



IALA ARM COMMITTEE

REPORT OF THE 22nd SESSION OF THE ATON REQUIREMENTS AND MANAGEMENT (ARM) COMMITTEE

20 – 30 April 2026

Thomas Southall

30 April 2026

Technical Operations Manager and Committee Secretary

10, rue des Gaudines – 78100 Saint Germain en Laye, France

Tél. +33 (0)1 34 51 70 01 – contact@iala.int

www.iala.int

International Organization for Marine Aids to Navigation

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Report of the 22nd session of the AtoN Requirements and Management (ARM) Committee Executive Summary

The 22nd session of the AtoN Requirements and Management (ARM) Committee was held from 20 – 30 April 2026, including the physical week at IALA HQ between 20 – 24 April, with Guttorm Tomren as Chair and Natasha McMahon as Vice-Chair. The Secretary for the meeting was Thomas Southall.

97 participants from 27 countries participated in ARM22. 8 participants attended for the first time.

The ARM Committee considered 59 input papers and produced 16 output papers from three Working Groups.

The meeting was carried out in accordance with Article 11 of the General Regulations of the Organization and the Terms of Reference for Committees.

Key outputs completed included:

- ARM22-10.1.1 LN from ARM to all Committees on Revision of STCW
- ARM22-10.1.2 LN from ARM to ENG on Review and Update of R1017 Res PNT
- ARM22-10.1.3 LN from ARM to ENG on the Impact of Offshore Windfarms on RACON performance
- ARM22-10.1.4 LN from ARM to PAP on the Review of AIS Documentation
- ARM22-10.1.5 LN from ARM to all Committees on the Review and Harmonisation of the IALA Dictionary
- ARM22-10.1.6 LN from ARM to all Committees on Marking of Restricted Areas
- ARM22-10.2.2 SS0003 Technical Service Specification for the Provision of AtoN Provision to End Users
- ARM22-10.2.3 SD0003 Technical Service Design on the Provision of AtoN Information to End Users Over IEC63173-2 (SECOM)
- ARM22-10.2.4 LN from ARM to PAP on update on cyber security actions by ARM
- ARM22-10.2.5 LN from ARM to all Committees on Cyber Resilience documents

Documents forwarded for quality assurance and membership comment with a view to ARM23 approval:

- ARM22-10.6.1.1 R0126 Use of AIS in AtoN
- ARM22-10.6.1.2 Draft Guideline on the Use of AIS in AtoN
- ARM22-10.6.2.1 R1024 DRAFT Revised Cyber resilience for the IALA domain
- ARM22-10.6.2.2 G1182 DRAFT Revised Cyber resilience specifics from an IALA perspective
- ARM22-10.6.2.3 Draft G1155-1 Description of Aids to Navigation Maritime Service (MS2) in the context e-Navigation

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Report of the 22nd session of the AtoN Requirements and Management (ARM) Committee

1. INTRODUCTION

The 22nd session of the AtoN Requirements and Management (ARM) Committee was held from 20 – 30 April 2026, including the physical week at IALA HQ between 20 – 24 April, with Guttorm Tomren as Chair and Natasha McMahon as Vice-Chair. The Secretary for the meeting was Thomas Southall.

1.1 Welcome from the Deputy Secretary-General

The Deputy Secretary-General, Omar Eriksson, welcomed participants to Saint-Germain-en-Laye, including those attending online. He highlighted the wide scope of the Committee's work and the value of expert contribution and he thanked Ernst Bolt, Peter Douglas and Kevin Gregory for their long-standing service at their final session.

He observed that the meeting agenda included a strong range of well-prepared papers, covering topics such as RACON technology, digitalisation, S-200 product specifications, risk management and support to developing states. He thanked participants for the significant work carried out between meetings. He also noted that some issues would continue into the next work period beyond the 2027 Conference in Mumbai and reminded participants that the call for conference abstracts had been issued, with a deadline at the end of August.

The Deputy Secretary-General reported on the Organizations progress, noting growth in membership, completion of the transition to an intergovernmental organisation and the dissolution of the former Association. He provided an update on the new headquarters in Saint-Germain-en-Laye and explained that Committee meetings in March/April 2027 would be hosted elsewhere, with details to be confirmed after Council. He also noted upcoming events, including Digital@Sea North America, WAtON Day in Busan and the planned Symposium in 2029. He concluded by wishing participants a productive meeting week.

1.2 Approval of the agenda

The agenda was reviewed and approved (ARM22-1.2.1).

1.3 Apologies

Apologies were received from Peter Hooijmans and Kevin Gregory. A list of participants who attended ARM22 can be found in Annex B.



1.4 Working Arrangements

The following statement on the General Data Protection Policy was made by the Committee Secretary:

The Organization complies with the General Data Protection Regulations of the European Union. The Organization will include a list of participants with their contact information in the report and other platforms of this meeting. Any participant who wishes to remove their contact details from the participants list should advise the Committee Secretary as soon as possible.

The following question was asked by the Committee Secretary:

If anyone present has knowledge of any patents, including pending Patents, held either by themselves or by other organisations or individuals, the use of which may be required to practice or implement the content of Documents of the Organization being developed or worked on in this Committee to inform the Secretariat.

No patents were noted.

The Committee Secretary provided all participants with a briefing on the *Committee Working Arrangements* document and tools available to them. This brief included an overview of the ARM22 Action Plan that had been agreed by the ARM Committee Management Team (CMT) to be progressed during ARM22 through Task Groups (TG). Each task had a deadline for expressions of interest to participate to the specified Task Group Leader (TGL) by a certain date.

Task items that were worked on at ARM22 were displayed in the *Action Plan*, which can be found on the online task tool.

The deadline for submitting documents to the silent approval procedure was set to 29 April 2026 at 08:00 UTC.

2. REVIEW OF ACTION ITEMS

The Committee Secretary confirmed that all Secretariat actions from ARM22 were completed (input paper ARM22-2.1.1).

3. REPORTS FROM OTHER BODIES

3.1 The International Organization for Marine Aids to Navigation

3.1.1 Council

Minsu Jeon, Technical Director, reported that the Council met in Mumbai from 8 – 12 December 2025. Several observers attended, including representatives from Portugal, Tunisia, Qatar, Oman and Russia.

Regarding governance and policy matters, the Council approved the revised Staff Rules and adopted the Policy on Submission and Co-sponsoring of Documents to Other Intergovernmental Organisations. It reviewed the Treasurer's report on the financial situation and approved the updated Committee Work Programme for 2025–2027. The Council also endorsed continued work on the concept of IALA Centres of Excellence and asked the Secretariat to develop a governance and designation framework, which is covered below.

On committee outputs, the Council approved several ARM Committee documents, including a new Recommendation on the digitalisation of Marine AtoN and services for vessels of varying autonomy, a revised Guideline on the Organization's domain within the IHO GI Registry and a new Guideline on drone operations for AtoN and VTS infrastructure management. The ENG Committee's approved outputs included revised recommendations on Racon service capability and Marine Racons and editorial updates to the Guideline on branding and marketing of heritage lighthouses. The VTS Committee outputs included revised recommendations and guidelines on VTS communications, VTS personnel training and a new Guideline on English communication competency testing. The revised Model Course on revalidation training for VTS personnel was also approved.

From the DTEC Committee, the Council approved revised recommendations on Application Specific Messages and an enhanced technical specification for the Maritime Service Registry.

Regarding events and appointments, the Council approved the third joint IHO–IALA workshop on S-100 and S-200 validation and the Digital@Sea International Seminar to be held in March 2026. It appointed Thomas Arculus as Chair of the Legal Advisory Panel, Tiago da Silva Benavente as Vice-Chair and, following a vote, Trond Ski as Vice-Chair of the VTS Committee. It also agreed to progress preparations for the 15th IALA Symposium in January 2029.

For World Marine Aids to Navigation Day, the Council approved hosting the 2026 main event in the Republic of Korea and the 2027 event in Georgia. It endorsed changes to the Heritage Lighthouse of the Year selection rules, expanding eligibility to Associate Members and adjusting timelines. Evangelistas Lighthouse in Chile was designated the Heritage Lighthouse of the Year 2026.

Finally, the Council noted that Headquarters would have no meeting space during the first half of 2027 due to the new building project. Committee meetings during this period would need to be hosted by Members, who were invited to notify the Secretariat by 31 March 2026.

3.1.2 Policy Advisory Panel (PAP)

PAP60 was held from 2 – 6 February 2026 at Headquarters. On digitalisation, the session recognised that substantial work was progressing across all Committees, but much of it had developed in a bottom-up manner. It was agreed that DTEC Task 7.1.1, which was developing a digitalisation strategy, should evolve into an organisation-wide strategic reference document.

Responsibilities for MRN were clarified. DTEC would retain core technical governance and structural oversight, while ARM would develop implementation guidance under S-201. This division aimed to ensure consistency and avoid overlap between Committees.

Regarding S-200 implementation, technical development continued across multiple product specifications. However, the meeting noted practical challenges, particularly around definitions and data harmonisation. PAP concluded that dictionary and terminology alignment should be revisited to support interoperability and training.

Sustainability work had been formalised. A Sustainability Working Group was planned under ENG with cross-Committee participation, with a key objective to produce concise, outward-facing sustainability material for the 2027 Conference in India.

On the Thursday of the PAP week, a one-day strategic vision workshop was held. PAP examined the Organization's long-term strategic direction and identified key drivers influencing future work, including digital transformation, autonomy, resilient PNT, sustainability pressures and evolving international regulatory engagement. The purpose was to gather structured insight rather than take immediate decisions, and these inputs would inform future strategic development.

On the MCP, a feasibility study is planned, focusing on governance models, liability, operational implications and scope. PAP confirmed that the study should proceed without changes to its direction.

Finally, the meeting noted strengthened cooperation between the Organization and IMO following the signing of an MoU, creating opportunities for more active technical engagement.

3.2 IMO

Minsu Jeon provided an overview to the Committee of recent and upcoming IMO work.

MSC 111 was expected to formally adopt the SOLAS amendments for the AIS/VDES carriage requirement, previously approved at MSC 110, with an entry into force date of 1 January 2028. The meeting was also expected to adopt the non-mandatory MASS Code, which would act as a preparatory framework ahead of the mandatory

Code planned for 2028. MSC would additionally consider amendments related to the Worldwide Radionavigation System, including SBAS and ARAIM and note guidance on cybersecurity and software maintenance.

NCSR 13 was expected to focus on digital navigation and connectivity, including review of the S 100 framework, IP based connectivity and digital route exchange. Minsu Jeon noted that IMO continued to move forward with S 100 services and IP based ship–shore connectivity recognised as important enablers but not yet forming mandatory SOLAS requirements. The meeting would place emphasis on trials, operational guidance and human element considerations to avoid over reliance on automation. NCSR would also continue its work on Maritime Safety Information, GMDSS, e Navigation and NAVDAT related circulars. VTS and DTEC had commented on the relevant papers, with the final version to be completed the following week.

The Organization has submitted two information papers to NCSR13:

- one presenting a harmonised connectivity architecture for S 100 ECDIS implementation based on SECOM and MCP, outlining functions for identity, trust, security and service discovery.
- one reporting the outcomes of the workshop on IMT for Marine Aids to Navigation, highlighting how technologies such as 5G and future 6G could support digital AtoN, VTS and maritime services and identifying operational use cases, challenges and requirements.

The Committee was informed of an information paper to the IMO FAL Committee proposing guidance on port nautical information, prepared by the Netherlands and supported by several States and organisations. The work aimed to harmonise navigation related information provided by ports, an area not currently standardised at international level. While not requiring direct involvement at this stage, the topic was relevant due to its links with digital ship–shore information flows and future interfaces with S 100, S 200 and VTS related services. The Technical Director noted that the Organization should monitor developments and engage once the work was approved.

Minsu Jeon also reported on the joint IMO–IHO–IALA regional workshop on S 100 implementation held in Turkmenistan in December 2025. The workshop supported States in the Black Sea and Caspian Sea region as they prepared for the transition to S 100 capable ECDIS. It provided a forum for discussion of technical specifications, operational readiness and implementation challenges. The event demonstrated the value of close cooperation between IMO, IHO and IALA and confirmed differing levels of readiness among States, highlighting the ongoing need for coordinated capacity building, targeted training and clear technical guidance.

3.3 IHO

Minsu Jeon reported that cooperation between the Organization and IHO had strengthened over the past year, particularly to ensure coherent development between the S-100 and S-200 frameworks. The Organization had continued to participate in the IHO Hydrographic Services and Standards Committee and the Worldwide Academy had joined several Regional Hydrographic Commission meetings. In return, IHO had begun attending committee meetings. This two-way engagement had proven important for maintaining alignment between product specifications and avoiding divergence between the two frameworks.

In terms of capacity building, the IMO–IHO–IALA Joint Workshop held in Turkmenistan in December 2025 had been delivered successfully and cooperation had continued through two S-200 training activities, with IHO experts contributing as lecturers in IALA-led sessions. This approach allowed expertise to be shared efficiently and promoted consistent technical messaging to Member States.

Planning was under way for a Joint IHO–IALA Workshop in Istanbul in September 2026. The focus would be on practical implementation challenges and interoperability issues between the S-100 data model managed by IHO and the S-200 data model coordinated by the Organization.

3.4 ITU

Minsu Jeon introduced the report from ITU-R Working Party 5B, which had met in November 2025. He noted that Stefan Bober attended as the Organization's representative and that the report would be made available to all committees.

WP 5B had finalised revisions to several ITU-R Recommendations relevant to the maritime domain, including those covering maritime identities, AIS, systems for broadcasting maritime safety and security information in the HF and VHF bands and the VDES. WP 5B had informed the Organization, together with IMO and IEC, that these revised Recommendations had been adopted by ITU-R Study Group 5 and would be circulated to the ITU membership for approval by correspondence.

Minsu Jeon highlighted that this liaison confirmed continued progress at ITU on radio standards underpinning key areas of the Organization's work, including VDES, digital maritime services and future connectivity frameworks. The update also reinforced the importance of maintaining close coordination between ITU, IMO, IEC and IALA as these standards moved towards implementation.

3.5 IEC

The Committee noted the report on IEC TC80. The primary activity concerned the revision of IEC 61174 to Edition 5. This work, led by MT 7, responded directly to IMO Resolution MSC.530(106) and aimed to establish testing and performance standards to support IHO S-100 framework products.

In parallel, Working Group 17 continued work on the second edition of IEC 63173-1 Ed.2 (Route Plan) and IEC 63173-2 Ed.2. These revisions were being closely synchronised with the Active Route Exchange Protocol to maintain technical consistency within the wider S-100 ecosystem. Meetings for this work were scheduled to take place in London in April and May 2026.

WG 15 continued its work on VDES and AI security developments, specifically on the VDES Shipborne Mobile Station standard. It was noted that IEC TC80 was prepared to incorporate IALA's AIS message authentication method into the relevant standards once the IALA technical specifications were finalised.

3.6 Digital@Sea

Minsu Jeon provided an overview of Digital@Sea activities, noting successful events held in 2025 in the Asia-Pacific and North America regions. The Digital@Sea International 2026 event focused on resilient navigation, S-100/S-200 services, IP-based connectivity and artificial intelligence in the maritime domain. Upcoming events include Digital@Sea North America in May 2026 and Digital@Sea Asia-Pacific in October 2026.

4. PRESENTATIONS

The presentations given at ARM22 can be found on the fileshare (login necessary). The following presentations were given:

- | | |
|---|---------------------------|
| • Safe distances between shipping routes and offshore windfarms | MARIN |
| • Marine Data Analysis Course | Aalto University and FTCA |
| • S-201 implementation | CCG |
| • World-Wide Academy update | WWA |
| • Quality assurance | Secretariat |
| • Update on SIDS project | Sarah Robinson |
| • Risk Management Approach to Periodic AtoN System Review | CCG |

5. WORK PROGRAMME MANAGEMENT

5.1 Work Programme 2023 – 2027, Task Plan, Task Register

The Chair informed that the Work Programme is a structured plan defining the tasks of the approved activities of the committees in line with the Organization's Strategic Vision.

The Task Plan was updated prior to the session by the ARM CMT and the Task Plan and Task Register were updated by the Chair and Vice-Chair using the online Task Tool.

The Chair emphasized that all tasks should be described more in detail in the Task Register, which will be done in the online Task Tool. Also changes or updates to the Task Register should be inserted. Only TGLs, WG Chairs and Committee Chairs have access to make changes in the online tool, but everyone can read it and make extractions.

The current status of the ARM tasks were noted by the Committee and they can be found [here](#).

6. REVIEW OF INPUT PAPERS

The input papers for ARM22 consisted of new input papers as well as working papers from the previous session. The input paper list (ARM22-5.1.1) did not include the working papers from ARM21. The working paper list (ARM22-5.1.2) was a separate input document.

7. ESTABLISH WORKING GROUPS

The Chair outlined the procedure to be followed by working groups, after which three working groups were established and their tasks outlined. The Working Group chairs and vice-chairs were introduced. Full lists of working group participants can be found in Annex F.

Working Group (WG)	Working Group Chair / Vice-Chair
WG1 – Navigational Requirements	Johan Westerlund (Chair), Trevor Harris (Vice-Chair)
WG2 – Information Services and Portrayal	Alison Contreras (Chair), Ulla Bjørndal Møller (Vice-Chair) and Elaine Fitzgerald (Vice-Chair)
WG3 – Risk Management	Gregory Pretorius (Chair) supported by John Stone

8. WORKING GROUP 1 – NAVIGATIONAL REQUIREMENTS (WG1)

Due to the absence of the US Coast Guard ARM WG1 was Chaired by Johan Westerlund (Sweden) assisted by Trevor Harris (United Kingdom) as Vice-Chair. The group worked hard on the tasks in hybrid format to be inclusive of colleagues who could not attend physically. The Chair and Vice-Chair thank the participants of WG1 for their work and support over the week.

8.1 Task 1.1.1 Monitor IMO work on STCW and develop IMO submissions and supporting advice on amendments to STCW in respect of IALAs inclusion within the Convention to cover AtoN training for navigators

Task group leader: Jiangna Liu / Natasha McMahon

Key outcomes include:

HTW has approved input from European union, identifying gap 108, Aids to navigation information. It is expected that the new code would be approved during HTW 13, February 2027.

The revision of course 7.03 on the HTW priority list currently shows as a 4. This is estimated to translate into approximately 2 years' time prior to the revision. This gives ARM the opportunity to review course 7.03, chapter 2, with a specific focus on the MBS.

China MSA will review and propose updated material for course 7.03, MBS related.

WG1 will leave this task open and 'in progress' and suggest submitting a new task for workplan 2027-30: Support and monitor the update to IMO, STCW code, HTW, course 7.03, Chapter 2, with a specific focus on the MBS.

A liaison note has been drafted to all committees. They are recommended to be aware of the future IMO Model Course 7.03 revision and take actions as they deem necessary.

Action item:

Action Item ARM22-1 The Secretariat is requested to forward Liaison Note on the future revision of STCW (ARM22-10.1.1) to all other Committees for their consideration.

8.2 Task 1.1.2 Consider developing guidance on the certification of technical equipment, information systems and technical infrastructure related to MASS in the domain of IALA

Task group leader: Maarten Berrovets

This was on hold however now the Recommendation associated with MASS issues has been approved the ARM Committee will recommence work on this topic as discussed at PAP.

8.3 Task 1.1.3 Revision of G1054 Preparing for An IMO Audit on AtoN Service Delivery

Task group leader: Jiangna Liu (China)

Input Papers: ARM22-6.1.1 Task 1.1.3 Draft Revised Guideline G1054 Preparing for An IMO Audit on AtoN Service Delivery.

ARM22-6.1.1.1 Task 1.1.3 Annex Draft Revised Guideline G1054 Preparing for An IMO Audit on AtoN Service Delivery

Key outcomes include:

The group discussed the input paper from China MSA and agreed on the proposed amendments to the main body of G1054. It was decided to review and discuss the draft revised annexes which will be prepared by the task group leader during the online intersessional meeting.

Action items:

Action Item ARM22-2 Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 1.1.3 on the revision of G1054 Preparing for an IMO Audit on AtoN Service Delivery and to express their interest by sending an email to wenshuinv@126.com by 21 August 2026, noting the intersessional online meeting will take place on 8 September 2026 at 0800 UTC and that the dates and times of any intersessional meetings will be published on the Committee Dashboard.

Action Item ARM22-3 The Intersessional Group Leader is requested to provide input on the intersessional work on Task 1.1.3 to ARM23.

8.4 Task 1.2.1 Compile new Guideline on AtoN Buoy Tender requirements and specification

Task group leader: Peter Dam

Key outcomes include:

The TG made further work on the Guideline during ARM22. In the current draft text has been incorporated into the new Guideline template. The text can form the basis for further work on this guideline at future ARM meetings. The Secretariat and Chair are encouraged to review the draft and come with comments.

8.5 Task 1.2.2 Draft new Guideline on Buoy Tender Activities

Task group leader: Peter Dam

Key outcomes include:

The TG made further work and review on the Guideline during ARM22. The work consisted mostly of going through the text and recent comments from Chair and Secretariat one more time. Due to the comments there have been added a section on Site-Specific Environmental and Operational Factors and an Annex B describing Critical phases when operation AtoN on a Buoy Tender. Pictures within the Guideline have been evaluated for relevance (duplicates) and text added to each picture and references made in the text to pictures.

During ARM22 the TG Leader, Chair and Secretariat had a meeting on the further work on this guideline. It was suggested that committee participants are to take the draft guideline back to their respective organizations and liaise with buoy tender crews and masters, to get more expert feedback on the contents of the guideline. Then the task group can use said feedback to add some more detail to parts of the guideline that may currently read a bit like brief bullet points. Some of this work has already been done during ARM22.

It was suggested as well that the Task Group, depending on how much substantial feedback is received, could have an intersessional meeting ahead of ARM23, to compile the feedback on the draft guideline so it can be finalized at ARM23

Action items:

Action Item ARM22-4 *The Secretariat is requested to forward the draft recommendation on Buoy Tender Operations (ARM22-10.5.1.1) as working papers to ARM23 for further development.*

Action Item ARM22-5 *The Secretariat is requested to forward the draft guideline on Buoy Tender Activities (ARM22-10.5.1.2) as working papers to ARM23 for further development.*

Action Item ARM22-6 *Committee participants are requested to consider sharing the draft Guideline on Buoy Tender Activities (ARM22-10.5.1.2) with buoy tender crews and masters and to provide input to ARM23.*

Action Item ARM22-7 *Committee participants are invited to join the intersessional task group (Virtual meetings) working on task 1.2.2 the compilation of feedback on the draft Guideline on Buoy Tender Activities (ARM22-10.5.1.2) and to express their interest by sending an email to ped@brs2.dk, noting that an intersessional meeting will be held on 9 October at 13:00 (European time) ahead of ARM23 and that the dates and times of intersessional meetings will be published on the Committee Dashboard.*

Action Item ARM22-8 *The Intersessional Group Leader is requested to provide input on the intersessional work on Task 1.2.2 to ARM23.*

8.6 Task 1.2.3 Full review of Guideline G1078 The Use of AtoN in the Design of Fairways

Task group leader: Filipe Viera

Key outcomes included:

This week, the document for Task 1.2.3 was reviewed to identify gaps and areas for improvement. Particular focus was given to where the inclusion of Virtual AtoN could add value including the draft AIS documents that have been progressed at ARM22.

Several necessary changes were identified and where Virtual AtoN could be incorporated, along with some initial lines of action to update and better align the document with current needs.

For the next committee, ARM should review these points with the group and update the document accordingly. This work will continue at the next ARM.

Overall, the focus was on reviewing the document and preparing for the next discussions.

Action item:

Action Item ARM22-9 *The Secretariat is requested to forward ARM22-10.5.1.3 WP G1078 The Use of AtoN in the Design of Fairways Channels (ARM13-7.3), 28 October 2021, ARM22-10.5.1.4 WP G1078 The Use of AtoN in the Design of Fairways Channels (ARM13-7.3), 28 October 2021 (MIKA), ARM22-10.5.1.5 WP G1078 Ed 2.1 The Use of AtoN in the Design of Fairways Channels, December 2021 (MK) and ARM22-10.5.1.6 WP G1078 Ed 2.1 The Use of AtoN in the Design of Fairways Channels, December 2021 (RV) to ARM23 as working papers for further consideration and development.*

8.7 Task 1.2.5 Guidance on the use of simple IOT sensors on physical aids

Task group leader: Naehyuk Yoo

Input Papers considered: ARM22-6.3.1 Task1.2.5 Proposal on formulating the Guideline on Use of Simple IoT Sensors on Physical AtoN

Key outcomes included:

The Task Group continued the development of the draft guideline on the use of simple IoT sensors on physical AtoN. The Task Group has reviewed China's input paper and agreed to incorporate the content of the proposal into the draft guideline.

Progress was made on the system architecture (Chapter 3) and communication (Chapter 6) considerations. The Task Group agreed to continue the work intersessionally through correspondence, with a view to completing the guideline by ARM23.

Action items:

Action Item ARM22-10 *The Secretariat is requested to forward ARM22-10.5.1.7 WP Draft Guideline on the Use of Simple IoT Sensors on Physical AtoN to ARM23 as a working paper for further consideration and development.*

8.8 Task 1.2.8 & 1.2.4a Develop guidance on the provision of AtoN and risk management for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS)

Task group leader: Maarten Berrevoets

Key outcomes included:

A draft of the guideline for MASS for coastal states was prepared in task group 1.2.8. The new template was used, but some improvements will be necessary. Some initial feedback has been received from the Secretariat and actioned.

The part that is in green about risk management is our proposal as a task group, but we have asked WG3 to comment on it. We will ask for comments during an intersessional meeting with WG3 members and aim to finalize this document at ARM23.

Action item:

Action Item ARM22-11 *The Secretariat is requested to forward ARM22-10.5.1.8 WP GXXX Developments and Implications of MASS for Coastal States v.2 to ARM23 as working papers for further consideration and development.*

Action Item ARM22-12 *Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 1.2.8 and Task 1.2.4a on the development of guidance on the provision of AtoN and risk*

management for autonomous vehicle and vessel operations (Maritime Autonomous Surface Ships, MASS) and to express their interest to Maarten Berrevoets (maarten.berrevoets@minienw.nl) by 30 May 2026, noting the dates and times of the intersessional meetings will be published on the Committee Dashboard.

Action Item ARM22-13 The Intersessional Group Leader is requested to provide input on the intersessional work on Tasks 1.2.8 and 1.2.4a to ARM23.

8.9 Task 1.2.9 – Review relevant sections of NAVGUIDE in cooperation with the Secretariat

Task group leader: Johan Westerlund

Input Papers: ARM22-6.2.1 LN from VTS to ARM on NAVGUIDE_FINAL

ARM22-6.2.1.1 Annex LN to ARM on NAVGUIDE_FINAL

ARM22-6.2.2 Task 1.2.9 and 1.2.10 Amendments for IALA Dictionary and NAVGUIDE 2023

ARM22-6.2.2.2 Task 1.2.9 and 1.2.10 Annex B : Amended Definitions for NAVGUIDE 2023

Key outcomes include:

The input papers from VTS and China MSA were taken into account and relevant sections of the Navguide were amended. The draft version will be forwarded to ARM23 for continued work with the intent to finalise it and forward for quality assurance ahead of ARM24.

Action item:

Action Item ARM22-14 The Secretariat is requested to forward ARM22-10.5.1.9 WP Navguide to ARM23 as a working paper for further consideration and development.

8.10 Task 1.2.10 – Update IALA Dictionary

Task group leader: Jiangna Liu

Input Paper: ARM22-6.2.2.1 Task 1.2.9 and 1.2.10 Annex A : Amended Definitions-for-IALA-Dictionary

Key outcomes include:

The group discussed the input paper from China MSA and agreed to send a liaison note to the Secretariat and other committees with the updated annexes of ARM22-6.2.2 to request assistance in confirming the source and accuracy of the definitions, thereby facilitating the collaborative update of the definitions of the terms in the NAVGUIDE and the IALA Dictionary.

The definitions of the terms within the ARM domain has been discussed by the group and relevant modifications has been reflected in the updated Amended Definitions for IALA Dictionary (ARM22-X.X.X.X) and Amended Definitions for NAVGUIDE 2023(ARM22-X.X.X.X) as well as the updated draft revised NAVGUIDE 2023.

Action item:

Action Item ARM22-15 The Secretariat is requested to forward Liaison Note on the update of the IALA Dictionary (ARM22-10.1.5) and the accompanying Amended Definitions for the IALA Dictionary (ARM22-10.1.5.1) and Amended Definitions for NAVGUIDE 2023 (ARM22-10.1.5.2) to all IALA Committees for their consideration.

8.11 Task 1.5.1 – Develop a recommendation and guideline consolidating content from G1030, G1035 and G1004.

Task group Leader: Trevor Harris

Key outcomes included:

The Task group formed and worked on the task. Task title should be changed to reference R-0130 and not G1030 which does not exist. It was not apparent what the task was supposed to achieve and the group could not see a need to consolidate the documents listed in the task title. The task group notes the Recommendation R-0130 needs to be updated for references to IALA and IMO documentation. The group queried the need for an Annex in the recommendation and was informed on the latest IALA position. At this time the Task Group considers continuing the work as per the task description is not required and just to update R-0130.

Action item:

Action Item ARM22-16 *The Secretariat is requested to forward WP R0130 Ed 3.1 Categorization and Availability Objectives for Short Range Aids to Navigation (O-130), June 2017 to ARM23 as a working paper for further consideration and development.*

8.12 Task 2.1.1 - Develop guidance on the marking of different restricted areas

Task group leader: Mats Hörström

Key outcomes include:

The task group assembled to resume work started from ARM21. The meeting was opened by the task leader with a presentation to explain the current status of the task and expectations during ARM22 of each subtask (a-d). The task group continued work on developing the guidance on the marking of different restricted areas. According to a decision during ARM21 the guideline will be subordinate to R1010 Marine Spatial Planning.

Action item:

Action Item ARM22-17 *The Secretariat is requested to forward Liaison Note from ARM to all Committees on Marking of Restricted Areas (ARM22-10.1.6) together with the accompanying Draft Guideline on Marking of Restricted Areas (ARM22-10.1.6.1) to all Committees for their consideration.*

8.13 Task 2.2.2 – Full review of A-126, G1084 and other AIS associated documents (now incorporating tasks 6.3.1 and 6.1.1)

Task group leader: Peter Douglas (United Kingdom)

Key outcomes include:

IALA Recommendation R0126 the Use of the AIS in Marine Aids to Navigation Service – will be replaced by the new summary Recommendation.

A new IALA Guideline GXXXX has been drafted based primarily on the content of the existing R0126.

Regarding other documentation affected ARM suggests:

- Recommendation R0143 – Provision of virtual aids to navigation and Guideline G1081 – Virtual aids to Navigation have been incorporated within the new Guideline as an Annex C, allowing these documents to be retired on approval of the new Recommendation and Guideline.
- The existing Guideline G1050 – The management and monitoring of AIS information was ultimately scoped out of this work and will require future review.
- Relevant sections of the existing Guideline G1062 – The establishment of AIS as an aid to navigation have been incorporated within the new Guideline, allowing this document to be retired on approval of the new Recommendation and Guideline.
- Relevant sections of the existing Guideline G1084 – Authorisation of AIS AtoN have been incorporated within the new Guideline, allowing this document to be retired on approval of the new Recommendation and Guideline.
- Guideline G1095 – Harmonized implementation of application-specific messages was ultimately scoped out of this work and will require future review.

- Relevant sections of the existing Guideline G1098 – The application of AIS – AtoN on buoys have been incorporated within the new Guideline as Annex D, allowing this document to be retired on approval of the new Recommendation and Guideline.
- Recommendation R0124 – The AIS Service. This series of technical documents (with numerous appendices) is the largest single body of IALA AIS material. It contains much useful information but is no longer being actively developed or maintained. We recommend that these documents should be archived so as to still be available for reference purposes in the medium term.
- Recommendation R0123 – the Provision of Shore-based AIS. This document has not been substantially updated since 2007 and is largely duplicated in the new VTS document G1111-4 – Producing requirements for AIS. We recommend that R0123 be retired.
- Recommendation R0144 – Harmonized Implementation of Application Specific Messages has been retired.
- Guideline G1082 – An overview of AIS. This document is a good introduction to AIS in general but not specific to AtoN. We recommend that G1082 be retained in the short term; this could form the basis of an AIS Manual, as discussed at ARM18.
- Recommendation R1007 - The VHF DATA exchange system (VDES) for shore infrastructure and Guideline G1117 – VDES Overview were excluded from this review.

Action items:

Action Item ARM22-18 *The Secretariat is requested to forward Liaison Note from ARM to PAP on the review of AIS documentation (ARM22-10.1.4), together with R0126 Use of AIS in AtoN (ARM22-10.1.4.1) and Draft Guideline on the Use of AIS in AtoN (ARM22-10.1.4.2) to PAP for their consideration.*

Action Item ARM22-19 *That the Secretariat quality check R0126 Use of AIS in AtoN (ARM22-10.6.1.1) and Draft Guideline on the Use of AIS in AtoN (ARM22-10.6.1.2) and to provide them as input to ARM23.*

Action Item ARM22-20 *That IALA Members review R0126 Use of AIS in AtoN (ARM22-10.6.1.1) and Draft Guideline on the Use of AIS in AtoN (ARM22-10.6.1.2) and provide comment as input to ARM23.*

8.14 Task 2.2.5 LoCAN (Previously AtoN for SIDS)

Task group leader: Sarah Robinson

Input Papers: ARM22-6.7.2 Liaison note from ENG to ARM on AtoN SIDs (LoCAN) project (ENG22-9.2.1.1)

Key outcomes include:

The Task Group reviewed the project factors listed in the liaison note from ARM and incorporated additional elements into a consolidated list. This will be used in project planning and project risk analysis by the project team. A stakeholder review was also undertaken, identifying a wider range of generic and regional stakeholders as well as specific areas that require further population. In parallel, the Task Group reviewed a list of key IALA publications to be recommended to the RCA, which has been issued for consultation to both ENG and ARM task group members. This also included drafting some generic guidance on searching for IALA publications. A brief introductory meeting was held with Solomon Islands to describe progress on the project initiation, with the intention of holding further discussion in May to agree key programme milestone dates. Provisional dates for intersessional meetings were also identified (although these may change depending on availability), and the project will input a progress note into ENG 23 and subsequent liaison note to ARM23.

8.15 Liaison Note ARM22-5.2.6 Racons (ENG22-9.2.2.2)

A response was drafted to ENG committee.

Action item:

Action Item ARM22-21 *The Secretariat is requested to forward Liaison Note from ARM to ENG on the impact of offshore windfarms on RACON performance (ARM22-10.1.3) to ENG for their consideration.*

8.16 Liaison Note ARM22-6.7.3 LN to all committees on Recommendation on Resilient PNT (ENG22-9.2.2.3)

Response drafted with comments made as track changes to be sent back to ENG

Action item:

Action Item ARM22-22 *The Secretariat is requested to forward Liaison Note from ARM to ENG on the review and update of Recommendation R1017 Resilient PNT (ARM22-10.1.2) together with WP R1017 Resilient PNT post-ARM22 (ARM22-10.1.2.1) to ENG for their consideration, in response to their request.*

8.17 Input Paper ARM22-5.2.1 Progressing on Sustainability Matters within IALA

WG1 Chair Johan Westerlund will represent ARM WG1 at sustainability forums to be held by ENG.

8.18 Input Paper ARM22-6.7.1 Amendments to the MBS

No work was done on this during this session.

9. WORKING GROUP 2 – INFORMATION SERVICES AND PORTRAYAL (WG2)

There were 14 participants in person and 7 participants online.

During ARM22, WG2 continued the work items planned for the session which was based on the work programme 2023 - 2027. The working group progressed 14 tasks assigned under the 2023 - 2027 Work Programme and produced 6 output documents and 2 working papers for the Committee Secretary to progress. Intersessional work is planned to progress:

- S-258:S-201 Validation Checks
- S-201 Data Classification and Encoding Guide
- Develop guidance on the symbology and portrayal of AtoN for charting
- Definition of the Service Specification for the exchange of “Enhanced AtoN Information for AtoN Authorities”

9.1 New guideline in support of the recommendation on Cyber security (ARM 1.4.3)

Task group leader: Martijn Ebben

Input Documents:

G1182 Ed1.0 Cyber resilience specifics from an IALA perspective

R1024 Ed1.0 Cyber resilience for the IALA domain

Key outcomes included:

The cyber resilience documents were reviewed and updated. Revised documents will be circulated to other committees and new editions are expected from ARM23 or ARM24. High level amendments included the change of title to “resilience” from “security”, amendment to legislation, removal of PNT chapter and elaboration on Cyber Risk Management.

Action items:

Action Item ARM22-23 *The Secretariat is requested to forward Liaison Note from ARM to PAP on the update on cyber security actions by ARM (ARM22-10.2.4) to PAP for their consideration.*

Action Item ARM22-24 *The Secretariat is requested to forward Liaison Note from ARM to all Committees on cyber resilience documents (ARM22-10.2.5) together with R1024 DRAFT Revised Cyber resilience for the IALA domain (ARM22-10.2.5.1) and G1182 DRAFT Revised Cyber resilience specifics from an IALA perspective (ARM22-10.2.5.2) to all Committees for their consideration.*

Action Item ARM22-25 *The Secretariat is requested to quality check WP R1024 DRAFT Revised Cyber resilience for the IALA domain (ARM22-10.6.2.1) and WP G1182 DRAFT Revised Cyber resilience specifics from an IALA perspective (ARM22-10.6.2.2) while retaining tracked changes where possible, and to provide them as input to ARM23.*

9.2 New Guideline on Operational considerations for S-200 (S-201 AtoN information and S-230 Application Specific Messages) (ARM 7.1.3)

Task group leader: Dr. Sewoong Oh

Input papers:

ARM22-7.4.10 Cover note - Draft Guidelines for the implementation and operation of S-201

ARM22-7.4.10.1 Draft Guidelines for the implementation and operation of S-201

Key outcomes include:

In relation to the development of the IALA S-201 standard, it was decided to develop guidelines for the implementation and operation of S-201 to support AtoN information management and services by IALA Member States. The draft Guidelines for the implementation and operation of S-201 were reviewed and further discussion on additional improvements took place.

A revised draft Guidelines for the implementation and operation of S-201 will be taken forward as a working document to ARM23.

Action item:

Action Item ARM22-26 *The Secretariat is requested to forward WP Draft Guidelines for the Implementation and Operation of S-201 (ARM21-10.5.2.1) to ARM23 as a working paper for further development.*

9.3 Continue development on S-201, specifically on Maintenance, data validation, and harmonization with S-125, S-124, and S-101 (ARM 7.1.4)

Task group leader: Dr. Sewoong Oh

Input papers:

ARM22-7.4.2 Proposals for the Revision and Clarification of IALA S-201.docx

ARM22-7.4.5 S201-addition-cautionary.docx

ARM22-7.4.6 S-158_201.docx

ARM22-7.4.6.1 S-158-201_Validation_Checks_PROPOSAL_RWS_20260414.xlsx

ARM22-7.4.8 Update of S-201 Ed.2.0.0.docx

3. S-201 DCEG - Annex A UPDATED

Key outcomes included:

China MSA's Proposals for the Revision and Clarification of IALA S-201 were presented and discussed. The WG agreed to:

1. Change the multiplicity of VirtualAISaidToNavigation and SyntheticAISaidToNavigation at the RadioStation end from (0..1) to (1..*) and to add a restrictive note to the UML diagram to clarify that for Physical AIS AtoN, the RadioStation acts as a Base Station rather than a Broadcasting Station.
2. Work will continue to model a new Mobile AIS AtoN feature, including required attribution. This will be brought forward to ARM23 for further discussion.
3. Retain the “no geometry” spatial attribute for bridge.
4. Amend the S-201 data model to clarify the role of CardinalBuoy.
5. Correct the Daymark feature in S-201 DCEG.

CCG proposal to Add “Cautionary” as Part of the Enumerated List of “Category of Special Purpose Mark” in S-201 were presented and discussed. The WG agreed to add “cautionary” to the enumerated list of “category of special purpose mark”.

Netherlands (Rijkswaterstaat) proposed the introduction of S-158:201 Validation checks for S-201. The WG agreed on the introduction of validation checks using IALA’s S-258 rather than the IHO’s S-158 numbering. Draft S-258:S-201 validation rules will be uploaded to the S-201 GitHub and the Netherlands (Rijkswaterstaat) will run intersessional meetings to progress this task.

https://github.com/IALA-IGO/S-201_AtoN-Information/tree/main

The Task Lead provided an update of S-201 Ed.2.0.0. Issues will be logged in the S-201 GitHub and linked to issues in the IHO/S-125 GitHub where applicable. The Task Lead also discussed the need to document the mapping between S-201 and S-101, and S-201 and S-125. These mappings shall be drafted ahead of the Joint IHO/IALA Workshop in September 2026 and discussed during the workshop. https://github.com/IALA-IGO/S-201_AtoN-Information/tree/main and <https://github.com/iho-ohi/S-125-Product-Specification-Development>.

The Working Group highlighted the need for standardised communication mechanisms and rules between the S-201, S-125 and S-101 teams. The WG suggested the use of GitHub for the purposes of improving and managing communication and issues the S-101, S-125 and S-201 groups. The China MSA and CCG changes agreed by the WG will affect both S-125 and S-101 and should be communicated to these groups.

Progress on the S-201 Data Classification and Encoding Guide (DCEG) was presented by Minsu Jeon. S-201 DCEG will be uploaded to the S-201 GitHub and intersessional work (IALA, CCG and Netherlands (Rijkswaterstaat), China MSA, US NGA) will continue to develop this further.

Action items:

Action Item ARM22-27 *Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 7.1.4 S-258/S-201 Validation and to express their interest to Peter Schwarzberg (peter.schwarzberg@rws.nl) by 1 June 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the Committee Dashboard.*

Action Item ARM22-28 *The Intersessional Group Leader is requested to provide input on the intersessional work on Task 7.1.4 S-258/S-201 Validation to ARM23.*

Action Item ARM22-29 *Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 7.1.4 S-201 DCEG and to express their interest to Minsu Jeon (mje@iala.int) by 1 June 2026, noting the dates and times of the intersessional meetings will be published on the Committee Dashboard.*

Action Item ARM22-30 *The Intersessional Group Leader is requested to provide input on the intersessional work on Task 7.1.4 S-201 DCEG to ARM23.*

Action Item ARM22-31 *Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 7.1.4 Mapping and harmonization of S-201, S-101 and S-125 and to express their interest to Sewoong Oh (osw@kriso.re.kr) by 1 June 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the Committee Dashboard.*

Action Item ARM22-32 *The Intersessional Group Leader is requested to provide input on the intersessional work on Task 7.1.4 Mapping and harmonization of S-201, S-101 and S-125 to ARM23 and the Joint IHO/IALA Workshop.*

Action Item ARM22-33 *The Joint IHO/IALA Workshop Steering Committee to consider an agenda item for establishing standardised communication protocols among the S-201, S-125, and S-101 teams.*

9.4 Continue development on S-125 in coordination with IHO NIPWG (ARM 7.1.6)

Task group leader: Dr. Sewoong Oh

Input papers:

ARM22-7.4.11 NIPWG_S125_PROGRESS

Key outcomes included:

The Chair of IHO NIPWG presented on the progress of the joint S-125 Task Group. Upon receiving the S-125 1.0.0 RC, IHO NIPWG regained an active role in regards of development of S-125. An S-125 Task Group (TG) was established, and expert contributors from both IHO NIPWG and IALA ARM were invited. S-125 TG Task Group lead is Caroline Johansson (Sjöfartsverket, Sweden) and co-lead is Dave Lewald (US Coast Guard).

Edition 1.0.0 of S-125 was submitted for approval by HSSC 18 (meeting in Poland, May 18-22 2026). As the edition 1.0.0 does not need Member state approval according to IHO resolution 2/2007, this edition can be approved by the HSSC- meeting.

Edition 1.0.0 is not yet a production-ready version, and this version is not yet considered mature enough for inclusion in ECDIS. It is assumed active development work continues towards the approval of a 2.0.0 version. Approval of the 2.0.0 version will need endorsement by HSSC followed by a Member State vote.

The WG noted that the current S-125 data model was left intact, but the old extensive portrayal had to be simplified for S-100 ECDIS Phase 1. A new feature "AtonStatusIndication" and related simplified portrayal of only status indication will be used instead.

9.5 Continue development on MRN documentation, considering inputs from IALA Secretariat, other committees, or others as needed (ARM-7.1.7)

Task group leader: Martijn Ebben.

Input papers:

7.4.1 LN from VTS to DTEC and ARM on MRN_FINAL

Key outcomes included:

The Liaison Note is supported by the WG. It is suggested to organise a verbal (online) discussion to make sure the input from VTS is well understood. This action will be initiated by members of the VTS committee.

9.6 Monitor the development of S-201 Testbed (ARM 7.1.10)

Task group leader: Dr. Sewoong Oh

Input papers:

ARM22-7.4.7 Update of S-201 Test & Validation Tool.docx

Key outcomes included:

KRISO updated the S-201 Test & Validation Tool for application in IALA WWA S-201 training. In particular, the results of developing a Feature Catalogue (FC)-based validation function for S-201 sample data were shared.

KRISO plans to develop testing functionalities for the S-201 validation rules led by the Netherlands, thereby supporting the development of S-201 validation rules. In addition, IALA members were encouraged to access and try out the S-201 Test & Validation Tool.

The S-201 Test & Validation Tool is currently being migrated to the IALA domain and a link will be provided once complete.

9.7 Develop guidance on the symbology and portrayal of AtoN for charting (ARM 7.1.13)

Task group leader: Dr. Sewoong Oh

Input papers:

ARM22-7.4.9 Symbology & portrayal of AtoN for other use than navigational charting

Key outcomes included:

WG2 reviewed the direction for developing guidelines on AtoN symbols and portrayal other use than navigational charting, and based on the discussions, KRISO prepared a draft of the guidelines. WG2 reviewed the draft and agreed to conduct further discussions and refinements through intersessional meetings if necessary. The document was submitted as a Working Draft for ARM23.

Action items:

Action Item ARM22-34 *The Secretariat is requested to forward WP Draft Guideline on the symbology and portrayal of AtoN for other use than navigational charting (ARM22-10.5.2.2) to ARM23 as a working paper for further development.*

Action Item ARM22-35 *Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 7.1.13 on guidance on the symbology and portrayal of AtoN for charting and to express their interest to Dr Sewoong Oh (osw@kriso.re.kr) by 1 June 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the IALA calendar.*

Action Item ARM22-36 *The Intersessional Group Leader is requested to provide input on the intersessional work on Task 7.1.13 to ARM23.*

9.8 Development of technical service specifications for the provision of AtoN information (ARM 7.1.14)

Task group leader: Nikolaos Vastardis

Input papers:

ARM22-7.5.1 Provision of AtoN Information

ARM22-7.5.1.1 iala_aton_info_service_design

ARM22-7.5.1.2 iala_aton_info_service_specification

Key outcomes included:

The task group worked on three documents submitted to the ARM 22 Committee:

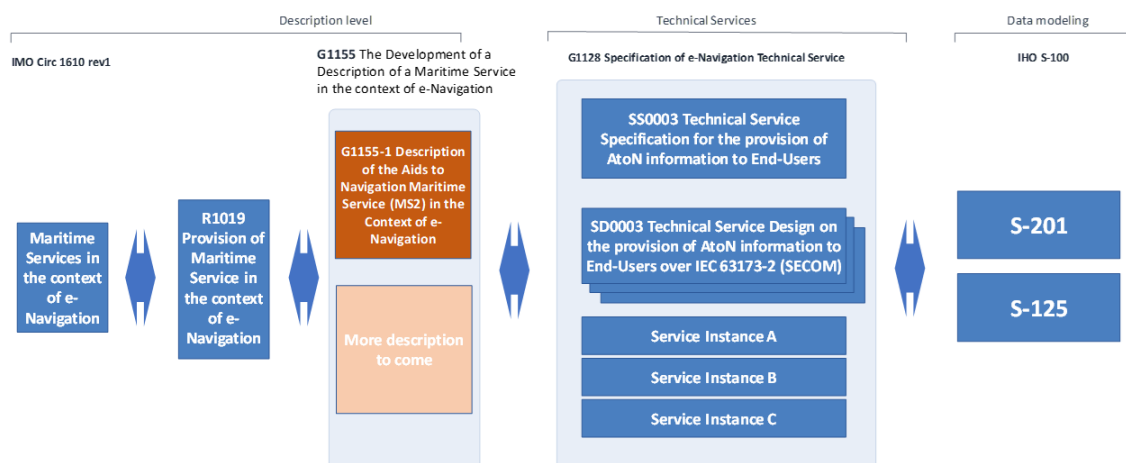
- The MS-2 Aids-to-Navigation Service - Maritime Service Description
- The SS0003 Service Specification for the Provision of AtoN Information to End-Users
- The SD0003 Service Design for the Provision of AtoN Information to End-Users over IEC 63173-2 (SECOM)

The MS-2 description was discussed in the WG2 plenary and it was agreed that it should be submitted for approval by the Council as a Guideline. It proposes an interpretation of the IMO MS-2 Maritime Service by IALA and covers

the distribution of AtoN information the authoritative sources to the end-users (mariners). For the implementation of such a system it relies on various technical services.

The SS0003 and SD0003 specification documents cover part of the examined MS-2 AtoN information distribution. SS0003 describes a technical service for the distribution of AtoN information using the IHO S-125 data product specification, in a technology agnostic manner. The second, proposes the IEC 63173-2 SECOM standard as the implementation technology. Both documents were also discussed in the WG2 plenary and were approved to be published as test versions by IALA. These are not currently required to be approved by the IALA Council.

IALA Maritime Service documents Hierarchy



The next step is for the task group to start work on the definition of the Service Specification for the exchange of “Enhanced AtoN Information for AtoN Authorities”.

Action item:

Action Item ARM22-37 That the Secretariat quality check Draft G1155-1 Description of Aids to Navigation Maritime Service MS2 in the context e-Navigation (ARM22-10.6.2.3) and to provide them as input to ARM23.

Action Item ARM22-38 That IALA Members review Draft G1155-1 Description of Aids to Navigation Maritime Service MS2 in the context e-Navigation (ARM22-10.6.2.3) and provide comment as input to ARM23.

Action Item ARM22-39 That the Secretariat publish the test versions of SS0003 Technical Service Specification for the Provision of AtoN Provision to End Users (ARM22-10.2.2) and SD0003 Technical Service Design on the Provision of AtoN Information to End Users Over IEC63173-2 (SECOM) (ARM22-10.2.3) on the Organizations website.

Action Item ARM22-40 That IALA Members test SS0003 Technical Service Specification for the Provision of AtoN Provision to End Users (ARM22-10.2.2) and SD0003 Technical Service Design on the Provision of AtoN Information to End Users Over IEC63173-2 (SECOM) (ARM22-10.2.3) found on the Organizations website and provide feedback as input to ARM23.

Action Item ARM22-41 Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 7.1.14 on the definition of the Service Specification for the exchange of “Enhanced AtoN Information for AtoN Authorities” and to express their interest to Nikolaos Vastardis (nikolaos.vastardis@glarad.org) by 1 June 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the IALA calendar.

Action Item ARM22-42 The Intersessional Group Leader is requested to provide input on the intersessional work on Task 7.1.14 to ARM23.

9.9 Other tasks

9.9.1 Input Paper ARM22-7.4.4 S-200 Training Seminar for Malacca Strait Littorals and User States

Key outcomes included:

The Working Group noted the paper.

9.9.2 LN from DTEC to ENG, ARM and VTS regarding S-100 vulnerability (DTEC6-15.2.2)

The Working Group noted the LN. It was noted that this matter was also brought to the attention of IHO S-100WG and discussed at a recent S-100 meeting, and some mitigations are being progressed. TSM12 recommended that the S-100WG establish a review process for LUA maintenance, involving implementers, with distribution via the IHO.

9.9.3 Input Paper ARM22-7.5.2 FTIA Input on S-125 pilots

Key outcomes included:

The Working Group noted the paper.

9.9.4 Input Paper ARM22-5.2.1 Progressing on Sustainability Matters within IALA

Key outcomes included:

The Working Group noted the paper.

9.9.5 GitHub Demonstration

Key outcomes included:

The NIPWG Chair conducted an informative demonstration on the application of GitHub, using the IHO NIPWG GitHub repository as a reference. This presentation showcased the platform's valuable functionalities and illustrated how they can be effectively utilised for managing and developing product specifications. The working group recommends that a comparable session be included in the agenda for the Joint IHO/IALA Workshop scheduled for September 2026.

The Working Group further examined the application of Metanorma for authoring and publishing on GitHub. The International Hydrographic Organisation is presently implementing this approach to facilitate improved documentation management within the GitHub platform.

Action item:

Action Item ARM22-43 *The Joint IHO/IALA Workshop Steering Committee to consider an agenda item covering Best Practices for Document Maintenance which should include a demonstration of GitHub and discussion on the use potential benefits of Metanorma in GitHub for document preparation and management.*

Action Item ARM22-44 *The Secretariat considers the potential benefits of Metanorma in GitHub for document preparation and management.*

10. WORKING GROUP – RISK MANAGEMENT (WG3)

During the 22nd session of the ARM Committee, Working Group 3 (WG3) on Risk Management comprised of 14 participants, including 4 who participated online for the week. In line with the work plan, the Chair decided that most meetings would be held in a rolling plenary format. As a number of participants were new to the Working Group, the Chair opened the session by referring to the previous report and outlining the action plan for the week.

10.1 Task 1.4.4 – Review Risk Management related documentation. Update as per ongoing risk toolbox developments.

Task group leader: Nick Neely

Input papers:

ARM22-8.1.4 Evaluation of the Ports and Waterways Risk Assessment (PAWSA) in the United States

Key outcomes included:

Nick Neely provided a presentation to accompany paper ARM22-8.1.4.

The presentation and paper highlighted how PAWSA Mk IV was used several more times with positive feedback from workshop participants. The PAWSA Mk IV builds upon the PAWSA Mk II, as presented during ARM19 and ARM20. The USCG is increasingly focused on risk after the bridge allision in Baltimore. At least six more PAWSA Mk IV workshops are planned for 2026. The USCG provided a list of upcoming PAWSA Mk IV workshops in the United States. Committee members and the World-Wide Academy are invited to observe a workshop.

Two independent studies conducted in the U.S. reviewed USCG marine transportation system risk management practices and tools. While PAWSA was generally considered the most comprehensive of the existing tools, there is room for improvements. The study findings may guide additional enhancements to the PAWSA Mk IV methodology, changes to the core structure are not expected.

The WG appreciated the progress the USCG has made with PAWSA Mk IV, but it was agreed that IALA should keep Mk II as a separate tool from Mk IV. Both processes serve slightly different purposes, have distinctly different input requirements, and the Mk IV may not be suitable for some locations where the Mk II would be.

The USCG recommends that the World-Wide Academy consider facilitating a PAWSA Mk IV in another country to see whether it is functional outside of the US. The prospective host country should be able to tabulate and organize historical marine casualty data for the study area, at a minimum, and ideally also at a national level. The USCG offered to assist with facilitators and equipment as needed.

Results of previously held PAWSAs in the US can be found here: <https://www.navcen.uscg.gov/ports-and-waterways-safety-assessment-final-reports>.

Further, the group discussed if G1018 were to be updated with information regarding the Mk IV. The group agreed that inclusion in G1018 may be warranted in the future, but its functionality outside the US should be determined prior to determining.

Action items:

Action Item ARM22-45 *Committee participants and the World-Wide Academy are invited to observe a PAWSA Mk IV workshop in the United States. Interested observers are requested to notify Nick Neely (nicholas.e.neely1@uscg.mil).*

Action Item ARM22-46 *The USCG is requested to provide input to ARM23 on future developments with PAWSA Mk IV.*

10.2 Task 1.4.5 – Develop a method to quantify and evaluate various risk mitigation options

Task group leader: Sarah Robinson

Input papers:

ARM22-8.1.1 Risk Management Framework - Maritime Hydro-Meteo Fusion Index (MHFI)

Key outcomes included:

Mokpo National Maritime University delivered a presentation in support of input paper ARM22-8.1.1. The paper expanded on input paper ARM21-9.1.1 by incorporating the feedback from the group. The paper presents an enhanced MHFI model that incorporated sea ice as a sixth variable. New key features include:

- Addition of sixth environmental variable – wave height, swell period, tidal current, wind speed, visibility, and sea ice – integrated into a single standardized 0-4 index
- Results visualized on electronic navigational charts using a LV0-LV4 colour coding
- Function added to identify the highest-risk contributing factor among all variables

WG3 discussed and noted the progress of the MHFI and was appreciative of Mokpo incorporating suggestions from ARM21.

With this paper, Mokpo is seeking IALA's consideration of the potential role of environmental risk indicators in complementing the traffic-oriented approaches currently described in G1018. Additionally, Mokpo is seeking guidance regarding the possible future development and incorporation of the MHFI methodology within the IALA Risk Management Toolbox.

While the group agreed that G1018 does not explicitly address the role of environmental risk indicators in G1018, the group did not believe the MHFI was ready to include in the IALA Risk Management Toolbox at this time. The tool does have potential value for VTS operations or short-term voyage planning, but it lacks the long-term historical evaluation and forecasting capabilities needed for strategic risk assessments.

The group agreed there may be value in the VTS Committee reviewing the model.

Action item:

Action Item ARM22-47 Mokpo is requested to provide input to ARM23 on future updates to the MHFI model for consideration for inclusion within the IALA Risk Management Toolbox.

3.3 Task 1.4.7 – Conduct a global scan of current risk analysis tools and identify potential candidates for inclusion within the IALA Risk Management Toolbox

Task group leader: Sarah Robinson

Input papers:

ARM22-8.1.2 A Risk Assessment Method Based on DCPA/TCPA Monitoring Technology

ARM22-8.1.3 Risk assessment in sea crossing bridge waters based on IWRAP

ARM22-8.1.6 Modernisation Safety Assessment Model SAMSON

Key outcomes included:

10.2.1 ARM22-8.1.2 A Risk Assessment Method Based on DCPA/TCPA Monitoring Technology

China MSA provided a presentation in support of input paper ARM22-8.1.2. The paper introduces a risk assessment method based on Distance to Closest Point of Approach (DCPA) and Time to Closest Point of Approach (TCPA) monitoring technology developed by China MSA and proposes the tool as a potential candidate for the IALA Risk Management Toolbox.

Upon discussion, the group determined that the proposed tool needed clarification and refinement before a proper determination could be made on inclusion to the Risk Management Toolbox.

The group agreed that the model appeared to be primarily intended more as an operational monitoring tool vice a strategic risk assessment tool for research and planning purposes. Although this could be a valuable tool for field operations, particularly at a VTS, this purpose may not fully align with the purpose of the IALA Risk Management Toolbox.

The group appreciated the presentation provided by China MSA and agreed that with further refinement the concept may be suitable for inclusion in the IALA Risk Management Toolbox. Consequently, the group provided recommendations to China MSA, and invites them to resubmit for further consideration at a later date.

Action item:

Action Item ARM22-48 China MSA is requested to consider providing input to the ARM Committee on future updates to the DCPA/TCPA monitoring tool and is invited to resubmit for consideration for inclusion within the IALA Risk Management Toolbox at a later date.

10.2.2 ARM22-8.1.3 Risk assessment in sea crossing bridge waters based on IWRAP

China MSA and Jimei University submitted input paper ARM22-8.1.3 on the application of IWRAP MKII for risk assessment in sea-crossing bridge waters. The paper presents a case study of the waters surrounding Zhanjiang Bay Bridge and Tiaoshun Bridge, using AIS data from 2022 to 2024 to assess vessel traffic flow, ship collision probability, and bridge pier impact probability.

Upon discussion, the group noted that the study identified an increase in vessel traffic over the assessment period, together with increasing collision and bridge pier impact probabilities. High-risk areas were mainly found in narrow channel sections approaching the bridge area and near berthing points. Certain bridge piers were also identified as having a comparatively higher risk of vessel impact.

The group noted that IWRAP MKII appeared to provide a useful basis for identifying risk patterns in sea-crossing bridge waters. An IWRAP study was conducted for each of the three years of data. The legs in each study were adjusted based on the corresponding annual traffic heat maps. It was agreed that this was an appropriate methodology.

Mitigation measures were also discussed. These included the provision of additional AtoN near the bridge to alert mariners, increased VTS interaction with vessels approaching the bridge to warn pilots, the use of AIS messages to transmit bridge vertical clearance [the height between the water level and the bottom of the bridge] information, the possible designation of traffic flow under the bridge span where water depths allow, and the use of a Port Entry Light or sector light to support proper traffic separation. The use of AIS messages was very positively received as a potential mitigation method to alert vessels.

10.2.3 ARM22-8.1.6 Modernisation Safety Assessment Model SAMSON

Yvonne Koldenhof provided a presentation to accompany paper ARM22-8.1.6.

The presentation and paper provided information regarding the ongoing developments and future plans for the safety assessment model, SAMSON. It was requested of the Committee to provide guidance on what needs to be completed to include SAMSON into the IALA risk management toolbox. Additional discussions were held on determining how to set up a more in-depth analysis of IWRAP, SAMSON, and possibly OMRAT to investigate the strength of all models and to see how they may be complementary.

WG3 notes both the information provided regarding the development and modernization of the SAMSON model, as well as MARIN's intent to make the model open source. Regarding inclusion into the IALA risk Management Toolbox, the working group recommended further study comparing IWRAP and SAMSON. The study should compare each models' assumptions, model choices and rules, and provide differences and potential scenarios for when to use each tool.

The group noted that a meeting like the *IALA Risk Management Seminar* held in June 2025 could provide a good platform to formally discuss and compare IWRAP and SAMSON. The group noted that the previous seminar provided an excellent platform to exchange knowledge, expertise and views regarding quantitative risk assessment tools, such as IWRAP, SAMSON, and OMRAT. The group agreed that IALA should continue to organize these seminars on a regular basis.

The group also discussed proposing a new task on this topic for the next Work Programme.

Action item:

Action Item ARM22-49 *The Secretariat is requested to consider scheduling a Risk Management Seminar during Calendar year 2026.*

Action Item ARM22-50 *Committee participants are invited to submit proposals to ARM23 for the 2027-2030 period regarding a comparison of IWRAP and SAMSON, and inclusion of SAMSON into the IALA Risk Management Toolbox.*

10.2.4 Review of Guideline G1018

A number of valuable tools and inputs were presented by different countries recommending inclusion into the IALA Risk Management Toolbox. Thus, a broader point was raised concerning the definition of the IALA Risk Management Toolbox and criteria for inclusion.

A further point for consideration was how a methodology, tool, or model should be judged sufficiently mature for inclusion in the IALA toolbox. Several criteria were discussed and the group determined G1018 should be updated to include a clearer definition of what an IALA toolbox criteria in Chapter 3. It was further agreed that since the Committee is reaching the end of the current Work Programme, a thorough review of G1018 via intersessional meeting is warranted to complete task 1.4.4 and 1.4.7.

Action item:

Action Item ARM22-51 *Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 1.4.7 review and update of G1018 and to express their interest to John Stone (stoneuscg97@gmail.com) by 22 May 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the Committee Dashboard.*

Action Item ARM22-52 *The Intersessional Group Leader is requested to provide input on the intersessional work on Task 1.4.7 review and update of G1018 to ARM23.*

10.3 Task 1.4.11 – Develop guidance on measurement to monitor waterway risk

Task group leader: John Stone

Input papers:

ARM22-8.1.5 Risk Management Approach to Periodic Review of Aids to Navigation systems

Key outcomes included:

Vincent Du Sabian provided a presentation to accompany paper ARM22-8.1.5.

The presentation and paper highlighted the Canadian Coast Guard's (CCG) challenges associated with periodic review of AtoN Systems throughout Canada. Based on G1004 level of service, CCG currently reviews AtoN systems every 5 years. This paper presents a new approach based on a risk assessment of the waterway and AtoN, providing a more flexible and manageable approach to scheduling.

The approach puts a methodology behind the decision of when to review and requires AtoN system managers to articulate the reasoning behind the periodicity of the reviews. This provides a "paper trail" for managers, which could also lead to funding justification for AtoN projects.

The group discussed why the CCG decided on 3 levels of risk instead of 5 levels. CCG preferred a 3 level for ease of use and flexibility with decision makers. A potential 4 level was discussed as it forces users to decide above and below the middle.

The group questioned whether there may be some redundancy built into the socio-economic and navigational impacts. Additionally, the group suggested that the methodology as presented could potentially lead to an inconsistent application of the likelihoods and impacts, which could ultimately lead to an inconsistent determination of Risk Acceptability scores between regions and subject matter experts.

The group provided comments and suggestions for improvement, and noted the extensive work completed by the CCG.

The USCG provided a presentation regarding their development of a waterway health and AtoN performance measure. A use case within the port of Sturgeon Bay, Wisconsin was provided as a proof of concept.

The metric is meant to complement Aid Availability by providing waterway managers a current snapshot of an aggregated operational status of AtoNs and AtoN systems. The measure further takes into account the importance of the waterway, the importance of the aid within the system, and the importance of each functional component of the AtoN.

The USCG methodology was built upon previous input to ARM20 from Argentina and the ensuing discussions from the WG. While the group acknowledged that this was a proof of concept, the group provided several suggestions for improvement and further discussed how and general framework or guideline could be developed. Gregory Pretorius of Rijkswaterstaat provided the USCG with an example methodology for review.

The group agreed that the scope of Task 1.4.11 might be too broad and should be broken up into several tasks for the next Work Programme.

The group recommended the USCG continue to refine the methodology, and invited the USCG to provide input to ARM23 regarding any progress made and proposed task for the next Work Programme.

Action items:

Action Item ARM22-53 *The Canadian Coast Guard is invited to provide input on an update to the Risk Management Approach to Periodic Review of Aids to Navigation to ARM23.*

Action Item ARM22-54 *The USCG is invited to provide input to ARM23 regarding future enhancements to the AtoN performance measure and proposed related tasks for the next Work Programme.*

3.5 Task 5.1.4 – Model Course on AIS Data Management

Task group leader: Jaime Alvarez

Input papers:

ARM22-8.2.1 Intersessional Report on the Development of AIS Data Management Model Course - ARM Task Intersessional Group on 5.1.4.

ARM22-8.2.2 Marine Data Analysis Course: Overview and Possible Relevance for Maritime Authorities

Key outcomes included:

The World-Wide Academy presented the report on the development of the AIS data management model course. A consolidated version of the AIS Data Management Model Course was presented including the course plan and syllabus.

The group discussed the content of the draft course plan and syllabus and provided feedback to the World-Wide Academy regarding course content.

The course plan is still under development. The World-Wide Academy invites ARM members to review the draft course material and participate in an intersessional meeting. The Task Group Leader intends to provide input on the intersessional work to ARM23 for final review with the goal to forward to Council05 for approval.

Gregory Pretorius provided a presentation on visualizing AIS data with QGIS. The presentation provided practical use cases of AIS datasets in the Kingdom of the Netherlands that could be used as examples in an AIS Data Management course.

Axel Hörteborn, who recently received his doctorate in this field and works for the Research Institute of Sweden (RISE), gave a short presentation on recent updates and developments of an open-source model, which is available on GitHub. He also researched the comparison between IWRAP and OMRAT. Further work in progress includes verifying the probabilities, improving calculation speed, adding documentation standards, and incorporating consequence modelling.

Prof. Mashrura Musharraf from Aalto University presented a brief overview of a Master of Science level course regarding Marine Data Analysis. The course develops practical skills in handling and analysing maritime datasets, with a strong focus on real-world data such as AIS. She explained how the course helps students develop data-driven thinking and analytical reasoning in a maritime context. She also answered questions about the realistic duration of such a course and shared practical examples of assignments used with students. These insights can support the further development of their own AIS model course.

Action item:

Action Item ARM22-55 *Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 5.1.4 to review the AIS Data management course and to express their interest to Jaime Alverez (jav@iala.int) by 22 May 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the Committee Dashboard.*

Action Item ARM22-56 *The Intersessional Group Leader is requested to provide input on the intersessional work on Task 5.1.4 to review the AIS Data management course to ARM23.*

11. ANY OTHER BUSINESS

11.1.1 IWRAP

ARM was informed of an update regarding the long-term continuity of the IALA Waterway Risk Assessment Program (IWRAP), a software tool used within risk assessment activities.

The Secretariat noted that IWRAP has historically been developed and maintained by a single individual, which had given rise to concerns regarding continuity and resilience should that individual no longer be able or willing to maintain the software. It was further noted that ownership of the IWRAP source code had changed over time through a series of corporate transitions and that the intellectual property rights are currently held by the developer.

The meeting was informed that, to address these concerns, an MoU between the developer and the Secretariat was signed during the meeting week. Under the terms of the MoU, in the event that the developer is no longer able or willing to maintain IWRAP, the intellectual property rights and source code will be transferred to the Organization. This would enable the Organization to determine appropriate future arrangements for maintenance or further development of the software.

11.1.2 Message 28

The Chair drew attention to recent developments in the ITU where standards relevant to IALAs work had progressed to the voting stage. The meeting noted that some information papers received by the Committee referenced these developments and that there may be limited opportunity for further feedback at this stage. It was also noted that the name of the Organization appeared in an outdated form in the relevant ITU material.

The Chair further highlighted the introduction of a new message type 28 within the updated standard. The meeting noted that this development may have potential implications for the Organization's work and that the consequences and applicability of this message type should be considered by ARM at its next session.

11.1.3 Working Group Chairs

The Chair informed the Committee of the following change. Working Group 3 – Gregory Pretorius (Netherlands Ministry of Infrastructure and Water Management) would become Vice-Chair at ARM23.

11.1.4 Future work programme and task management

The Vice-Chair, Natasha McMahon, invited members to begin considering proposals for the next Work Programme to be approved by the General Assembly in Mumbai. It was noted that the current Work Programme concludes following ARM24 and that the next Work Programme will cover the period 2027 – 2030.

Members were encouraged to propose new tasks and to identify tasks suitable for carry-over from the current Work Programme while taking account of available time and capacity. A preliminary working paper containing examples of possible future tasks was noted as available in the ARM22 working paper folder for comment until ARM23.

The meeting noted the importance of clear task titles defined scope and well-articulated intended outcomes when proposing tasks for inclusion in the Work Programme. It was highlighted that insufficiently defined submissions in previous cycles had led to challenges in interpretation prioritisation and delivery. The Secretariat informed the meeting that a structured task submission mechanism including a template would be circulated ahead of ARM23 and that complete and precise descriptions would be required to support effective assessment and implementation.

It was noted that task group leaders should ensure that entries in the task register are complete and up to date to support transparency continuity and informed decision-making. Members were encouraged to review and update relevant task information.

Action item:

Action Item ARM22-57 *The Secretariat is requested to forward the WP Possible Future Tasks (ARM22-10.5.4.1) as a working paper to ARM23 for further development.*

11.1.5 Maritime Buoyage System

ARM was informed of the status of the Maritime Buoyage System which was last updated in 2023. It was noted that no technical revision is planned for 2027 however preparation for a future edition for 2030 should commence.

The meeting noted that initial inputs were received during the meeting week including proposals relating to maritime autonomous surface ships references to numbering schematics sector lights and other operational considerations. It was further noted that some of the proposed changes would extend beyond editorial updates and would therefore require consideration within a new edition.

Members were invited to review the relevant ARM22 working paper and to provide proposals for further consideration at ARM23.

Action Item:

Action Item ARM22-58 *The Secretariat is requested to forward the WP Maritime Buoyage System Possible Future Updates (ARM22-10.5.4.2) as a working paper to ARM23 for further development.*

11.1.6 S201 validation tools

Participants were informed of the availability of S201 validation tools on the Organization's website. Members were advised that the tools are located under the topical matters section and include product specification and data modelling resources.

11.1.7 3rd IHO/IALA Workshop in Istanbul

ARM22 was reminded of the forthcoming technical workshop to be held in Istanbul 1 – 4 September. The meeting was informed that development of the technical programme is ongoing and that a draft programme is expected to be available by the end of May.

11.1.8 Recognition of retiring and departing members

ARM recorded its appreciation for the contributions of Peter Douglas and Ernst Bolt who are retiring from committee activities. Both have made long-standing and valued contributions to the work of the Committee and to the development of guidance supporting the membership. Their expertise commitment and collegial engagement over many years were acknowledged with thanks and best wishes for the future.

The meeting also noted that Kevin Gregory is stepping down as Vice-Chair of Working Group 3 and leaving the Committee following his appointment as Director of the Merchant Navy Training Board. Members expressed appreciation for his leadership and technical contribution to the work of Working Group 3 and wished him success in his new role.

12. SUMMARY OF OUTPUT AND WORKING PAPERS

The Working Group Chairs reported on the work carried out by their Working Groups.

Outputs from ARM22 were approved by the Committee using the approval procedure. The output documents and working papers are listed in Annex D.

13. REVIEW OF SESSION REPORT

The draft report of the meeting (ARM22-11.1) was approved by the Committee at the Closing Plenary.

14. DATE AND VENUE OF NEXT MEETINGS

ARM23 is planned to be held between 19 – 23 October 2026 at the Headquarters, Saint Germain-en-Laye, France.

The Chair informed that ARM24 will not be held at IALA HQ due to the movement of the headquarters, but Council04 will approve when and where ARM24 will be held.

Other events will be publicised on the website.

15. CLOSING OF THE MEETING

The Chair thanked all participants for their engagement and hard work and expressed the hope that they would return for ARM23.

In closing, the Deputy Secretary-General thanked participants for their engagement and contribution throughout the meeting week. He noted the significant volume and quality of output papers developed and recognized the collective effort involved in progressing guidance for the membership.

The Deputy Secretary-General also expressed appreciation to retiring participants for their long-standing contributions and wished them well in their next phase.

The Chair invited any final comments from the floor, there were none.

16. LIST OF ANNEXES

A. Agenda

A copy of the agenda is at Annex A.

B. Participants list

A list of participants is at Annex B.

C. Input Papers

A list of input papers is at Annex C.

D. Output and Working papers

A list of output and working papers is at Annex D.

E. Action Items

A list of action items is at Annex E.

F. Working Group Participants Lists

Lists of working group participants is at Annex F



22nd Meeting of the AtoN Requirements and Management Committee (ARM22)

The opening plenary of the 22nd session of the ARM Committee will commence at 10:30 local time on Monday 20 April 2026 and the closing plenary will be held online at 14:00 – 16:00 UTC on Thursday 30 April 2026.

Agenda

- | | | |
|--------|---|---------------------------|
| 1. | Introduction | ARM Chair |
| 1.1. | Welcome address from the Deputy Secretary-General | |
| 1.2. | Approval of agenda | |
| 1.3. | Apologies | |
| 1.4. | Working arrangements | |
| 1.5. | Work Programme, Task Plan, Task Register | |
| 2. | Review of action items | |
| 3. | Reports from other bodies | Minsu Jeon |
| 3.1. | IALA | |
| 3.1.1. | Council | |
| 3.1.2. | Policy Advisory Panel (PAP) | |
| 3.2. | IMO | |
| 3.3. | IHO | |
| 3.4. | ITU | |
| 3.5. | IEC | |
| 3.6. | Digital@Sea | |
| 4. | Presentations | |
| 4.1. | Safe distances between shipping routes and offshore windfarms | MARIN |
| 4.2. | Marine Data Analysis Course | Aalto University and FTCA |
| 4.3. | S-201 implementation | CCG |
| 4.4. | World-Wide Academy update | WWA |
| 4.5. | Quality assurance | Secretariat |
| 4.6. | Update on SIDS project | Sarah Robinson |
| 4.7. | Risk Management Approach to Periodic AtoN System Review | CCG |
| 5. | Review of input papers | |
| 5.1. | Input papers | |
| 5.2. | Input papers not related to an existing task | |

6. Introducing WG1 - Navigational requirements
 - 6.1. Obligations and regulatory compliance
 - 6.2. Quality management
 - 6.3. AtoN planning
 - 6.4. Virtual marking
 - 6.5. Visual signalling
 - 6.6. Capacity building (NAVGUIDE)
 - 6.7. Additional tasks/work
7. Introducing WG2 - Information services and portrayal
 - 7.1. Design, implementation and maintenance
 - 7.2. Wide/Medium bandwidth systems (AIS & VDES)
 - 7.3. Harmonised maritime connectivity framework (CMDS) Maritime IoT (Intelligent sensors, AtoN monitoring)
 - 7.4. Data models and data encoding (IVEF, S-100, S-200, ASM)
 - 7.5. Data exchange systems (Traffic Information)
 - 7.6. Terminology, symbology, and portrayal
 - 7.7. Additional tasks/work
8. Introducing WG3 - Risk management
 - 8.1. Risk management
 - 8.2. Training and certification
 - 8.3. Seminar
 - 8.4. Additional tasks/work
9. Any other business
10. Summary of output and working papers
 - 10.1. WG1 output
 - 10.2. WG2 output
 - 10.3. WG3 output
 - 10.4. Committee wide
 - 10.5. Working papers
 - 10.6. Documents to be reviewed
11. Review of session report
12. Date and venue of next meeting
13. Close of the meeting

ANNEX B LIST OF PARTICIPANTS

First name	Last name	Member Country	Organisation	Email
Raul	Escalante	Argentina	Hidrovia S.A.	rescalante@gba-hidrovia.com.ar
Mariela	Pascuzzo	Argentina	Servicio de Hidrografia Naval	pascuzzomariela@gmail.com
Moahmed	Khurshid	Bahrain	Middle East Navigation Aids Services - MENAS	m.khurshid@menas.com.bh
Mahdi	Al Mosawi	Bahrain	Middle East Navigation Aids Services - MENAS	mahdi@menas.com.bh
Mariana	de Castro Michimoto	Brazil	Marinha do Brasil	marimichimoto@yahoo.com.br
Natasha	McMahon	Canada	Canadian Coast Guard	natasha.mcmahon@dfo-mpo.gc.ca
Zhimin	Hang	China	China Maritime Safety Administration	894548401@qq.com
Shujuan	Ji	China	Ministry of Transport of the People's Republic of China	xiaojichd@163.com
Ranxuan	Ke	China	Jimei University	keranxuan@126.com
Jiangna	Liu	China	China Maritime Safety Administration	wenshuinv@126.com
Jakob	Bang	Denmark	Danish Maritime Authority	cjb@dma.dk
Peter	Dam	Denmark	Danish Emergency Management Agency under the Ministry of Resilience and Preparedness.	ped@dma.dk
Per Christian	Engberg	Denmark	Engberg Solutions	pengberg@engberg-solutions.com
Ulla Bjørndal	Møller	Denmark	Danish Emergency Management Agency under the Ministry of Resilience and Preparedness.	ubm@brs2.dk
Michael	Strandberg	Denmark	Danish Maritime Authority	mst@dma.dk
Pärtel	Keskküla	Estonia	Estonian Transport Administration	partel.keskkyla@transpordiamet.ee
Henrika	Björkellvirta	Finland	Finnish Transport and Communications agency	henrika.bjorkellvirta@traficom.fi

First name	Last name	Member Country	Organisation	Email
Stefan	Engström	Finland	TRAFICOM	stefan.engstrom@traficom.fi
Mika	Lehtola	Finland	Finnish Transport Infrastructure Agency	mika.lehtola@ftia.fi
Tuomas	Martikainen	Finland	Finnish Transport Infrastructure Agency	tuomas.martikainen@vayla.fi
Anne	Duret	France	Direction générale des affaires maritimes, de la pêche et de l'aquaculture	anne.duret@mer.gouv.fr
Xavier	Hernoe	France	Direction générale des affaires maritimes, de la pêche et de l'aquaculture	xavier.hernoe@developpement-durable.gouv.fr
Gaëlle	Nassif	France	Cerema	gaelle.nassif@cerema.fr
Alidou	Treboul	Germany	Federal Waterways and Shipping Agency	alidou.treboul@wsv.bund.de
Ronan	Boyle	Ireland	Department for Transport	ronan.boyle@irishlights.ie
Elaine	Fitzgerald	Ireland	Department for Transport	elaine.fitzgerald@irishlights.ie
Tommaso	Dangelico	Italy	Italian Navy	tommaso.dangelico@marina.difesa.it
Masatora	Ono	Japan	Japan Coast Guard	ono-j94mw@mlit.go.jp
Namkyun	Im	Korea, South	Mokpo National Maritime University	namkyun.im@mmu.ac.kr
Ahra	Kim	Korea, South	Mokpo National Maritime University	mmu1203@mmu.ac.kr
Heetae	Kim	Korea, South	Ministry of Oceans and Fisheries	kht0704@korea.kr
Taehee	Kim	Korea, South	Korea Research Institute of Ships and Ocean Engineering	thkim@bluemap.dev
Sewoong	Oh	Korea, South	Korea Research Institute of Ships and Ocean Engineering	osw@kriso.re.kr
Naehyuk	Yoo	Korea, South	Korea Institute of Aids to Navigation (KATON)	nhyoo@katon.or.kr
Mohamed	Maghazi	Morocco	Direction des ports et du domaine publique maritime	mmaghazi@tangerport.com
Maarten	Berrevoets	Netherlands	Ministry of Infrastructure and Water Management	Maarten.Berrevoets@minienw.nl
Asher	Boersma-Willkomm	Netherlands	Ministry of Infrastructure and Water Management	asher.boersma@minienw.nl

First name	Last name	Member Country	Organisation	Email
Martijn	Ebben	Netherlands	Port of Rotterdam Authority	m.ebben@portofrotterdam.com
Gregory	Pretorius	Netherlands	Ministry of Infrastructure and Water Management	gregory.pretorius@rws.nl
Peter	Schwarzberg	Netherlands	Ministry of Infrastructure and Water Management	peter.schwarzberg@rws.nl
Yvonne	Koldenhof	Netherlands	MARIN	y.koldenhof@marin.nl
Ernst	Bolt	Netherlands	Ministry of Infrastructure and Water Management	ernst.bolt@rws.nl
Guttorm	Tomren	Norway	Norwegian Coastal Administration	guttorm.tomren@kystverket.no
Øyvind	Schrøder	Norway	Norwegian Coastal Administration	oyvind.schroder@kystverket.no
Joanna	Leleniewska	Poland	Maritime Office in Gdynia	joanna.leleniewska@umgd.gov.pl
Jorge	Estêvão	Portugal	Direção de Faróis (Lighthouse Directorate)	jorge.correia.estevao@marinha.pt
Cátia	Pacheco	Portugal	Hydrographic Institute of the Navy	nv.seguranca@hidrografico.pt
José Maria	Sasseti da Mota	Portugal	Direção de Faróis (Lighthouse Directorate)	sasseti.mota@marinha.pt
Filipe	Vieira	Portugal	Portuguese Hydrographic Institute	reis.vieira@marinha.pt
Oleg	Gaidai	Russia	Department of Navigation and Oceanography	oleg_highday@mail.ru
Andrey	Leonov	Russia	Department of Navigation and Oceanography	aole@list.ru
Ayyaf	Altalhi	Saudi Arabia	Saudi Ports Authority	a.altalhi@mawani.gov.sa
Mats	Horstrom	Sweden	Swedish Transport Agency	mats.horstrom@transportstyrelsen.se
Johan	Westerlund	Sweden	Swedish Maritime Administration	johan.westerlund@sjofartsverket.se
Alison	Contreras	United Kingdom	UK Hydrographic Office	alison.contreras@ukho.gov.uk
Alan	Grant	United Kingdom	Department for Transport	alan.grant@gla-rad.org
Trevor	Harris	United Kingdom	Department for Transport	trevor.harris@trinityhouse.co.uk

First name	Last name	Member Country	Organisation	Email
Nikolaos	Vastardis	United Kingdom	Department for Transport	Nikolaos.Vastardis@gl-rad.org
Ashley	Hall	United Kingdom	Royal College of Art	ashley.hall@rca.ac.uk
Peter	Douglas	United Kingdom	Department for Transport	petali@talk21.com
Sarah	Robinson	United Kingdom	Hawkshill consulting	sarah@hawkshillconsulting.co.uk
Nick	Neely	United States	US Coast Guard	nicholas.e.neely1@uscg.mil
Curtis	Peschel	United States	National Geospatial-Intelligence Agency	curtis.m.peschel@nga.mil
John	Stone	United States	US Coast Guard	john.m.stone@uscg.mil

ANNEX C LIST OF INPUT PAPERS

All papers are posted on the Committee section of the website. Items in blue = late or updated paper.

Meeting	Paper Number	Input Paper Title	Source	Presented by / WG
ARM22-	1.2.1	Provisional Agenda	Secretariat	All
ARM22-	2.1	Action Items from ARM21	Secretariat	All
ARM22-	1.4.1	Programme of the physical week	Secretariat	All
ARM22-	3.4.1	ITU WP5B Liaison Statement	ITU	All
ARM22-	3.4.2	IALA Report Joint IMO-ITU Expert group 6th to 10th October 2025	Secretariat	All
ARM22-	5.0	Input paper template	Secretariat	All
ARM22-	5.1.1	Input paper list	Secretariat	All
ARM22-	5.1.2	Working paper list	Secretariat	All
ARM22-	5.2.1	Progressing on Sustainability Matters within IALA	ENG Chair	All
ARM22-	5.2.2	Overview of the RIN Maritime GNSS Interference Report (2026)	Secretariat	All
ARM22-	5.2.3	Report on the Workshop on Sustainability in AtoN provision	Secretariat	All
ARM22-	5.2.4	Report on the Workshop on Radionavigation and Radiocommunication	Secretariat	All
ARM22-	5.2.5	Impacts of Offshore Wind Farms on Racon Performance	GRAD	WG1
ARM22-	5.2.6	Liaison Note ARM Racons (ENG22-9.2.2.2)	ENG22	WG1
ARM22-	5.2.6.1	Racons in Busy Harbours 24 February 2017 (ENG22-9.2.2.2.1)	ENG22	WG1
ARM22-	5.2.6.2	Modern Racons for Modern Radars (ENG22-9.2.2.2.2)	ENG22	WG1
ARM22-	5.2.6.3	Paper Modern Racons for Modern Radars (ENG22-9.2.2.2.3)	ENG22	WG1
ARM22-	6.1.1	Task 1.1.3 Draft Revised Guideline G1054 Preparing for An IMO Audit on AtoN Service Delivery	China MSA	WG1
ARM22-	6.1.1.1	Task 1.1.3 Annex Draft Revised Guideline G1054 Preparing for An IMO Audit on AtoN Service Delivery	China MSA	WG1
ARM22-	6.2.1	LN from VTS to ARM on NAVGUIDE_FINAL	VTS59	WG1
ARM22-	6.2.1.1	Annex LN to ARM on NAVGUIDE_FINAL	VTS59	WG1

Meeting	Paper Number	Input Paper Title	Source	Presented by / WG
ARM22-	6.2.2	Task 1.2.9 and 1.2.10 Amendments for IALA Dictionary and NAVGUIDE 2023	China MSA	WG1
ARM22-	6.2.2.1	Task 1.2.9 and 1.2.10Annex A : Amended Definitions-for-IALA-Dictionary	China MSA	WG1
ARM22-	6.2.2.2	Task 1.2.9 and 1.2.10Annex B : Amended Definitions for NAVGUIDE 2023	China MSA	WG1
ARM22-	6.3.1	Task1.2.5 Proposal on formulating the Guideline on Use of Simple IoT Sensors on Physical AtoN	China MSA	WG1
ARM22-	6.7.1	Amendments to the MBS	Portuguese Hydrographic Institute	WG1
ARM22-	6.7.2	Liaison note from ENG to ARM on AtoN SIDs (LoCAN) project (ENG22-9.2.1.1)	ENG22	WG1
ARM22-	6.7.3	LN to all committees on Recommendation on Resilient PNT (ENG22-9.2.2.3)	ENG22	WG1 lead - all
ARM22-	6.7.3.1	WP R1017 Resilient Position Navigation and Timing (ENG22-9.2.2.3.1)	ENG22	WG1 lead - all
ARM22-	7.1.1	WP Recommendation R0126 The use of the AIS in AtoN	ARM21	WG1
ARM22-	7.1.2	WP GXXXX_Use of the AIS in AtoN Services_D5	ARM21	WG1
ARM22-	7.1.3	GXXXX Use of the AIS in Marine Aids to Navigation Services - DRAFT - 10 March 2026	IG on task 2.2.2	WG1
ARM22-	7.1.4	draft R0126_new template after Sec Review	Secretariat	WG1
ARM22-	7.1.5	GXXXX Use of the AIS in AtoN DRAFT after Sec Review	Secretariat	WG1
ARM22-	7.4.1	LN from VTS to DTEC and ARM on MRN_FINAL	VTS59	WG2
ARM22-	7.4.2	Task 7.1.4 Proposals for the Revision and Clarification of IALA S-201	China MSA	WG2
ARM22-	7.4.3	LN from DTEC to ENG, ARM and VTS regarding S-100 vulnerability (DTEC6-15.2.2)	DTEC6	WG2
ARM22-	7.4.4	S-200 Training Seminar for Malacca Strait Littorals and User States	MOF, KatoN, KRISO	WG2
ARM22-	7.4.5	S201-addition-cautionary	CCG	WG2
ARM22-	7.4.6	S-125_201	Rijkswaterstaat	WG2

Meeting	Paper Number	Input Paper Title	Source	Presented by / WG
ARM22-	7.4.6.1	S-158-201_Validation_Checks_PROPOSAL_RWS_20260414	Rijkswaterstaat	WG2
ARM22-	7.4.7	Update of S-201 Test & Validation Tool	KRISO	WG2
ARM22-	7.4.8	Update of S-201 Ed.2.0.0	KRISO	WG2
ARM22-	7.4.9	Symbology & portrayal of AtoN for other use than navigational charting	KRISO	WG2
ARM22-	7.4.10	Cover note - Draft Guidelines for the implementation and operation of S-201	KRISO	WG2
ARM22-	7.4.10.1	Draft Guidelines for the implementation and operation of S-201	KRISO	WG2
ARM22-	7.4.11	NIPWG_S125_PROGRESS	IHO NIPWG Chair	WG2
ARM22-	7.5.1	Provision of AtoN information	IG on task 7.1.14	WG2 and 1
ARM22-	7.5.1.1	iala_aton_info_service_design	IG on task 7.1.14	WG2 and 1
ARM22-	7.5.1.2	iala_aton_info_service_specification	IG on task 7.1.14	WG2 and 1
ARM22-	7.5.2	FTIA Input on S-125 pilots	FTIA	WG2 and 1
ARM22-	8.1.1	Risk Management Framework - Maritime Hydro-Meteo Fusion Index	MNMU	WG3
ARM22-	8.1.2	Task 1.4.7 A Risk Assessment Method Based on DCPA TCPA Monitoring Technology	China MSA	WG3
ARM22-	8.1.3	Task1.4.7 Risk assessment in sea crossing bridge waters based on iwrap	China MSA	WG3
ARM22-	8.1.4	Evaluation of PAWSA Mk IV	USCG	WG3
ARM22-	8.1.5	Risk Management Approach to Periodic AtoN System Review	CCG	WG3
ARM22-	8.1.6	Safety Assessment Model SAMSON	MARIN / RWL	WG3
ARM22-	8.2.1	Intersessional report AIS Management course Development	IG on task 5.1.4	WG3
ARM22-	8.2.2	Marine Data Analysis Course	FTCA	WG3

Working papers from ARM21

Meeting	Paper Number	Output Paper Title	Source	Action
ARM21-	11.5.1.1	WP draft guideline on AtoN Buoy Tender requirements and specifications	WG1	ARM21
ARM21-	11.5.1.2	WP draft recommendation on Buoy Tender Operations	WG1	ARM21
ARM21-	11.5.1.3	WP draft guideline on Buoy Tender Activities	WG1	ARM21
ARM21-	11.5.1.4	WP Draft guideline on Use of Simple IoT Sensors on Physical AtoN	WG1	ARM21
ARM21-	11.5.1.5	WP draft proposal on the Consistency of Definitions between the NAVGUIDE and the IALA Dictionary	WG1	ARM21
ARM21-	11.5.1.6	WP draft Recommendation on the Use of the Automatic Identification System (AIS) in Marine Aids to Navigation	WG1	ARM21
ARM21-	11.5.1.7	WP draft guideline on the marking of different restricted areas	WG1	ARM21
ARM21-	11.5.1.8	WP draft Guideline on the Use of the AIS in Marine Aids to Navigation Services	WG1	ARM21

ANNEX D LIST OF OUTPUT DOCUMENTS AND WORKING PAPERS

Output documents are submitted to a body other than the Committee initiating the document for further review/action or as information.

Meeting	Paper Number	Output Paper Title	Source	Action
ARM22-	10.1.1	LN from ARM to all Committees on Revision of STCW	WG1	To all Committees
ARM22-	10.1.2	LN from ARM to ENG on Review and Update of R1017 Res PNT	WG1	To ENG
ARM22-	10.1.2.1	R1017 Res PNT post-ARM22	WG1	To ENG
ARM22-	10.1.3	LN from ARM to ENG on the Impact of Offshore Windfarms on RACON performance	WG1	To ENG
ARM22-	10.1.4	LN from ARM to PAP on the Review of AIS Documentation	WG1	To PAP
ARM22-	10.1.4.1	R0126 Use of AIS in AtoN	WG1	To PAP
ARM22-	10.1.4.2	Draft Guideline on the Use of AIS in AtoN	WG1	To PAP
ARM22-	10.1.5	LN from ARM to all Committees on the Review and Harmonisation of the IALA Dictionary	WG1	To all Committees and PAP
ARM22-	10.1.6	LN from ARM to all Committees on Marking of Restricted Areas	WG1	To all committees
ARM22-	10.1.6.1	Draft Guideline on Marking of Restricted Areas	WG1	To all Committees
ARM22-	10.2.2	SS0003 Technical Service Specification for the Provision of AtoN Provision to End Users	WG2	To Secretariat
ARM22-	10.2.3	SD0003 Technical Service Design on the Provision of AtoN Information to End Users Over IEC63173-2 (SECOM)	WG2	To Secretariat
ARM22-	10.2.4	LN from ARM to PAP on update on cyber security actions by ARM	WG2	To PAP
ARM22-	10.2.5	LN from ARM to all Committees on Cyber Resilience documents	WG2	To all committees
ARM22-	10.2.5.1	WP R1024 DRAFT Revised Cyber resilience for the IALA domain	WG2	To all committees
ARM22-	10.2.5.2	WP G1182 DRAFT Revised Cyber resilience specifics from an IALA perspective	WG2	To all Committees

Working papers will remain within the Committee for further review during the next session.

Meeting	Paper Number	Output Paper Title	Source	Action
ARM22-	10.5.1.1	WP draft recommendation on Buoy Tender Operations	WG1	ARM23
ARM22-	10.5.1.2	WP draft guideline on Buoy Tender Activities	WG1	ARM23
ARM22-	10.5.1.3	WP G1078 - The Use of AtoN in the Design of Fairways Channels (ARM13-7.3)_20211028	WG1	ARM23
ARM22-	10.5.1.4	WP G1078 - The Use of AtoN in the Design of Fairways Channels (ARM13-7.3)_20211028 (2)_MIKA	WG1	ARM23
ARM22-	10.5.1.5	WP G1078 Ed2.1 The Use of AtoN in the Design of Fairways Channels December 2021_MK	WG1	ARM23
ARM22-	10.5.1.6	WP G1078 Ed2.1 The Use of AtoN in the Design of Fairways Channels December 2021_RV	WG1	ARM23
ARM22-	10.5.1.7	WP Draft Guideline on the Use of Simple IoT Sensors on Physical AtoN	WG1	ARM23
ARM22-	10.5.1.8	WP GXXX Developments and Implications of MASS for Coastal States v.2	WG1	ARM23
ARM22-	10.5.1.9	WP Navguide	WG1	ARM23
ARM22-	10.5.1.10	WP R0130 Ed3.1 Categorisation and Availability Objectives for Short Range Aids to Navigation (O-130) June 2017	WG1	ARM23
ARM22-	10.5.2.1	WP Draft Guidelines for the Implementation and Operation of S-201	WG2	ARM23
ARM22-	10.5.2.2	WP Draft Guideline on the symbology and portrayal of AtoN for other use than navigational charting	WG2	ARM23

Documents for review will be processed by the Secretariat for Quality Assurance, IALA Members are encouraged to review these documents and provide comment as input to ARM23 with a view for Committee approval.

Meeting	Paper Number	Output Paper Title	Source	Action
ARM22-	10.6.1.1	R0126 Use of AIS in AtoN	WG1	For Review
ARM22-	10.6.1.2	Draft Guideline on the Use of AIS in AtoN	WG1	For Review
ARM22-	10.6.2.1	WP R1024 DRAFT Revised Cyber resilience for the IALA domain	WG2	For Review
ARM22-	10.6.2.2	WP G1182 DRAFT Revised Cyber resilience specifics from an IALA perspective	WG2	For Review

Meeting	Paper Number	Output Paper Title	Source	Action
ARM22-	10.6.2.3	Draft G1155-1 Description of Aids to Navigation Maritime Service (MS2) in the context e-Navigation	WG2	For Review

ANNEX E ACTION ITEMS

- Action Item ARM22-1** The Secretariat is requested to forward Liaison Note on the future revision of STCW (ARM22-10.1.1) to all other Committees for their consideration. 13
- Action Item ARM22-2** Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 1.1.3 on the revision of G1054 Preparing for an IMO Audit on AtoN Service Delivery and to express their interest by sending an email to wenshuinv@126.com by 21 August 2026, noting the intersessional online meeting will take place on 8 September 2026 at 0800 UTC and that the dates and times of any intersessional meetings will be published on the Committee Dashboard. 13
- Action Item ARM22-3** The Intersessional Group Leader is requested to provide input on the intersessional work on Task 1.1.3 to ARM23. 13
- Action Item ARM22-4** The Secretariat is requested to forward the draft recommendation on Buoy Tender Operations (ARM22-10.5.1.1) as working papers to ARM23 for further development. 14
- Action Item ARM22-5** The Secretariat is requested to forward the draft guideline on Buoy Tender Activities (ARM22-10.5.1.2) as working papers to ARM23 for further development. 14
- Action Item ARM22-6** Committee participants are requested to consider sharing the draft Guideline on Buoy Tender Activities (ARM22-10.5.1.2) with buoy tender crews and masters and to provide input to ARM23. 14
- Action Item ARM22-7** Committee participants are invited to join the intersessional task group (Virtual meetings) working on task 1.2.2 the compilation of feedback on the draft Guideline on Buoy Tender Activities (ARM22-10.5.1.2) and to express their interest by sending an email to ped@brs2.dk, noting that an intersessional meeting will be held on 9 October at 13:00 (European time) ahead of ARM23 and that the dates and times of intersessional meetings will be published on the Committee Dashboard. ... 14
- Action Item ARM22-8** The Intersessional Group Leader is requested to provide input on the intersessional work on Task 1.2.2 to ARM23. 14
- Action Item ARM22-9** The Secretariat is requested to forward ARM22-10.5.1.3 WP G1078 The Use of AtoN in the Design of Fairways Channels (ARM13-7.3), 28 October 2021, ARM22-10.5.1.4 WP G1078 The Use of AtoN in the Design of Fairways Channels (ARM13-7.3), 28 October 2021 (MIKA), ARM22-10.5.1.5 WP G1078 Ed 2.1 The Use of AtoN in the Design of Fairways Channels, December 2021 (MK) and ARM22-10.5.1.6 WP G1078 Ed 2.1 The Use of AtoN in the Design of Fairways Channels, December 2021 (RV) to ARM23 as working papers for further consideration and development. 15
- Action Item ARM22-10** The Secretariat is requested to forward ARM22-10.5.1.7 WP Draft Guideline on the Use of Simple IoT Sensors on Physical AtoN to ARM23 as a working paper for further consideration and development. 15
- Action Item ARM22-11** The Secretariat is requested to forward ARM22-10.5.1.8 WP GXXX Developments and Implications of MASS for Coastal States v.2 to ARM23 as working papers for further consideration and development. 15
- Action Item ARM22-12** Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 1.2.8 and Task 1.2.4a on the development of guidance on the provision of AtoN and risk management for autonomous vehicle and vessel operations (Maritime Autonomous Surface Ships, MASS) and to express their interest to Maarten Berrevoets (maarten.berrevoets@minienw.nl) by 30 May 2026, noting the dates and times of the intersessional meetings will be published on the Committee Dashboard. 15
- Action Item ARM22-13** The Intersessional Group Leader is requested to provide input on the intersessional work on Tasks 1.2.8 and 1.2.4a to ARM23. 16

Action Item ARM22-14	The Secretariat is requested to forward ARM22-10.5.1.9 WP Navguide to ARM23 as a working paper for further consideration and development.	16
Action Item ARM22-15	The Secretariat is requested to forward Liaison Note on the update of the IALA Dictionary (ARM22-10.1.5) and the accompanying Amended Definitions for the IALA Dictionary (ARM22-10.1.5.1) and Amended Definitions for NAVGUIDE 2023 (ARM22-10.1.5.2) to all IALA Committees for their consideration.	16
Action Item ARM22-16	The Secretariat is requested to forward WP R0130 Ed 3.1 Categorization and Availability Objectives for Short Range Aids to Navigation (O-130), June 2017 to ARM23 as a working paper for further consideration and development.	17
Action Item ARM22-17	The Secretariat is requested to forward Liaison Note from ARM to all Committees on Marking of Restricted Areas (ARM22-10.1.6) together with the accompanying Draft Guideline on Marking of Restricted Areas (ARM22-10.1.6.1) to all Committees for their consideration.	17
Action Item ARM22-18	The Secretariat is requested to forward Liaison Note from ARM to PAP on the review of AIS documentation (ARM22-10.1.4), together with R0126 Use of AIS in AtoN (ARM22-10.1.4.1) and Draft Guideline on the Use of AIS in AtoN (ARM22-10.1.4.2) to PAP for their consideration.	18
Action Item ARM22-19	That the Secretariat quality check R0126 Use of AIS in AtoN (ARM22-10.6.1.1) and Draft Guideline on the Use of AIS in AtoN (ARM22-10.6.1.2) and to provide them as input to ARM23.	18
Action Item ARM22-20	That IALA Members review R0126 Use of AIS in AtoN (ARM22-10.6.1.1) and Draft Guideline on the Use of AIS in AtoN (ARM22-10.6.1.2) and provide comment as input to ARM23.	18
Action Item ARM22-21	The Secretariat is requested to forward Liaison Note from ARM to ENG on the impact of offshore windfarms on RACON performance (ARM22-10.1.3) to ENG for their consideration.	19
Action Item ARM22-22	The Secretariat is requested to forward Liaison Note from ARM to ENG on the review and update of Recommendation R1017 Resilient PNT (ARM22-10.1.2) together with WP R1017 Resilient PNT post-ARM22 (ARM22-10.1.2.1) to ENG for their consideration, in response to their request.	19
Action Item ARM22-23	The Secretariat is requested to forward Liaison Note from ARM to PAP on the update on cyber security actions by ARM (ARM22-10.2.4) to PAP for their consideration.	19
Action Item ARM22-24	The Secretariat is requested to forward Liaison Note from ARM to all Committees on cyber resilience documents (ARM22-10.2.5) together with R1024 DRAFT Revised Cyber resilience for the IALA domain (ARM22-10.2.5.1) and G1182 DRAFT Revised Cyber resilience specifics from an IALA perspective (ARM22-10.2.5.2) to all Committees for their consideration.	20
Action Item ARM22-25	The Secretariat is requested to quality check WP R1024 DRAFT Revised Cyber resilience for the IALA domain (ARM22-10.6.2.1) and WP G1182 DRAFT Revised Cyber resilience specifics from an IALA perspective (ARM22-10.6.2.2) while retaining tracked changes where possible, and to provide them as input to ARM23.	20
Action Item ARM22-26	The Secretariat is requested to forward WP Draft Guidelines for the Implementation and Operation of S-201 (ARM21-10.5.2.1) to ARM23 as a working paper for further development.	20
Action Item ARM22-27	Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 7.1.4 S-258/S-201 Validation and to express their interest to Peter Schwarzberg (peter.schwarzberg@rws.nl) by 1 June 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the Committee Dashboard.	21

Action Item ARM22-28	The Intersessional Group Leader is requested to provide input on the intersessional work on Task 7.1.4 S-258/S-201 Validation to ARM23.	21
Action Item ARM22-29	Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 7.1.4 S-201 DCEG and to express their interest to Minsu Jeon (mje@iala.int) by 1 June 2026, noting the dates and times of the intersessional meetings will be published on the Committee Dashboard.	21
Action Item ARM22-30	The Intersessional Group Leader is requested to provide input on the intersessional work on Task 7.1.4 S-201 DCEG to ARM23.	21
Action Item ARM22-31	Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 7.1.4 Mapping and harmonization of S-201, S-101 and S-125 and to express their interest to Sewoong Oh (osw@kriso.re.kr) by 1 June 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the Committee Dashboard.	21
Action Item ARM22-32	The Intersessional Group Leader is requested to provide input on the intersessional work on Task 7.1.4 Mapping and harmonization of S-201, S-101 and S-125 to ARM23 and the Joint IHO/IALA Workshop.	22
Action Item ARM22-33	The Joint IHO/IALA Workshop Steering Committee to consider an agenda item for establishing standardised communication protocols among the S-201, S-125, and S-101 teams.....	22
Action Item ARM22-34	The Secretariat is requested to forward WP Draft Guideline on the symbology and portrayal of AtoN for other use than navigational charting (ARM22-10.5.2.2) to ARM23 as a working paper for further development.	23
Action Item ARM22-35	Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 7.1.13 on guidance on the symbology and portrayal of AtoN for charting and to express their interest to Dr Sewoong Oh (osw@kriso.re.kr) by 1 June 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the IALA calendar.	23
Action Item ARM22-36	The Intersessional Group Leader is requested to provide input on the intersessional work on Task 7.1.13 to ARM23.	23
Action Item ARM22-37	That the Secretariat quality check Draft G1155-1 Description of Aids to Navigation Maritime Service MS2 in the context e-Navigation (ARM22-10.6.2.3) and to provide them as input to ARM23.	24
Action Item ARM22-38	That IALA Members review Draft G1155-1 Description of Aids to Navigation Maritime Service MS2 in the context e-Navigation (ARM22-10.6.2.3) and provide comment as input to ARM23.	24
Action Item ARM22-39	That the Secretariat publish the test versions of SS0003 Technical Service Specification for the Provision of AtoN Provision to End Users (ARM22-10.2.2) and SD0003 Technical Service Design on the Provision of AtoN Information to End Users Over IEC63173-2 (SECOM) (ARM22-10.2.3) on the Organizations website.	24
Action Item ARM22-40	That IALA Members test SS0003 Technical Service Specification for the Provision of AtoN Provision to End Users (ARM22-10.2.2) and SD0003 Technical Service Design on the Provision of AtoN Information to End Users Over IEC63173-2 (SECOM) (ARM22-10.2.3) found on the Organizations website and provide feedback as input to ARM23.	24
Action Item ARM22-41	Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 7.1.14 on the definition of the Service Specification for the exchange of “Enhanced AtoN Information for AtoN Authorities” and to express their interest to Nikolaos Vastardis	

(nikolaos.vastardis@gla-rad.org) by 1 June 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the IALA calendar.....	24
Action Item ARM22-42 The Intersessional Group Leader is requested to provide input on the intersessional work on Task 7.1.14 to ARM23.	24
Action Item ARM22-43 The Joint IHO/IALA Workshop Steering Committee to consider an agenda item covering Best Practices for Document Maintenance which should include a demonstration of GitHub and discussion on the use potential benefits of Metanorma in GitHub for document preparation and management.	25
Action Item ARM22-44 The Secretariat considers the potential benefits of Metanorma in GitHub for document preparation and management.	25
Action Item ARM22-45 Committee participants and the World-Wide Academy are invited to observe a PAWSA Mk IV workshop in the United States. Interested observers are requested to notify Nick Neely (nicholas.e.neely1@uscg.mil).	26
Action Item ARM22-46 The USCG is requested to provide input to ARM23 on future developments with PAWSA Mk IV.	26
Action Item ARM22-47 Mokpo is requested to provide input to ARM23 on future updates to the MHFI model for consideration for inclusion within the IALA Risk Management Toolbox.	27
Action Item ARM22-48 China MSA is requested to consider providing input to the ARM Committee on future updates to the DCPA/TCPA monitoring tool and is invited to resubmit for consideration for inclusion within the IALA Risk Management Toolbox at a later date.	28
Action Item ARM22-49 The Secretariat is requested to consider scheduling a Risk Management Seminar during Calendar year 2026.	29
Action Item ARM22-50 Committee participants are invited to submit proposals to ARM23 for the 2027-2030 period regarding a comparison of IWRAP and SAMSON, and inclusion of SAMSON into the IALA Risk Management Toolbox.	29
Action Item ARM22-51 Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 1.4.7 review and update of G1018 and to express their interest to John Stone (stoneuscg97@gmail.com) by 22 May 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the Committee Dashboard.	29
Action Item ARM22-52 The Intersessional Group Leader is requested to provide input on the intersessional work on Task 1.4.7 review and update of G1018 to ARM23.	29
Action Item ARM22-53 The Canadian Coast Guard is invited to provide input on an update to the Risk Management Approach to Periodic Review of Aids to Navigation to ARM23.	30
Action Item ARM22-54 The USCG is invited to provide input to ARM23 regarding future enhancements to the AtoN performance measure and proposed related tasks for the next Work Programme.	30
Action Item ARM22-55 Committee participants are invited to join the intersessional task group (Virtual meetings) working on Task 5.1.4 to review the AIS Data management course and to express their interest to Jaime Alvarez (jav@iala.int) by 22 May 2026, noting the dates and times of the intersessional meetings will be announced in due course and published on the Committee Dashboard.	31
Action Item ARM22-56 The Intersessional Group Leader is requested to provide input on the intersessional work on Task 5.1.4 to review the AIS Data management course to ARM23.	31
Action Item ARM22-57 The Secretariat is requested to forward the WP Possible Future Tasks (ARM22-10.5.4.1) as a working paper to ARM23 for further development.	32

Action Item ARM22-58 The Secretariat is requested to forward the WP Maritime Buoyage System Possible Future Updates (ARM22-10.5.4.2) as a working paper to ARM23 for further development. 32

ANNEX F WORKING GROUP PARTICIPANTS LIST

Surname	First name	Organisation representing	Working Group	Tasks worked on	Physical or Remote
Jakob	Bang	Danish Maritime Authority	Working Group 1	1.1.2	Physically
Cátia	Pacheco	Hydrographic Institute-Portuguese Navy	Working Group 1	2.1.1	Physically
Jorge	Estêvão	Direção de Faróis - Portuguese Directorate Lighthouses	Working Group 1		Physically
Filipe	Reis Vieira	Portuguese Hydrographic Institute	Working Group 1	2.1.1; 6.7.1; 5.2.5; 6.7.3.1	Physically
Peter	Dam	Danish Emergency Management Agency	Working Group 1	1.2.1 Buoy Tender	Physically
Michael	Strandberg	Danish Maritime Authority	Working Group 1	7.1.14	Physically
Gaelle	Nassif	Cerema	Working Group 1		Physically
Anne	Duret	Dgampa	Working Group 1		Physically
Joanna	Leleniewska	Maritime Office in Gdynia	Working Group 1		Physically
Maarten	Berrevoets	Ministry of Infrastructure and Water Management	Working Group 1	1.1.2 and 1.2.8	Physically
Alison	Contreras	UK Hydrographic Office	Working Group 1		Physically
elaine	fitzgerald	irish lights	Working Group 1		Physically
Ulla Bjørndal	Møller	Danish Emergency Management Agency	Working Group 1	Vice chair no 2	Physically
Gaelle	Nassif	Cerema	Working Group 1		Physically
TAEHEE	Kim	Kriso	Working Group 1		Physically
Martijn	Ebben	Port of Rotterdam authority	Working Group 1	any and all	Physically
Zhimin	ZHANG	China MSA	Working Group 1	7.1.14	Physically
Sewoong	OH	KRISO	Working Group 1	7.1.4	Physically
HEETAE	KIM	MOF	Working Group 1		Physically
Peter	Schwarzberg	Rijkswaterstaat	Working Group 1	ARM-7.1.4	Physically
Curtis	Peschel	National Geospatial-Intelligence Agency	Working Group 1	7.1.3, 7.1.4, 7.1.6	Physically
MASATORA	ONO	JCG	Working Group 2		Physically
Mohamed	Khurshid	MENAS	Working Group 2	1.2.1, 1.2.2, 1.2.3	Physically

Surname	First name	Organisation representing	Working Group	Tasks worked on	Physical or Remote
Henrika	Björkell-Virta	Finnish Transport and Communications agency	Working Group 2	1.5.1 , 1.1.3 , 1.1.1	Physically
Nikolaos	Vastardis	UK Department for Transport	Working Group 2	7.1.14	Physically
Tuomas	Martikainen	Finnish Transport Infrastructure Agency	Working Group 2	7.1.14, 7.1.4, 7.1.6	Physically
Trevor	Harris	Trinity House	Working Group 2	1.1.1 1.2.3 1.5.1 2.2.5	Physically
Bridget	Gagné	Canadian Coast Guard	Working Group 2	7.1.3, 7.1.4, 7.1.6, 7.1.10, 7.1.13, 7.1.14	Remotely (online)
Øyvind	Schrøder	Norwegian Coastal Administration	Working Group 2	22-11.5.1.3	Physically
Oleg	GAIDAI	Department of Navigation and Oceanography	Working Group 2	1.2.1, 1.2.2, 1.2.8	Physically
Johan	Westerlund	Swedish Maritime Administration	Working Group 2	1.1.3, 1.2.2, 1.2.9	Physically
Alan	Grant	The General Lighthouse Authorities Of The United Kingdom & Ireland	Working Group 2		Physically
Yingdian	ZHUANG	China MSA	Working Group 2	7.4.9,7.4.10,7.4.11	Remotely (online)
Andrey	Leonov	Department of Navigation and Oceanography	Working Group 2	1.2.1, 1.2.2	Physically
Yi	Dai	China MSA	Working Group 2		Remotely (online)
KEHUAI	JI	CHINA MSA	Working Group 2	7.1.4	Remotely (online)
SHUO	WANG	CHINA MSA	Working Group 2	1.2.8, 1.2.5, 2.2.1	Remotely (online)
Feng	Zhou	Shanghai Maritime University	Working Group 2	1.1.1 2.2.5	Remotely (online)
Peter	Douglas	UK DfT	Working Group 2	2.2.2	Physically
Yuncong	Xu	CHINA MSA	Working Group 2	1. 2. 10 2. 2. 2	Remotely (online)
Jiangna	Liu	China MSA	Working Group 2	1.1.1, 1.1.3, 1.2.10	Physically
Mika	Lehtola	FTIA	Working Group 2		Physically
Mats	Hörström	Transportstyrelsen	Working Group 2; Working Group 1	2.1.1	Physically
Frias	Juan Carlos	Servicio de Hidrografia Naval	Working Group		Virtual

Surname	First name	Organisation representing	Working Group	Tasks worked on	Physical or Remote
			2;Working Group 1		
Raúl	Escalante	Hidrovia SA	Working Group 3		Physically
Li	Guanzheng	China MSA	Working Group 3	task 1.2.1&1.2.2	Remotely (online)
Jose	Cabeza	Armada de Chile	Working Group 3	3	Remotely (online)



International Organization for Marine Aids to Navigation
10, rue des Gaudines – 78100 Saint Germain en Laye, France
Tel. +33 (0) 1 34 51 70 01 – contact@iala.int
www.iala.int