



# IALA ARM COMMITTEE

## REPORT OF THE 18<sup>th</sup> SESSION OF THE IALA ATON REQUIREMENTS AND MANAGEMENT (ARM) COMMITTEE

**15 – 25 April 2024**

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**25 April 2024**

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International Association of Marine Aids to Navigation and Lighthouse Authorities

Association Internationale de Signalisation Maritime

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## Report of the 18<sup>th</sup> session of the IALA

### IALA AtoN Requirements and Management (ARM) Committee Executive Summary

The 18<sup>th</sup> session of the IALA AtoN Requirements and Management (ARM) Committee was held from 15 – 25 April 2024, including the physical week at IALA HQ between 15 - 19 April, with Dave Lewald as Chair and Natasha McMahon as Vice-chair. The Secretary for the meeting was Thomas Southall.

107 participants from 30 countries participated in ARM18. 19 participants attended for the first time.

The ARM Committee considered 40 input papers and produced 29 output papers, including working papers, from three Working Groups.

The meeting was carried out in accordance with the *Committee Arrangements*.

Key outputs completed included:

ARM18- 11.3.1 Draft Guideline on Cyber Security

ARM18- 11.3.7 Technical Service for the provision of AtoN Information Service to end-users

ARM18- 11.3.10 Revised Recommendation R1019 on Provision of Maritime Services in the Context of e-Navigation

ARM18- 11.4.1 Follow up questionnaire

ARM18- 11.4.2 Risk Management Questionnaire

The following liaison notes were approved:

ARM18- 11.2.1 Liaison note to Dictionary Working Group on use of miles

ARM18- 11.2.2 Liaison note to ENG on general overview floating AtoN

ARM18- 11.2.2.1 Draft guideline with comments on general overview floating AtoN

ARM18- 11.2.3 Liaison note to ENG on the use of drones

ARM18- 11.2.3.1 draft Recommendation on the use of drones

ARM18- 11.2.3.2 draft Guideline on the use of drones

ARM18- 11.2.4 Liaison note to all committees on review of AIS documentation

ARM18- 11.2.4.1 Annex AIS review

ARM18- 11.2.6 Liaison note to Secretariat regarding amendments to NAVGUIDE

ARM18- 11.2.7 Liaison note to ENG on draft Guideline for Buoy Tender Activities

ARM18- 11.2.8 Liaison note to all committees on MASS task

ARM18- 11.3.2 Liaison note to DTEC on ASM

ARM18- 11.3.3 Liaison note to NIPWG on S-100 operational interaction diagram

ARM18- 11.3.3.1 S-100 operational interaction diagram (VISIO)

ARM18- 11.3.3.2 S-100 operational interaction diagram (PDF)

ARM18- 11.3.4 Liaison note to VTS and DTEC on draft MSC circular on MRN

ARM18- 11.3.4.1 Draft circular to MSC

ARM18- 11.3.4.2 Draft input to NCSR

ARM18- 11.3.5 Liaison note to ENG on remote monitoring

- ARM18- 11.3.6 Liaison note to VTS and ENG on draft IALA S-200 roadmap
- ARM18- 11.3.8 Liaison note to NIPWG on Technical Service Specification
- ARM18- 11.3.8.1 To NIPWG Technical Service for the provision of AtoN Information Service to end-users
- ARM18- 11.3.9 Liaison note to PAP on IALA role in the arena of ship reporting
- ARM18- 11.3.11 Liaison note to PAP on MRNs

# Overall status of the ARM Committee 2023 - 2027 Work Programme after ARM18:

Standard	Scope	No.	Task	17	18	19	20	21	22	23
S1010 Marine AtoN	Marine AtoN planning	1.2.1	Compile new Guideline on AtoN Buoy Tender requirements and specification				x	x	x	x
	Marine AtoN planning	1.2.2	Compile guidance for buoy tender activities		x	x	x	x		
	Marine AtoN planning	1.2.3	Full review of Guideline G1078 The Use of AtoN in the Design of Fairways						x	x
	Marine AtoN planning	1.2.4	Development of aspects of digital communications, including promoting broadband connectivity for operational technology.			x	x	x	x	x
	Marine AtoN planning	1.2.5	Guidance on the use of simple IOT sensors on physical aids			x	x	x		
	Marine AtoN planning	1.2.6	Develop further guidance for navigators on the use of AtoN	x	x	x	x	x		
	Marine AtoN planning	1.2.7	Prepare an appropriate submission to IMO advising of the publication of the updated MBS highlighting MATON and MASS content.	x						
	Marine AtoN planning	1.2.8	Develop guidance on the provision of AtoN and risk management for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS)		x	x	x			
	Marine AtoN planning	1.2.9	Review relevant sections of NAVGUIDE in cooperation with the Secretariat	x	x	x	x	x	x	x

Standard	Scope	No.	Task	17	18	19	20	21	22	23
	Obligations and regulatory compliance	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.	x	x	x	x	x		
	Risk management	1.4.1	Enhancing the safety and efficiency of navigation around offshore installations	x	x	x				
	Quality management	1.5.1	Develop a recommendation and guideline consolidating content from G1030, G1035 and G1004.		x	x	x	x		
	Quality management	1.5.2	Revision of Guideline 1052 on Quality Management in Marine Aids to Navigation Service Delivery	x	x	X				
	Quality management	1.5.3	Revise Recommendation R0132 Quality management for AtoN authorities.	x	x	x				
S1020 AtoN design and delivery	Visual signalling	2.1.1	Consider developing guidance on the marking of test areas for autonomous vessels and vehicles, ice roads and competition and event areas etc				x	x	x	x
	Design, Implementation & Maintenance	2.2.1	Develop Recommendation and Guideline on the use of Drones for AtoN inspection and maintenance	x	x	x	x			
S1050 Training and certification	Training and assessment	5.1.1	Model course on incident response and crisis coordination							
S1060 Digital communication	Harmonized maritime connectivity	6.3.1	Review and update G1062 Establishment of AIS as a [Marine] Aid to Navigation	X						

Standard	Scope	No.	Task	17	18	19	20	21	22	23
on technologies	Wide and medium bandwidth systems	6.1.1	Review G1050 Management and Monitoring of AIS Information	x						
S1010 Marine AtoN	Marine AtoN planning	1.2.1 1	Develop guidance on the provision of Marine AtoN for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS).							
	Obligations and regulatory compliance	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							
S1020 AtoN design and delivery	Floating Aids to Navigation	2.3.1	Update G1066 Design of floating AtoN moorings							
S1040 VTS	VTS implementation	4.1.1	Develop guidance on delineating the VTS area							
S1060 Digital communication technologies	Harmonized maritime connectivity	6.3.2	Recommendation for the AIS Service							
	Harmonized maritime connectivity	6.3.3	Review of the contents of A-124 series recommendations							
S1010 Marine AtoN	Risk management	1.4.2	Consider the development of IALA as a facilitator for an ISAC (Information Sharing and Analysis Centre) in relation to cyber security.	x						
	Risk management	1.4.3	Develop guidance on cyber security for Marine AtoN	x	x				x	x
S1050 Training and certification	Accreditation, competency, certification and revalidation	5.2.1	Develop a model course on AtoN Cyber Security arrangements		x	x				

Standard	Scope	No.	Task	17	18	19	20	21	22	23
S1020 AtoN design and delivery	Design, Implementation & Maintenance	2.2.1	Full review of A-126, G1084 and other AIS associated documentation							
	Design, Implementation & Maintenance	2.2.2	Develop an IALA guideline on the Maritime Architecture Framework							
	Design, Implementation & Maintenance	2.2.3	Develop an IALA recommendation and guideline on developing Harmonized Waterway Concept	x	x	x	x	x		
S1050 Training and certification	Accreditation, competency, certification and revalidation	5.2.2	Create S-100 model course	x	x					
S1060 Digital communication technologies	Harmonized maritime connectivity	6.3.4	Define user requirements for Maritime Connectivity, Maritime Internet of Things (IoT), and MRN addressing (may be three subtasks)	x						
S1070 Information services	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.1	Digital Fairway				x	x	x	x
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.2	Contribute to the standardization efforts with respect of the requirements of the S-100 domain experts	x	x	x	x	x	x	x
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.3	New Guideline on Operational considerations for S-200 (S-201 AtoN information and S-230 Application Specific Messages)		x	x	x	x		
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.4	Continue to Develop Product Specification S-201. Continue development on S-201, specifically on Maintenance, data validation, and harmonization with S-125, S-124, and S-101	x	x	x	x	x	x	x



Standard	Scope	No.	Task	17	18	19	20	21	22	23
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.5	Coordinate with IHO on implementation of IALA PS into S-98	x						
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.6	Continue development on S-125 in coordination with IHO NIPWG	x	x	x	x	x	x	x
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.7	Continue development on MRN documentation, considering inputs from IALA Secretariat, other committees, or others as needed	x	x	x	x	x	x	x
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.8	Review Guideline G1106 on producing an IALA S-200 series Product Specification		x	x	x			
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.9	Coordinate Committee support and submissions for IALA representation at IHO working groups in cooperation with Secretariat (HSSC, S-100WG, NIPWG)	x	x	x	x	x	x	x
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.10	Monitor the development of S-201 Testbed	x	x	x	x	x	x	x
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.11	Develop, implement and execute procedures for IALA to add, maintain and harmonize items to the IHO S-100 Feature Concept Dictionary(FCD)	x	x	x	x	x	x	x
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.12	Create S-200 Implementation Plan, following similar S-100 Implementation Strategy and/or Roadmap	x	x	x	x	x		
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.13	Develop guidance on the symbology and portrayal of AtoN for charting	x	x	x	x	x	x	x

Standard	Scope	No.	Task	17	18	19	20	21	22	23
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.1 4	Development of technical service specifications for the provision of AtoN information	x	x	x	x	x	x	x
	Data models and data encoding (IVEF, S-100, S-200, ASM)	7.1.1 5	Review Guideline G1159 on ship reporting from the shore-side perspective		x	x	x	x		
S1050 Training and certification	Training and assessment	5.1.2	Training in implementation of digital solutions (data analytics & maritime informatics)					x	x	x
S1010 Marine AtoN	Risk management	1.4.4	Review Risk Management related documentation. Update as per ongoing risk toolbox developments.	x	x	x	x	x	x	X
	Risk management	1.4.5	Develop a method to quantify and evaluate various risk mitigation options	x	x	x	X			
	Risk management	1.4.6	Encourage IALA members and other organisations to share historic AIS and other vessel tracking data with IALA. IALA aims to use such data for risk assessment, research and training purposes.		x			x	X	
	Risk management	1.4.7	Conduct a global scan of current risk analysis tools and identify potential candidates for inclusion within the IALA Risk Management Toolbox.	x	x		X			
	Risk management	1.4.8	Monitor the IRMAS reporting tool, ensuring it meets the requirements for future records of risk management. Ensure the form is modified as required.	X						
	Risk management	1.4.9	Ensure long term sustainable supportability for IWRAP Software.			x	x	x	X	

Standard	Scope	No.	Task	17	18	19	20	21	22	23
	Risk management	1.4.1 0	Guideline for Risk Assessment of Cyber Security threats	x			x	x	x	X
S1050 Training and certification	Training and assessment	5.1.3	WWA lesson plans to review	x	x	x	x	x	x	x

**Legend:**

Blank: Ongoing or scheduled task  
 Light orange: To Council to note or approve  
 Light grey: Task completed or deleted  
 X: Prolonged task

**Legend for task numbering:**

Digit 1: WG 1, 2 or 3  
 Digit 2: Standard Scope No.; Other standards = 8; Standard not available = 9  
 Digit 3: In sequence (1, 2, 3 etc.)  
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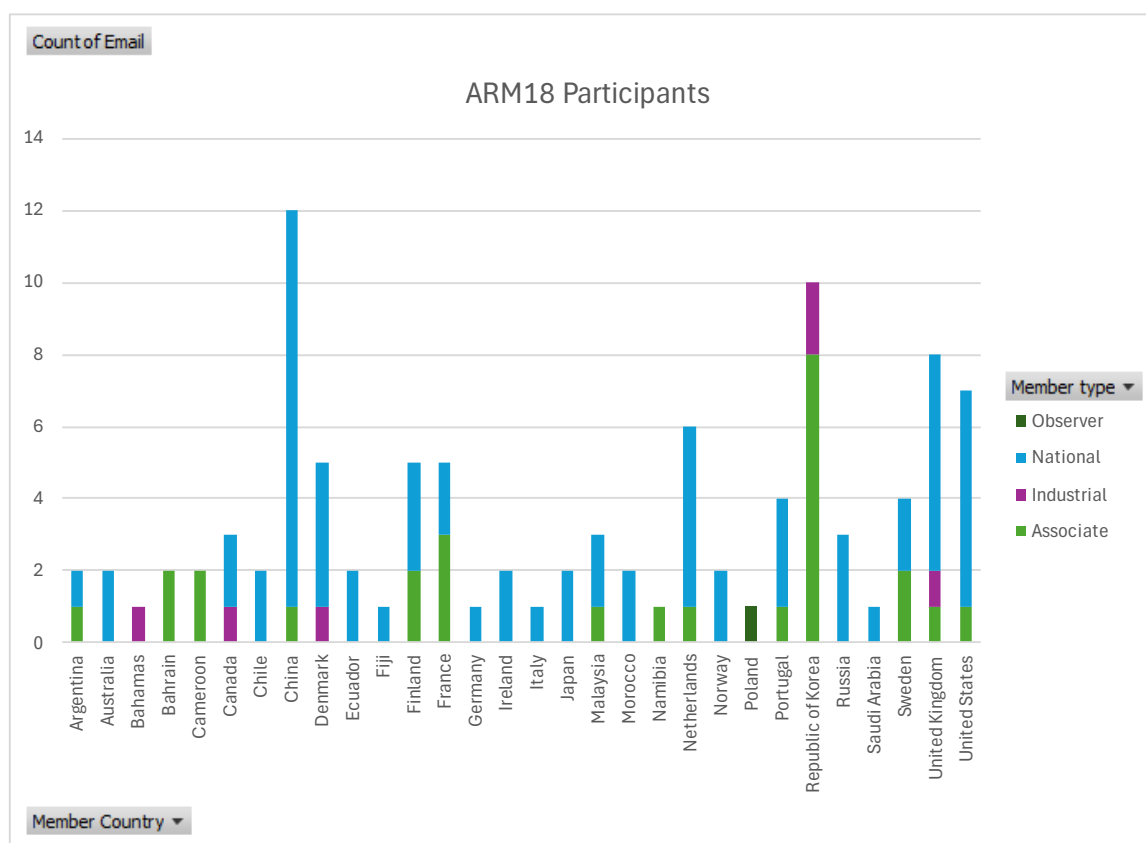
## Report of the 18<sup>th</sup> session of the IALA AtoN Requirements and Management (ARM) Committee

### 1. INTRODUCTION

The 18<sup>th</sup> meeting of the ARM Committee was held from 15 – 25 April 2024 with Dave Lewald as Chair and Natasha McMahon as Vice-chair. The Secretary for the meeting was Thomas Southall.

The physical week began on Monday 15 April with the opening plenary and continued until Friday 19 April, followed by an approval period and the virtual closing plenary on 25 April. The Chair welcomed everybody, both old as well as new participants to the meeting.

107 participants from 30 countries participated in ARM18. 19 participants attended for the first time. A breakdown of the participants is shown in the graph below.



#### 1.1 Welcome from the Deputy Secretary-General

Deputy Secretary-General Omar Eriksson warmly welcomed all participants to ARM18 at the headquarters in Saint Germain en Laye, Paris. Expressing excitement at the attendance, both in person and online, the Deputy Secretary-General acknowledged the busy agenda and highlighted key topics, including safety enhancements for navigation around offshore installations, quality management and drone usage for AtoN inspections. Emphasizing the importance of evolving standards, he noted the ongoing development of the S-200 domain and the need for harmonized technical services, alongside initiatives like the Maritime Connectivity Platform. He urged a critical review of existing publications, particularly AIS documents, advocating for revisions to ensure relevance and accessibility in the present day.

The Deputy Secretary-General underscored the increasing importance of cross-committee collaboration, citing the valuable insights from the previous MASS workshop report, which offered guidance on the development of autonomous ships. Providing an update on IALA's transition into an intergovernmental organization, he revealed progress with 28 ratifications and anticipated further advancements in the near future. Concluding with appreciation for the dedication of participants, he wished all participants success in their work and eagerly anticipated the week's discussions.

## 1.2 Approval of the agenda

The agenda was reviewed and approved (ARM18-1.2.1).

## 1.3 Apologies

Peter Hooijmans submitted their apologies to the Secretariat. A list of participants who attended ARM18 can be found on IALA Dashboard for ARM and in Annex B.



## 1.4 Working Arrangements

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

*IALA complies with the General Data Protection Regulations of the European Union. IALA will include a list of participants with their contact information in the report 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 IALA Documents being developed or worked on in this Committee to inform the IALA 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 ARM18 Action Plan that had been agreed by the ARM Committee Management Team (CMT) to be progressed during ARM18 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 ARM18 were displayed in the *Action Plan*, which can be found on IALA Dashboard for ARM.



## 2. REVIEW OF ACTION ITEMS FROM ARM17

The Committee Secretary confirmed that all Secretariat actions from ARM17 were completed (input paper ARM18-2.1.1). Apart from the following which are still ongoing:

- That the Secretariat gives consideration to adding a cybersecurity webpage that includes information about known ISACs.
- That the Secretariat is requested to formalize the URL for the AtoN Portal and forward to members when appropriate.

## 3. REPORTS FROM OTHER BODIES

### 3.1 IALA

#### 3.1.1 IALA Council

Minsu Jeon, the Technical Operations Manager, reported on various key outcomes and decisions made at Council 79 held from December 11 to 14 2023, at the Headquarters. This session marked the beginning of the new 2023 - 2027 work period. A significant outcome was the approval of the revised committee work program.

During the meeting, several documents were approved by the Council, including Guideline G1180 focusing on Resilient Position, Navigation, and Timing, the updated Model Course C0103-2 for VTS Supervisor training, and Guideline G1181 addressing VDES VHF Data Link (VDL) Integrity monitoring. Additionally, the Council endorsed a workshop proposal concerning the VTS competent authority, with Italy offering to host the event.

A decision was made to select the Faro di Genova 'Lanterna' in Italy as the Heritage Lighthouse for the year 2024.

The Secretariat presented a paper to the Council on the necessity for more frequent updates to manuals, highlighting the rapid pace of technological evolution and the need for timely updates to ensure relevance and effectiveness. The request for authorization to implement a new process allowing committees to expedite the publication of updates to manuals was approved.

The Council also expressed interest in the progress of the Maritime Connectivity Platform, tasking the Secretariat with preparing a detailed report for presentation at the 80th Council meeting in June. Discussion concluded that this paper would be developed by the Secretariat and will be based upon the work by the DTEC Committee.

Furthermore, it was requested that the Secretariat generate a harmonized list of work item progress status. Discussion followed regarding the means of providing an overview of the status to the work that led to the Secretariat's agreeing evaluate the means of reporting to ensure consistency in reporting in the new work program online platform.

#### 3.1.2 IALA Policy Advisory Panel

Minsu Jeon also reported on the outcomes of PAP52, which took place from 6th to 8th February 2024. Key highlights included the decision to implement new work programme tools for upcoming committee seasons and the approval of draft Terms of Reference (ToRs) for Committees and Subsidiary Bodies within the new Intergovernmental Organization (IGO) for submission to the inaugural General Assembly.

Additionally, updates were provided on various matters, including IALA's involvement in the review of the STCW Code, AIS document review, S-200 development, document management and data harmonization.

### 3.2 IMO

Minsu Jeon provided an overview of IALA's engagement with IMO, highlighting submissions to various meetings.

Last year, IALA submitted an information paper on the IALA IGO project update to IMO Assembly 33. During HTW 10, an information paper was sent to raise awareness on training regarding the updated Maritime Buoyage System (MBS).

For the upcoming NCSR meeting in June, three documents are being submitted:

- NCSR 11/14 - IALA Guideline G1181 on VDES VDL Integrity Monitoring
- NCSR 11/18/1 - Revision of SN.1/Circ.297 on IALA Maritime Buoyage System
- NCSR 11/18/2 - IALA Risk Management Toolbox

Additionally, IALA plans to send two documents to the MSC:

- A proposal for STCW updates related to MBS training

Outcomes of the IALA MASS workshop, which were discussed at the MASS Task Force meeting.

### 3.3 IHO

Minsu Jeon reported on recent activities with the IHO. A liaison note was issued to NIPWG regarding S-125, furthermore, plans were discussed for the joint workshop to be held in the United States later in the year. Coordination meetings are currently underway for this event. During discussions, it was highlighted that the completion of S-125 is essential for the progression of S-124 and the IHO will be invited to Headquarters for further liaison and discussions on this and other matters.

Emphasis was also placed on the significance of IALA's attendance at the Regional Hydrographic Commissions, underscoring the importance of collaboration and engagement between IALA and hydrographic commissions at the regional level for promoting the work around AtoN.

### 3.4 ITU

The Committee noted Minsu Jeon's report that the ITU World Radiocommunication Conference 2023 convened in Dubai from November 20 to December 15, attracting over 3900 delegates from 161 member states. The conference aimed to coordinate global frequency usage, address spectrum demands for information and communication technologies (ICT) and update the ITU Radio Regulations (RR).

IALA's interests at the conference included the Maritime Mobile Service, encompassing the Global Maritime Distress and Safety System (GMDSS) and the Radiodetermination Service.

There was focus on modernizing the GMDSS and implementing e-navigation. Under Issue A, advancements were made in GMDSS modernization, including amendments to RR, introduction of NAVDAT frequencies, and updates to operational procedures. Issue B covered the implementation of e-Navigation, leveraging existing satellite networks without necessitating RR changes. Issue C addressed integrating additional satellite systems into the GMDSS, provisionally recognizing the BeiDou Satellite Messaging Service System.

Discussions also centred on improving VHF maritime mobile band utilization. Proposed agenda items for WRC-31 were formulated to advance digital voice and data technologies within this band.

New agenda items for WRC-27 included considering regulatory actions for aeronautical mobile high-frequency modernization and examining possible allocations and regulatory actions for the mobile-satellite service. These items hold significance for the maritime community, particularly in mitigating potential interference on maritime HF bands and exploring opportunities for mobile-satellite services.

### 3.5 Digital@Sea

The Committee noted the innovative approach taken at the recent Digital@Sea International held in Copenhagen, Denmark on 30-31 Jan 2024. Discussion noted that with three events the schedule was reasonably intense and this would be discussed at the next steering committee.

Minsu Jeon reported that the dates for the upcoming Digital@Sea Conferences are:

- Digital@Sea North-America on 8-9 May 2024 in Atlantic Beach, FL, US
- Digital@Sea Asia Pacific and Capacity Building workshop in 2024 in Seoul, Korea

### 3.6 Joint IHO/IALA workshop on S100/S200

The Chair updated the Committee on the arrangements that are ongoing to arrange the 2<sup>nd</sup> IHO IALA workshop on S-100/200 which will be held 9 – 13 September 2024 at the US Naval Academy, Annapolis, USA.

## 4. PRESENTATIONS

All presentations given at ARM18 can be found on the fileshare (login necessary). The following presentations were given:

- IALA World Wide Academy Update / Latifa Oumouzoune, IALA
- Risk analysis - establishment of offshore wind farms / Gaelle Nassif, CEREMA
- RACON trial with solid state radar / Guttorm Tomren, NCA
- Design and deployment of AIS AtoN tools / Natasha McMahon, CCG

## 5. WORK PROGRAMME MANAGEMENT

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

The Task Plan was updated to reflect the 2023 – 2027 Work Programme and throughout the session, the document and the Task Registers were updated by the Vice-chair and the Working Group Chairs, these were noted by the Committee. The new online tool is being updated to reflect the task registers. The Task Plan will be forwarded to ARM19 as a working paper.

#### *Action item:*

*The Secretariat is requested to forward the WP ARM Committee Task Plan (ARM18-11.5.1.1) and as a working paper to ARM19 for further development.*

## 6. REVIEW OF INPUT PAPERS

The input papers for ARM18 consisted of new input papers as well as working papers from the previous session. The input paper list (ARM18-6.1.1) did not include the working papers from ARM17. The working paper list (ARM18-6.1.2) 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	Guttorm Tomren (Chair), Johan Westerlund (Vice-chair)
WG2 – Information Services and Portrayal	LeeAnne Gordon (Chair) assisted by Minsu Jeon.
WG3 – Risk Management	John Stone (Chair), Kevin Gregory (Vice-chair)

## 8. WORKING GROUP 1 – NAVIGATIONAL REQUIREMENTS (WG1)

ARM18 has been an exciting second session of the work period with much progress on the various tasks of the working group. Several input papers have been considered by the Working Group with 7 liaison notes drafted as output.

### 8.1 Task 1.2.2 Draft new Guideline on Buoy Tender Activities

Task leader: Dave Merrill

ARM received liaison note from ENG16 (ENG-16.3.2.3) requesting ARM draft a new IALA Guideline that covers Buoy Tender Activities. ARM assigned this as task 1.2.2 on the ARM 2023 – 2027 Work Plan and assigned the task to WG1. WG1 began this task during ARM18 aiming for completion no later than ARM21. After reviewing the ENG input paper associated with this task, the task group created a task plan and commenced work. The task group made excellent progress during ARM18. In fact, the task leader estimates the document will be more than 50% complete by the end of ARM18. The task group were all actively engaged during ARM18 and it was only possible through their enthusiastic participation that so much work was able to be accomplished on what started out at the beginning of the week as a blank document.

#### Action items:

*That the Secretariat forward WP ARM18-11.5.2.1 WP Buoy Tender Activities Work to ARM19 for further development.*

### 8.2 1.2.8 Develop guidance on the provision of AtoN and risk management for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS)

**Task group leader:** Nigel Hare. **Task Group participants:** Maarten Berrevoets, Jakob Bang, Professor Namkyun IM, Doctor Donghan Woo, Mohd Reduan Mohd Ali, Juan Carlos Frias, Wang Shuo, Hideki Noguchi.

The work group was established during the opening plenary of ARM 18. The work group recognized the valuable contributions made in the production of the existing draft MASS guideline. It was noted that the last significant input from the work group was from ARM 16, but that the output paper had not been seen by the MASS Task Force. The group also noted that the existing paper had been drafted for all IALA committees and that the DTEC committee has a co-ordination role.

The first task of the task group was to establish the key target audience. It was agreed that the principle target audience is at Coastal State level, with operators and developers of MASS vessels also being important.

The group noted that the existing document had drawn heavily on the UK Maritime Industry Guidelines for MASS Development which was written primarily for operators and developers and it was agreed that the text could be adjusted to be more relevant to Coastal States.

The group considered that the Guideline should be developed on the principle that it:

- is supplementary to any IALA documents, and only addresses MASS issues insofar as they are not adequately or fully addressed in the existing documents;
- is holistic to ensure the objectives, aims and principles of the IALA documents are maintained while also ensuring that the challenges of MASS functions and operations are addressed across all standards;
- addresses risk and mitigation measures at the functional level;
- is developed to recognise the evolving nature of MASS, and related guidance on MASS; and
- ensures achievement of a level of safety at least equivalent to that expected of Marine Aids to Navigation to support safe, efficient and pollution free transits;
- ensures services are provided that enable all ships to safely coexist without impeding or negatively impacting each other, regardless of whether certain functions are remotely controlled or autonomously operated;
- remains cognizant of the potential for the unintended placement of barriers to new or novel application of remote control or autonomous technology on ships.

With these principles in mind the work group agreed a framework and the following aims of the document to:

- Benefit the safety of navigations by harmonising as far as possible the approach by Coastal States to providing AtoN in a MASS environment;
- Support the development of MASS regulation, policy and guidelines;
- To raise awareness of the continuing importance of physical AtoN in a digital and automated maritime environment as part of a resilient PNT system of systems.

The suggested framework was discussed with the Chair of DTEC and shared with the MASS Task Leader in DTEC. (Awaiting responses). In the meantime, work began on updating the document.

An action plan was produced which proposes:

- Liaison notes are required for DTEC, VTS and Eng. Comment will be requested in time for the next ARM.
- Meanwhile the Task Group will work intersessionally and meet on July 5<sup>th</sup>, once the next round of IMO committee work is completed, to update the document (including referring to latest IMO updates and to the China MSA paper on categorisation) to produce a working paper ready for ARM 19.
- Once comment is received from DTEC, VTS and Eng it is intended that the document will be completed during ARM 19.

#### *Action items:*

*That the Secretariat forward ARM18-11.2.8 liaison note to Eng, VTS and DTEC on the MASS task for their consideration.*

*That Committee participants interested in participating in Task 1.2.8 on MASS are invited to contact Nigel Hare ([nigel.hare@trinityhouse.co.uk](mailto:nigel.hare@trinityhouse.co.uk)) by 5 May 2024, noting the dates and times of the intersessional meetings will be published on the ARM Committee Dashboard.*

*That the Intersessional Task Group Leader (ARM-1.2.8) to provide input on result of the intersessional work to ARM19.*

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

Task group leader: Dave Merrill

No work was conducted on the NAVGUIDE in ARM18 but a meeting was held with the Secretariat during ARM18, who requested as part of the NAVGUIDE update, ARM update the IALA AtoN Questionnaire with a completion date of the end of ARM19. We have started this work and will resume and complete at ARM19. Work on the NAVGUIDE itself will start during ARM19 and run through ARM-23. There will be a focus during future ARM meetings to match terms in the NAVGUIDE with those in the IALA Dictionary.

Whereas we do not anticipate intersessional meetings between ARM18 and ARM19, we may hold these later in the work period.

#### Action items:

*That the Secretariat consider ARM18-11.2.6 Liaison Note to Secretariat regarding amendments to the NAVGUIDE and Questionnaire.*

### 8.4 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 leader: Sophie Platten

Feedback provided by IALA Education and Training Manager regarding the information paper submitted to IMO HTW 10 meeting. Feedback noted that currently model course 7.03 has a low priority status and does not have a schedule for review. A number of options were discussed as to the way forward and consideration should be given to drafting a proposal for a footnote referencing MBS into STCW code, IALA has previous experience of this when an footnote was added to SOLAS. The task lead and WG1 chair have requested that the Education and Training Manager investigates the timelines for STCW code review. Once the review timeline has been confirmed, the task group will be able to work to the timeline for amendment submissions. On review of the minutes the task leader noted an intersessional working group for model courses has been established. An email request has been submitted to the IMO working group for a representative from IALA to attend intersessional work on reviewing model courses. The task leader will provide an update to WG1 chair once a response has been received.

### 8.5 Task 1.4.1 – Enhancing the safety and efficiency of navigation around offshore installations

Task leader: Trevor Harris

The task group carried on developing the requested guideline and worked on the document for most of ARM18. The group continued to recognise that developing guidance on enhancing navigational safety around OREI would involve many aspects of safety of navigation such as ship routing, lighting and marking and VTS.

Prior to recommencing work on the paper a discussion was had between the task group lead and the IALA secretariat. It was agreed that the task group and WG1 finalise the document structure so as to be acceptable to IALA, and then the Secretariat could present either the working or finalised document to the IMO to ensure they are content with the content and have no objections to the overlap into safety of navigation issues outside of the IALA remit.

#### Action items:

*That the Secretariat is requested to discuss the above with the IMO Maritime Safety Division as the document is now structured correctly and will be completed at ARM19. The IMO response should be provided back to the ARM Committee Chair, Working Group Chairs and Task Group.*

*That the Secretariat is requested to forward ARM18-11.5.2.2 WP draft guideline on Enhancing the safety and efficiency of navigation around offshore installations to ARM19 as a working paper for further consideration.*

## 8.6 Task 1.5.2 – Revision of Guideline 1052 on Quality Management in AtoN Service Delivery

Task leader: Johan Westerlund

Due to task members being committed to work in other task groups, work was not progressed on this guideline during the week. China MSA have submitted input paper ARM18-7.2.2 (and annex ARM18-7.2.2.1) Proposal on Adding New Terms for IALA Dictionary Originated in G1052, which was forwarded to the task group handling dictionary edits. In addition, no examples of best practice on QMS have been received from members. The task group proposes to attempt gathering examples intersessionally to finalise the guideline during ARM19.

### Action item:

*That the Secretariat forwards ARM18-11.5.2.3 WP draft Guideline G1052 Quality-Management-Systems-for-AtoN-Service-Delivery as a working paper to ARM19 for further development.*

## 8.7 Task 1.5.3 – Revise Recommendation R0132 Quality management for AtoN authorities

Task leader: Johan Westerlund

A liaison note ARM18-7.2.1 was received from the VTS committee saying that the new VTS guideline is expected to be completed at VTS56 in the fall of 2024, at which point the committee will forward any requests for edits to R0132 in addition to reference to the guideline.

### Action item:

*That the Secretariat forwards ARM18-11.5.2.4 WP Draft Revised R0132 Quality Management for Aids to Navigation Authorities as a working paper to ARM19 for further development.*

## 8.8 Task 2.2.1 – Develop Recommendation and Guideline on the use of Drones for AtoN Management

Task leader: Naehyuk Yoo

The draft recommendation and guideline on this subject were finalized during ARM18, and the presentation was conducted in the WG1 plenary. Upon conclusion of the working group review, the draft recommendation and guideline were forwarded to ENG and DTEC committees with an accompanying liaison note.

### Action Item:

*That the Secretariat is requested to forward ARM18-11.2.3 Liaison Note and the draft ARM18-11.2.3.1 recommendation and ARM18-11.2.3.2 guideline to ENG and DTEC regarding the development of guidance on the use of drones for AtoN Management.*

## 8.9 Task 2.2.2 – Full review of A-126, G1084 and other AIS associated documents

Task group leader: Peter Douglas

There was ongoing discussion regarding the optimum way forward.

It is proposed that Recommendation R126 be repurposed as a shorter summary document, and that a new Guideline replaces most AIS documents.

A liaison note (and annex) was drafted to PAP and the other committees noting this approach and requesting feedback.

### Action item:

*That the Secretariat forward ARM18-11.2.4 liaison note and ARM18-11.2.4.1 to all committees including PAP on the review of AIS documents in order to seek comments on the proposed approach.*



#### **8.10 Task 6.3.1 – Review and update G1062 Establishment of AIS as a Marine Aid to Navigation**

Task leader: Peter Douglas

The following guidelines are to be merged into a single Guideline document if possible:

See above. G1062 will be retired and placed by a new guideline.

#### **8.11 Task 6.1.1 – Review G1050 Management and Monitoring of AIS Information**

Task leader: Peter Douglas, coordinated with ARM WG3

See comment above. The Task Group notes that the ARM Action Plan requires to be updated to better reflect tasks 2.2.2, 6.3.1 and 6.1.1 and their likely duration.

#### **8.12 Other Tasks/input papers**

##### **Input paper ARM18-7.7.1 Proposal for an IALA AIS Manual**

ARM received input paper ARM18-7.7.1 (with annexes) from Sweden suggesting that Task 2.2.2, Full review of A-126, G1084 and other AIS associated documents, change scope to aim at creating an overarching AIS Manual covering all aspects of AIS operations. The proposal also suggests arranging a series of intersessional cross-committee workshops to enable a consistent progress of the task, since the various existing AIS documentation falls under the responsibility of all IALA technical committees and the task will require extensive co-operation between the committees.

The proposal accurately highlights the massive and complex nature of the task, and the importance of not losing valuable information in the current documentation when documents are suggested to be withdrawn or archived. The working group discussed the proposal and suggests that the task group is tasked with progressing work as planned during ARM18 and 19, to be able to create a basis of new recommendation and guideline(s) before commencing with the suggested cross-committee intersessional workshops. That way the workshops will have a foundation to the new documents to discuss and add to as work progresses. As for the creation of an AIS manual, it is suggested that the task group first completes task 2.2.2 in order to have updated documentation. Once that is completed, an evaluation of the resulting documentation can be performed, and if an AIS manual is then deemed necessary and agreed by PAP, such a task can be commenced during the next working period.

##### **Input Paper ARM18-7.7.2 Proposed Revision of IALA Guideline G1172 from Mokpo Maritime University.**

The input paper was presented to WG1 for review and comment by Professor Im from Mokpo Maritime University and the group has discussed the paper with interest.

The paper is an extremely interesting concept and focuses on issues which are greatly in the domain of the IHO, IEC and IMO if future changes are required to ECDIS and ENC standards. The group feel that this topic could be a discussion item at the forthcoming IALA/IHO workshop on S100/S200 and Portrayal. We are aware that Professor Im has raised this item with IHO.

A discussion was held on how this concept affects current IALA Guideline G1172 on bridges and if this could be incorporated into the document as requested in the input paper. It was felt that at this time we do not need to reopen the document and add this proposal. It was also felt that the paper should be assessed within any MASS documentation as future mitigation.

The group were keen to acknowledge the need for the Dynamic Overhead Clearance being available to the mariner as the size of vessels increase and clearance margins becoming more critical.



The portrayal shown in the input paper is within the domain of the IHO for potential ECDIS displays and standards as this would be vessel specific and could be different for numerous vessels at the same time needing calculations within individual units.

From discussions at ARM18, following the presentation, IALA ARM members are aware that in some areas the responsible authorities do already monitor the air gap between the water and bridge or other structures passing over the navigable channels. Some of these monitoring systems use Application Specific Messaging to broadcast the height of the air gap allowing vessels to calculate the clearance margins onboard prior to them approaching the restriction. This is also being achieved in some port with signage being placed at a safe distance before the bridge showing the real time air gap.

At the next formal review of IALA guideline G-1172 the task group needs to consider this topic for inclusion.

*Action Item:*

*That the Secretariat discuss [ARM18-7.7.1 Proposal for an IALA AIS Manual](#) with the IHO and organisers of the forthcoming workshop to identify if it should be included in any upcoming workstreams.*

Dictionary – Update IALA Dictionary

Task group leader: Dave Merrill

*History:* At ARM17 WG1 received a request for IALA Dictionary changes from ENG via Liaison Note ARM17-6.2.1 dated 09 March 2022. One was Luminous Range and the second, Nominal Range. WG-1 reviewed these proposed definitions, but was not ready to recommend approval without further information and explanation from ENG. Eng also requested that the IHO abbreviation for Nautical Mile become the official abbreviation for IALA and be added to the dictionary.

*Action taken:* As proposed at ARM17, an intersessional meeting with the ENG Chair was held on 9 April 2024. WG1 members Nigel Hare and Dave Merrill met with ENG Chair Alwyn Williams via Webex and resolved the concerns that ARM WG1 voiced during ARM17. The WG-1 team agreed that the ENG definitions for Luminous Range and Nominal Range were in fact correct and would recommend that ARM take the necessary steps to have them included in the IALA Dictionary. WG-1 also agreed to recommend to ARM that the IHO abbreviation for nautical Mile “M” become IALA’s official abbreviation. WG1 agreed the stipulation that the traditional seaman abbreviation “NM” be mentioned in the new Dictionary definition.

The ENG Liaison note also included a request to replace “Sea Mile” with “Nautical Mile” in all IALA publications. WG1 concurred as this is in keeping with current IALA policy. There are 3 IALA documents that still use Sea Mile. We will share these with the Secretariat during a later ARM meeting and ask that his staff make the appropriate edits.

At ARM18 we received several new dictionary terms from ARM WG3. At ARM19 we will review and provide recommendation for their inclusion into the dictionary

*Action item:*

*That the Secretariat forward [ARM18-11.2.1 Liaison note to Dictionary Working Group on use of miles for their consideration.](#)*

**Input Paper: General Overview of a Floating AtoN (previously as Navigational Requirements and Considerations for Establishment of Buoyage)**

Task group leader: Dave Merrill

At ARM17 WG1 was asked to review the ENG draft of the yet to be numbered Guideline titled, General Overview of a Floating AtoN. Given the small size of the ARM17 task group, we were asked to once again review and comment on the draft Guideline at ARM18 with our much larger 11-member task group. This task group provided

additional comments and suggestions that were captured in an updated version of the draft guideline that will be provided to ENG.

**Action taken:**

*That the Secretariat forward ARM18-11.2.2 Liaison note to ENG on general overview floating AtoN and ARM18-11.2.2.1 Draft guideline with comments on general overview floating AtoN for their consideration.*

Input Paper ARM18-8.3.1 Input on IALA R0126 MAtoN status page\_24-03-30 and ARM18-8.3.1.1 uswp5b32-11\_m.1371\_finaldraft:

The ARM Committee have reviewed briefly the input papers ARM18-8.3.1 and ARM18-8.3.1.1.

The first paper has questions regarding if all or just the self-propelled mobile AtoN should use the directional arrow stated in status bits page 101 (Symbols and portrayal are handled by IEC62288 ed.3.0). This document will be reviewed and responded to in full at ARM19.

**Action item:**

*That the Secretariat forward ARM18-11.5.2.5 WP Input on IALA R0126 MAtoN status page\_24-03-30 (ARM18-8.3.1) to ARM19 as a working paper for further development.*

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

The group started with introducing all of the participants to the WG2. The list of participants can be found in Annex A. There were 23 participants in person and 7 participants online.

During ARM18, the WG2 continued the work items planned for the session which was based on the work programme 2023 - 2027. The group started the work reviewing all of the input papers to the group and reorganised the task groups for the tasks.

### **9.1 Develop guidance on cyber security for Marine AtoN (ARM-1.4.3).**

Task group leader: Martijn Ebben

Addressed input papers; ARM18-8.7.1, ARM18-8.7.1.1, ARM18-8.7.2, ARM18-8.7.2.1

The task group collected and processed the input and comments from the VTS55, DTEC2 and ENG18 committees and informed/consulted the involved persons from the various committees and working groups about the actions performed on the received input and the additional changes made by ARM18. The final draft was presented and approved by WG2, together with some representatives from the other committees, and is considered to be ready for publication.

It is the intention that both the existing recommendation (R1024: Cyber security for the IALA domain) and this guideline are reviewed and updated by the ARM committee in the second half of the current work period, and every 2/3 years after that, to mitigate for the rapidly changing technology involved in cyber security.

**Action item:**

*That the Secretariat is requested to forward ARM18-11.3.1 - Gxxxx - Cyber security specifics from an IALA perspective (final draft) to Council for approval and publication.*

### **9.2 Develop an IALA Recommendation and Guideline on developing Harmonized Waterway Concept (ARM-2.2.3).**

Task group lead: Amilynn Adams

Intersessional work has been conducted to progress the document and a working draft Guideline has been created by US and Canada for review by other administrations on the task team. Opportunity to identify additional technical personnel within other administrations to discuss and participate in evaluating the draft Guidance document has been provided. Additional intersessional work is planned prior to presenting a completed draft for full Work Group 2 consideration at ARM 19.

**Action item:**

*That Committee Participants are invited to participate or recommend technical personnel to join the intersessional task group (Virtual meetings) to comment on the current working draft of task 2.2.3 Develop an IALA Recommendation and Guideline on developing Harmonized Waterway Concept (<https://nextcloud.iala-aism.org/index.php/apps/files/?dir=/Committees/ARM/ARM18/WG2/Working%20Documents%20for%20ARM19/Task%202.2.3%20Harmonized%20Waterways&fileid=293771>) and to provide the contact information of these people to Amilynn Adams (amilynn.e.adams@uscg.mil) by 24 May 2024. The dates and times of the intersessional meetings will be published on the IALA ARM Committee Dashboard.*

*That the Intersessional Task Group Leader (ARM-2.2.3) to provide input on result of the intersessional work to ARM19.*

*That the Secretariat forwards ARM18-11.5.3.1 WP's on task 2.2.3 as working papers to ARM19 for further development.*

**9.3 Contribute to the standardization efforts with respect of the requirements of the S-100 domain experts (ARM-7.1.2).**

**9.3.1 Develop S-200 World Image and Virtual AtoN Provisions (ARM-7.1.2.b)**

Task group leader: Dr. Sewoong Oh

Addressed input papers; ARM18-8.4.8 and ARM18-8.4.9

The background of the S-200 World image was introduced, and it was decided for WG2 members to forward written comments the IALA Secretariat. WG2 compiled the comments collected on Thursday morning and shared them with other WGs of ARM committee to survey opinions on the S-200 world image. MOF/KRISO plans to finalize the S-200 world image based on ARM's comments, and IALA Secretariat plans on posting it on the IALA website to promote the S-200 concept.

According to the contents specified in G1081, it was the conclusion of WG2 that in the future virtual AtoN may be provided through various maritime communication networks other than AIS. WG2 discussed the need for a data link agnostic virtual AtoN data structure. Since the discussed agnostic virtual AtoN can be viewed as a new AtoN type and should be reviewed at the MBS level, it was decided to submit an input paper to ARM19 for WG1 to consider the need to develop an open format for the proposed virtual AtoN.

In addition, by the explanation of the sponsors of the paper ARM18-8.4.8, virtual AtoN could include Application Specific Messages such as area notice, considering the development of Product Specification is under the remit of DTEC, WG 2 invited DTEC to review the proposal and send the comments to ARM19 by liaison note.

**Action items:**

*That Committee Participants are invited to submit comments on the S-200 World Image to the Secretariat (tm@iala-aism.org).*

*That the Secretariat forward the ARM18-11.3.2 Liaison Note on ASM to DTEC for their consideration.*

**9.3.2 Develop an operational interaction diagram (ARM-7.1.2.a)**

Task group leader: Amilynn Adams

WG2 reviewed the working draft of the operational interaction diagram under ARM17-7.1.2. Contribute to the standardization efforts with respect of the requirements of the S-100 domain experts via intersessional task team. The operational interaction diagram is ready to go to Council for approval and for transmittal to IHO NIPWG via Liaison Note.

*Action item:*

*That the Secretariat forward the liaison note ARM18-11.3.3 Liaison Note to IHO NIPWG and two Annexes ARM18-11.3.3.1 and ARM18-11.3.3.2 to the Council for approval. Once approved, forward the document to the IHO NIPWG for consideration.*

**9.4 Continue to Develop Product Specification S-201. 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

Addressed input papers; ARM18-8.4.6, ARM18-8.4.7, ARM18-8.4.12

S-201 TG reviewed all Gaps for S-201 1.1 version analyzed by Canadian Coast Guard and decided on a plan to update the S-201 product specification UML diagrams, Feature Catalogue/schema and Data Capture and Encoding Guide (DCEG). These updates with the result of the need to revise S-201 to Ed. 1.2.0, and the work will be conducted through intersessional meetings. During the gap analysis of S-201 version 1.1, many concepts that needed to be registered to the IHO GI Registry were identified. S-201 TG will draft the definition for each concept, share it with WG2 members for comment, and plans on confirming these at an intersessional meeting before submitting to the IHO GI Registry.

*Action item:*

*That Committee participants interested in participating in Task 7.1.4 on developing Product Specification S-201 are invited to contact Sewoong Oh (osw@kriso.re.kr) by 5 May 2024, noting the dates and times of the intersessional meetings will be published on the ARM Committee Dashboard.*

*That the Intersessional Task Group Leader (ARM-7.1.4) to provide input on result of the intersessional work to ARM19.*

**9.5 Continue development on S-125 in coordination with IHO NIPWG (ARM-7.1.6).**

Task group leader: Dr. Sewoong Oh

Addressed input papers; ARM18-8.4.12

S-201 TG agreed to complete S-201 version 1.2 by resolving the identified S-201 data model gaps, and then sequentially apply these changes to the S-125 product specification to update it to version 0.0.4.

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

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

Task group leader: Julius Moeller

Addressed input papers; ARM18-8.4.4, ARM18-8.4.4.1, ARM18-8.4.4.2

In December 2022, IALA submitted a short paper (NCSR 10/7) introducing Maritime Resource Names (MRN) to the 10th session of the IMO NCSR Sub-Committee, which met in May 2023. The paper was noted by the Sub-Committee and IALA representatives also presented the concept of MRN in plenary. The NCSR Sub-Committee

invited interested Member States and organisations to submit detailed proposals on an IMO circular to provide guidance to Member States on the use of MRN.

DTEC 2 developed a draft circular DTEC2-12.2.1.3 and accompanying draft input to NCSR DTEC2-12.2.1.4 and submitted it to ARM18 WG2 for further review. The WG reviewed the draft circular and discussed the way forward. Three paragraphs to clarify the use of MRN for existing identifiers (compatibility) and the use of the Maritime Resource Registry were added by the WG. It was further agreed to forward the draft document to VTS and DTEC for further review, and then agree on a final version for submission to Council at ARM19.

Further discussions on the implementation of MRN across and beyond IALA Domains, including VTS, waterway names crossing national boundaries, and other considerations, led to a conclusion that a Liaison Note should be sent to PAP to request guidance on such.

**Action item:**

*That the Secretariat forwards ARM18-11.3.4 liaison note and ARM18-11.3.4.1 and ARM18-11.3.4.2 Annexes to the DTEC and VTS committees on MSC Circular on MRN for their consideration.*

*That the Secretariat forward ARM 18-11.3.11 liaison note to PAP on MRNs for their consideration.*

**9.7 Review Guideline G1106 on producing an IALA S-200 series Product Specification (ARM-7.1.8).**

Task group leader: Eivind Mong

Addressed input papers; ARM18-8.4.1

The input from VTS committee was noted and discussed in Working Group Plenary, but no development was continued during this session.

**9.8 Coordinate Committee support and submissions for IALA representation at IHO working groups in cooperation with Secretariat (HSSC, S-100WG, NIPWG) (ARM-7.1.9).**

Task group leader: Eivind Mong

No input was received this session, but other tasks generated outputs relevant for IHO related bodies.

**9.9 Monitor the development of S-201 Testbed (ARM-7.1.10).**

Task group leader: Dr. Sewoong Oh

Addressed input papers; ARM18-8.4.11

Major updates (including login function) to the S-201 test bed were introduced, and it was noted that the domain address would be changed to IALA's official domain. It was agreed to harmonize the login method with the IALA website. For the VTS Committee's request of the applicability of S-210/S-212 data to the S-201 test bed, the TG decided to improve the user interface for users to input complex data model data through Feature Catalogue of the S-200 series product specification. KRISO will execute this action.

A live demonstration of the web-based IALA Questionnaire was conducted based on the S-201 testbed.

At the ARM committee level, the need to prepare for the AtoN Questionnaire contents was discussed, and the IALA secretariat drafted a AtoN Questionnaire. The content of the AtoN Questionnaire is planned to be created with the other ARM working groups. Once the AtoN Questionnaire content is finalized, MOF/KRISO will run a pilot survey on AtoN and report the results to the next ARM committee meeting.

**9.10 Develop, implement and execute procedures for IALA to add, maintain and harmonize items to the IHO S-100 Feature Concept Dictionary (FCD) (ARM-7.1.11).**

Task group leader: Dr. Sewoong Oh

Addressed input papers; ARM18-8.4.10, ARM17-11.5.3.3

The Working Group noted that the IHO S-100 Feature Concept Dictionary no longer exists as such, so the group changed the title of this task to “Develop, implement and execute procedures for IALA to add, maintain and harmonize items to the IHO GI Registry.”

It was discussed that a common data structure is needed to exchange monitoring signals between various RCMS (Remote Control and Monitoring System), and that development of the new S-200 series product specification could be a solution. Since ENG committee has expertise on RCMS, WG2 decided to send liaison note requesting comments on the need to define the terms and definitions for monitoring signals and the development of new S-200 series product specification.

*Action item:*

*That the Secretariat is requested to change the name of task 7.1.11 to Develop, implement and execute procedures for IALA to add, maintain and harmonize items to the IHO GI Registry, in the Work Programme.*

*That the Secretariat to forward ARM18-11.3.5 Liaison note to ENG on remote monitoring for their consideration.*

#### **9.11 Create S-200 Implementation Plan, following similar S-100 Implementation Strategy and/or Roadmap (ARM-7.1.12).**

Task group leader: LeeAnne Gordon

Addressed input papers; ARM17-11.5.3.4

The Task Group looked at the IHO "Implementation Decade" documents and proposed the following schedule for S-201 and S-125:

- The Task Group will work to advance S-201 to a version 1.2 effective immediately, for finalization at ARM19. The data model in this version will be aligned with S-57 and be a step in the transition towards S-101 alignment. While work on S-201 version 1.2 is occurring, the Task Group will also work on completing S-125 to version 0.0.4.
- The Task Group will work to advance S-201 to a version 2.0 within the next 2 years, to be finalized by the end of 2026. This version will be aligned with IHO S-101.
- Once S-201 version 2.0 is published, the Task Group will continue concurrent work on S-125, with a goal of publishing a version 1.0 by the end of 2027 (dependent on the stabilization of S-201 version 2.0).
- Work on an S-125 version 2.0 will commence following the publication of S-125 version 1.0 and subsequent testing.

A Liaison Note to the VTS, DTEC and ENG Committees was drafted with this proposed schedule and identifying other S-200 product specifications which would be included in an S-200 Roadmap, to further advance this task at future ARM Committee Meetings.

*Action item:*

*That the Secretariat forwards ARM18-11.3.6 Liaison Note on the S-200 Roadmap to VTS, DTEC and ENG committees for their consideration.*

#### **9.12 Develop guidance on the symbology and portrayal of AtoN for charting (ARM-7.1.13).**

Task group leader: Eivind Mong

Addressed input papers; ARM18-8.4.2



The working group plenary reviewed and discussed the input and addressed clarifications requested about the proposed dialogue window. It was clarified that this new dialogue window would be in addition to the already defined S-124 dialogue window in IHO S-98. It was agreed that requesting a revision for S-98 will be the way to go for the envisioned new dialogue window. China MSA was thanked for the input, and requested to continue defining the working behaviour of the AtoN status window. The working behaviour will be used explain the need for the AtoN status window in S-98.

*Action item:*

*That China MSA is requested to draft S-125 status window behavior with examples and submit as input to a future ARM Committee Meeting.*

### **9.13 Development of technical service specifications for the provision of AtoN information (ARM-7.1.14).**

Task group leader: Thomas Christensen

Addressed input papers; ARM18-8.4.3, ARM18-8.4.3.1, ARM17-11.5.3.5

The Working Group went through the latest version which was also updated to reflect the latest changes in G1128 'Specification of e-Navigation Technical Services'. The specification is now considered sufficiently mature to be adopted in version 1.0 and as such to be published on the IALA webpage as a Technical Service specification ready for testing. Testing will be conducted as part of the Open Digital Incubator initiative (digitalincubator.maritimeconnectivity.net).

Also, a liaison note will be made to IHO NIPWG, to inform them of this work. Going forward, a service design (initially using SECOM) will be made for this service specification, and work will commence on a new service specification for provisioning of enhanced AtoN information (S-201).

*Action items:*

*That the Secretariat publish the ARM18-11.3.7 Marine Aids to Navigation (AtoN): Technical Specification for the Provision of AtoN Information on the IALA website.*

*That the Secretariat forwards ARM18-11.3.8 Liaison Note to NIPWG on Technical Service Specification to Council for approval. Once approved, to forward to IHO NIPWG, along with Annex ARM18-11.3.8.1.*

### **9.14 Review Guideline G1159 on ship reporting from the shore-side perspective (ARM-7.1.15).**

Task group leader: Michael Strandberg

Addressed input papers; ARM17-11.5.3.6

During ARM18 the task group discussed the current situation and drafted a Liaison Note to PAP to request input on IALA's remit with regards to ship reporting.

*Action item:*

*That the Secretariat forward ARM18-11.3.9 Liaison Note to PAP on IALA role in the arena of ship reporting for their consideration.*

### **9.15 Review revised R1019 on Provision of maritime services in the context of e-Navigation from DTEC.**

Task group leader: Thomas Christensen

Addressed input papers; ARM18-8.4.5, ARM18-8.4.5.1

The working group received a revised draft of R1019 on provision of Maritime Services in the context of e-Navigation from DTEC2 as ARM18-8.4.5 and ARM18-8.4.5.1. The working group reviewed the documents and agreed with minor editorial updates, and the document will be forwarded to the Council for approval.

*Action item:*

*That the Secretariat forward ARM18-11.3.10 Revised Recommendation R1019 on Provision of Maritime Services in the Context of e-Navigation to Council for Approval.*

## **10. WORKING GROUP 3 – RISK MANAGEMENT (WG3)**

The Working Group (WG) was relatively small and it was therefore decided by the Chair to complete most meetings as a rolling plenary, with ad-hoc breakout groups to support specific tasks. The group contained around 22 participants who remained in WG3 for the week. The group worked as a hybrid meeting with 3 - 4 virtual participants attending for a large part of the week.

Several participants were new to the WG3. Thus, the WG Chair started by recapping on work undertaken at ARM17 and leading a discussion to explain and clarify each task item. Further discussion was then had to set the action plan for the week.

### **10.1 1.4.4 Review Risk Management related documentation. Update as per ongoing risk toolbox developments**

Task group leader: Kevin Gregory

A presentation was provided by Nick Neely on the latest developments of the PAWSA tool undertaken by the United States Coast Guard. This included an overview of the development and implementation of PAWSA MKIII in the United States and a summary of the key changes.

The IALA World-Wide Academy will attend a PAWSA MKIII in Tampa, Florida, United States in May as observers. This will enable a real-time overview of the updated tool in action and as a means of providing input to ARM19 on any potential updates that may be required to the IALA Risk Management related documentation. The United States also intends to submit a report on the differences between PAWSA MKII and MKIII to ARM19.

*Action item:*

*The IALA World-Wide Academy is requested to provide input to ARM19 on the development of the PAWSA MKIII tool and the potential implications for IALA Risk Management related documentation.*

### **10.2 1.4.5 Develop a method to quantify and evaluate various risk control options**

Task group leader: Sarah Robinson

Progress has been made on this task since ARM17. Floris Goerlandt described the research work carried out by his student on attempting to harvest the outputs from a range of SIRA and PAWSA documents, to establish reference information on implemented risk control options. This background knowledge was considered to be the first step in understanding what risk control options have been implemented, before attempting to assess how they reduce risk and by how much.

The group discussed the nature of the task and clarified that the objective should not necessarily be to define a risk reduction comparison for different risk control options, but to identify a best practice process for the consideration of appropriate risk control options

The expected outcome as stated at the previous ARM Committee is fundamentally unchanged, but it is suggested that the focus is on the procedural practice rather than attempting to define the relative risk reduction effectiveness of one technique over another.



The expected outcome remains a methodology that provides examples of risk mitigation options related to typical risks, facilitates comparison of the risk reduction effectiveness of risk mitigation options, and assists with risk control option(s) selection based on risk reduction effectiveness and other information (e.g., cost, policy, accountability, serviceability, reliability etc.). The group agreed to combine the research for this task with the questions posed for the questionnaire mentioned in 1.4.7.

**10.3      1.4.6 Encourage IALA members and other organisations to share historic AIS and other vessel tracking data with IALA. IALA aims to use such data for risk assessment, research and training purposes.**

The WG had a discussion related to this task with the Dean of the IALA World-Wide Academy while discussing task 1.4.9. The challenges in sharing historic AIS and other vessel tracking data was recognised by the WG, noting individual Governments' restrictions with control of AIS data. The WG did support the sharing of completed IWRAP projects that could be used for further research and training purposes.

*Action item:*

*That Committee participants are requested to share completed IWRAP projects with IALA for further research and training purposes.*

**10.4      1.4.7 Conduct a global scan of current risk analysis tools and identify potential candidates for inclusion within the IALA Risk Management Toolbox**

IALA Risk Management Toolbox questionnaire

The results of the IALA Risk Management Toolbox questionnaire were presented and discussed. WG3 thanked the Secretariat for distributing and analysing the responses to the questionnaire. 36 responses to the questionnaire were received and several areas of interest were highlighted with respect to the use of risk management tools. It was agreed that WG3 would request the Secretariat to send out the questionnaire a second time to try and gather further responses.

Follow up questions were prepared for some respondents with a view to establishing further information with respect to their use of both IALA and other risk management tools and how they selected their preferred control options.

IALA One Page Risk Assessment tool

A brief discussion was held related to dynamic risk assessment methods and tools following incidents such as a wreck or other danger to navigation with a view to supporting initial response and decision making. It was suggested that the IALA One Page Risk Assessment tool could be a potential option to support such circumstances and that the IALA Risk Management documentation may benefit from review and update to ensure that there is sufficient guidance on dynamic risk assessment processes.

*Action items:*

*That Nominated WG members are requested to coordinate the follow up with relevant responders to the IALA Risk Management Toolbox questionnaire to obtain further information with respect to their use of both IALA and other risk management tools.*

*The Secretariat is requested to forward the follow up Risk Management Toolbox questionnaire (ARM18-11.4.1) to relevant respondents and to circulate the initial Risk Management Toolbox questionnaire to IALA members with a view to increasing the number of responses.*

*The Secretariat is requested to redistribute Risk Management Questionnaire (ARM18-11.4.2) to all IALA Members and World-Wide Academy risk management alumni who have not responded to the original request for information.*

#### **10.5      1.4.8 Monitor the IRMAS reporting tool, ensuring it meets the requirements for future records of risk management. Ensure the form is modified as required**

No discussion was held with respect to IRMAS at ARM18, further discussion of this task will be incorporated into task 1.4.7.

#### **10.6      1.4.9 Ensure long term sustainable supportability for IWRAP Software**

This task was discussed in plenary along with the Dean of the IALA World-Wide Academy and IWRAP developer, Mr. Per Engberg. Mr. Engberg provided a brief demonstration of IWRAP, and members of the WG asked questions pertaining to ongoing projects. The Dean of the IALA World-Wide Academy led a discussion on potential improvements and additions to IWRAP capabilities. IWRAP users were encouraged to send any ideas for software enhancements to Mr. Engberg.

Recent developments with Mr. Engberg have ensured the sustainability of IWRAP. No further action is required for this task.

The WG noted the successful outcomes from the recent IWRAP Super User Seminar and encouraged the World-Wide Academy to host similar events related to the use of the IALA Risk Management Toolbox in the future.

#### **Action item:**

*That committee participants are requested to submit recommendations for IWRAP enhancements and improvements to Per Engberg ([pengberg@engberg-solutions.com](mailto:pengberg@engberg-solutions.com)).*

#### **10.7      1.4.10 Guideline for Risk Assessment of Cyber Security threats**

The WG reviewed and proposed updates to the risk management section of the draft Guideline on Cyber Security Specifics in IALA Domains (ARM18-8.7.2.1) and provided feedback to the ARM WG2 task group reviewing the document.

#### **10.8      1.4.11 Develop measures for and a method to monitor waterway risk. Includes effectiveness of risk mitigations, qualitative validation with stakeholders, and re-evaluation of risks**

The WG reviewed input paper (ARM18-9.1.1) on Risk Maturity Model for the Maritime Authorities and benefited from a presentation on the topic, focusing on the R-Mare qualitative matrix-based model, which is tailored to support the self-evaluation of maritime authorities.

A task register proposal was prepared to support the development of an IALA Guideline to enable competent authorities to facilitate continuous improvement in terms of the management and implementation of risk management principles and processes taking account of SOLAS V/12 and V/13 and the IALA standards, and Risk Management Toolbox, specifically Guideline *G1018 Risk Management*.

The WG discussed this task in further detail regarding the broad spectrum of measures that could be included to monitor waterway risk, and risk control options. Considerations could include vessel throughput, marine based events and activities, and AtoN.

Further discussions between the ARM Chair, Vice Chair, and WG1 Chair concluded that Aid to Navigation Availability Rate (AAR) could be a subset of this work, and it was agreed to transfer relevant parts of Task 1.5.1 to WG3 as a subtask of 1.4.11.

Because several countries deviate slightly on how to calculate AAR, it was requested that participants provide these, and any other waterways risk monitoring calculations used, at ARM19 for review.

#### **Action item:**

*That Committee participants are requested to provide input on Aid to Navigation Availability Rate and other waterway risk monitoring methodologies at ARM19.*

#### **10.9 Other tasks - 5.1.3 WWA lesson plans to review**

The WG did not review any specific lesson plans but noted the forthcoming World-Wide Academy training courses related to the Risk Management Toolbox.

#### **10.10 Other discussion of interest**

##### Waterways Analysis and Management System (WAMS) project

The ARM Chair provided a demonstration of the United States' ongoing Waterways Analysis and Management System (WAMS) project. The project is reaching its final stages of implementation and is intended to provide waterways managers with an IT suite of decision support tools aimed to evaluate and monitor the risks and risk mitigations throughout a particular waterway.

##### Risk management with respect to Maritime Autonomous Surface Ships (MASS)

The WG had a preliminary discussion with respect to risk management and MASS. The WG agreed to follow the developments within the IALA MASS Task Force, the technical committees and the IMO and to provide input as needed.

### **11. ANY OTHER BUSINESS**

#### Lighthouses of Russia exhibition

An invitation from the Russian National member was extended to all participants to attend the opening ceremony of the Lighthouses of Russia exhibition held in Paris on 16th April. The event celebrated Russian Lighthouses and was enjoyed by attendees of the exhibition.

#### Lantern Survey

Two students that are working with IALA, are trying to understand the market of the lighted aids to navigation and wants ARM participants assistance to do this. They have created a survey which would be helpful to them to understand this market better. Through this survey they want to know how many lanterns are there in the world and their sources and characteristics, amongst other insights from national authorities. Through this study they want to provide IALA with a report to explain and estimate the size of the lantern market and how the characteristics of the lanterns and services provided may affect the sales of a given manufacturer. They also aim to include the current state of the market and possible future rise or fall within the industry. The Secretariat will send out a link to this survey in due course.

### **12. SUMMARY OF OUTPUT AND WORKING PAPERS**

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

Outputs from ARM18 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 (ARM18-12.1) was approved by the Committee at the Closing Plenary.

#### 14. DATE AND VENUE OF NEXT MEETINGS

ARM19 is planned to be held between 7 – 11 October 2024 at IALA Headquarters, Saint Germain-en-Laye, France. Other IALA events will be publicised on the IALA website.

#### 15. CLOSING OF THE MEETING

The Chair thanked all Committee participants again for all the engagement and hard work and looked forward to seeing everybody again at ARM19.

He also hoped that everyone could take the IALA survey that is sent out after every Committee meeting in order to receive feedback for continuous improvements.

Deputy Secretary-General, Omar Eriksson, thanked all participants for their work.

Finally, the Chair asked if there were any final comments that participants wished to make; 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



## 18<sup>th</sup> Meeting of the AtoN Requirements and Management Committee (ARM18)

The opening plenary of the 18th meeting of the ARM Committee will commence at 10:30 local time on Monday 15 April 2024, and the closing plenary will be held online at 14:00 – 16:00 UTC on Thursday 25 April 2024.

### Agenda

1. Introduction
  - 1.1. Welcome address from the Deputy Secretary-General
  - 1.2. Approval of agenda
  - 1.3. Apologies and introductions
  - 1.4. Working arrangements
2. Review of action items
3. Reports from other bodies Minsu Jeon
  - 3.1. IALA
    - 3.1.1. IALA Council
    - 3.1.2. IALA Policy Advisory Panel (PAP)
  - 3.2. IMO
  - 3.3. IHO/ITU
  - 3.4. Digital@Sea
  - 3.5. Joint IHO/IALA workshop on S100/S200 Dave Lewald
4. Presentations
  - 4.1. IALA World Wide Academy update Latifa Oumouzoune
  - 4.2. Risk analysis - establishment of offshore wind farms Gaelle Nassif, CEREMA
  - 4.3. RACON trial with solid state radar Guttorm Tomren, NCA
  - 4.4. Design and deployment of AIS AtoN tools Natasha McMahon, CCG
5. Work Programme management
  - 5.1. Work Programme 2023 – 2027, Task Plan, Task Register
6. Review of input papers
  - 6.1. Input papers
  - 6.2. Input papers not related to an existing task
7. Establish WG1 - Navigational requirements
  - 7.1. Obligations and regulatory compliance

- 7.2. Quality management
- 7.3. AtoN planning
- 7.4. Virtual marking
- 7.5. Visual signalling
- 7.6. Capacity building (NAVGUIDE)
- 7.7. Additional tasks/work
- 8. Establish WG2 - Information services and portrayal
  - 8.1. Design, implementation and maintenance
  - 8.2. Wide/Medium bandwidth systems (AIS & VDES)
  - 8.3. Harmonised maritime connectivity framework (CMDS) Maritime IoT (Intelligent sensors, AtoN monitoring)
  - 8.4. Data models and data encoding (IVEF, S-100, S-200, ASM)
  - 8.5. Data exchange systems (Traffic Information)
  - 8.6. Terminology, symbology, and portrayal
  - 8.7. Additional tasks/work
- 9. Establish WG3 - Risk management
  - 9.1. Risk management
  - 9.2. Training and certification
  - 9.3. Seminar
  - 9.4. Additional tasks/work
- 10. Any other business
- 11. Summary of output and working papers
  - 11.1. Committee wide
  - 11.2. WG1 output
  - 11.3. WG2 output
  - 11.4. WG3 output
  - 11.5. Working papers
- 12. Review of session report
- 13. Date and venue of next meeting
- 14. Close of the meeting

## ANNEX B

## LIST OF PARTICIPANTS

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

Meeting	Paper Number	Input Paper Title	Source	Presented by / WG
ARM18-	1.2.1	Provisional Agenda	Secretariat	All
ARM18-	2.1	Action Items from ARM17	Secretariat	All
ARM18-	1.4.1	Programme of the physical week	Secretariat	All
ARM18-	5.1.1	Committee task plan	ARM CMT	All
ARM18-	6.1.1	Input paper list	Secretariat	All
ARM18-	6.1.2	Working paper list	Secretariat	All
ARM18-	6.2.1	Liaison note to ARM, ENG, VTS on Tech Review Summary Table (DTEC2-12.2.2.2)	DTEC	CMT
ARM18-	7.2.1	Liaison note to ARM - Guidance on Quality Management Systems	VTS	WG1
ARM18-	7.2.2	Proposal on Adding New Terms for IALA Dictionary Originated in G1052	China MSA	WG1
ARM18-	7.2.2.1	ANNEX-New-Definitions-for-IALA-Dictionary(G1052)	China MSA	WG1
ARM18-	7.3.1	Consideration on Guideline for Buoy Tender Activities	China MSA	WG1
ARM18-	7.3.2	Proposals for revision of Guideline G1078	China MSA	WG1
ARM18-	7.7.1	Task 2.2.1 Proposal for an IALA AIS Manual SWE_K1	SMA / STA	WG1
ARM18-	7.7.1.1	Annex 1_Task 2.2.1 Proposal for an AIS Manual SWE_K1	SMA / STA	WG1
ARM18-	7.7.1.2	Annex 2_Task 2.2.1 Proposal for an AIS Manual SWE_K1	SMA / STA	WG1
ARM18-	7.7.2	Proposals revision of Guideline G1172	Mokpo National Maritime University	WG1
ARM18-	8.3.1	Input on IALA R0126 MAtoN status page_24-03-30	USCG	WG1
ARM18-	8.3.1.1	uswp5b32-11_m.1371_finaldraft	USCG	WG1
ARM18-	8.4.2	Proposal for Displaying of S125 Updated Data on ECDIS When AtoNs Reverted Back to Design State	China MSA	WG2
ARM18-	8.4.3	Input on Technical service for AtoN	KRISO et al	WG2

Meeting	Paper Number	Input Paper Title	Source	Presented by / WG
ARM18-	8.4.3.1	Provision of AtoN Information Service to End users	GRAD/ USCG/ AIVeNautics	WG2
ARM18-	8.4.4	Liaison note from DTEC to ARM on IMO Circular on MRN	DTEC	WG2
ARM18-	8.4.4.1	Draft Circular to MSC on Harmonisation of identifiers using MRN (DTEC2-12.2.1.3)	DTEC	WG2
ARM18-	8.4.4.2	Draft Input to NCSR on Use of MRN Circular (DTEC2-12.2.1.4)	DTEC	WG2
ARM18-	8.4.5	Liaison note to ARM on R1019 on provision of maritime services in the context of e-navigation (DTEC2-12.2.1.12)	DTEC	WG2
ARM18-	8.4.5.1	Review R1019 on Provision of maritime services in the context of eNavigation in the domain of IALA (DTEC2-12.2.1.7)	DTEC	WG2
ARM18-	8.4.6	S-201 data model review_v2	CCG	WG2
ARM18-	8.4.7	Development of IALA questionnaire system based on S-200 testbed	KRISO	WG2
ARM18-	8.4.8	Need of open data format for Virtual Aton	KRISO	WG2
ARM18-	8.4.9	Review of S-200 World image	KRISO	WG2
ARM18-	8.4.10	Terms and definition for remote monitoring of Marine AtoN	KRISO	WG2
ARM18-	8.4.11	Update of S-200 test bed and proposed future plan	KRISO	WG2
ARM12-	8.4.12	Update of S-201 and S-125	KRISO	WG2
ARM18-	8.7.1	Liaison note from DTEC to ARM and ENG on Cyber Security guideline (DTEC2-12.2.1.1)	DTEC	WG2 / 3
ARM18-	8.7.1.1	Draft Guideline on Cyber Security_v0.3	DTEC	WG2 / 3
ARM18-	8.7.2	Liaison note from ENG to ARM on the Cyber Security guideline (ENG18-13.0.1)	ENG	WG2 / 3
ARM18-	8.7.2.1	Draft Guideline on Cyber Security (ENG WG1 WG2 Edits) (ENG18-13.0.1.1)	ENG	WG2 / 3
ARM18-	9.1.1	Risk Maturity Model For The Maritime Authorities	Finnish Transport and Communications Agency	WG3

### Working papers from ARM17

Meeting	Paper Number	Working Paper Title	Source	Action
ARM17-	11.5.1.1	WP ARM Committee Task Plan	CMT	To ARM18
ARM17-	11.5.1.2	WP ARM Committee Task Register	CMT	To ARM18
ARM17-	11.5.2.1	WP draft guideline on enhancing the safety and efficiency of navigation around offshore installations	WG1	To ARM18
ARM17-	11.5.2.2	WP draft Guideline G1052 Quality-Management-Systems-for-AtoN-Service-Delivery	WG1	To ARM18
ARM17-	11.5.2.3	WP ARM16-7.2.1.1 Draft Revised R0132 Quality Management for Aids to Navigation Authorities	WG1	To ARM18
ARM17-	11.5.2.4	WP Draft Recommendation on the use of Drones for AtoN inspection and maintenance	WG1	To ARM18
ARM17-	11.5.2.5	WP Draft Guideline on the use of Drones for AtoN inspection and maintenance	WG1	To ARM18
ARM17-	11.5.2.6	WP ARM17-6.2.3 LN ARM ENG on Technology review MS@MS (DTEC1-12.3.2.1)	WG1	To ARM18
ARM17-	11.5.2.7	WP ARM17-6.2.3.1 LN ARM ENG on Technology review MS@MS (DTEC1-12.3.2.1)	WG1	To ARM18
ARM17-	11.5.2.8	WP ARM17-6.2.3.2 Completed Review of Radio-free wireless comms MS@MS (DTEC1-12.3.2.1.2)	WG1	To ARM18
ARM17-	11.5.2.9	WP ARM17-7.3.2 LN ARM ENG on Developments on the Maritime Internet of Things (DTEC1-12.3.2.2)	WG1	To ARM18
ARM17-	11.5.3.1	WPs on task 2.2.3	WG2	To ARM18
ARM17-	11.5.3.2	WP's on task 7.1.2	WG2	To ARM18
ARM17-	11.5.3.3	WP draft guideline G1087 ed 4.0	WG2	To ARM18
ARM17-	11.5.3.4	WP's on task 7.1.12	WG2	To ARM18

Meeting	Paper Number	Working Paper Title	Source	Action
ARM17-	11.5.3.5	WP Draft technical service specification Provision of AtoN Information Service to End users (edits 26 Oct 2023)	WG2	To ARM18
ARM17-	11.5.3.6	WP's on MSW task 7.1.15	WG2	To ARM18

**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
ARM18-	11.2.1	Liaison note to Dictionary Working Group on use of miles	WG 1	DWG
ARM18-	11.2.2	Liaison note to ENG on general overview floating AtoN	WG 1	ENG
ARM18-	11.2.2.1	Draft guideline with comments on general overview floating AtoN	WG 1	ENG
ARM18-	11.2.3	Liaison note to ENG on the use of drones	WG 1	ENG and DTEC
ARM18-	11.2.3.1	draft Recommendation on the use of drones	WG 1	ENG
ARM18-	11.2.3.2	draft Guideline on the use of drones	WG 1	ENG
ARM18-	11.2.4	Liaison note to all committees on review of AIS documentation	WG 1	All committees and PAP
ARM18-	11.2.4.1	Annex AIS review	WG 1	All committees and PAP
ARM18-	11.2.6	Liaison note to Secretariat regarding amendments to NAVGUIDE	WG 1	Secretariat
ARM18-	11.2.7	Liaison note to ENG on draft Guideline for Buoy Tender Activities	WG 1	ENG
ARM18-	11.2.8	Liaison note to all committees on MASS task	WG 1	All committees
ARM18-	11.3.1	Draft Guideline on Cyber Security	WG 2	Council
ARM18-	11.3.2	Liaison note to DTEC on ASM	WG 2	DTEC
ARM18-	11.3.3	Liaison note to NIPWG on S-100 operational interaction diagram	WG 2	NIPWG
ARM18-	11.3.3.1	S-100 operational interaction diagram (VISIO)	WG 2	NIPWG



ARM18-	11.3.3.2	S-100 operational interaction diagram (PDF)	WG 2	NIPWG
ARM18-	11.3.4	Liaison note to VTS and DTEC on draft MSC circular on MRN	WG 2	VTS and DTEC
ARM18-	11.3.4.1	Draft circular to MSC	WG 2	VTS and DTEC
ARM18-	11.3.4.2	Draft input to NCSR	WG 2	VTS and DTEC
ARM18-	11.3.5	Liaison note to ENG on remote monitoring	WG 2	ENG
ARM18-	11.3.6	Liaison note to VTS and ENG on draft IALA S-200 roadmap	WG 2	VTS and ENG
ARM18-	11.3.7	Technical Service for the provision of AtoN Information Service to end-users	WG 2	Council
ARM18-	11.3.8	Liaison note to NIPWG on Technical Service Specification	WG 2	NIPWG
ARM18-	11.3.8.1	To NIPWG Technical Service for the provision of AtoN Information Service to end-users	WG 2	NIPWG
ARM18-	11.3.9	Liaison note to PAP on IALA role in the arena of ship reporting	WG 2	PAP
ARM18-	11.3.10	Revised Recommendation R1019 on Provision of Maritime Services in the Context of e-Navigation	WG 2	Council
ARM18-	11.3.11	Liaison note to PAP on MRNs	WG 2	PAP
ARM18-	11.4.1	Follow up questionnaire	WG 3	Secretariat
ARM18-	11.4.2	Risk Management Questionnaire	WG 3	Secretariat

**Working papers** will remain within the Committee for further review during ARM18.

Meeting	Paper Number	Output Paper Title	Source	Action
ARM18-	11.5.1.1	WP ARM Committee Task Plan	CMT	To ARM19
ARM18-	11.5.2.1	WP Buoy Tender Activities Work	WG1	To ARM19
ARM18-	11.5.2.2	WP draft guideline on Enhancing the safety and efficiency of navigation around offshore installations	WG1	To ARM19

Meeting	Paper Number	Output Paper Title	Source	Action
ARM18-	11.5.2.3	WP draft Guideline G1052 Quality-Management-Systems-for-AtoN-Service-Delivery	WG1	To ARM19
ARM18-	11.5.2.4	WP Draft Revised R0132 Quality Management for Aids to Navigation Authorities	WG1	To ARM19
ARM18-	11.5.2.5	WP Input on IALA R0126 MAtoN status page_24-03-30 (ARM18-8.3.1)	WG1	To ARM19
ARM18-	11.5.3.1	WP's on task 2.2.3	WG2	To ARM19

*Action Items for the IALA Secretariat*

1. The Secretariat is requested to forward the WP ARM Committee Task Plan (ARM18-11.5.1.1) and as a working paper to ARM19 for further development. 19
2. That the Secretariat forward WP ARM18-11.5.2.1 WP Buoy Tender Activities Work to ARM19 for further development. 20
3. That the Secretariat forward ARM18-11.2.8 liaison note to Eng, VTS and DTEC on the MASS task for their consideration. 21
4. That the Secretariat consider ARM18-11.2.6 Liaison Note to Secretariat regarding amendments to the NAVGUIDE and Questionnaire. 22
5. That the Secretariat is requested to discuss the above with the IMO Maritime Safety Division as the document is now structured correctly and will be completed at ARM19. The IMO response should be provided back to the ARM Committee Chair, Working Group Chairs and Task Group. 22
6. That the Secretariat is requested to forward ARM18-11.5.2.2 WP draft guideline on Enhancing the safety and efficiency of navigation around offshore installations to ARM19 as a working paper for further consideration. 22
7. That the Secretariat forwards ARM18-11.5.2.3 WP draft Guideline G1052 Quality-Management-Systems-for-AtoN-Service-Delivery as a working paper to ARM19 for further development. 23
8. That the Secretariat forwards ARM18-11.5.2.4 WP Draft Revised R0132 Quality Management for Aids to Navigation Authorities as a working paper to ARM19 for further development. 23
9. That the Secretariat is requested to forward ARM18-11.2.3 Liaison Note and the draft ARM18-11.2.3.1 recommendation and ARM18-11.2.3.2 guideline to ENG and DTEC regarding the development of guidance on the use of drones for AtoN Management. 23
10. That the Secretariat forward ARM18-11.2.4 liaison note and ARM18-11.2.4.1 to all committees including PAP on the review of AIS documents in order to seek comments on the proposed approach. 23
11. That the Secretariat discuss ARM18-7.7.1 Proposal for an IALA AIS Manual with the IHO and organisers of the forthcoming workshop to identify if it should be included in any upcoming workstreams. 25
12. That the Secretariat forward ARM18-11.2.1 Liaison note to Dictionary Working Group on use of miles for their consideration. 25
13. That the Secretariat forward ARM18-11.2.2 Liaison note to ENG on general overview floating AtoN and ARM18-11.2.2.1 Draft guideline with comments on general overview floating AtoN for their consideration. 26
14. That the Secretariat forward ARM18-11.5.2.5 WP Input on IALA R0126 MAtON status page\_24-03-30 (ARM18-8.3.1) to ARM19 as a working paper for further development. 26
15. That the Secretariat is requested to forward ARM18-11.3.1 - Gxxxx - Cyber security specifics from an IALA perspective (final draft) to Council for approval and publication. 26
16. That the Secretariat forwards ARM18-11.5.3.1 WP's on task 2.2.3 as working papers to ARM19 for further development. 27

17. That the Secretariat forward the ARM18-11.3.2 Liaison Note on ASM to DTEC for their consideration. 27
18. That the Secretariat forward the liaison note ARM18-11.3.3 Liaison Note to IHO NIPWG and two Annexes ARM18-11.3.3.1 and ARM18-11.3.3.2 to the Council for approval. Once approved, forward the document to the IHO NIPWG for consideration. 28
19. That the Secretariat forwards ARM18-11.3.4 liaison note and ARM18-11.3.4.1 and ARM18-11.3.4.2 Annexes to the DTEC and VTS committees on MSC Circular on MRN for their consideration. 29
20. That the Secretariat forward ARM 18-11.3.11 liaison note to PAP on MRNs for their consideration. 29
21. That the Secretariat is requested to change the name of task 7.1.11 to Develop, implement and execute procedures for IALA to add, maintain and harmonize items to the IHO GI Registry, in the Work Programme. 30
22. That the Secretariat to forward ARM18-11.3.5 Liaison note to ENG on remote monitoring for their consideration. 30
23. That the Secretariat forwards ARM18-11.3.6 Liaison Note on the S-200 Roadmap to VTS, DTEC and ENG committees for their consideration. 30
24. That the Secretariat publish the ARM18-11.3.7 Marine Aids to Navigation (AtoN): Technical Specification for the Provision of AtoN Information on the IALA website. 31
25. That the Secretariat forwards ARM18-11.3.8 Liaison Note to NIPWG on Technical Service Specification to Council for approval. Once approved, to forward to IHO NIPWG, along with Annex ARM18-11.3.8.1. 31
26. That the Secretariat forward ARM18-11.3.9 Liaison Note to PAP on IALA role in the arena of ship reporting for their consideration. 31
27. That the Secretariat forward ARM18-11.3.10 Revised Recommendation R1019 on Provision of Maritime Services in the Context of e-Navigation to Council for Approval. 32
28. The IALA World-Wide Academy is requested to provide input to ARM19 on the development of the PAWSA MKIII tool and the potential implications for IALA Risk Management related documentation. 32
29. The Secretariat is requested to forward the follow up Risk Management Toolbox questionnaire (ARM18-11.4.1) to relevant respondents and to circulate the initial Risk Management Toolbox questionnaire to IALA members with a view to increasing the number of responses. 33
30. The Secretariat is requested to redistribute Risk Management Questionnaire (ARM18-11.4.2) to all IALA Members and World-Wide Academy risk management alumni who have not responded to the original request for information. 33

### *Action Items for Participants*

31. That Committee participants interested in participating in Task 1.2.8 on MASS are invited to contact Nigel Hare ([nigel.hare@trinityhouse.co.uk](mailto:nigel.hare@trinityhouse.co.uk)) by 5 May 2024, noting the dates and times of the intersessional meetings will be published on the ARM Committee Dashboard. 21
32. That the Intersessional Task Group Leader (ARM-1.2.8) to provide input on result of the intersessional work to ARM19. 21
33. That Committee Participants are invited to participate or recommend technical personnel to join the intersessional task group (Virtual meetings) to comment on the current working draft of task 2.2.3 Develop an IALA Recommendation and Guideline on developing Harmonized Waterway Concept (<https://nextcloud.iala-aism.org/index.php/apps/files/?dir=/Committees/ARM/ARM18/WG2/Working%20Documents%20for%20ARM19/Task%202.2.3%20Harmonized%20Waterways&fileid=293771> ) and to provide the contact information of these people to Amilynn Adams ([amilynn.e.adams@uscg.mil](mailto:amilynn.e.adams@uscg.mil)) by 24 May 2024. The dates and times of the intersessional meetings will be published on the IALA ARM Committee Dashboard. 27
34. That the Intersessional Task Group Leader (ARM-2.2.3) to provide input on result of the intersessional work to ARM19. 27
35. That Committee Participants are invited to submit comments on the S-200 World Image to the Secretariat ([tm@iala-aism.org](mailto:tm@iala-aism.org)). 27
36. That Committee participants interested in participating in Task 7.1.4 on developing Product Specification S-201 are invited to contact Sewoong Oh ([osw@kriso.re.kr](mailto:osw@kriso.re.kr)) by 5 May 2024, noting the dates and times of the intersessional meetings will be published on the ARM Committee Dashboard. 28
37. That the Intersessional Task Group Leader (ARM-7.1.4) to provide input on result of the intersessional work to ARM19. 28
38. That China MSA is requested to draft S-125 status window behavior with examples and submit as input to a future ARM Committee Meeting. 31
39. That Nominated WG members are requested to coordinate the follow up with relevant responders to the IALA Risk Management Toolbox questionnaire to obtain further information with respect to their use of both IALA and other risk management tools. 33
40. That committee participants are requested to submit recommendations for IWRAP enhancements and improvements to Per Engberg ([pengberg@engberg-solutions.com](mailto:pengberg@engberg-solutions.com)). 34
41. That Committee participants are requested to provide input on Aid to Navigation Availability Rate and other waterway risk monitoring methodologies at ARM19. 35

**Working Group 1****Navigational Requirements**

Chair – Guttorm Tomren Vice-chair – Johan Westerlund

Members	Organisation	Task Group No.	Online (x)
Johan Westerlund	SMA	1.2.2	
Liu Jiangna	China MSA	2.2.2, 6.3.1, 6.1.1	X
Chang Peng	China MSA	1.4.1	X
Peter Douglas	NLB	2.2.2, 6.3.1, 6.1.1	
Francesco Marotta	Italian Navy	2.2.1	
Henrika Björkell-Virta	FTCA	2.2.2, 6.3.1, 6.1.1	
Mats Hörström	Swedish Transport Agency	2.2.1	
Luo Ziwen	China MSA	1.4.1	X
Sophie Platten	Trinity House	1.2.8, 1.1.1	
Laura Snoep	Min Infrastructure	1.1.1, 1.2.2	
Mika Lehtola	FTIA	1.1.1, 1.2.2	
Joonatan Ahlroos	FTIA	1.1.1, 1.2.2	
Kharin Azmi	Maritime Department Malaysia	1.1.1	
Mohamed Khurshid	MENAS	1.1.1	
Chanelle Marie Mbotto Edimo	Autorite Portuaire Nationale (Cameroon)	1.1.1	
Madeline Nnomo Evina	Autorite Portuaire Nationale (Cameroon)	1.1.1	
Cyrille Serge Elvis Bidzougou	Autorite Portuaire Nationale (Cameroon)	1.1.1, 2.2.1	
Alan Grant	GRAD	2.2.1	
Naehyuk Yoo	Korea Institute of AtoN	2.2.1	
Dave Merrill	U.S. Coast Guard	1.2.2, 1.2.9, Dictionary	
Øyvind Schrøder	Norwegian Coastal Administration	1.2.2, 1.2.9	
Trevor Harris	General Lighthouse Authorities of the UK and Ireland	1.4.1	
Nigel Hare	General Lighthouse Authorities of the UK and Ireland	1.2.8	
Maarten Berrovoets	Ministry of Infrastructure and Water Management	1.2.8	
Mahesh Alimchandani	Australian Maritime Safety Authority	1.4.1	
Peter Dam	Danish Maritime Authority	1.4.1	
Janina Tapia Cotrino	Finnish Transport and Communications Agency	1.4.1	

Members	Organisation	Task Group No.	Online (x)
Gaelle Nassif	CEREMA	2.2.2, 6.3.1, 6.1.1	
Yang Fan	China MSA	2.2.2, 6.3.1, 6.1.1	X
Wang Shuo	China MSA	1.2.8	X
Alex Vargas	Directemar Chile	2.2.2, 6.3.1, 6.1.1	X
Jakob Bang	DMA Denmark	1.2.8	
Juan Carlos Frias	Servicio de Hidrografia Naval Republica Argentina	1.2.8	X
Mohd Reduan Mohd Ali	Malaysia Marine Department (Light Dues Bouy Peninsular Malaysia)	1.2.8	
Donghan Woo	Mokpo Maritime University (S.Korea)	1.2.8	
Hideki Noguchi		1.2.8	
Professor Namkyun IM		1.2.8	
Felipe Vieira	Portuguese Hydrographic Institute	1.4.1	X
Asher Boersma-Willkomm	Ministry of Infrastructure and Water Management, Netherlands	1.4.1	
Hector Duran	DIRECTEMA Chile	1.4.1	x

## Working Group 2

## Information Services and Portrayal

Chair – LeeAnne Gordon assisted by Minsu Jeon

Members	Organisation	Task Group No.	Online (x)
LeeAnne Gordon	NGA		
Minsu Jeon	IALA Secretariat		
Martijn Ebben	Port of Rotterdam Authority		
Thomas Christensen	AIveNautics		
Amilynn Adams	US Coast Guard		X
W. Christian Adams	US Coast Guard		X
Fredrik Karlsson	Swedish Maritime Administration		
Sewoong Oh	KRISO		
Eivind Mong	Canadian Coast Guard		
Ulla Bjorndal Moller	Danish Maritime Authority		
Alison Contreras	UK Hydrographic Office		
Hideki Noguchi	Japan Coast Guard		
Nikolaos Vastardis	GRAD		X
Yang Yang Shen	China Maritime Safety Administration		X
Fabien Piotrowski	Cerema		X
Taehee Kim	KRISO		
Yunjee Kim	KRISO		
Xavier Hernoe	Direction générale des affaires maritimes, de la p		
Alan Grant	General Lighthouse Authorities of the UK and Ireland		
Julius Moeller	Australian Maritime Safety Authority		
Michael Strandberg	Danish Maritime Authority		
Elaine Fitzgerald	Commissioners of Irish Lights		
Alain Serge Mbene Koah	Port Authority of Kribi		
Cesario Reis Rodrigues Vidiera	Instituto Hidrografico (IHPT)		
Li Shibo	China Maritime Safety Administration		X
Huiwen Zhou			X
Jose Mella	Chile		



Members	Organisation	Task Group No.	Online (x)
Tuomas Martikainen	Finnish Transport Infrastructure Agency		
Li Wei	China MSA		
Hyun Kim	Korea MOF		

### Working Group 3

### Risk Management

Chair – John Stone, U.S. Coast Guard Vice-chair - Kevin Gregory, Trinity House

Members	Organisation	Task Group No.	Online (x)
Joseph Daly	Commissioners of Irish Lights	The group worked in plenary	
Raul Escalante	Hidrovia S.A.	The group worked in plenary	
Sarah Robinson	IALA WWA Consultant	The group worked in plenary	
Ernst Bolt	Ministry of Infrastructure and Water Management	The group worked in plenary	
Valterri Laine	Finnish Transport and Communications Agency	The group worked in plenary	
Zhimin Zhang	China Maritime Safety Administration	The group worked in plenary	X
Dawn Seepersad	IALA WWA Consultant	The group worked in plenary	X
Niels Arndal	FORCE Technology	The group worked in plenary	X
Ke Ranxuan	Jimei University	The group worked in plenary	
Floris Goerlandt	Dalhousie University	The group worked in plenary	
Pedro Vacas De Carvalho	Direção de Faróis	The group worked in plenary	
Jorge Estêvão	Direção de Faróis	The group worked in plenary	
Sooyong Hyun	The Korea Institute of Aids to Navigation	The group worked in plenary	
Mahdi Al Mosawi	Middle East Navigation Aids Services	The group worked in plenary	
Jonathan Tito Burbano Bravo	Instituto Oceanografico de la Armada	The group worked in plenary	
Per Engberg	Engberg Solutions APS	The group worked in plenary	
Vincent Nineuil	Cerema	The group worked in plenary	
Henry Arriagada	Chile Navy	The group worked in plenary	X
Jakub Montewka	Gdansk University of Technology	The group worked in plenary	
Nick Neely	US Coast Guard	The group worked in plenary	X



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International Association of Marine Aids to Navigation and Lighthouse Authorities

Association Internationale de Signalisation Maritime