG10 Action 28 WG Ltrs 10 & 14/2014 Included in S-4 4.6.0

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A20	Provide guidance on use of QR codes	M	Report to HSSC8 and remove.	2014	2016	C	Sec NCWG	S-4 B-243	CSPCWG10 Action 38 WG Ltrs 11/2014 & 01/2015 Included in S-4 4.6.0
A21	Provide guidance on adding reminder about T & P NMs on charts	M	Report to HSSC8 and remove.	2014	2016	C	Sec NCWG	S-4 B-252	CSPCWG10 Action 41 WG Ltrs 11/2014 & 01/2015 Included in S-4 4.6.0
A23	Specify “consistency” of charted information between paper charts and corresponding ENCs	M	Report to HSSC8 and remove.	2015	2016	C	Sec NCWG	S-4 Part B Sections 100 and 600	NCWG1 Action 43 WG Ltrs 03 and 10/2015 Included in S-4 4.6.0
A24	Provide guidance on the use of seals of non- IHO members on INT charts	M	Clarification to prevent non-HO seals and logos being included on INT charts	2014	2017	O	Sec NCWG	S-4	HSSC6-05.5C & F refer NCWG1 Action 46 WG Ltrs 02 & 08/2015 Included in S-4 4.6.0 NCWG2 Action 36
A25	Buildings above the water	M	Report to HSSC8 and remove.	2015	2016	C	Sec NCWG	S-4	NCWG1 Action 29 WG Ltr 04/2015 Included in S-4 4.6.0
A26	Portrayal subWG	H	Initiate subWG and decide protocol for considering portrayal requirements	2016		O	Chair NCWG		HSSC7 Action 18 NCWG2 Actions 5, 22, 30-32
A27	Provide guidance on charting Sub-surface floating pipelines	M	NCWG Ltr	2016	2017	O	Sec NCWG	S-4	NCWG2 Action 15
A28	Future of S-4		After A16 reported to HSSC8			P	Chair NCWG	S-4	NCWG2 Agenda Item 13.2
B3	Develop guidelines for preparation & maintenance of small / medium scale ENC schemes.	H	Prepare new draft for submission to HSSC8	2009	2017	O	Sec/Chair NCWG IHB	S-11A	HSSC7 Action 22 NCWG2 Action 37

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B4	Prepare a “basic quality assurance check-list template” for use by INT Chart Coordinators/ICCWG in support of the review of new INT charts.	M	Report progress to IRCC8. Suggestions for changes to draft template to IHB.	2016	2016	O	IHB Chair/Sec NCWG		IHO CL 64/2015 NCWG2 Actions 38, 39
D32.4	Reinstate (simplified) symbol for light vessels	M	Report to HSSC8 and remove.	2012	2016	C	Sec NCWG	S-4 / B-474, INT1	CSPCWG9 Action 18; CSPCWG10 Action 16 NCWG1 Action 34 Included in S-4 4.6.0
D35	Dangerous cargo berth	M	Report to HSSC8 and remove.	2014	2016	C	Sec NCWG	S4 / B-300	CSPCWG10 Action 18 WG Ltrs 10 & 14/2014 Included in S-4 4.6.0
D36	User activated AtoN	M	NCWG Ltr	2015	2017	O	Sec NCWG	S-4, INT1	NCWG2 Action 10
D37	Seagrass	M	NCWG Ltr	2016	2017	O	Sec NCWG	S-4, INT1	NCWG2 Action 23, 24
D38	Bubbler	M	NCWG Ltr	2016	2017	O	Sec NCWG	S-4, INT1	NCWG2 Action 43, 44
E.1	Maintain official INT 1s		Planning for next editions by INT1 sub-WG			O	DE: S Spohn FR: S Guillou ES: F. Yanguas	INT 1	English version 2015 (Ed 8) French version 2016 (Ed 6) Spanish version 2015(Ed 5)
E.4	Symbols for vacant entries in INT 1	L	Add INT abbrs. Fm(s) to S-4 B-122.1. Remove agreed vacant entries and populate B48 & F29.2 next editions INT1.	2016	2019?	O	Sec NCWG INT1subWG	INT 1, S-4 part B	NCWG1 Action 14 NCWG2 Actions 41-44
E8	Reorganize INT1 to exclude composite symbols	L	Report redundancy to HSSC8 and remove			P	INT1 sub-WG	INT1	Not to be progressed at present; use CSPCWG10-11.2A when progressed. NCWG2: Remove (redundant)

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E9	Develop new section V for INT1 for 'data quality'	M	Draft to WG	2014	2017	O	Chair NCWG	INT1	CSPCWG10 Action 35
E10	Symbol library	L		2016	?	O	Sec NCWG US (C Harmon)	S-4, INT1	NCWG Actions 45, 46

* 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	29 Nov–02 Dec 11	Turku, Finland	CSPCWG 8
19-21 Oct 05	IHB, Monaco	CSPCWG 2	13-16 Nov 12	Seoul, Rep of Korea	CSPCWG 9
22-24 Nov 06	IHB, Monaco	CSPCWG 3	21-24 Jan 2014	Wellington, New Zealand	CSPCWG 10
13-15 Nov 07	IHB, Monaco	CSPCWG 4	28-30 April 2015	Rostock, Germany	CSPCWG 11/NCWG1
18-21 Nov 08	Sydney, Australia	CSPCWG 5	26-29 April 2016	IHB, Monaco	NCWG2
01-03 Dec 09	IHB, Monaco	CSPCWG 6	May 2017	?	NCWG3
23-26 Nov 10	Simon's Town, S Africa	CSPCWG 7			

Chair: Jeff Wootton (AU)

Email: jeff.wootton@defence.gov.au

Vice Chair: vacant

Email:

Secretary: Andrew Heath-Coleman (UK)

Email: andrew.coleman@ukho.gov.uk