Nautical Information Provision Working Group meeting 10.
IHO Secretariat, Monaco – Tues 12th Sept – Friday 15th Sept 2023

Annex A: List of Action items
Annex B: HSSC 15 Action items
Annex C: Agenda
Annex D: List of Attendees
Annex E: Time Schedule

1. Welcome and announcements.

1.1 Chair Welcome

- Chair Eivind Mong opened NIPWG10 by welcoming new and returning members.

1.2 Host Welcome

- Security-General Dr Mathias Jonas and Director John Nyberg welcomed the participants followed by Assistant Director Yves Guillam.

1.3 Announcements.

- Yves Guillam last year as Assistant Director, finishing October 2024.
- Reminder all comments for product specifications are to be sent to Elena Armanino.

2. Introductions.

3. Adopting the Agenda.

- NIPWG agreed and adopted the NIPWG10 Agenda (Annex C).

4. Review of Action Items.

4.1 Review outstanding HSSC-15 Actions.

- Review of HSSC-15 conducted by YG.

Action Item 1: HSSC15/05 Decision A3/07. NIPWG to review current resolutions in M3 section 2.4 Nautical publications are still current and up to date. Chair Team. VTC 03/23

Action Item 2: HSSC15/05 Decision A3/08e. NIPWG to prepare first draft input into the next IHO strategic plan 2027-2032 to be considered at HSSC16. Chair Team. VTC01/24

Action Item 3: HSSC15/05 Decision A3/21, NIPWG to review method and frequency of meetings and to provide input to HSSC16. Chair Team. VTC01/24

Action Item 4: HSSC15/08. NIPWG to provide the HSSC chair updates on SPI. Chair Team. VTC01/24

Action Item 5: Agenda Item at next VTC on the S-124/S-125 IHO-Singapore Lab update. Chair Team. VTC03/23

Action Item 6: HSSC15/86, NIPWG to prepare comment paper for HSSC/IHO Secretariat on the proposal submitted by ROK MOF (Ministry of Oceans and Fisheries) on the use of electronic nautical publications at NSCR-11. Chair Team. NSCR-12 (June 24) Deadline Feb 2024

- YG: Working groups are to be made aware of the cut-off date for change requests to the S-100WG8 meeting in November 2023. Inputs must be submitted for this meeting by 15th Oct 2023.

- EM: Reemphasis on the timeline of S-128. This is an important component which is part of Phase 1 of S-100 ECDIS. Submission of S-128 Edition 2.0 must go to HSSC in early 2024, for vote by member states in September 2024.

4.2 Review outstanding NIPWG Actions.

- See Annex A.

5. Review of other Working Group reports.

5.1 Review of HSSC ISO 9001 Cell report.

- NIPWG noted the presentation.

Action Item 7: Task Groups to develop key performance indicators for each of the product specifications. Task Group Leads. VTC03/23

Action Item 8: Task Groups to provide point of contact for S-64 and S-98. Task Group Leads. VTC03/23

- YG: Review cycle: When product specifications reach Edition 2.0.0 a reminder to ensure these product specifications are reviewed by DQWG before submission to HSSC and member states. Within the tight timelines, ensure DQWG are informed earlier enough to not cause a delay in meeting deadlines.

5.2 Update on IMO Expert Group on Data Harmonization (EGDH).

- NIPWG noted the paper.
- SE: Explaining the benefit of harmonizing between IMO and the IHO and is it a problem: An example is that the IMO compendium contains Just in Time data set. A feature such as the definition of a berth or a terminal identified in the Just in Time data set, it would be beneficial if the data on the ECDIS (S-101 or S-131) would identify the same terminal or berth by the same identifier. A machine could identify the same area on the chart as mentioned in the Just in Time report. Currently the group is trying to harmonize and decided on the identifiers used so that they would be the same in the IHO S-100 products and in the ship report based on the IHO recommendations.
- MR: The ultimate goal is to work together to harmonize so that the data that comes from the ship can be reused directly into the re-porting creations saving double work. All the flows coming from the ship which can be reused for improved calculations. Trying to harmonize where it makes sense.
- The paper is a learning process, it's also a proof concept with S-100. This is not meant to be a project that provides new product specifications.

5.3 NIPWG and S-164 development.

- NIPWG note the presentation.
- JP: Draft document of S-164, version 1.0.0. which is now being supplemented with live data sets and we are looking for deliveries of product specifications which are published containing feature catalogues, GML schemas and are looking for test data which can be included in S-164. We require expert input and advise from task groups who are doing the revisions.
- JP: Although most of NIPWG products are in Phase 2, S-164 has Phase 1 products (S-128) within its initial publication. Any additions that maybe required to S-98 Annex C that are required for ECDIS S-100 functionality in both Phase 1 and Phase 2 products. If a product specification may need special treatment on the ECDIS for any reason get in touch to discuss whether additions are required to S-98 Annex C.

- Discussion 1: Using the term MRN.
  There are many forms of MRN and should all of them be called MRN? in this case it is an id that defines a producer in a defined space of an MRN scheme, it's a format of attribute MRN and the name should be more something the describes the producer or the status of the product. It was agreed that when there are multiple uses of this type of id string there needs to be a name describing the purpose otherwise its confusing.

- Discussion 2: MRN and official/unofficial.
  ECDIS manufactures requested a better way to identify official/unofficial because S-62 is not machine readable. There was unclarity what is meant by the term MRN in this presentation. The MRN is a schema for how to producer identifiers and the leading idea is to use the current producer codes identifiers and wrap them in an MRN and together with the certificate send to users to allow a machine to understand if its official or unofficial.
- Discussion 3:
  S-129 is a vessel specific product and does it need to be included in S-128. Understanding from S-129 Project team leader is that there will need to be S-129 data sets which delimit areas of UKC management schemes which need to be include in S-164 but unsure if they should be in S-128, to be discussed.
- Discussion 4:
  S-124 depicted on 'Micklefirth' diagram. Limits shown are where individual nav warnings will be located. Will need to delineate a nav area that would cover the entire extent of the diagram.

Action Item 9: Task Groups to provide test data sets to aid S-164 development. Task Group Leads. When available.

Action Item 10: Task Group Leads to read through and check the current draft of S-98 Annex C and comment/prepare input paper to be defined and published in S-98. Task Group Leads. As soon as possible.

5.4 S-101 Modelling update.

- NIPWG noted the presentation.
- Discussion 1: No Geometry features.
  Assuming that the geometry of a base feature will be used by a feature associated by relationship with no geometry will sit on top of the base feature is incorrect. There is no way for a no geometry feature to automatically adopt the geometry of a feature it is associated with through a relationship.
  No geometry features were developed for name placement to solve a work around in S-57 for features such as TSS where there was no way to ensure the name of the TSS was displayed across the entire TSS without having to capture a SEAARE feature. The no geometry features were supposed to be able to place the name, however currently there is no functionality yet within S-100 to allow it to happen.
- Discussion 2: S-101PT and NIPWG.
  S-101PT and NIPWG need to co-ordinate better. The products that NIPWG make are going to sit on top of the S-101 product, and the two need to make sense, also need to keep in mind that if the same information is in two places it means twice as many failure points and to ensure the information remains harmonized.
  Consideration has been discussed however there is currently no method/mechanism in communicating out to wider groups when S-101PT intend to change features or remodel a concept.
  RM:
  JP: The main challenge is the issue of not having a forum of dialogue that includes representatives from all the different working groups under HSSC, the main place NIPWG product specifications and S-101 comes together is the interoperability catalogue, but there is no forum for creating this interoperability catalogue, currently relying on attendance at meetings from all the different working groups.
  RM: Longer term there should be some technical support within the registry that will notify other stakeholders on content that maybe relevant to more than just one stakeholder. It is too much of a burden currently to reply on the registry control manager. Reservations about forming another forum, which would become another point of frustration. Would prefer that stakeholders receive notification as when it is appliable so the topic can be dealt with at the following VTC/meeting of that affected stakeholder affected. Most changes can be passed without discussion, only the conflicts to be discussed between working groups.

- EM: NIPWG voices concerns that any changes will directly impact NIPWG products and should not be done unless consulted with NIPWG. The timelines and constraints placed upon S-101PT are understood however NIPWG still requires consultation on new ideas and changes. However, this presentation has

highlighted that updates should be more frequent. Must not forget that NIPWG also needs to inform outwards ourselves and not just rely on being the recipient of information.

5.5 Registry Domain Control Body.

- Chair called for a volunteer to be the NIPWG Registry Domain Control Body representative. Mike Kushla volunteered.

6. NIPWG Data Quality.

- Chair called for a volunteer to co-ordinate data between NIPWG and DQWG. Raphael Malyankar volunteered.

11.1.1 Port of Rotterdam presentation of S-131 related activities.

- NIPWG noted the presentation.
- The expert group on data harmonization at the IMO is starting to bridge the gaps and reducing the differences ensuring the same term means the same thing across the domains. NIPWGs biggest success was the UKC definitions that all parties can agree with and was well received. Port of Rotterdam is already using these UKC definitions as well as being implemented in the St Lawrence River.

Action Item 11: IHO Secretariat to consider the branding of The Guide for Nautical Data version 1.4 by IHMA. YG. VTC03/23

7. NIPWG MRN IHO Level Guidance update.

- NIPWG noted the presentation.
- Discussion 1: Timing of introducing Interoperability of MRN.
  MRN which has been discussed for years to solve the way of linking features between S-101 and other S-1XX products or products duplicating features. However, interoperability is with Phase 2 products. Why not focus on Phase 1, and then work on interoperability between S101 and S-1XX in Autumn 2024. Reason NIPWG is looking at MRN now is due to the S101PT not having enough guidance to bridge between the ENC and S-1XX. This means if sufficient guidance is not given now to S101PT on what to do with MRN it probably won't make it into Edition 2.0 of S-101 which then means when Phase 2 arrives it will require more work.
- MRN guidance at this time is to provide sufficient guidance that can be determined where it can be used when bridging and linking between different products. To be able to have interoperability functionality between products on an ECDIS the sooner it goes into S-98 Annex C the better.
  VTC02-23 paper feedback was if MRN is to have an effect, then it needs to say what the effect is. What is it you want MRN to accomplish to the end user, and then look at the guidance within data products. MRN is not just attributes within Product Specifications there is a use for it by the secretariat such as rolling out Part 15.

Action Item 12: MRN use cases to be drafted for input into S-98 Annex C. RM(lead) JMK, HP, SE. 15th September 2023.

- Discussion 2: Agreement on name spaces.
  Guidance made by IALA, an MRN is divided into names spaces and every name space has an owner. The owner is responsible for the uniqueness and management of that name space. The IHO guidance would be urn:mrn:iho name space which would be a top-level name space, with the IHO the owner of the name space including the process for applying sub-name spaces. Ownership of the sub-name spaces could be given to the project teams or the nations who produce the name spaces. Procedures and assigning the owner of sub-name spaces based off user cases and needs. The sub-name space can then further divide into names spaces under guidance of the owner.

MRN Break out session update:

- NIPWG Noted the update.

Action Item 37: Paper on the interoperability identifier to be submitted to S-100WG and supplementary paper to S-98. JP. October 15 (S-100WG8)

- DL: Question: urn:mrn:iho then country code, why not identify in the spot currently occupied by the country code, the GFM? i.e., urn:mrn:iho:Anchorage area: then country code.
- JP: There are two reasons; 1: To not try and make the identifiers do anything other than identify. 2: It would make anchorage area part of the IHO name spaces. The idea of positioning the country code straight after the IHO is then everything is then delegated down to the sub name space. That owner is the producing organisation and the feature being identified is the real-world feature. Initial thoughts are that currently the IHO is the owner of the IHO name space. There is a need to split it up into the organisation, who can be advised on best practice on managing their name spaces. Open to discussion in conversations with the IHO.
- DL: Recommendation to revisit the IALA MRN guidelines.
- JW: Few points: If an aid to navigation is used that is defined by IALA, it will have an IALA MRN. The IALA MRN should be used. Likewise other organisations who do not yet have a namespace such as the World Meteorological Organisation. Communication will need to be done carefully with all the other organisations who are producing S-100 based datasets whose features maybe used in IHO product specifications.
  Acronyms in the registry should be refrained from being used therefore interoperabilityID should become interoperabilityIdentifier.
  The S-101PT meeting will look to introduce a new attribute as an interoperabilityIdentifier on a feature in S-101 for testing purposes initially.
- SE: There are two different topics being discussed. The 1st is the interoperabilityid/identifier functions and guidance needed in place in S-100/S-98 to make it possible to identify common features in combined pick reports, this needs to be agreed and then discussions move onto the 2nd topic. The second topic is how should the IHO name space be handled.

- EM: Summary: MRN started in Finland, the UKHO List of Light number combined with the local list number. If you put the UKHO number into the product specification, if the UKHO number changes the national producer must update their products. The idea was to uniquely identify features to try to avoid duplication and when there are they can be identified as the same. Same discussions held 4 years ago (2019 S-100WG) are now being discussed now. We need to include unique identifiers in products and then work on the details later. Suggest it is kept simple, by adding the attribute with some basic guidance on how to make an MRN. Working out when is done with the attribute can be looked at later.

Action Item 38: IHO Secretariat to propose interoperabilityidentifier to the registry as a concept. JW 15th Sept.

8. Portrayal

8.1 NPUB User Interfaces, S-100 ECDIS and S-108/S-164.

- NIPWG noted the presentation.
- DL: IALA has an S-212 (VTS Digital Service) product specification. There are solutions already being developed not by the IHO which would be useful to look at. Product specification is not yet at version 1 but is available on the IALA website, IALA is open to provide advice and answer questions.
- Discussion 1: Liability.
  Different views were discussed on legal text and how it is going to be presented in the different products. In many countries there are multiple organisations who create regulations in the maritime space, for a hydrographic office to interpret and break down the legal text into attributes can be hard work. Modelling does allow text to be inserted verbatim as a georeferenced piece of text, using attributes to break down the text is not mandatory. However, there was views from many that breaking down the legal text into attributes is a benefit to the user, whole text can be ambiguous, where broken

down into attributes provides clear interpretation however the authority would have to take responsibility.

- Discussion 2: Complex Parameters and Alerts and indications.
  Agreement that the pick report should be looked at in more detail. There is no portrayal catalogue for the pick report. There are rules that define the colours and symbols on the screen, rules for alerts and indications, the piece that is missing is how do I take all the objects and attributes (simple or complex) and display it for the user in a meaningful way. Should begin with looking into the facilities that are already available in the existing portrayal model and what the boundaries are and come back with observations based on the work already done. Time however is short for requesting any changes to formatting of the pick report.

8.2 Complex portrayals and pick reports.

- NIPWG noted the paper.
- EM: The challenge is that an S-100 ECDIS is within 2½ years. S-100 is not going to be extended to allow significant extensions for editions in the near future as this would make ECDIS implementation difficult. The ECDIS being created now we will have to live with it for 8-10 years. Therefore, what is needed is a solution that can be implemented now while we work on an improved solution. Interim solution could as be suggested by HP where a new attribute 'pick report style' is created and the values could be tabular, graphical etc.

- Discussion held on the use of HTML; however, this would need to be discussed outside of NIPWG with S-100WG.

- EM: NIPWG supports continued investigation into the best solution however doesn't solve the interim solution which is up against a time limit. Once this time limit expires, the equipment that is created and then not updated for up to 10 years and the NIPWG products that are being created and made available in 3-5 years will need to be ingestible by the boxes being sold now. The pick reports will contain an overwhelming amount of information. A solution that filters information that goes into first S-100 ECDIS.

- As many as possible use cases to be created to visually describe what should be displayed on the screen. This will solve the immediate issue of input into S-98 but also helps to define the future vision of a machine-readable pick report functionality. GitHub for S-164 and S-98 is a good forum to use for this discussion.

Action Item 13: NIPWG subgroup to create use cases as pictures or text for complex portrayals examples and pic reports. SE(Lead), RM, JP, PS, RB (with additional SHOM colleagues.) Canadian Coast Guard. October 15 (S-100WG8)

Action Item 14: Overview paper, RM's paper and use cases created by the NIPWG subgroup (action item 13) to S-100WG. NIPWG Sub group. October 15 (S-100WG8)

Action Item 15: Action Item 13 to be raised with S-101PT and the Portrayal Subgroup. JW. October 15 (S-100WG8)

8.3 Canadian Coast Guard Investigation into NPUB portrayal.

- NIPWG noted the presentation.
- Applicability is built into the data, the ECDIS then uses this to compare that data with the ships own data. The ECDIS needs to be configured with the ships name, size, cargo, destination etc and let the machine make the comparison.
- RB: Similar research undertaken by SHOM, feedback on expectations were the same, though some users responded they would be happy for just an NP to automatically open at the right page.
- CG: UKHO user research found that the feedback is limited to what data that is needed on an ECDIS screen, and that not all information that is found with Nautical Publications belongs on an ECDIS

screen. Nautical publications/ back of bridge methods will still be required for the information that is still valued but not required to be displayed on an ECDIS.

9.0 XML and GML objects

- NIPWG noted the presentation.
- Discussion held on the use of polygons. The problem being there over one hundred options to do the same thing, trying to restrict that to what is only needed. IHO are not in favour on an S-100 type polygon, reusing a limited subset of GML allowable polygons would be the best solution. The broader issue is that there are challenges in exchange set schemas, ambiguities are present. Due to resources, focus should be to provide the NIPWG view on the way forward for exchange set use. To be solved is the NIPWG recommendation to the S-100WG, what is NIPWGs preference to solve the overall problem with the coverages.
- NIPWG recommendation and endorsement is to add simple clarification to be added to S-100 part 17 and endorses a review/improvement of the schema later when appropriate. The recommendation is to be also to be included at the S-100 level validation checks.

Action Item 16: NIPWG to pass to S-100 Validation Sub working group recommendation of restricting GML types by clarification. EM. VTC03/23

12.1 UKHO update on Digital Admiralty Sailing Directions

- NIPWG noted the presentation and demonstration.
- The main objective of the UKHOs approach is to get the data currently into a format where it can be used in the future. The by-product is an improved version of the current product, then in the future take the information and make it available on the ECDIS. It is still believed that there will be a back of bridge solution. So, by getting the data correct now, both types of products can be created.

- Discussion 1: Back of bridge solution.
  Recommendation in look at current Nautical Publications and working out what information needs to be on back of bridge and what needs to be on the front of bridge within product specifications.
- Discussion 2: Carriage compliance.
  CG: Current Electronic Nautical Publications (ENP) are based on equivalence to the paper product, the ENPs are carriage compliant as long as it contains the same data as the paper product. There has been feedback stating that if the Nautical Publications were fully vectorised and put only on an ECDIS, equivalence would not be maintained. To get a world-wide compliance in the current climate would be hard to achieve if Nautical Publications went straight to ECDIS.
  DL: The first step is to digitise the data; the second step is work out what is the equivalency between SDs and S-1XX product specs both at the IMO and the national level.

13. Industry member updates

13.1 ICS Industry perspective on e Publications

- NIPWG noted the presentation.
- EM: Question: What is the appetite of the ship owners to think of the ECDIS system differently from a box of kit that is bought but rather as a service that is subscribed too, such as a maintence service where the box is removed and a new one inserted after a period?
- CG: Anything that makes navigation simpler and cost effective would be welcomed. Once an ECDIS is installed on a ship it rarely gets changed but there would be an appetite if it made sense.

4.2.1 HSSC Action Item: HSSC15/36 (S-100 System Architecture, IMO's Maritime Services)

- DL: Recommendation to NIPWG is to begin to change the language so that the user has human understandable descriptions of what we are being provided to them e.g., descriptions rather than S-1XX designators, S-125 is not the equivalent of just List of Lights, it is List of Lights and Notice to Mariners. We need to name the products within the services as well.
- YG: Recommend adding another set of arrows to show where the products in SOLAS chapter 5 regulation twenty-seven fall.

- EM: This is being looked at the international level and not the finite detail of the national/regional level. This will become guidance/understanding from IHO to IMO. Then at the national level to take the guidance and work out how it fits.
- SE: It is up to the producing nation to define what products are needed to navigate in their own area therefore, carriage requirements will be different from country to country.

Action Item 17: ENDs diagram: Updating names, shape etc and to link with SOLAS regulations. CJ(Lead) SR, SE, MK, CG. VTC01/24

- Operation interaction diagram is currently limited to only the AtoN task. This needs to be expanded to the other tasks and charting tasks to elaborate what is the relation between the various ones if there is a relationship and how does it end up at the ship.

Action Item 18: Send input paper to IALA ARM17 requesting support on writing the S-100 world architecture. EM. 30th Sept 2023

Action Item 19: Operational Interaction diagram on S-100 world architecture to be expanded to include the other nautical publications and charting tasks, their relationship and how it ends up at the ship. IALA ARM. VTC01/24

Action Item 20: Agenda item at VTC01-24 to review S-100 world architecture task completed by IALA ARM (Action item above). Chair Team. VTC01/24

11.6 S-131 – Marine Harbour Infrastructure

11.6.1 Project Update

- NIPWG noted the presentation.
- GUI & API interaction is not performing as expected. Efforts to address this are being undertaken, progress will be reported at VTC03-23.
- Testing is available on request from IIC who will provide the link and additional information access the test.
- EM: Question: What level of testing has been done on the GUI on un-trained individuals? This would be a criterion of success. There are worries about the GUI, is it available for people to use at national levels? Can countries put it in front of their ports?
- SR: Not yet possible, probably not until 2024. The GUI is not ready for ports to test. Only currently being test internally.
- EM: Noting this work will continue beyond funding and beyond the funding provided by CHS further funding is required to move S-131 forward. If there is a funding opportunity, please consider S-131 project. If funding can be provided to inform SR and EM.
  The reason for S-131 is to support true berth to berth navigation. It also provides ports a simple solution to make their data available to the users and hydrographic services.
- S-131 Edition 1.0 was approved at HSSC, it is available to be downloaded from the IHO website.

11.3 S-125 – Marine Aids to Navigation

11.3.1 Development update

- NIPWG noted the presentation. Presented by EM on behalf of SO.
- Update on Research project conducted under the IHO lab in Singapore:
  Funded by KRISO and the Korean AtoN authority. A sea trial was conducted which simulated the flow of S-124 data to S-125 (Operation interaction diagram in Agenda Item 4.2.1) in relation to the ENC and what it looked like for the end user. The sea trial used an ECS configured to consume an MSI and AtoN services held in Korea using Singapore data. The challenge was not in the creation, distribution, and assumption of information but what the system presented to the user. The Information flow worked well but the mariner was not informed well enough to understand what was happening. Another challenge was that the test system route did not match the actual route taken by the vessel who was responding to real world events (traffic) and the test route did not allow for

variations. Feedback from experts was positive, however there was comments on the user interface, the visualisation needs to be improved.
A more detailed report was given to HSSC15 by the Singapore lab. Link.

- Discussion on how long to continue broadcasting a AtoN change when that change has been included as a Notice to Mariners (and the Notice to Mariner bulletin issue frequency may change from weekly to every 15 minutes) and how nations such as Canada and USA are preparing to move to a S-124 and S-125 service. The answer is that it will vary per nation and different nations will develop different technology.
- The purpose of S-125 is to show the status of AtoN system. It will show the discrepancies of the advertised AtoN and reality. What is currently being done by a combination of Navigational Warnings and Notice to Mariners will first appear in S-125 and the trickle down to other places (S-101). This will be discrepancies such as temporary changes (outage of lights, missing buoys etc). Some Hydrographic Offices may be able to update the S-101 in a quick enough time frame avoiding the use of S-125 or will only be on S-125 for a very short period. It will be up to each nation to decide when to move the S-125 temporary notification to a charted updated on S-101.

11.4 S-127 – Marine Traffic Management

11.4.1 Task Group update

- NIPWG noted the presentation.
- From the Progress to Date slide. Items 3 and 4 were papers that were originally presented at NIPWG9. They have been looked at by the S-127 Task Group. Item 3 has been agreed amongst the group, but a better way of encoding needs to be looked at. Item 4 has been returned to NIPWG to discuss for additional considerations.
- EM: Berthing restrictions in favour of S-131. Speed limits could be in both S-131 and S-127. In the Gulf of the St Lawrence, Canada issues temporary speed limits for the protection of the North Atlantic right whale which would not fall within S-131.
- EK: The speed restrictions in question fall within harbour areas and related to harbour facilities.

Action Item 21: Canadian Coast Guard to provide input paper to the S-127TG on use cases of speed restrictions within the St Lawrence River. RJ. VTC03/23

- There was a few in agreement that speed limits should be placed in one location. This would be a benefit to the user but also on the production side, having to remember where all the occurrences happen and the potential of conflicting information. Discussion continued into if speed limits are only placed in one location, where does S-131 and S-127 start and end.
- EM: Conversation to be continued.
- NIPWG notes that this conversation impacted by decisions and events outside of NIPWGs remit. NIPWG will come to one conclusion, but others may come to different conclusions. There will need to be harmonisation between the other groups.
- Call for volunteers to participate and contribute to S-127 work items.

11.4.2 China MSA: Research of Identifying Vessel Behaviour Compliance Based on S-127 Maritime Traffic Management Rules.

- NIPWG noted the paper.
- EK: Support given to the merit of the proposal but suggest finding out the way to implement would be to start by investigating alerts or indicators and if this is not sufficient to considering designing a new part in S-100 or S-98.
- EM: Agreement that there is merit for the work, and that task group is proposed to be started.

- NIPWG believes task group formation to be premature and the work to upgrade S-127 to Edition 5.0 of S-100 should continue. NIPWG invites China MSA to continue to take part in the S-127 work and when the time is right to provide this input as potentially an annex to S-127 using Edition 5.0 of S-100.

- NIPWG notes the proposal from China MSA and thanks them for the detailed study and welcomes further work on this within the S-127 Task Group.

11.4.3 China MSA: Proposals for the adoption of Chinese version of S-127 1.0.1

- NIPWG noted the paper.
- MK presented the NGA paper.
- YG: The IHO Secretariat welcomes all translations of standards. The authoritative language is always in English, sometimes it is English and French when the standard is written in dual language in parallel. The other languages available on the website are provide by courtesy. The IHO does not take the ownership of the responsibility of the content of the translation.
- JW: the Official language of the IHO is Oxford English.
- EM: Conclusion: China MSA is welcomed to produce the Chinese language version of S-127 and will include the acknowledgment produced by the IHO Secretariat. Once completed it will be a courtesy version with a clear understanding that the English version is the authority in case of discrepancies.
- IHO Secretariat took an action at WWNWS15 to look at the management of translation files in a general sense. NIPWG awaits the IHO Secretariat guidance on the management of translation files.
- JP: The use of a language pack on an ECDIS would need to be tested thoroughly. To be used on the ECDIS it would need to be signed official. To be discussed with the IHO Secretariat and this falls within S-64.

11.5 S-128 – Catalogue of Nautical Products

11.5.1 S-128 Test Bed update

- NIPWG noted the presentation and demonstration.
- Draft addition of S-128 1.1.0 draft edition will be shared to NIPWG mid-October.

Action Item 22: Create and distribute a detailed timeline (Nov 23-Aug 24) of roadmap to PS 2.0 creation, including when tool is ready to be used for testing. S-128PT / Chair Team. VTC03/23.

- Edition 1.1.0 will contain the first iteration of how to describe a service. This will need to be tested to ensure that it is sufficient and if any modifications are required.
- Discussion was had on the product types. S-101 is both an Election Chart and an S-100 compliant product. There is a continuing discussion on what to call the products when there are limited product types. If there is a need to add more classification to distinguish between S-100 products and other products addition attribution in the data model may be required.
- It was observed that traditional publications where not featured. Therefore, within the period when there are no S-12X Nautical publications, what is the product type for traditional paper and electronic nautical publications. S-128 should inform the mariner that when there are no S-12X products that paper publications are to be used to ensure carriage compliance.

Action Item 23: Product Type attribute; check PS 1.1.0 for the inclusion of traditional paper products (List of Light, SDs etc.) and other different use cases. S128PT. Mid-October 2023

- Discussion on the term Electronic Chart, an Electronic Chart can be used within the private sector as a chart within an ECS. The correct wording should be an Electronic Navigational Chart which should be kept in mind. There are also Hydrographic services who are producing datasets, the right terminology needs to be found to allow the products offerings of the producing nations to be covered.

- In preparation of product specification edition 1.1.0 the DCEG may need to be reviewed to see if it has efficient guidance for the different use cases.

Action Item 24: DCEG guidance for the different uses to be reviewed in preparation of PS 1.1.0. S-128PT. Mid-October.

Action Item 25: NIPWG is invited to provide comments on product type when PS is open for review. All. November 2023.

- The input catalogue.xml within the demonstration was based on S-100 edition 4.0, however the system will become S-100 edition 5.0 when S-128 Edition 1.1.0 is drafted in mid-October.

- Discussion 1: The use of INToGIS tool.
  It is not within NIPWGs mandate to approve the tool to create S-128 data. It is only to note that NIPWG have seen it, it is liked and will endorse the work. Regarding whom would be the producer of the data created within the tool, could there be functionality within the tool to change who the producer is. There will be a lot of producers of S-128 catalogues, it should be made very clear who was the producer. As this tool evolves consideration of using the username to dictate who the producer is.
- Confirmation that the tool is for the testing phase of data creation.
- Discussion 2: Number of S-128 catalogues an ECDIS will receive.
  An ECDIS should be expected to receive multiple S-128 catalogues. There is currently no mechanism to have one S-128 catalogue for the whole world.
  Roles of various people within the S-100 ecosystem in getting data to the end user, there is a role defined for an aggregator. Those with aggregation roles can aggregate S-128 together and issue it, with the contents of it recognised as being official which it must be able to be able to produce a coherent service.
  To be discussed further, it is inevitable that there will be multiple S-128 catalogues on some systems, the model that may emerge will be a single S-128 catalogue that is aggregated by the service provider.
  It is still to be decided how different product types from a member state will be distributed, the RENCs may prefer one focal point from each member.

- EK: At the last TSM it was agreed that the only official way to get data into the system will be via a signed exchange catalogue that comes with any data set. If there is an exchange set catalogue that is properly signed, the ECDIS currently must be able to load the dataset and must be capable of acting on it to be S-100 compliant.

- NIPWG needs to ensure S-128 reaches its goal of product specification edition 2.0 by the end of Q1 2024. The testing priority should be of the product specification and its capabilities as it evolves to edition 2.0. ensuring that it can do what it needs to do and is able to communicate an accurate picture of the service offerings. The primary discussion is to ensure that data producers and RENCs can put an accurate statement of the current product and service offerings when the product specification gets to 2.0.

Action Item 26: NIPWG invited to test S-128 1.1.0 when ready for review and to provide feedback to S-128 PT. All. November 2023.

- Discussion 3: Testing S-128.
  ECDIS may receive multiple S-128 catalogues that overlap that reference the same product such as an ENC cell, the ECDIS requires written rules for which one is the most up to date, even if the catalogues arrive not in the order of product up to datedness (i.e. the latest catalogue received contains a product that is not as up to date as a product in a catalogue that had already been received). Testing should be sufficient to give guidance to the ECDIS implementer on what needs to happen and the functionalities that need to be in place (examples of where there is not an overlap and where there are overlaps). Tests to be described in S-164.

- Clarification: INToGIS system functionality is currently S-100 Edition 4.0. and will become 5.0 when S-128 Edition 1.1.0 is made available.

11.5.2 UKHO S-128 Approach

- UKHO update on intention to do an S-128 announced at NIPWG9. UKHO is collaborating with SHOM on an S-101 trial with the intention and with ongoing discussions with OEMs and IC-ENC to put together a meaningful set of trial data. The intention is a full end to end testbed with a shipping company and IC-ENC however planning is still in progress.

- Discussion 1: Testing
  A robust method is required to ensure that tests are efficient and shared to make sure it is productive. Limits of framework for testing previously mentioned in Agenda Item 11.5.1, with a tight timeline it was agreed that a monthly S-128 dedicated VTC is to be held to discuss testing of the product specification and generating data from it. James Weston to secretary the meetings.
  The VTC to be held in 3rd week of October to discuss who can do what to try to do as much as a review of the product specification as possible to dedicate resource to each component.
  An impact study is a necessary component before S-128 Edition 2.0 can be submitted to HSSC.
- Feature catalogue and scheme expected to be available with S-128 Edition 1.1.0 but when data is available to be tested by HP to be discussed at the dedicated VTC.
- JP: The S-164 group will support multiple datasets when they come out to work with the ECDIS manufactures. The initial tranche of S-164 exchange sets aiming to be released by the close of Lombok meeting.
- EK: To accelerate the delivery, encourage the S-128 Project Team to work with the S-164 Project Team and to get the test cases that already available for S-128. To provide insights into what datasets and what testing is required to begin with and what test datasets and artefacts are required.

Action Item 27: Dedicated S-128 VTC to be held monthly. Strict focus on finalising PS development. All. 3rd week October.

- The monthly VTCs should be focused on the product specification development and reaching the goal of S-128 Edition 2.0 by end of Q1 2024. The discussion on the use of S-128 and identification of the various stakeholders and how they all work together should be discussed separately to start with.

Action Item 28: Dedicated S-128 VTC on discussion on distribution and use cases. All. VTC03/23.

Action Item 29: Denmark to conduct Impact Study on S-128 and report back to NIPWG. JSC. VTC01/24

- Discussion 2: S-128 Portrayal Catalogue.
  HP: The S-100 model is a machine-readable feature and portrayal catalogue what is the view for S-128. Should there be an IHO endorsed S-128 portrayal catalogue so that every ECDIS shows the same colour scheme for the different products, official/unofficial/, paper products etc?
- A portrayal catalogue will be required therefore OEMs will not have to do bespoke implementation.
  RM: Within S-98 there is a requirement to display a graphical index of products and S-128 will fulfil this requirement.
  For S-128 Edition 1.1.0 non filled boxes with solid boxes will be fine.
  Detailed discussions on portrayal to be conducted during initial review of S-128 Edition 1.1.0.

- YB: Update: S-100 Infrastructure Centre Project Team established. The main task is to support the creation of feature and portrayal catalogues for S-100 product specifications. Once stood up they may be able to get support to create or update based on the requirement.

Action item 30: Consider and feedback to NIPWG if a simple portrayal catalogue will delay draft of PS 1.1.0. S-128PT. 15th Sept 2023.

- Answer: Edition 1.1.0 should be possible to have a simple portrayal catalogue, a simple outline of different products and colour coded differently.

11.5.3 A review of which services should consider using S-128 (Action Item: NIPWG9 No 18)

- NIPWG noted the paper.
- ENDS: Electronic Navigational Data Service. The old ECDIS performance standards refer to ENC only, the new ECDIS performance standards also include carriage requirements for nautical publications. Now called ENDS, chart and nautical publications.

- Discussion 1: Maritime Services in the data model of S-128.
  There is a type in S-128 Edition 1.0.0 which is 'E Navigation service' however unsure on usability, currently only products are in the data model.
  S-128 should contain the paper format nautical publications, S-128 could be the digital declaration for a given area, if the maritime service requirement is met by a paper of digital product.
  Reference was made to WWWNS15_3.5.1.1 AMSA Trial.pdf. Figure 4. Link.
  A Maritime Service is a description of a service that a nation can provide. The National circumstances determine whether that service is provided or not. Maritime Service are provided by a technical means, not all will use S-100 products, but they can use S-100 products for all or part of the service.
  A Technical service describes how to make use of the S-100 product specifications to productise and communicate that service.
  EM: Once S-128 Edition 1.1.0 is released to look and see if the data model supports the inclusion of maritime services and if it does not what level of effort is needed for it to do so.
- Technical services are used to fulfil the requirements of SOLAS chapter 5.
- Maritime Services are only a description. One way to utilise S-128 is to have an association with the Technical Service to say that this S-12X is equal to this Maritime Service.

Action Item 31: Investigation to be conducted in the usability and feasibility of S-128 providing association to a Maritime Service. EM, CJ, SE. End of Sept 2023

Comments on paper:

- SS: PRIMAR intend to create an S-128 product based on the products held in their portfolio and will not be based on the member states S-128 products which may contain products that PRIMAR does not, such as paper charts. In Norway there is a Reference Route Service which is providing route information for everyone, this is a use case to including routes in S-128. If PRIMAR receives S-128 from member state, one of these data sets is stopped in RENC services, this S-128 will no longer be valid which is why member state S-128 cannot be used as the foundation in PRIMAR's S-128. In general, the content will be the same.

- Discussion and reference to S-128 service options. Link.
  There will be all methods of data ending up at the end user. It will not always be via the RENC. The diagram shows the multitude of possibilities of information ending up at the end user is not always via the RENC.
  SS: If it is expected that the RENCs also deliver the nations' S-128 data sets as a service along with the RENCs S-128 then this needs to be clearly recommended to the IHO and then communicated out and to ask the RENCs to provide this functionality and not assume that this will be in place. Currently not taken into consideration by PRIMAR.

- YB. The scope of S-128 also has a non-navigational purpose. The focus now is on the navigational purpose as a priority to meet the S-100 roadmap by 2026. This should be the first scenario worked on. Then expand to different use cases after Phase 1. The up to date-ness function is very key for the end user to check if the data is up to date or not.
- JP: Confirmation that S-164 will test both eventualities, a single S-128 produced by an aggregator and a S-128 and someone with a role as data producer. To be explored as S-128 develops if a test is required in the intersection between the two to test if a user get the same dataset from two different producers/different sources with different information within them. How this works may be the best documented in S-98 Annex C rather than S-128 Product Specification.

- Summary: S-128 is trying to solve two problems, which is for a data producer to describe its products and for providing a machine readable up to date-ness. Being a member of a RENC is not a requirement, a RENC does not distribute to an end user, they go via somebody else who may combine two RENCs. It is therefore unlikely the RENC S-128 will end up at the end user, potentially it will end up being one S-128 made by a VAR that combines services from several.

- NIPWG notes all that has been said, with discussions to be continued at the planned S-128 VTCs.

11.5.4 PRIMAR S-128 project

- NIPWG noted the presentation.
- Concerns raised that not all attributes in use in S-128 Edition 1.0.0 are currently in the registry. This is a problem because the process takes a minimum of 60 days, this needs to be done before Edition 2.0 is submitted to HSSC.

Action Item 32: Review S-128 and find any gaps between Data model and registry. JSC and SJH. VTC03/23

11.1 S-122 – Marine Protected Areas

11.1.1 Task Group update

- NIPWG noted the presentation.
- MARPOL is not specially included in the model, however the zones on which MARPOL is based can be found in S-121. Restrictions that are imposed by MARPOL could be modelled in S-122, but there are specific MARPOL provisions now in S-101.
- Alper Celebi to assist JP to organise S-122 meeting and setting agendas etc.

11.1.2 ProtectedSeas - Navigator global MPA database

- NIPWG noted the presentation.
- MJ: The Secretariat welcome this initiative. Owner ship of this information is very fragmented and away from the hydrographic offices. Some nations do not even know where the information sits nationally, it is a great benefit that ProtectedSeas has brought all this information together.
- Canadian perspective: There is a very active S-100 committee working across government agencies to harmonise bring everyone up to the same level for S-100 implementation. S-100 catalogue maps every S-100 product specification if relevant to Canada and if so, who has the production responsibility. S-122 is the only product specification that was relevant but no decision who is own it. There is the problem of it being federal, provisional, municipal, and first nation responsibility. The government is following the UN goals and actively setting up the protected areas but hasn't worked out how they are to be regulated. Now actively looking at funding and development at the department of fisheries and oceans. This will gain higher priority in countries.

11.2 S-123 – Marine Radio Services

11.2.1 Task Group update

- NIPWG noted the presentation.

Action Item 33: Investigate how you would capture a sub area in S-123. CG, S-123TG VTC03/23

- Discussion 1: NAVTEX service areas.
  Limits of these areas are not often agreed or shown. There is a risk that these service areas will be different between producers. The NAVTEX service areas are defined from the states perspective of where these areas are being broadcast too. There are overlaps and disagreements between nations. It is then the mariner's job to work out who they listen and report to. It is not within S-123 to take into the political side of the NAVTEX coverages, just purely the intended transmission area.

HP: Proposed that the new system NAVDAT is added now even if not in use now, if it is included in the product specification now it will save a future version of S-123 as soon as a nation starts to use NAVDAT.

- Discussion 2: Overlapping Radio Waves.
  Radio waves can overlap each other and extend into neighbouring countries, therefore the ECDIS needs to know if it should cut the presentation of the radio waves at the edge of the national boundary or if its allowed draw them in full. Conclusions from previous discussions was that radio waves can overlap each other and the ECDIS can 'merge' the layers such as Canadian Radio area coverages will overlap into US waters and vice versa and can be staggered on top of each other in the ECDIS.

Action Item 34: Input paper to be submitted to S-100WG recommending with the support of NIPWG a statement that overlapping radio coverage areas is possible and a statement be added to S-98 Annex C. HP. October 15 (S-100WG8)

- EM: Comprehensive work has been done by the task group. Commend the task group for what they have done across many meetings.

Action Item 35: Proposed changes to S-123 to be shared with NIPWG and to provide a period of review (6-8 Weeks) to the have an approved to do list to generate the next version of the PS. S-123 Lead/Chair Team. VTC03/23

- EM: After Phase 1 product specifications are complete, all to consider volunteering to update the S-123 product specifications following the recommendations approved by the working group. Resources are necessary to move this product specifications forwards.

11.2.2 Satcom/4G/5G/LTE - S-123 Mapping of Coverage for MASS

- NIPWG noted the presentation.
- Support given that S-123 covers this type of information and should be tried to be integrated into the product specification. There needs to be an understanding of what connectivity is available along a route. Connectivity is needed for many of the products within Phase 1; S-104, S-111 and S-124. Communication providers should be contacted to share data so that connection availability is made for passage planning and during route execution.

Action Item 36: VTC to be arranged to assess BV's proposals and to be amalgamated with other S-123 changes and shared with NIPWG. S-123TG, Chair Team and IM. VTC03/23.

13.2 Teledyne Caris software for Npubs update

- NIPWG noted the presentation.
- SE: As soon as you have common complex structures it is very easy to implement them once and reuse them. If there are small differences between product specifications it might cause problems in production. Should common structures be kept similar among product specifications even though it is not required by S-100?
- HA: Part of the problem is not because they were not defined in the registry, it is because the registry changed. When the products move towards edition 2.0 at the same time if they are all using the same version of the registry, they will be more consistent. The reality is after S-57 which has been frozen for years, now features, attributes and type can change when different versions of the S-1XX product specifications are developed. There will be a continuous period of migration exercises, small migrations to keep the data in line with the evolving product specifications.

9. GAP Analysis Discussion continuation (Action Item: NIPWG VTC-02-23-No 9)

- When reviewing the publications to decide which sections relates/sits within which S-12X product. The first question to ask is to decide if the information is still needed going forwards. Caution is needed to simplify too much. Information that is not needed by the producer might still be needed by the user,

before removing check with users, a balance is needed. The goal is to reduce what isn't necessary as there has been too much in the past.
- EM: The role of this exercise is to answer the question posed by SHOM and gain the experience collectively and then take the approach used and applied to own nautical publications. When you find gaps that you cannot resolve, these gaps are raised at NIPWG.
- Reminder that even if all S-12X products are created there is still going to be a period of dual-fuel usage and for vessels that do not have an ECDIS relying on the traditional products. Need to be careful how you store and manage the data to then be able to extract the data for different products, not all the data needs to end up in an S-12X product.
- EK: Reviewing a publication is a national activity that needs to be done at a holistic view. Otherwise using another nations perspective may result in a product that the host nation does not want. IIC able to assist nations if required.

- EM: Summary. Rather than review and answer SHOMs question per each working group to identify gaps, for SHOM to lead a task group and the working group will assist. The task of the group is to help SHOM in their mapping of their own Sail Direction example and future S-12X products.

Action Item 39: SHOM to lead Task group identifying gaps in French SDs and future S-12X products. RB, Task Group Leads, All. VTC03/23

- Action Item above supersedes and completes Action Items VTC02 – 8 and 9.

14. Any other Business

14.1 S-101PT11 Small Craft Mooring Areas
- NIPWG noted the paper.
- NIPWG endorses the input paper.

Action Item 40: NIPWG endorsement passed on to the S-101PT. JW. 15th September 2023

15. Elections
- Eivind Mong re-elected as Chair and Stefan Engström re-elected as vice chair. The Chair is only able to commit to one year.

16. Review of NIPWG10

16.1 Review Action Items
- See Annex A

Action Item 41: Review of the NIPWG workplan 2024-25 for submission to HSSC16. Chair Team. VTC01/24

Action Item 42: Create list of each task group membership and to include on NIPWG page. JWE/Task Group Leads. VTC03/23

- Discussion on who to communicate NIPWG whole group correspondence, currently a large email group. It was agreed that the offical NIPWG membership list is the list to be used for distribution of whole group correspondence.

Action Item 43: Call for members to review the NIPWG membership list for changes including additions and removals to inform IHO Secretariat and NIPWG Chair Team. All. 30th September.

- Discussion had on the IHO S-100 roadmap Link figure 3 and how the figure is interpreted with Phase 2 products and when operational data occurs. There are assumptions by some that Phase 2 will keep moving to the right. The adding of individual milestones for each product, additional levels of

granularity to IHO roadmap, will aid those who are not directly involved in the projects to show how continued development of Phase 2 products is still necessary now.
- Preliminary implementation means the testing phase.

Action Item 44: NIPWG to draft their own working group level milestones. Chair Team/Task Group Leads. VTC03/23

17. Date and place of next meeting

- NIPWG11: Last week of September. 24th to 27th location to be officially announced once fully agreed.
- NIPWG VTC 03/23: 6th December 2023

- Director John Nyberg thanked all for the important work being undertaken by the group, especially the increase in work undertaken on S-128.
- Chair Eivind Mong closed NIPWG10 by thanking all those who attended and to the IHO for hosting the week and ensuring it all ran smoothly.

Table of names & initials:

YG	Yves Guillam
EM	Eivind Mong
SE	Stefan Engström
MR	Mikael Renz
JP	Jonathan Pritchard
RM	Raphael Malyankar
JMK	John Morten Klingsheim
HP	Hannu Peiponen
DL	David Lewald
JW	Jeff Wooten
PS	Phillip Schwedas
RB	Roderic Bera
CG	Chris Gill
CJ	Caroline Johansson
SR	Sarah Rahr
MK	Michael Kushla
SO	Seewong OH
EK	Ed Kuwalek
RJ	Robin Jefferies
JSC	Jens Søe Christiansen
SS	Svein Skjaeveland
YB	Tong Baek
SJH	Son Ji Hyun
MJ	Mathias Jonas
IM	Ilia Maslov
HA	Hugh Astle
JWE	James Weston

Table of Acronyms:

EGDH	Expert Group on Data Harmonization
DQWG	Data Quality Working Group
TSM	Test Strategy Meeting
MRN	Maritime Resource Name
HSSC	Hydrographic Services and Standards Committee
FC	Feature Catalogue
FOID	Feature Object Identifier

Note: FOR REASONS OF ECONOMY, THE DELEGATES ARE KINDLY REQUESTED TO BRING THEIR OWN COPIES OF THE DOCUMENTS TO THE MEETING

RENC	Regional ENC Coordinating Centre
GUI	Graphical User Interface
NP	Nautical Publication
DCEG	Data Classification and Encoding Guide
ENDS	Electronic Navigational Data Service
PS	Product Specification
MARPOL	The International Convention for the Prevention of Pollution from Ships

Annex A: Action Items

#	Action Item	Agenda Item	Assigned	Status
NIPWG 9, 2022 – Hybrid Meeting				
04	NGA are invited to present the presentation on WPI to the S-130 PT, for their consideration, as the names of water bodies may not be included as such in the S-130 product specification (use of Unique Identifiers instead).	13.1	JS/MK	~~NIPWG10~~ VTC03-23 (Dec-23)
05	NGA is encouraged to ensure the interface for WPI is developed so that it guarantees harmonization with S-1xx products, specifically S-131 (to reduce/remove any possibility of duplicate efforts from users/providers).	13.1	JS/MK	~~NIPWG10~~ VTC03-23 (Dec-23)
06	NGA will update NIPWG when public facing website of the World Port Index is live.	13.1	JS	~~NIPWG10~~ In Progress
18	A review of which services should consider using S-128 products and services will be completed by SE and HP.	11.1	SE, HP	NIPWG10 COMPLETED
19	S-128 task group to review the link between task specific products and the model in S-128. And add 'B' work items, such as to 'investigate potential impacts on the data model when considering automatic creation of S-128 product from existing S-1xx and S-57 products. i.e., is there sufficient simplicity in the model so that you can take the coverage of one model and make it part of S-128 (look into automation tasks)'.	11.1	S-128 Working Group	~~VTC-03 (Dec-22)~~ VTC03-23 (Dec-23) In Progress
23	Request that SO (Dr. Oh) and his role as IALA/ARM…S-125 task group lead, and his involvement with the S-128 task group, to please review the introduction of S-125 and S-128 and try to replace the NPIO term with a better description of the product specifications intended use.	5.1	SO	~~NIPWG10~~ In Progress
24	Invite all task groups to consider the updated descriptions in S-125 and S-128 when conducting their next product specifications review.	5.1	ALL	~~NIPWG10~~ In Progress

28	NIPWG members to make use of the NIWPG wiki in the dialogue on improving the DCEG on all S-12x products.	10.3	ALL	~~NIPWG10~~ In Progress
NIPWG VTC-03				
2	Prepare input paper for NIPWG to review in preparation for next TSM (Mar-23). Combined with Action Item VTC-03/1.	3.2	RM, JP, SS	~~Feb 17th, 2023~~ Nov 2023 COMPLETED
NIPWG VTC-01 (2023)				
2	A dedicated meeting to further discuss the Gap Analysis Study (Action Item 7, VTC 01-23) to be organized for all NIPWG members. Time to also be set aside at VTC-02-2023 to discuss further	2	Chair Team	3rd March 2023 COMPLETED Superseded by NIPWG10/39
4	Review List of action items from DQWG last meeting (held in Feb 7-9, 2023) when released. Chair Team, All S-12x Task Group Leads.	3	Chair Team, S-12x Task Group Leads	VTC-02 (Jun 2023) In Progress
6	Task Group leads to continue to discuss the topic of GML within their teams (who are working on GML products), for further refinement, and send ongoing input to RM.	4	All Task Groups	VTC-02 (Jun 2023) On Going
8	All to review NIPWG-VTC01-06.0A and provide ideas for best practice on how S-12x information should be presented in production and for end user.	6	All NIPWG	VTC-02 (Jun 2023) On Going
11	Please download and view the German S-128 test data, and feedback comparisons and observations to PS	7.5.1	All NIPWG	~~VTC-02 (Jun 2023) NIPWG-10~~ VTC-03/23 (Dec-23)
12	NIPWG to prepare spreadsheet or table for discussion with IHO GI Registry Meeting. Chair Team.	7.6.2	Chair Team	~~VTC-02 (Jun 2023) NIPWG10~~ In Progress
NIPWG VTC-02 (2023)				
1	Task Group leads to prepare plans on how to implement Data Quality based on the recommended template of the Data Quality chapter of 'S-1XX Data Product Specifications' developed by DQWG.	3.2	All Task Groups Leads	~~NIPWG10~~ In Progress VTC-03/23 (Dec-23)
2	Agenda Item on DQWG and to identify a DQWG focal point/liaison within NIPWG.	3.2	Chair Team	NIPWG-10 COMPLETED
3	NIPWG to create IHO level guidance for use of MRN.	5	SR, JP (lead), RJ, PS, RM, RB, SO, JSC, MK	NIPWG-10 COMPLETED
4	Clarify the intention of definitions: "Margin to cater for uncertainties…" and then submit to the register.	6	Chair Group, RM & BvS	30th June 2023 COMPLETED

5	UKHO to provide comments on S-125	8.3.1	JM	31st July 2023
6	Forward SHOM comments on S-127 to Task Group	8.4.1	EM	30th June 2023 COMPLETED
7	Current guidance on data capture from S-131 to be posted on Wiki in a common page for members to refer to.	9	RM	NIPWG-10 On Going
8	Share an editable version of SHOM Presentation for Task groups to annotate.	10	Chair Team	31st July 2023 COMPLETED Superseded by NIPWG10/39
9	Review SHOM presentation and mark up items which belong to each Task Group.	10	All Task Groups	NIPWG-10. Superseded by NIPWG10/39
NIPWG10, 2023 – Face to Face Meeting				
1	HSSC15/05 Decision A3/07. NIPWG to review current resolutions in M3 section 2.4 Nautical publications are still current and up to date.	4.1	Chair Team	VTC03-23 (Dec-23)
2	HSSC15/05 Decision A3/08e. NIPWG to prepare first draft input into the next IHO strategic plan 2027-2032 to be considered at HSSC16	4.1	Chair Team	VTC01-24
3	HSSC15/05 Decision A3/21, NIPWG to review method and frequency of meetings and to provide input to HSSC16	4.1	Chair Team	VTC01-24
4	HSSC15/08. NIPWG to provide the HSSC chair updates on SPI.	4.1	Chair Team	VTC01-24
5	Agenda Item at next VTC Report on the S-124/S-125 Test at IHO-Singapore Lab.	4.1	Chair Team	VTC03-23 (Dec-23)
6	HSSC15/86, NIPWG to prepare comment paper for HSSC/IHO Secretariat on the proposal submitted by ROK MOF (Ministry of Oceans and Fisheries) on the use of electronic nautical publications at NSCR-11.	4.1	Chair Team	NSCR-12 (June 24) Deadline Feb 2024
7	Task Groups to develop key performance indicators for each of the product specifications to also feed into Action item 40.	5.1	Task Group Leads	VTC03-23 (Dec-23)
8	Task Groups to provide point of contact for S-64 and S-98.	5.1	Task Groups	VTC03-23 (Dec-23)
9	Task groups to provide test data sets to aid S-164 development.	5.3	Task Group Leads	When available
10	Task group leads to read through and check the current draft of S-98 Annex C and comment/prepare input paper to be defined and published in S-98.	5.3	Task Group Leads	As soon as possible.
11	IHO Secretariat to consider the branding of The Guide for Nautical Data version 1.4 by IHMA.	11.6.2	YG	VTC03-23 (Dec-23)

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12	MRN use cases to be drafted for input into S-98 Annex C	7.0	RM(lead) JMK, HP, SE	15th September 2023 COMPLETED
13	NIPWG subgroup to create use cases as pictures or text for complex portrayals examples and pic reports	8.2	SE(lead), RM, JP, PS, RB(with additional SHOM colleagues) and Canadian Coast Guard.	October 15 (S-100WG8)
14	Overview paper, RM's paper and use cases created by the NIPWG subgroup (Action Item 13) to be submitted to S-100WG.	8.2	NIPWG Subgroup	October 15 (S-100WG8)
15	Action Item 13 to be raised with S101PT and the Portrayal Subgroup.	8.2	JW	October 15 (S-100WG8)
16	NIPWG to pass to S-100 Validation Sub working group recommendation of restricting GML types by clarification.	9.0	EM	VTC03-23 (Dec-23)
17	ENDS diagram: Updating names, shape etc and to link with SOLAS regulations.	4.2.1	CJ(Lead), SR, SE, MK, CG EM, JS	VTC01-24
18	Send input paper to IALA ARM17 requesting support on writing the S-100 world architecture.	4.2.1	EM	End September 23
19	Operational Interaction diagram on S-100 world architecture to be expanded to include the other nautical publications and charting tasks, their relationship and how it ends up at the ship	4.2.1	IALA ARM	VTC01-24
20	Agenda item at VTC01-24 to review S-100 world architecture completed by IALA ARM (Action item 16)	4.2.1	Chair Team	VTC01-24
21	Canadian Coast Guard to provide input paper to the S-127TG on use cases of speed restrictions within the St Lawrence River.	11.4.1	RJ	VTC03-23 (Dec-23)
22	Create and distribute a detailed timeline (Nov 23-Aug 24) of roadmap to PS 2.0 creation, including when tool is ready to be used for testing.	11.5.1	S-128 PT / Chair Team	VTC03-23 (Dec-23)
23	Product Type attribute; check PS 1.1.0 for the inclusion of traditional paper products (List of Light, SDs etc.) and other different use cases.	11.5.1	S-128 PT	Mid-October 2023
24	DCEG guidance for the different uses to be reviewed in preparation of PS 1.1.0	11.5.1	S-128 PT	October 2023
25	NIPWG invited to test S-128 1.1.0 when ready for review and to provide feedback to S-128 PT.	11.5.1	All	November 2023
26	NIPWG is invited to provide comments on Product Type when PS is open for review.	11.5.1	All	November 2023
27	Dedicated S-128 VTC to be held monthly. Strict focus on finalising PS development.	11.5.2	All	Starting 3rd week October
28	Dedicated S-128 VTC on discussion on distribution and use cases.	11.5.2	All	VTC03-23 (Dec-23)

29	Denmark to conduct Impact Study on S-128 and report back to NIPWG	11.5.2	JSC	VTC01-24
30	Consider and feedback to NIPWG if a simple portrayal catalogue will delay draft of PS 1.1.0.	11.5.2	S-128PT	15th Sept 2023 COMPLETED
31	Investigation to be conducted in the usability and feasibility of S-128 providing association to Maritime Services.	11.5.3	EM, CJ, SE	End Sept 2023
32	Review S-128 and find any gaps between Data model and registry.	11.5.4	JSC & SJH	VTC03-23 (Dec-23)
33	Investigate how you would capture a sub area in S-123.	11.2.1	CG, S-123TG	VTC03-23 (Dec-23)
34	Input paper to be submitted to S-100WG recommending with the support of NIPWG a statement that overlapping radio coverage areas is possible and a statement be added to S-98 Annex C	11.2.1	HP	October 15 (S-100WG8)
35	Proposed changes to S-123 to be shared with NIPWG and to provide a period of review (6-8 Weeks) to the have an approved to do list to generate the next version of the PS	11.2.1	S-123 Lead/Chair Team	VTC03-23 (Dec-23)
36	VTC to be arranged to assess BV's proposals and to be amalgamated with other S-123 changes and shared with NIPWG	11.2.2	S-123TG, Chair Team and IM	VTC03-23 (Dec-23)
37	Paper on the interoperability identifier to be submitted to S-100WG and supplementary paper to S-98. MRN Task group. VTC03/23	5.4	JP	October 15 (S-100WG8)
38	IHO Secretariat to propose interoperability identifier to the registry as a concept.	8.0	JW	15th September 2023 COMPLETED
39	SHOM to lead a Task group identifying gaps in French SDs and future S-12X products.	9.0	RB, S-12X Task Group Leads + All	VTC03-23 (Dec-23)
40	NIPWG endorsement passed on to the S-101PT	14.0	JW	15th September 2023 COMPLETED
41	Review of the NIPWG workplan 2024-25 for submission to HSSC16	16.1	Chair Team	VTC01/24
42	Create list of each task group membership, roles within NIPWG and to include on NIPWG page.	16.1	JWE/Task Group Leads	VTC03-23 (Dec-23)
43	Call for members to review the NIPWG membership list for changes including additions and removals and inform the IHO Secretariat and NIPWG Chair Team.	14.0	All	30th September 2023
44	NIPWG to draft their own working group level milestones.	16.1	Chair Team/Task Group Leads	VTC03-23 (Dec-23)

Annex B: NIPWG List of Decisions & Action Items Arising from HSSC-15

5.3	**Nautical Information Provision (NIPWG)**				
5.3A	S-100 System Architecture, IMO's Maritime Services	HSSC15/36 (former HSSC14/44, HSSC13/35)	Noting different expectations, **HSSC** welcomed the offer made by **NIPWG** in liaison with **S-100WG** to complement the S-100 System Architecture by a submission paper addressing the what/how/when the S-100 based products should work together in a future S-100 ECDIS environment.	**HSSC-16**	In progress with Canadian Coast Guard and other agencies
5.3A	Maritime Services, e-navigation	HSSC14/45 (former HSSC13/37, HSSC12/32, HSSC11/36)	**HSSC** tasked the responsible **HSSC WGs** [and will invite also the **IRCC/WWNWS-SC**] to review the initial descriptions of "*Maritime Services in context of e-navigation*" under their remit and to provide them to **NIPWG** for further action if appropriate. **NIPWG** to send reminders as appropriate.	**Permanent** **Deadline to be confirmed by NIPWG**	Closed
5.3A	Maritime Services, e-navigation	HSSC15/37 (former HSSC 14/46, HSSC13/38)	**HSSC** tasked **NIPWG** to act as the responsible IHO WG to monitor and contribute to the IMO Expert Group on Data Harmonization (EGDH).	**Permanent**	In progress (engaged with IMO EGDH)
5.3A	Scale Dependent (SD)/Scale Independent (SI)	HSSC15/38 (former HSSC 14/47, HSSC13/40)	After having considered an IALA outline paper describing how S-201, S-124, S-125 may work together, **HSSC** tasked **NIPWG** to provide a paper discussing SD/SI data handling aspects.	**HSSC-16**	In progress

5.3A	S-100 Whole Picture	HSSC15/39 (former HSSC14/49, HSSC13/41)	**HSSC** welcomed the offer by **NIPWG** to develop an outline paper, in liaison with **S-100WG**, describing the whole S100 picture in close cooperation with stakeholders, inside and outside the IHO community and with IMO in particular.	**HSSC-16**	In progress
5.3A	S-12x (S-122, S-123, …)	HSSC15/40 (former HSSC14/50)	**HSSC** noted the status report on the development of the new Edition of these Product Specifications to be aligned with S-100 Ed. 5.1.0 and the remaining challenges (Portrayal, etc.).	**HSSC-15**	All products in the process of being aligned with S-100 Ed. 5.1.0 except S-131
5.3B	S-128	HSSC14/52	**HSSC** advised **NIPWG** to liaise with **S-100WG** on issues identified regarding responsibility of stakeholders in producing and distributing S-128 and for **NIPWG** to provide an input paper to WENDWG13.	**WENDWG-13/HSSC-15**	Noted in agenda of WENDWG13, discussed at S-100WG7. Complete.
5.3A	S-12x	HSSC15/41	**HSSC** noted the possible S-128 scenarios (fig. 2 in Doc. HSSC15-05.3A) and the progress made on other S-12x products in NIPWG portfolio (work on track for S-122, S-123, S-125, S-127).		
5.3A	S-126	HSSC15/42	Noting the lack of resources available and other high priority products, **HSSC** agreed to put on hold the development of S-126 until further notice and/or recommendation from NIPWG.		Decision
5.3B	S-131	HSSC15/43	**HSSC** commended **NIPWG** and **partners** for the work done on S-131 and approved Ed. 1.0.0 of S-131 for initial implementation, testing and evaluation. Alignment with S-100 Ed. 5.1.0 to be considered.	**HSSC-16**	Decision

5.3A, 7.1B	S-124	HSSC15/44	Noting the endorsement from the S-100WG, **HSSC** commended the WWNWSC and S-124PT for their work and approved Ed. 1.0.0 of S-124 – *Navigational Warnings* - for initial implementation, testing and evaluation. **HSSC Chair** to report to IRCC (since the WWNW-SC is under its remit).	**IRCC-15**	Decision
5.3	S-125	HSSC15/45	**HSSC** invited **NIPWG** to deliver at the next S-100WG meeting, a presentation on the concept and various options for the operational implementation of S-125 in the future, as well as on interoperability issues with S-101 and S-124.	**S-100WG8** **HSSC-16**	

Annex C: Agenda

1.0	**Welcome and announcements**	
1.1	**Chair Welcome**	Chair
1.2	**Host Welcome**	IHO Director
1.3	**Announcements**	Chair / Yves Guillam
2.0	**Introductions**	All
3.0	**Adopting the Agenda**	Chair
4.0	**Review of Action Items**	
4.1	**Review outstanding NIPWG Actions**	Chair
4.2	**Review outstanding HSSC-15 Actions and Outcomes**	Yves Guillam
4.2.1	**HSSC Action Item: HSSC15/36 (S-100 System Architecture, IMO's Maritime Services)**	Chair
5.0	**Review of other Working Group reports**	
5.1	**Review of HSSC ISO 9001 Cell report**	Chair
5.2	**Update on IMO Expert Group on Data Harmonization (EGDH)**	Stefan Engström
5.3	**NIPWG and S-164 development**	Jonathan Pritchard
5.4	**S-101 Modelling update**	Jeff Wootton
5.5	**Registry Domain Control Body**	Chair
6.0	**NIPWG Data Quality**	Chair
7.0	**NIPWG MRN IHO Level Guidance update**	Jonathan Pritchard
8.0	**Portrayal**	
8.1	**NPUB User Interfaces, S-100 ECDIS and S-108/S-164**	Jonathan Pritchard

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8.2	**Complex portrayals and pick reports**	Raphael Malyankar
8.3	**Canadian Coast Guard Investigation into NPUB portrayal**	Eivind Mong
9.0	**XML and GML objects**	Jonathan Pritchard
10.0	**GAP Analysis Discussion continuation** (Action Item: NIPWG VTC-02-23-No 9)	Chair
11.0	**Product Specification updates**	
11.1	**S-122 – Marine Protected Areas**	
11.1.1	Task Group update	Jonathan Pritchard
11.1.2	ProtectedSeas - Navigator global MPA database	Virgil Zetterlind
11.2	**S-123 – Marine Radio Services**	
11.2.1	Task Group update	Shwu-Jing Chang
11.2.2	Satcom/4G/5G/LTE - S-123 Mapping of Coverage for MASS	Ilia Maslov
11.3	**S-125 – Marine Aids to Navigation**	
11.3.1	Development update	Eivind Mong
11.4	**S-127 – Marine Traffic Management**	
11.4.1	Task Group update	Ed Kuwalek
11.4.2	China MSA: Research of Identifying Vessel Behaviour Compliance Based on S-127 Maritime Traffic Management Rules.	Chair/Yuxiao Lyu (VTC)
11.4.3	China MSA: Proposals for the adoption of Chinese version of S-127 1.0.1	Chair/Yuxiao Lyu (VTC)
11.5	**S-128 – Catalogue of Nautical Products**	
11.5.1	S-128 Test Bed update	Jihyun Son
11.5.2	UKHO S-128 Approach	Jo Marks
11.5.3	A review of which services should consider using S-128 (Action Item: NIPWG9 No 18)	Stefan Engström
11.5.4	PRIMAR S-128 project	Svein Skjæveland
11.6	**S-131 – Marine Harbour Infrastructure**	
11.6.1	Project update	Sarah Rahr
11.6.2	Port of Rotterdam presentation of S-131 related activities	Ben van Scherpenzeel
12.0	**NIPWG member updates**	
12.1	**UKHO update on Digital Admiralty Sailing Directions**	Jo Marks/Chris Gill
13.0	**Industry member updates**	
13.1	**ICS Industry perspective on e Publications**	Gregor Stevens
13.2	**Teledyne Caris software for Npubs update**	Hugh Astle
14.0	**Any other Business**	Chair
14.1	**S-101PT11 Small Craft Mooring Areas**	Jeff Wootton
15.0	**Elections**	Yves Guillam
16.0	**Review of NIPWG10**	Chair

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16.1	**Review Action Items**	
17.0	**Next meetings**	Chair
17.1	NIPWG 11: TBC	
17.2	Next VTC: 6th December 2023	

Annex D: List of Attendees

Registered Attendees			
Name	**Country**	**Organization / Company**	**Y/N**
IHO MEMBER STATES			
Alper CELEBI	Australia	Australian Hydrographic Office	Y
Sarah RAHR	Canada	Canadian Hydrographic Service (CHS)	Y
Eivind MONG	Canada	Canadian Hydrographic Service (CHS) - Chair	Y
Lorena Margarita BONFANTE LOZADA	Colombia	Direccion General Maritima, Armada Nacional, Ministerio de Defensa Nacional	N
Ludis del Carmen CASTRO BUENDIA	Colombia	Direccion General Maritima, Armada Nacional, Ministerio de Defensa Nacional	N
Ulla Bjørndal MØLLER	Denmark	Danish Maritime Administration (DMA)	Y
Jen Søe CHRISTIANSEN	Denmark	Danish Geodata Agency/Geodatastyrelsen (GST)	Y
Stefan ENGSTRÖM	Finland	Finnish Transport Agency Hydrographic Office	Y
Roderick BERA	France	Service Hydrographique et Oceanographique de la Marine (SHOM)	Y
Philipp SCHWEDAS	Germany	Bundesamt für Seeschifffaahrt & Hydrographie (BSH)	Y
KISHORE PADAM SINGH AER	India	National Hydrographic Office	Y
KISHORE AER	India	National Hydrographic Office	N
Elena ARMANINO	Italy	Istituto Idrografico Della Marina	Y
Wilfred VAN TOOM	Netherlands	Hydrographic Service - Royal Netherlands Navy (NLHO)	N
Matilde Skæveland SKÅR	Norway	Norwegian Hydrographic Service	Y
John Morten KLINGSHEIM	Norway	Norwegian Coastal Administration	Y
Piotr PASZTELAN	Poland	Hydrographic Office of the Polish Navy	Y
Krzysztof SZUMIELEWICZ	Poland	Hydrographic Office of the Polish Navy	Y
Son JI HYUN	Republic of Korea	Korea Hydrographic and Oceanographic Agency (KHOA)	Y
Hwang JI HUN	Republic of Korea	Korea Hydrography and Research Association - KHRA)	Y
Caroline Johansson	Sweden	Swedish Maritime Administration	Y
Jo Marks	UK	UK Hydrographic Office (UKHO)	Y
Christopher GILL	UK	UK Hydrographic Office	Y

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James WESTON	UK	UK Hydrographic Office (UKHO) - Secretary	Y
Marcy KLIMEK	UK	UK Hydrographic Office (UKHO)	Y
David LEWALD	USA	US Coast Guard	Y
Amilynn ADAMS	USA	US Coast Guard	Y
Michael KUSHLA	USA	National Geospatial-Intelligence Agency (NGA)	Y
Jason STROM	USA	National Geospatial-Intelligence Agency (NGA)	Y
INDUSTRY & TECHNICAL EXPERTS			
Mikael RENZ		International Maritime Organization (IMO)	Y
Ben VAN SCHERPENZEEL		International Harbour Masters Association (IHMA)	Y
Gregor STEVENS		International Chamber of Shipping (ICS)	Y
Hannu PEIPONEN		International Electrotechnical Commission (IEC)	Y
Raphael MALYANKAR		Portolan Sciences	Y
Petri TISSARI		Furuno	Y
Hugh ASTLE		Teledyne Geospatial	Y
Virgil ZETTERLIND		Anthropocene Institute	Y
Harin OH		GreenBlue INC	Y
Ed KUWALEK		IIC Technologies	N
Jonathan PRITCHARD		IIC Technologies	Y
Svein SKJAEVELAND		PRIMAR	Y
Jeff WOOTTON		International Hydrographic Office (IHO)	Y
Yves GUILLAM		International Hydrographic Office (IHO)	Y
Insung PARK		International Hydrographic Office (IHO)	Y
Ilia MASLOV		Bureau Veritas Marine and Offshore	Y
Shwu-Jing CHANG		National Taiwan Ocean University (NTOU)	Y

Annex E: Time Schedule

DAY-1 (Tues 12th)	Agenda Item	Topic	Presenter
09:00	**1.0**	**Welcome and announcements**	
	1.1	**Chair Welcome**	Chair
	1.2	**Host Welcome**	IHO Director
	1.3	**Announcements**	Chair / Yves Guillam
	2.0	**Introductions**	All
	3.0	**Adopting the Agenda**	Chair
	4.0	**Review of Action Items**	Chair
	4.1	**Review outstanding NIPWG Actions**	Chair
	4.2	**Review outstanding HSSC-15 Actions**	Chair
10:30 - 11:00		Coffee Break/Group Photo	
	5.0	**Review of other Working Group reports**	
	5.1	**Review of HSSC ISO 9001 Cell report**	Chair

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	5.2	**Update on IMO Expert Group on Data Harmonization (EGDH)**	Stefan Engström
	5.3	**NIPWG and S-164 development**	Jonathan Pritchard
12:00 - 13:30		Lunch	
	5.4	**S-101 Modelling update**	Jeff Wootton
	5.5	**Registry Domain Control Body**	Chair
	6.0	**NIPWG Data Quality**	Chair
15:45 - 16:00		Coffee Break	
	11.6.2	**Port of Rotterdam presentation of S-131 related activities**	Ben van Scherpenzeel
	7.0	**NIPWG MRN IHO Level Guidance update**	Jonathan Pritchard
	8.0	**Portrayal**	
	8.1	**NPUB User Interfaces, S-100 ECDIS and S-108/S-164**	Jonathan Pritchard
17:00		Close	
18:00 - 19:30		Reception on the terrace	IHO/Yves Guillam

DAY-2 (Wed 13th)	Agenda Item	Topic	Presenter
09:00	**8.2**	**Complex portrayals and pick reports**	Raphael Malyankar
	8.3	**Canadian Coast Guard Investigation into NPUB portrayal**	Eivind Mong
10:25 - 10:40		Coffee Break	
	9.0	**XML and GML objects**	Jonathan Pritchard
	12.1	**UKHO update on Digital Admiralty Sailing Directions**	Jo Marks/Chris Gill
	13.1	**ICS Industry perspective on e Publications**	Gregor Stevens
12:00 - 13:30		Lunch	
	4.2.1	**HSSC Action Item: HSSC15/36 (S-100 System Architecture, IMO's Maritime Services)**	Chair
	11.6	**S-131 – Marine Harbour Infrastructure**	
	11.6.1	Project update	Sarah Rahr
	11.3	**S-125 – Marine Aids to Navigation**	
	11.3.1	Development update	Eivind Mong
15:45 - 16:00		Coffee Break	
	11.4	**S-127 – Marine Traffic Management**	
	11.4.1	Task Group update	Ed Kuwalek
	11.4.2	China MSA: Research of Identifying Vessel Behaviour Compliance Based on S-127 Maritime Traffic Management Rules.	Chair/Yuxiao Lyu (VTC)
	11.4.3	China MSA: Proposals for the adoption of Chinese version of S-127 1.0.1	Chair/Yuxiao Lyu (VTC)
17:00		Close	

DAY-3 (Thurs 14th)	Agenda Item	Topic	Presenter
09:00	**11.5**	**S-128 – Catalogue of Nautical Products**	
	11.5.1	S-128 Test Bed update	Son Ji Hun
	11.5.2	UKHO S-128 Approach	Jo Marks
10:30 - 10:45		Coffee Break	

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	11.5.3	A review of which services should consider using S-128 (Action Item: NIPWG9 No 18)	Stefan Engström
	11.5.4	PRIMAR S-128 project	Svein Skjæveland
12:00 - 13:30		Lunch	
13:30	**11.1**	**S-122 – Marine Protected Areas**	
	11.1.1	Task Group update	Jonathan Pritchard
	11.1.2	ProtectedSeas - Navigator global MPA database	Virgil Zetterlind
	11.2	**S-123 – Marine Radio Services**	
	11.2.1	Task Group update	Shwu-Jing Chang
	11.2.2	Satcom/4G/5G/LTE - S-123 Mapping of Coverage for MASS	Ilia Maslov
15:45 - 16:00		Coffee Break	
	13.2	**Teledyne Caris software for Npubs update**	Hugh Astle
17:00		Close	

DAY-4 (Friday 5th)	Agenda Item	Topic	Presenter
	7.0	**MRN breakout session update**	Jonathan Pritchard
	10.0	**GAP Analysis Discussion continuation (Action Item: NIPWG VTC-02-23-No 9)**	Chair
09:00	**14.0**	**Any other Business**	Chair
	14.1	S-101PT11 Small Craft Mooring Areas	Jeff Wootton
	15.0	**Elections**	Yves Guillam
10:30 - 10:45		Coffee Break	
	16.0	**Review of NIPWG10**	
	16.1	**Review Action Items**	Chair
	17.0	**Date and place of next meeting**	Chair
12:00		Close	