NCWG 9 28th November 2023, Taunton

1. **Welcome, Introductions and Administrative Arrangements**

Meeting started at 0930 28 November 2023.

Everyone attending the meeting introduced themselves.

The Chair presented the agenda to the group; The Chair went through the agenda items.

The Chair asked if there is anything missing from the agenda; no one had a comment.

The agenda was approved for the NCWG 9.

2. Minutes and Actions of NCWG8

2.1 Approval of NCWG8 minutes

Chair asked if the minutes from the last meeting could be approved and if anyone had any comments: approved

The Chair approved the minutes from the last meeting.

2.2 Status of Actions from NCWG8

The Vice chair shared the actions from the previous NCWG 8 meeting.

Actions 2(b), 8(a), 10(b and c) and 11(a) were all closed, all other actions remain open.

NCWG 7 3.2 7/9, Chair said that the IHO secretariat and Germany have ownership of this action and remains open.

Approved

3 Notes, matters arising and actions from HSSC 15 and other bodies.

3.1 Review NCWG actions from HSSC

IHO Strategic Plan: refresh it but not re-engineer it completely, a group has been established to review the content as a project which will be reported on at each Council.

3.2 Report from S-100 WG (inc. S-101 PT)

The Chair briefed the group; they will still do 5.2.0 of S-100 before becoming operational 2026.

A lot of project teams need to get their operational specifications finalised in a year, The Chair said everything should be finalised by next summer.

The IHO said the most important thing is the timeline for approval for version 2.0.0, said circulating new additions would be helpful.

UK said there will be a remote S-101PT meeting in February which will go through any final changes, and then again, another meeting in June and this will finalise any editorial issues.

The IHO said there is a council action to send out the finalised timeline by December.

The Chair asked the UK if the NCWG will need to answer before version 2.0, UK suggested maybe a meeting via VTC may be useful.

UK said might be useful to have the NCWG labels/tags within the GitHub which would mean there can be discussions regarding specific issues requiring NCWG input.

The Chair asked if anyone had any questions in regarding the S-100 and S-101 WG.

Everyone was content and no further questions were asked.

3.3 Report from ENCWG inc. ECS Project team

The Chair said there isn't a report for this, HSSC have established another project team under the ENCWG, this to study requirements for digital charting.

The Chair said this is to investigate the Sub-ECDIS, The Chair said this was discussed at Assembly to try and figure out if the IHO can support in this context.

The project team is being led by the UK.

3.4 Report from NIPWG

The Chair asked if anyone was available to add to this.

The IHO said that they are working towards S128 which is the catalogue of products, he said they are currently having monthly meetings.

No one else had any other updates.

3.5 Report from DQWG.

The IHO said the next meeting is planned for February 2024.

No one else had any other updates.

4 NCWG Admin and Workplan Update

4.1 Review NCWG TOR

The NCWG TOR was presented to the group.

The Chair noted IHO Assembly Decision A3/9b that invited all IHO WGs to review their TORs and ROPs in application of the amended IHO Resolution 1/2020 on Gender-Inclusive language. The Chair also noted that NCWG and BSPT TORs contain one reference to 'chairmanship', but are otherwise in line with the Resolution. He also proposed that the single reference to 'chairmanship' (in title of paragraph) to be changed to 'chair' as already done in some other WGs.

The Chair asked if anyone else had noticed any other changes.

The Chair asked the group about making a proposal to the HSSC to change the language.

Everyone was content.

ACTION 9/01: the NCWG Chair, BSPT Chair and INT 1 sub-working group chair to work together to draft a change proposals to HSSC16 to modify TORs from referring to chairman/chairmanship to just chair.

4.2 Review HSSC Workplan incorporating.

The workplan was presented from on HSSC website. The Chair noted that this isn't the latest version as there has been approved updates not included in this version.

The Chair said that this includes the NCWG main tasks.

A: Maintain and extend Publication S-4 'Chart Specifications of the IHO & Regulations of the IHO for INT Charts

B: Maintain and extend Publications S-11 Part A 'Guidance for the Preparation and maintenance of INT Chart Schemes

D: Development of new and revised symbology

E: Maintenance of S-4 supplementary publications INT 1, 2 and 3

G: Conduct meetings of NCWG

H: Provide technical assistant to other IHO working groups and support regarding the implementation of S-100

Everyone was content with this.

ACTION 9/02: **Chair and Vice-Chair** to check with IHO Secretariat regarding the currency of the Workplan on the HSSC website.

4.3 S-4 Updates, Confirmation of amended wording and incorporating.

The UK said this has been drafted but this will be sent to the Chair when it is ready for circulation. The UK said this will be complete in this quarter as there will be revisions but not clarifications.

The Chair said this will need to be ready by early April ready for the HSSC in May 2024.

Everyone was content with this.

ACTION 9/03: **UK** to finalise available S-4 draft changes for WG Letter in February 2024 so that they can be submitted for HSSC consideration in April 2024. There is no need to hold until all amends are complete, they can be released in batches for approval.

4.4 INT-1 sub-WG report

The UK updated everyone that this hasn't been updated and no changes have been made.

Everyone was content with this.

4.5 Baseline Symbology Project Team

-Portrayal update
-Final symbol library confirmed?
-Final colour values confirmed?
-Final line weights confirmed?

Canada explained that this was discussed at the NCWG 5 meeting in 2019.
Canada shared the Terms of Reference for this project team and explained this will be shared with the NCWG members for comment.
The original members include UK, 2 members from NOAA, ESRI, CHS, IHO and Primar and they are currently trying to have monthly meetings, but this isn't always possible due to conflicting time zones.

Canada said that a standardised set of colours is positive progress, they took 6 colour libraries and looked at adapting these. Canada explained that the average of these 6 colour libraries was a good compromise for everyone.

There is a requirement to see the link between S-4 symbols with the S-101 symbols.

The Canadian Hydrographic Service is fully funding this.

Canada explained that they need more members to support this, this would mean they would need to update the work plan and potentially a new team lead due to resourcing issues.

USA noted that they have made progress with choosing the colours, explained the more complicated part is creating the rules. USA said an additional conversation needs to take place with the S-101 project team.

Indonesia said they would like to be involved with this project as part of learning and contributing.

India asked how does the ENC to Paper proposal work with POD and how does this proposal align with Digital Only Charting.

Canada said that if it fits with the S-100 standard and a customer wants their chart to look like a paper chart then they would be able to.

The Chair said it will be good to have shared symbols which they can use but isn't mandated.

Netherlands said there has been a lot of change since this BPST started, the UK announced and intention to withdraw and there are proposals to remove the INT chart scheme and rely on the local NHOs to cover their coastal waters. Is strict regulation of a paper chart from an ENC still a requirement?

The Chair said the goal is not to provide strict rules, but to create enabling guidelines for a consistent end-result for paper charts which are derived from ENCs.

The Republic of Korea said they are not involved in this, but they have their own SVG.

The Chair asked if they could share this with the BSPT; The Republic of Korea said they would need to check.

The Chair asked what is the end-result for BPST?

Canada said that now the base colours have been proposed, the next step will be to confirm the colours of the symbols, but ultimately it must be defined by NCWG.

Everyone agreed they are happy with the direction this is going in.

The Chair said the project team should create a draft proposal, USA asked what is the time frame to propose this, The Chair said they could include it in their S-4 updates in March 2024.

Everyone approved.

5.14 S-101 Symbolisation

Australia presented S-101 Symbolisation questions submitted by S-101PT's Portrayal SubWG.

Australia explained there are a variety of issues including complex issues which have been raised and discussed in the GITHUB and it has been agreed by the portrayal sub-working-group as needing a final answer and or input from the NCWG:

Issue 1

S-57 does not allow pontoon point features, S-101 does, is there a user need for a point feature in S-101?

Noting there are no point pontoons in S-57, the group cannot see a use-case for a point, where the scale is so small that a line cannot be drawn then the display of a point feature will make it look bigger and obliterate other charted features. Also, S-4 does not support a point feature.

The USA asked what about a pontoon being used as a bridge in a river or floating swimming platforms, without this point symbol then the HO is forced to create a polygon?

Outcome: NCWG recommends retaining the S-57 approach not allowing a point feature. The specification should be flexible enough if a solid use-case is defined in the future.

Issue 2

Australia presented S-57 does not allow point features of Floating Dock, S-101 does, is there a user need for a point feature in S-101? Is there a greater safety concern from a POV of a floating dock being larger / more resilient structure?

Outcome: NCWG recommends retaining the S-57 approach not allowing a point feature.

Issue 3

Australia presented what was discussed at NCWG 8, waterfalls were agreed to be a valuable aid to navigation, however, point symbols are not visualised and it was agreed they should be.

If a point is required, then a symbol is required.

Canada asked if this should be in S-126, the physical environment, rather than S101?

USA said in ENCs, US uses a landmark and includes watermark.

SE and DK, if there is a symbol then it should be portrayed.

Should only the conspicuous features be portrayed and or should we have 2 symbols if the feature is conspicuous, and one is not.

The USA asked can black and brown be used to differentiate between conspic and non-conspic respectively, as shown in S-52? This would prevent the requirement for 2 new symbols.

Colour options include:

Black = CHBLK

Brown = LANDF

Blue = AZUBL

The proposed symbol is large, the top 3 lines would be sufficient. Further simplification would be better.
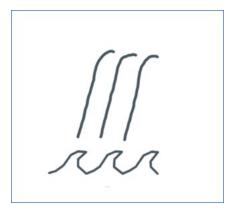
Prefer this as an option:

Q: or is legend waterfall as appropriate?

A: they prefer not to use legends on ENCs as it can't be controlled in terms of positioning, it can be controlled in S-101 however the text will be wide and take up a lot of room.

Later in the week UK shared their idea for a waterfall; Norway and Latvia said they liked this.

The Chair said that if everyone is happy with UK example, they can provide to the portrayal sub-group.

Outcome: NCWG recommends a symbol which should be even more simplified and provides the following draft as guide on which further development may be done.

Issue 4

Underwater rocks, hides land area point features, meaning the more dangerous feature is being overridden by a less dangerous feature, how to proceed?

Important to note that no unanticipated unwanted changes must be allowed to occur as a result.

Changing the display priority on test dataset has been considered and tested, additional new complications were created, adjusting the priority is not the solution.

Options, SCAMIN, transparency, extend the land over the rock, capture a danger line around the island, capture the island in the true position and offset the rock,

Outcome: NCWG recommends improved encoding guidance rather than offsetting features from their true position is the better solution.

Issue 5

The circles drawn around poor-quality soundings in an ENC can be mistaken for depth contours and the depiction is confusing.

Outcome: NCWG recommends retain the circles as that is what the user is now used to interpret. Clarification in the encoding guidance to ensure consistent use could be a benefit.

Meeting ended 1710.

Day Two

Meeting started at 0900 on 29 November 2023

Issue 6

Ice Areas and Un-surveyed areas are very similar from a clarity POV, blue could be mistaken for a depth area plus we need to remain mindful of the different colour modes on an ECDIS.

UK shared images of examples for issue 6 on paper 5.14.

UK shared an image an image of what they do for an unsurveyed area.

The Chair suggested there should be a colour difference as it makes it unclear, The Chair asked the group what would be the preferred area, he said that the ice area may need to change.

Denmark suggested a darker grey as it creates a differentiation.

ESRI suggested using C25.

It has also been noted that the different display modes, night, and dusk for example, could affect the tone of the grey.

India - in my opinion unsurveyed areas and the areas coved with ice both are obstruction to safe navigation. However, we have symbol for ice covered on land. The floating ice is subject to drift. The area can be demarcated with danger line with a caution note. Too much symbology may create data clutter and confusion.

The Chair suggested changing the background grey to a different grey in an ice area.

Outcome: NCWG agrees that different colours are required for clarity.

Issue 7

Spotlights/Floodlight does the symbol define where the spotlight feature is charted i.e., the light source, and not the area which is illuminated, or does the symbol indicate what is being lit?

There is an option in S-101 where the angle of the light flare can be amended, i.e., the flare bearing.

The difference in the descriptions is that a floodlight is used to highlight a feature whereas a spotlight is a focussed beam.

Australia asked about what people's solution would be to issue 7 which is Spotlights/Floodlight does the symbol define where the spotlight feature is charted i.e., the light source, and not the area which is illuminated, or does the symbol indicate what is being lit?

The Chair suggested doing the rays towards the feature, The Chair said if you turn it around then it changes the direction.

UK said that they use a different name, as floodlight and spotlight have different meanings.

ESRI asked if the floodlight is orientated one way, then it means a spotlight and the other means floodlight.

UK said that the light all around could be an option.

Sweden suggested that they need to define the definitions of the flood light and spotlight.

UK 82S said that they felt this was a light pointing as something, whereas a floodlight is pointing down.

Shared TheLightFlareAndDescription – Australia said they want a solution to which way the light should go.

USA suggested that there is a bigger problem than just symbology – said they need the encoding to support that.

There is an option in S-101 where the angle of the light flare can be amended, i.e., the flare bearing.

The difference in the descriptions is that a floodlight is used to highlight a feature and or an area whereas a spotlight is a focussed beam.

UK shared an example of what they have done with floodlights. However, the S-101 implementation is different.

The Chair asked if everyone agreed the symbol shouldn't point towards the feature.

The Chair said he can bring this discussion to a WG? and bring the opinions in the group to this.

Outcome: NCWG Chair will take this topic to the S-101 portrayal sub-working group to clarify the question and the use-case.

Issue 8

CategoryOfCargo = 7 (dangerous or hazardous cargo) for other features than Berth

for consistency, wouldn't the same driver that took us to include (and uniquely depict) dangerous cargo berths justify a similar approach for AnchorBerth and Anchorage features with categoryOfAnchorage = 4??

Wouldn't make more sense to remodel CATACH by either adding a new value for Dangerous Cargo (and retire 4 from the list) or, if allowable, simply renaming value 4?

Note, S-101 researched the additional information which was stored in the INFORM attribute as part of considering and making a use case for new symbols, this gave rise to the new waiting anchorage.

DK: should this portrayal extend to other areas like Caution Areas or restricted areas?

Tom Richardson: the anchorage areas have restriction attributes, so that can be included as required.

Australia presented with an anchorberth – should there be visible indications of the anchoring area on an ECDIS display?

The Chair suggested that the different anchorage has been visualised and not just the dangerous cargo.

UK said they should follow S-4.

The Chair – asked the group if some should be visualised – if there is a symbol in ENC then it should be used in this (S-4?) – would need some symbol creation for S-4.

ESRI agreed it was more efficient to reduce text and is better for the mariner – in S-101 said you can several options.

The Chair – the response would be to say yes to having symbols for all anchorage being in S-101 – would need to investigate the compactness of the symbol – certain categories anchorages would need a new symbol which don't exist.

USA said they should take time to look over the symbols to use instead of text.

Outcome: NCWG agree but this would require creating a new symbol(s), also need to check that there are any existing symbols which could be used to support this requirement.

ACTION 9/15: **US** volunteered to review the S-4 content regarding anchorage symbols and consider the requirements for new symbols for the categories that would require a specific symbol.

Issue 9

Restricted area on Dock area: Stakeholders are invited to discuss and debate a new portrayal for DockArea including. The simplest solution could be the addition of a new central symbol to the area to reinforce its purpose.

The Chair noted that according to S-101 DCEG one must not encode dock area on top of depth area, and suggested that the sub-group WG looking into this.

The Chair said NCWG could to return to this topic when we hear back from the sub-group WG.

Outcome: NCWG noted that according to S-101 DCEG a Dock Area feature must be covered by a Land Area or Unsurveyed Area. Therefore the original blue infill is the sensible option.

ACTION 9/14: **AU** to relay all these suggestions back to S-101PT's PsWG.

5 Papers and Proposals

5.1 Future of the INT chart scheme?

India presented their paper (NCWG9-05.1A) 'Future of the INT chart scheme'.

Everyone was content with the paper.

The IHO Secretariat presented their comment paper (NCWG9-05.1B). The IHO secretariat agree in general with this statement.

The IHO secretariat shared with the group what NCWG are invited to do.

India fully agreed with the IHO secretariat remarks.

No further comments from the WG, everyone was content with all comments.

5.2 Uniform font for neatline dimensions in all standard documents

India said they should follow one standard and keep everything harmonised.

The Chair asked any comments how to fix this issue.

France said they should acknowledge that it can be either or.

The Chair said it varies Country to Country, acknowledging both may be correct.

ACTION 9/04: **Netherlands** to investigate font for the neatline - if no further information found/saying somewhere in S-4.

5.3 Presentation from UKHO regarding Digital Only Charting

UK said this is under the Sub-ECDIS project.

UK explained they looked at their customer specifically around paper and digital charts and found that more are wanting digital.

UK decided to move away from paper charts, they did market research both within the UK and internationally.

UK said they are looking to continue their production of paper charts as well as looking at ECS solutions.

UK explained they are staying in paper chart production whilst safe navigation depends on it.

UK shared about the PT and explained they have only had one meeting so far so they are still going through objectives.

UK said that answering the questionnaires sent by the ECSPT to the WG will benefit the PT.

Netherlands asked if they are looking into other Countries timescales or issues.

UK said they have investigated other Countries timescales, problems, and solutions.

The Chair asked when the questionnaire will be released.

UK said it should be getting sent out the next couple weeks through the IHO secretariat.

5.4 Update from NOAA regarding NOAA Custom Chart Progress

USA said there are 3 components to this chart, one of the features being as paper charts are cancelled moving those into the GEO data base.

NOAA are using the GEO database as a tracking system for notes.

USA explained all information is captured, if someone wanted to share the file, they can send the GeoJSON file instead of sending over a larger file. The GeoJSON size is much smaller file size, so it is much easier to send over.

USA said that a side issue they have looked at is making 80 fixed coastal charts within the 1:350,000 and 1:180,000 scale charts, USA explained they will be downloadable by the public as NCC Chart Catalogues, not as PDFs or POD paper charts.

The last of NOAA's 1000 traditional paper nautical charts will be cancelled on 5 December 2024.

USA said the chart symbology and placement can use the XML file; USA explained they are slowly working through, so it meets NOAA paper chart standards.

USA said it can be used by anyone who wants to use it but did say best used with ENCs and for situational awareness or planning purposes. The data comes directly from NOAA ENC data and it's an INT 1 chart.

Netherlands asked if the text database relates to the ENC output.

USA said a pilot system is happening and recreational boaters are using this; NGA use a similar system.

ESRI said the problem with the ENC data and taking the notes from this is that this can be inconsistent; you could have a duplication which lacks consistency in the data capture.

USA showed the group a demo from the NOAA website, NOAA custom charts and shared how a chart can be created in 5 minutes.

Denmark said potentially there should be a message to say how to properly use the website.

USA said this is something they need to explore; it doesn't have the knowledge yet to warn the customer.

5.5 Update from CHS regarding Paper Chart 2.0

Canada shared a presentation on CHS paper chart 2.0.

The main concept is that CHS is moving to S-100, they want to stop doing the cartographic manipulation in their paper charts. The objectives are to develop and launch a semi-automated

paper chart service, derived directly from officially released CHS ENCs, they want to replicate the styles from the traditional paper charts and to move to the S-4 standard.

CHS has plans to transition to the S-101 ENC symbology in the future.

For CHS it will reduce both HR and financial costs which will streamline paper chart maintenance.

Canada presented an example of this and the CATZOC diagram. Some challenges include the size of the CHS port maybe cut into 2 cells.

Canada confirmed with ESRI they are using them for all their notes which come straight from the techs data base.

Canada confirmed they are using the CHS catalogue for symbology which is aligned with S-4.

Day Three

Meeting started 0905 on the 30 November 2023.

5.6 Wind Farms and associated structures

UK presented the paper as this was something that came up in the ENCWG, UK started a discussion on the rise of renewable energy structures. This is joint paper from UK, Denmark, and Sweden. UK said they need more information on how they should chart those, and they need to submit to NCWG for everyone's input. These areas are increasing, and the UK are pushing more and more renewable energy sources, the user is starting to require this information.

USA said they are facing the same challenges on how to encode all the different identified areas for renewable energy structures.

Netherland said that some wind farms they have corridors where ships can go through, should there be certain forbidden areas or should the whole wind farm be forbidden.

Norway asked if they are considering floating windmills.

UK said yes, what they are seeking is all the renewable structures need a proper review of the new technologies coming through and what data the customer needs regarding this.

The Chair said they need to initiate a review of S-4 and see if that answers the demand the industry is needing.

UK said moving forward to S-101 which needs to be considered for the future.

==ACTION 9/05:== UK to take coordinating role with other Countries input and S-5 review regarding Offshore Renewable Energy Symbology.

It was agreed that S-4 B445 Offshore Energy Production needs to be reviewed to ensure it covers the updated requirements, this will also support future proofing for S-101. This should also include some research to understand the experiences being discovered by NHOs. UK Rep Sam Lerigo will lead the investigation.

5.7 Notices to Mariners XML format

The Chair presented the paper which was submitted by Germany to HSSC15.

The Chair said the group should consider the need for a new standard for paper chart corrections (such as NtM XML format) and if so to propose amendments to the relevant section(s) of S-4 as appropriate (HSSC Action 15/52).

UK said they are looking into this and to make this more efficient – no move now.

UK said they can get a more up to date information from the project team – suggested maybe limited capacity. For info, a response from UK has been drafted and will be supplied with more information, no objections.

New Zealand asked if they could discuss this later as they need more time to explore this – potentially to discuss at next NCWG meeting.

ACTION 9/06: NCWG to discuss agenda item 5.7, Notices to Mariners in XML Formant, at the next NCWG meeting (2024).

5.8 Prohibition of power-driven vessels in S-4

Sweden said that this paper was accepted in S101PT but they need to bring it to NCWG, Sweden asked if they need any more guidance on this in S-4.

Sweden said there is an information field in S-57/S-101, but the free text field should be avoided to improve machine readability.

Canada said they will need a symbol to simplify for S-4.

UK said if there are a lot of warnings then it can create clutter in certain examples.

Sweden said they don't have an issue with creating a symbol for paper charts.

The Chair asked if anyone was against creating a new symbol for S-4.

No one disagreed.

ACTION 9/07: Sweden to create symbol and wording for 'Power-Driven Vessels Prohibited' for S-4.

The Chair confirmed that when this drafted for Sweden to share with the group.

5.9 ENC Derived Paper Chart Guidelines (Council Action 6/17 on US)

USA said they said this presentation is more for a guideline. USA said there are three use cases they have which are for backup safety of navigation product for ECDIS-mandated vessels, Primary SoN product for non-ECDIS-mandated vessels and non-SoN planning products.

USA said they have had some challenges and want other HOs to be aware of, ENC data on a paper chart includes Edge matching, over collection and clutter. They have created some guidelines for ENC to paper charts, NOAA have put notes and cautions on separate pages making sure they are displaying all notes (regarding custom charts). When an ENC cell is changed they determine whether it is a critical change or non-critical and the critical is used as one of the 50 changes.

UK asked how they can tell if it is critical or non-critical, 50 changes would be reached very quickly so a NE would have to go out more frequently. USA said that some areas are more frequent than others.

USA see it as guidelines, these guidelines help shape the conversation. The IHO said that the council have said they don't want anyone to write new product specifications. USA said this effort shouldn't be creating any additional specifications for S-4.

Germany said that SOLAS compliance could be a challenge if a vessel is fully SOLAS compliant this chart wouldn't be fully compliant.

France said that SHOM need paper charts for final use of navigation, this isn't in line with sea boy to sea boy. Sweden said it is the same for them, if the paper chart is being used instead of the ECDIS it must be used for the whole voyage.

IHO said that it may be good practice to submit this presentation to HSSC.

France offered to form a subgroup to improve the paper.

Canada said that a lot of people are using use case 1, creating a new task would not be productive as they can upgrade existing ones. The Chair agreed and there are resource concerns so a sub-group may not be necessary.

The Chair thanked USA for the presentation and concluded that there are no further actions for NCWG at this point.

5.10 New symbols for paper charts

SHOM invites NCWG to discuss the new proposals.

Latvia said they are in support of these proposals.

Norway agreed a symbol is much easier to read.

Finland asked about other craft moorings. The symbol proposal only has small craft moorings, while in the text small craft mooring is just one example. Would there be a symbol needed for the other craft moorings?

Canada said what would the impact be for the near future in regards of terminal and commercial port, a proposal would need to be made for S-101.

The Chair asked the group if they would accept the symbol for terminal and commercial ports for S-4, this draft would need to be drafted for S-4.

The Chair brought up the next point being fishing by trawling or dredging prohibited.

France said that the symbol would cover both dredging and fishing.

The Chair asked if anyone has a symbol for dredging etc.

Denmark said they do have a symbol they use, Denmark shared with the group.

The Chair mentioned another option would be to have this (Denmark example) as sea-bed operation and the French draft to be more for fishing prohibited.

ACTION 9/08: France to draft symbols and wording in S-4 – to cross reference to S-57 and S-101 (Terminal and Commercial Port and Fishing by trawling or dredging is prohibited – Sea-Bed activity)

The Chair went through next proposal by France, the proposal being WA for waiting area and HA for holding areas.

The Chair mentioned maybe only one abbreviation would be needed for these two things, is WA easily understood by others.

ESRI said it works.

ACTION 9/09: France to draft changes in abbreviations in S-4 adding a new abbreviation Waiting area (WA))

The Chair asked if everyone agreed with the symbol.

UK asked if the mooring symbol needed a letter, maybe not the circle.

USA suggested a lowercase m for Small Craft moorings.

 Consensus there should be a symbol.

Indonesia said that it may cause extra work for HOs.

Sweden said that S-101 in version 2 there is a feature including Mooring area.

ACTION 9/10: France requested to provide other example symbols to choose and draft the update to S-4 (Moorings)

The Chair moved onto the Minefields symbol.

Latvia said they use N32, a strike line not a D shape line with a mine symbol.

UK said the symbol goes with a sea note explaining what the danger is.

ACTION 9/11: France to draft symbol and wording in S-4 regarding Minefields

Everyone was content with this action.

Sweden mentioned that they will need to inform the S-101 project team about creating new symbols.

ACTION 9/12: **Sweden** to inform the S-101PT about the agreed new symbols

5.11 ZOC Diagrams in colour

Paper submitted by the Netherlands, similar paper from 2019.

Netherlands presented 3 different examples of ZOC diagrams, an example model of a possible new ZOC diagram and the quote from final minutes NCWG5 (2019 Stockholm). Netherlands asked if ZOC diagrams could be in colour and if so then some standards need to happen.

The Chair asked if there should be a standardisation for the ZOC diagram colours.

Sweden told the group that S101PT PsWG went to mariners with 5 examples of Quality of Bathymetric Data portrayal and there were 2 agreed by mariners, in the project team they are deciding between the 2.

SHOM agreed with Netherlands paper.

Finland shared their current ZOC diagram look and told that they are considering solid colours to improve clarity.

France presented what their ZOC diagram look like.

The Chair asked the group if there is need to specify the colour option for CATZOC in S-4, if this was agreed then the colours would have to be agreed.

Norway said the unsurveyed areas should be included in the ZOC diagrams.

Sweden shared in the research from the university of Hampshire they have tried with different colours and shades for S-101.

The Chair said that potentially a colour option in S-4 for the ZOC diagram, someone would need to draft and include the colour option. On that draft they would need guidance on the colour scheme.

Australia suggested to keep it simple and aligned with current convention. For example, no colour for A1 and A2; deep water blue for B and shallow water blue for C and D. This would be consistent with conventions used in many of the older "source" diagrams. I do not like use of red or green as in night conditions (under red bridge lights) red would appear as no colour and green would be dark.

Denmark agreed as don't like the green and yellow colours, would prefer blue and magenta in gradient.

UK suggested they wouldn't use blue as it would confuse existing customers using the paper chart. Denmark suggested that they could split the CATZOC diagram into two categories of colours (two colour schemes)

ACTION 9/13: Netherlands to draft S-4 amendments and propose the colours for coloured CATZOCs based on the NO example.SE will support from a testing POV.

Sweden said they can support the Netherlands with testing.

6 S-11 Part A

6.1 Updating S-11 Part A Section 200

The Chair said they need a volunteer to go through section 200, a minimum change would be to get rid of S-57 changes. This needs to be done soon so it can be submitted to HSSC next year.

Finland confirmed and doing the first draft.

Everyone is in agreement with this.

ACTION 9/17: Finland to draft a S-11 Part A revision to cover S-101 ENCs in Section 200

Australia confirmed they have the previous version of S-11 Part A in English and French; a volunteer is needed to do the correspondence regarding the French version.

France said they could make the transition into French when the English version is available.

No more comments.

6.2 Development of new S-11 Part A Section 300

WENDWG Chair presented a proposal to develop a new Section 300 in S-11 Part A. They have identified a gap in S-11 Part A regarding and approached IRCC to launch the development of further Section 300 focusing on S-100 Data Services, the first step Section 300 should provide guidelines for those S-100 Data Services defined by Phase 1/Route Monitoring. Considering the necessity to have the S-11 Part A Section 300 ready as soon as possible and noting that most S-100 Data Services are

not under the NCWG responsibility, it is beneficial for the IHO if the S-11 Part A Section 300 development work will be assigned to WENDWG.

WENDWG asked NCWG if they were satisfied with WENDWG taking this over.

The Chair asked if NCWG is in the position to state that WENDWG can go ahead with this work, would they need to go to HSSC before starting this work.

IHO Secretariat recommended to start by going to the HSSC with the endorsement of this group that there is a new Section 300.

Sweden asked who would be responsible for the maintenance on this would it be WENDWG or NCWG, suggested this should be clarified from the beginning how this should be done.

ACTION 9/18: Chair to include in the NCWG report to HSSC that NCWG supports WENDWG's proposal on developing a new S-11 Part A section (or equivalent) on S-100 Data Services and seek guidance on how the maintenance responsibilities of the documents should best be shared between NCWG and WENDWG. The Chair said he is happy to consider amendments on the whole document, they still need to review the whole document.

8 Elections

8.1 Election of Chair and Vice Chair

According NCWG Terms of Reference election of the Chair and Vice-Chair shall be decided at the first meeting after each ordinary session of the IHO Assembly and shall be determined by vote of the MS present and voting.

The Working Group elected by acclamation Mikko Hovi (FI) to remain as Chair; and Nick Rodwell (UK) as Vice Chair, of the NCWG for the next IHO Intercessional period.

8.2 Appoint a NCWG Secretary

No one appointed for Secretary.

12 Date and location of the next meeting

NCWG 10: any volunteers

Agreed a meeting is needed November 2024.

The chair asked if anyone wants to offer to host.

The IHO Secretariat offered Monaco to host NCWG10, recommend 12 November 2024 through to the 15 November 2024.

NCWG 11: any volunteers

Indonesia will review the possibility of hosting NCWG11 in 2025.

Day Four

Meeting started at 0915 on the 1 December 2023.

5.12 Update on agreed wording for Oil/Gas Platform Jackets for S-4

This will be sent out as a letter.

5.13 Unified Cartographic Source: data-centric approach in cartography

France explained the impact of multiple-scale content on the ECDIS, discontinuities or clustering can occur between 2 adjacent ENCs when displayed.

France explained that using FCUs improves safety of navigation as the mariner must use an appropriate scale chart. They are doing consultation with mariners, regulatory authorities (in progress) and foreign countries where France is PCA, possible interactions with other HOs and within RHCs to harmonize scales adaption of nautical charts (paper charts, charts on demand, ENC, etc.).

France explained their ENC portfolio comes from their paper charts which have been digitalised.

5.16 ICPC Proposal for Amendment to S-4

UK explained this was discussed in 2018 about managing international cables, for HOs to show all cables with full ocean depth. UK explained that there are concerns from the defence team if this were to happen. UK said that ICPC are working towards an S-100 specification now.

UK said that the ICPC are looking to contract a company to create an S-100 specification regarding cables, that should help with efficiency and automation.

Canada asked how the HOs will manage without the data and how will they know where the cables are precisely.

Norway said that they tell the mariners that there is a cable in the area they are charting so for them to be careful, they don't want to take responsibility for the cable.

Australia said that just because there isn't a guidance in S-4, this is what national administration should decide and not S-4. If work is going to get completed near a cable, then they should contact the national administration to get information instead of being included in S-4. Australia recommends the guidance in S-4 is not changed.

USA agreed with this, they should resist putting non-navigational data on charts as they should be used for navigation.

UK suggested that maybe this is something that needs to be discussed at HSSC level rather than the NCWG level.

ACTION 9/16: UK to set up VCC with ICPC and feedback to NCWG if necessary.

9 Review of Meeting Actions

Sweden presented what the University of New Hampshire have developed which are 5 types of presentations, one with lines, dot clusters, colour textures, opaque colours, and transparent colour. They did a survey with mariners found that lines and dot clusters are what they liked best.

UK said that this is still being discussed by the S-101WG and needs more testing.

UK said that this is still in its testing phase looking into implementation.

11 AOB

Indonesia presented a late paper NCWG9-05.21A on 'Guidance on how to capture marine mammal migration routes.'

Indonesia explained a whale was hit and capsized a boat causing one person to die, they have found that the migration path of marine mammals is very important to capture on marine charts. Apart from ensuring safety, it is also an action to protect marine mammals.

Indonesia said it has been concluded that marine mammal migration routes and their supporting attributes should be depicted along with detailed explanation of the depiction in S-4, Indonesia presented an example of migration flows of marine mammals.

Netherlands asked if it should the route and mammal be green.

UK agreed it should be in green.

India asked who is going to ensure these rules of mammal migration.

Indonesia said that the data is from the ministry of ocean and fisheries.

No one objected to taking this forward.

ACTION 9/19: Indonesia will coordinate work around creating migration flows of marine mammals. Canada and Thomas Richardson to support.