



IALA ARM COMMITTEE

REPORT OF THE 12TH SESSION OF THE IALA ATON REQUIREMENTS AND MANAGEMENT (ARM) COMMITTEE

28 September to 22 October 2020
Virtual Meeting

Thomas Southall
Committee Secretary

22 October 2020

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International Association of Marine Aids to Navigation and Lighthouse Authorities
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**Report of the 12th Session of the IALA
AtoN Requirements and Management (ARM) Committee
28 September to 28 October 2020
Executive Summary**

The 12th Session of the ARM Committee was held virtually from 28 September to 22 October 2020 with Phil Day as Chair and Dave Lewald as Vice-Chair. The Secretary for the meeting was Thomas Southall.

110 Participants from 32 countries and two Sister organisations participated in ARM12. 28 participants attended for the first time.

The Committee continued the work for the 2018-2022 work period. Working in three working groups, the Committee considered 66 input papers and produced 36 output and working documents.

The meeting was carried out in accordance with the Virtual Committee Arrangements online. Approximately 66 meetings were arranged.

Key outputs completed included:

- Revised Recommendation R1016 Mobile Marine Aid to Navigation (MAtoN)
- Guideline on the use of Mobile AtoN
- Guideline on the development of a description of a maritime service in the context of e-Navigation plus annex
- Guideline G1143 Unique Identifiers for Maritime Resources
- Guideline on Ship Reporting
- Recommendation on Marine Aids to Navigation and VTS Awareness for Mariners

The following liaison notes were prepared:

- Liaison Note to IHO NIPWG on “Marine Navigational Services Product Specification – Vision outline”
- Liaison note regarding revision of MBS R1001
- Liaison Note to ENG regarding Recommendation E-110 Rhythmic Characters of Lights on AtoN

Overall status of the ARM Committee 2018-2022 Work Programme after ARM12:

Task		Start Session	Planned End Session	Revised End Session	Progress Indicator			Status Overview
					Green	Yellow	Red	
WG#1 – Navigational Requirements								
1.1.1	Develop guidance on regulatory/legal framework for Aton Authorities							Task deleted following LAP advice
1.1.2	Revise G1054 Preparing for a Voluntary IMO Audit on Aids to Navigation Service Delivery (Nov 2006)	10	13	-				
1.4.1	Revised Guideline G1052 Quality Management in [Marine] Aids to Navigation Service Delivery (Dec 2013), removing ISO copied text.	10	12	13				
1.5.1	Reformat and review the IALA MBS incorporating MAtoN. Needs General Assembly approval.	8	12	14				
1.5.2	Assist ENAV with development of radio aspects of MAtoN and AMRD with IEC and ITU	8	11	12				MAtoN complete, liaison with ENAV at ARM12.
1.5.3	Undertake gap analysis of IALA guidance associated with the MBS, including 1078 The Use of AtoN in the Design of Fairways (June 2011), identify further work to add to the task plan at ARM8. Includes SIGNI buoyage and submerged breakwaters.	8	12	14				
1.5.4	Develop guidance for navigators on the use of AtoN	12	14					Start postponed
1.5.5	Review G1096 Anticipated User e-Navigation Requirements from Berth to Berth, for AtoN Authorities (May 2013) – may be deleted	10	11					Not started yet
1.5.6	Develop guidance on AtoN provision in polar regions (winter conditions; possibly complete following liaison with ENG)							Complete
1.5.7	Develop guidance on the provision of AtoN for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS)							Being monitored
1.5.8	Review and update Recommendation R-0139 on the Marking of Man-Made Offshore Structures to reflect trends in the proliferation of wind farms and other offshore platforms.	10	12	13				Ongoing, possible ARM13 or ARM14 complete
1.5.9	Identify options for the future use of DGNSS stations in conjunction with ENG review of Recommendation R0150.	10	12					Awaiting input from ENG
1.5.10	Develop Guideline on the Use of MAtoN	8	10					Complete at ARM12
1.6.1	Review R0143 Provision of virtual aids to navigation and G1081 Virtual AtoN to reflect developments	8	11	13				G1081 complete at ARM12, review complete ARM13 for R0143.
2.1.1	In association with ENG review G1116 Selection of Rhythmic Characters and Synchronisation of Lights for [Marine] Aids to Navigation (Dec 2015)							Complete
5.3.1	Develop guidance on the symbology and portrayal of AtoN for charting	9	14					Ongoing focus, workshop postponed until 2021.

3.2.1	Review relevant sections of NAVGUIDE as requested by Secretariat	8	14					
	Review IALA AtoN questionnaire							Complete
WG#2 – Information Services and Portrayal								
2.2.1	Review G1084 Procedure of the Authorisation of AIS AtoN	10	11					
2.2.2	Provide guidance on the management of requirements and requirements traceability							Completed at ARM9
4.1.1	Review G1050 Management and Monitoring of AIS Information (Dec 2005)	9	11					Relies on MAToN
4.2.1	Maritime Connectivity, Define User Requirements for Maritime Connectivity, Define User Requirements for the Maritime Internet of Things (Define Requirements for MRN Addressing) and Contribute to IALA submission to IMO	9	14					
5.1.1	Develop guidance on Maritime Services including the production of an 'e- Navigation Operational Service Description'	9	14					Completed at ARM12
5.1.2	New Guideline on Operational considerations for S-200 (S-201 AtoN information and S-230 Application Specific Messages)	9	11					
5.1.3	Continue to Develop Product Specification S-201 in the Task Group already assigned							
5.1.4	Develop Annex C to S-201	9	11					
5.1.5	Develop Requirements for S-125	8	14					
5.1.6	Coordination with IHO/WMO for S-100, S-200, and MRN management (S-100/S-200 message coordination with other Committees on S-2xx development)	8	14					
5.1.7	Develop guidance on MRN for users	8	14					
5.1.8	Develop MRN Registry Submission & Maintenance Guideline for IALA Secretariat	8	14					
5.1.9	Develop Recommendation to cover MRN Guidelines	9	10					
5.1.10	Coordinate Committee support for IALA representation at IHO working groups in cooperation with Secretariat (HSSC, S-100WG, NIPWG)	8	14					
5.1.11	Monitor the development of S-201 Testbed	8	14					
5.2.1	Review G1105 shore side portrayal ensuring harmonisation with e- Navigation related information	9	14					
5.2.2	Develop Guideline on ship reporting from the shore-side perspective							Completed at ARM12
5.3.1	Develop guidance on the symbology and portrayal of AtoN for charting	9	14					
6.2.1	Lead joint workshop with IHO on S-100/200 and portrayal workshop	9						
6.2.2	Participate in ARM led joint workshop on cyber security	8	14					
WG#3 – Risk Management								
1.2.1	Review G1018 Risk Management to ensure compatibility with risk toolbox. Includes full review of underlying Risk Toolbox documentation G1123, G1124, G1138	8	13					
1.2.2	Review R0142 Maritime Data Sharing IALA Net to reflect new title "Maritime data sharing" and the storage and use of historical [AIS and other] data for risk analysis. New Guideline incorporating a Conceptual framework for data sharing, capture and analysis	10	14					R0142 complete

1.2.3	Review G1086 Global Sharing of Maritime Data (June 2012) in collaboration with task 1.2.2 (R0142 review)	9	14					
1.2.4	In cooperation with ENG (task 1.2.1) revise R0138 and G1058 and G1097 on simulation use by AtoN authorities	8	12					
1.2.5	Develop Recommendation for marine data sharing for risk assessment analysis or incorporate with R0142 task 1.2.2							Task merged with 1.2.2
1.2.7	Develop document to promulgate IALA risk management tool box to IMO (SN circular)	13						
3.1.1	Review G1020 Training Related to [Marine] Aids to Navigation (Dec 2005)	8	14					
6.1.1	Cooperate with WWA in providing Risk Seminar(s)	8	14					

Legend:

Green – progress as planned

Yellow – task needs more time, target time prolonged

Red – task delayed due to external issue

Grey - task completed / deleted

Blank – task not started

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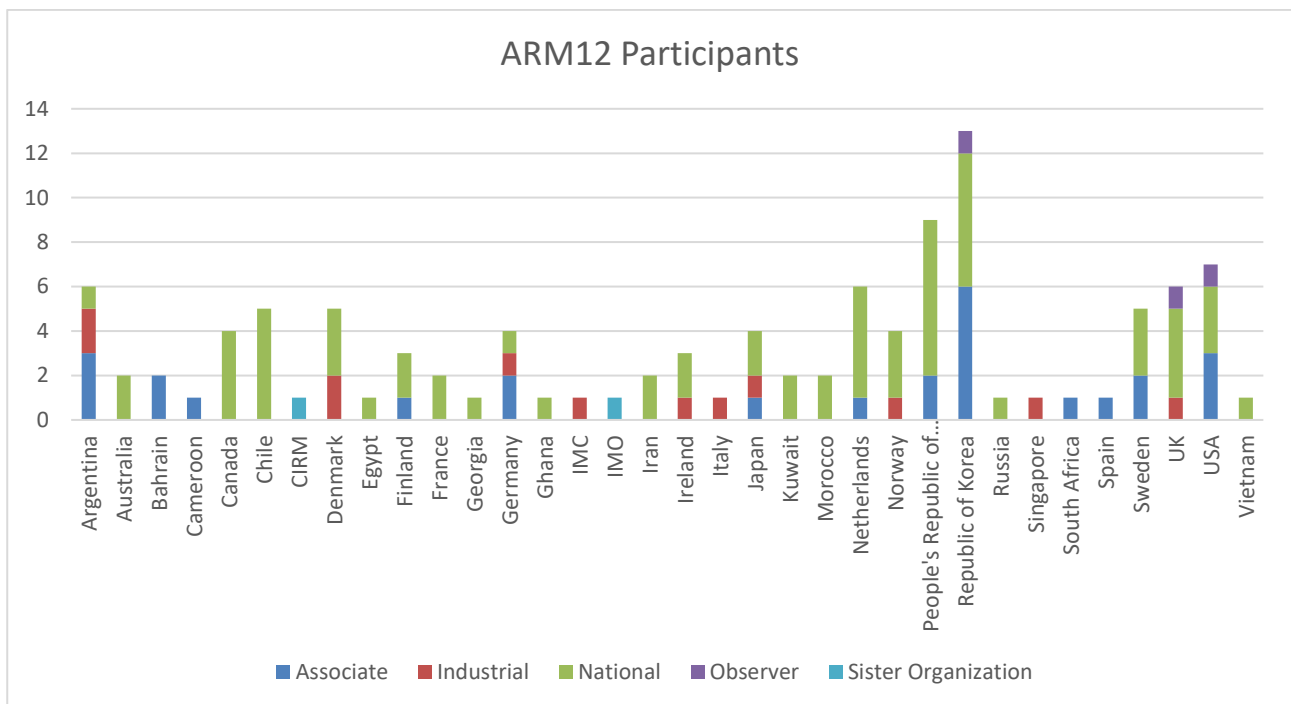
Report of the 12th Session of the IALA

AtoN Requirements and Management (ARM) Committee

1. INTRODUCTION

The 12th Session of the ARM Committee was held virtually from 28 September to 22 October 2020 with Phil Day as Chair and Dave Lewald as Vice-Chair. The Secretary for the meeting was Thomas Southall.

110 Participants from 32 countries and two Sister organisations participated in ARM12. 28 participants attended for the first time. A breakdown of the participants is shown in the graph below.



1.1 Welcome from the Chair of the ARM Committee

The Committee Chair, Phil Day, welcomed both the many new participants and those returning to Committee for the twelfth session of the ARM Committee (ARM12). The Chair introduced Dave Lewald, Vice-Chair of the ARM Committee and Thomas Southall who served as the Committee Secretary.

1.2 Welcome from the Secretary-General

Francis Zachariae, Secretary-General of IALA welcomed all participants to ARM12; he stated:

'It is very good to see you all even if it is on a Computer screen. We miss you and all our other IALA Friends and hope that the situation will soon be normal again.

Let me first express my gratitude to our friends from Argentina Raul, Mariano and the whole team for hosting our last meeting in beautiful Buenos Aires. Thank you so much. What a fantastic experience and also my last mission for IALA before the world changed completely.

Since the successful Diplomatic Conference to adopt the Convention on the International Organization for Marine Aids to Navigation took place in Kuala Lumpur in February, the world has been in the grip of the COVID-19 pandemic. Faced with this unprecedented challenge in our lifetime and following the advice provided by the Authorities and actions taken by sister organizations we have implemented several protective measures. These have involved the cancellation or postponement, as appropriate, of Committee and other meetings, and halting the World-Wide Academy staff's travel for the purpose of conducting missions.

The decision was also taken to postpone the four-yearly Symposium in Rotterdam, and the Dutch Ministry of Infrastructure and Water Management has just decided to host the Symposium as a virtual event in the period from 19 to 23 April 2021.

Sadly, the celebration of the main event for this year's celebration of World Marine Aids to Navigation Day, on 1 July, in Burgas, Bulgaria, also had to be cancelled.

All the meetings during the second half of this year can be viewed on the website and – as you are well aware – they will all be virtual. I hope you will soon be familiar with the tools developed by the Secretariat and rest assured that we are all here to help. I hope you have enjoyed the new Dashboard on the website. I think it is a very useful way of getting a good overview of what is going on in the Committee.

The virtual meetings also include the important Mid-Term Assembly of the Industrial Members' Committee, due to take place on 6 October, and please register for that important meeting if you are an Industrial member.

The IALA Secretariat will continue to monitor COVID-19 related developments and make decisions on activities on a case-by-case basis, updating our website with any further news that may affect members and our activities. I have been encouraged, and am very grateful, for the support of all concerned, not least the Committee chairs, vice-chairs and working group Chairs, in minimizing the impact on the work programme and in advancing the work on important items, through e-mail correspondence and online meetings.

The main event since your last meeting was of course the Diplomatic Conference hosted so professionally by our friends from Malaysia. The successful Conference now needs to be followed up by concrete action on the part of coastal State Governments to sign the Convention so that they may commence the national ratification process as early as possible. The signature ceremony is planned here in Paris 11-13 November this year.

As many of you will know we have been joined by Jamie Alvarez as technical advisor and secretary to the ENAV and ENG Committees. He has a strong technical background, knows IALA very well, and he is fluent in Spanish, French and English. Tom and Jamie will take care of two Committees each and the related seminars, workshops etc. This will also give the needed resources for improved necessary quality assurance of the guidance documents before they are submitted to Council and on the web site.

Marie-Helene has taken her retirement after almost 38 excellent years with IALA. She is replaced by Audrey Guinault who has been with us for some years.

A warm very warm welcome to all of you to this first virtual ARM Committee meeting. I hope it will be successful. I know you have a lot to do and all is very important. I must say that I look much forward to seeing the result of the work on R 1001 on the MBS; The IALA Bible.

Bon courage – good luck.'

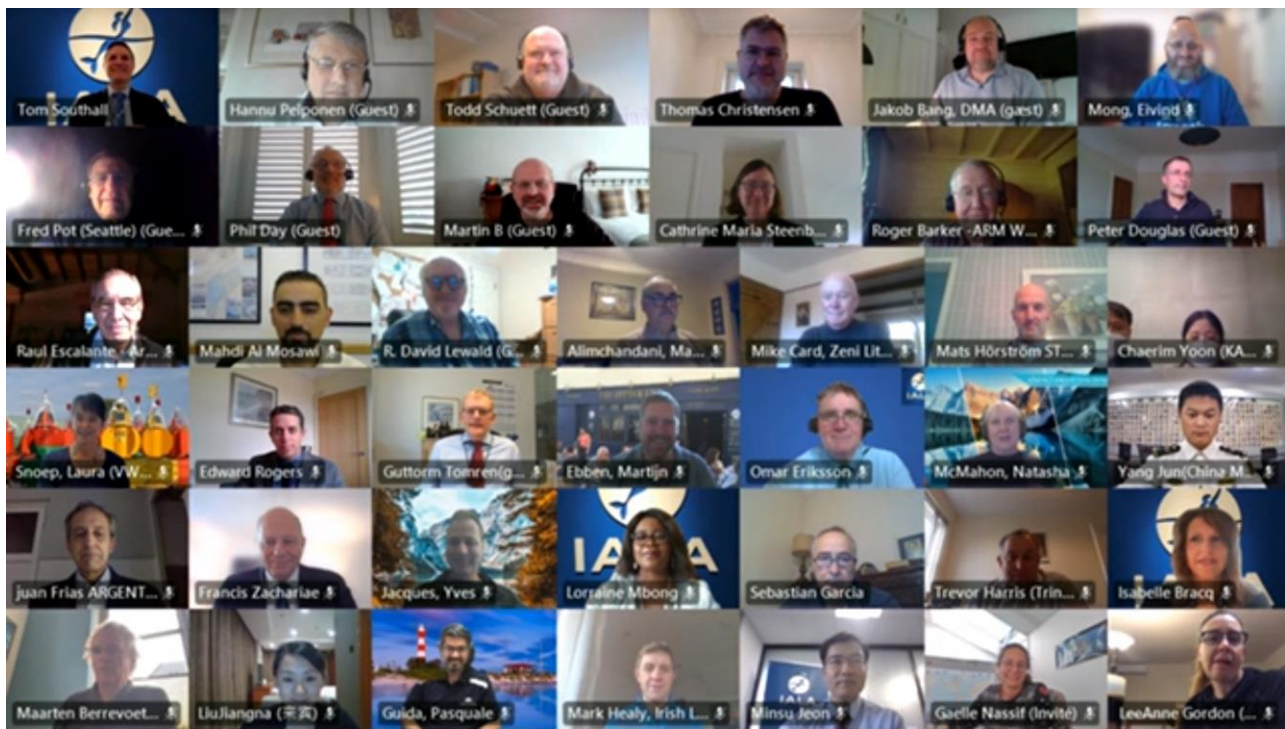
1.3 Approval of the agenda

The agenda was reviewed and approved (ARM12-1.2.1).

1.4 Introductions

The Chair welcomed the new participants of the Committee. No apologies for absence had been received by the Secretariat.

A list of participants and their contact details can be found in Annex B



1.5 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 *Virtual Committee Working Arrangements* document and tools available to them. This brief included an overview of the tasks, in the form of the ARM12 Action Plan, that had been agreed by the ARM Committee Management Team to be progressed during ARM12 through virtual Task Groups (TG). Each task had a deadline for expressions of interest to participate to be sent to the specified Task Group Leader. Once participants wishing to work on a task had been identified, the timings of the meetings were arranged by the Task Group Leader in liaison with the Secretariat and displayed on a Committee dashboard.

Task items that were worked on at ARM12 were displayed in the ARM12 Action Plan, which can be found [here](#).

2. REVIEW OF ACTION ITEMS FROM LAST MEETING

2.1 Review of action items from ARM11

Input paper ARM12-2.1.1 refers.

The Committee Secretary confirmed that all Secretariat actions from ARM12 were completed.

3. REVIEW OF INPUT PAPERS

3.1 Input papers to ARM12

Input papers were noted as listed in ARM12-3.0.1.

No work was carried out on developing guidance on Maritime Services (Task 5.1.1). Therefore the working paper will be forwarded to ARM13 for further consideration.

Action item:

*The **IALA Secretariat** is requested to forward working paper ARM12- 11.3.2.3 WP ARM Maritime Service Guideline development V1.2 (ARM12-8.4.6) to ARM13.*

3.2 Input papers not related to an existing task

The Chair highlighted the following papers:

- ARM12-3.2.2 S1010 AtoN Planning & Service Requirements / ARM12-3.2.3 S1020 AtoN Design and Delivery / ARM12-3.2.4 S1050 Training and Certification / ARM12-3.2.5 S1060 Digital Communication Technologies / ARM12-3.2.6 S1070 Information Services

PAP40 forwarded the relevant standards to all committees for review. The papers were allocated to all Committee participants for review and comment. Committee Participants are requested to review and provide input on them to ARM13.

- The Committee noted input paper ARM12-3.2.8 Dictionary Management and the Chair highlighted the importance of following the document when submitting inputs to the dictionary.

Action item:

*That **Committee Participants** are requested to review the Standards relevant to ARM and provide input on them to ARM13.*

4. REPORTS FROM OTHER BODIES

4.1 IALA

4.1.1 Report on IALA Council

Minsu Jeon, IALA Technical Operations Manager, provided the Committee with a report from Council. IALA Council 71 had met since ARM12. The Committee noted in particular that:

- The Council decided the Santo Antonio da Barra lighthouse as the heritage lighthouse of the year 2020.
- The Council approved the Revocation of Guideline 1072 - AtoN Information Exchange and Presentation.
- The Council decided to resubmit Guideline G1143 edition 2.0 to the ARM Committee for further discussion.
- The Council approved the VTS Manual 2020 (Edition 7).
- The Council approved the IALA Technical Documents Catalogue (ARM12-3.2.7)
- The Council approved the document Workshop Proposal on Marine Aids to Navigation in the Autonomous World (C71-8.2.2).
- The Council agreed to send the Netherlands Paper on the Impact of MASS on VTS to the Committees.

4.1.2 Report of the IALA Policy Advisory Panel

Dave Lewald, Vice-Chair, provided a report to ARM 12 regarding the 40th session of PAP which was held virtually from 31 August, 2 – 3 September 2020. The following was highlighted to participants:

- The *Virtual Committee Working Arrangements* were agreed.
- The introduction of IALA webinars which will be advertised on the website [here](#).
- There is a planned workshop on MASS in Japan next year to take place in conjunction with ENAV27 in Tokyo.

4.2 IMO

Regulatory scoping exercises on MASS are still ongoing and it was noted that many work items, including MASS, have been postponed until 2021.

There was an IMO Experts Group meeting on Data Harmonization (a subsidiary of the FAL Committee) on 5 October 2020. Items discussed of interest to the ARM Committee were the IMO dataset on information regarding maritime services 1, 2 and 3 in the context of e-Navigation and IALA S-201.

IMO NCSR7 met in January and approved the draft revision of resolution A.857(20) VTS Guidelines that will now be considered at MSC102 which is planned as a virtual meeting 4 – 11 November 2020.

IMO will announce revised dates for future meetings shortly.

4.3. e-Navigation Underway / Digital@Sea

e-Nav Underway Asia Pacific was conducted as a virtual conference by the Ministry of Oceans and Fisheries in Korea on 8 – 9 September 2020. This will be the last ENUW conference before changing the name to Digital@Sea in order to cover a broader subject area and encompass the whole maritime digital agenda, capacity building and the maritime cluster.

4.3 IHO/IALA liaison

IALA is maintaining its liaison with IHO. It was noted that IHO is trying to conduct the Hydrographic Services and Standards Committee (HSSC) as a hybrid meeting with those that can travel to attend the meeting in Monaco, and then virtual meeting option for other participants.

It was agreed that the next technical coordination meeting would be held virtually and the date will be agreed shortly between the two organizations.

5. PRESENTATIONS

The following presentations were made during ARM12. The presentations are available to see on YouTube by clicking on the video link. (also available from the ARM12 Dashboard).

5.1 IALA World-Wide Academy Update / Kevin Gregory

Update on the activities of the Academy during the period of COVID-19. [Video link](#)

5.2 IALA's Role and Strategy for the S-200 product specifications / Minsu Jeon

Update on IALA's Role and Strategy for the S-200 product specifications. [Video link](#)

5.3 Ship Reporting from a Shore Based Perspective / Fred Pot

Introducing the work so far on the draft IALA Guideline for shore-based stakeholders to automate ship reporting processes and procedures. The Guideline is intended to assist stakeholders by automating labour intensive and error prone processes and procedures while complying with local and regional requirements and with IMO FAL Resolutions. [Video link](#)

6. WORK PROGRAMME (2018 - 2022)

6.1 ARM Task Plan

An updated Task Plan pre-ARM12 (ARM12-6.1.1.1) was noted by the Committee. The Task Plan (ARM12-11.1.1) will be forwarded to ARM13.

Action item:

The IALA Secretariat is requested to forward the Task Plan (ARM12-11.1.1) to ARM13.

6.2 Action Plan for ARM12

The ARM12 Action Plan, which can be found [here](#), was noted by the Committee. The secretary reminded participants that all meetings during ARM12 would be posted on the ARM12 Dashboard.

NAVGUIDE 2022 Review

Task group: Natasha McMahon, Laura Snoep, James Collocott, Peter Douglas, Pasquale Guida, Liu Jiangna, Chaerim Yoon, Gaelle Nassif, Dave Merrell.

Work on the review of the NAVGUIDE 2022 edition continued during ARM 12. The section responsibilities have been confirmed and will be shared with the all committee working groups.

A request for input required from other working groups was shared with a due date of Jan 2021.

The ARM12-7.6.2 input paper - *Proposal for NAVGUIDE review on Fixed Marine AtoN-Lighthouses and Beacons* from the Republic of Korea was examined and discussed. The section on Beacons, in the new edition of the NAV GUIDE will consider further input and contain more explanatory wording.

As a result of the work some of the terms highlighted in the input paper will be submitted to the Dictionary group, i.e. manned and unmanned lighthouses for proper definition and consistent use.

Action item:

The IALA Secretariat is requested to forward working papers ARM12-11.0.1 draft NAVGUIDE to ARM13.

7. ESTABLISH WORKING GROUPS

Three working groups were established, with their respective Chairs and Vice-Chairs as outlined below.

Working Group (WG)	Working Group Chair / Vice Chair
WG1 – Navigational Requirements	Guttorm Tomren / Johan Westerlund
WG2 – Information Services and Portrayal	Dave Lewald / Martin Bransby
WG3 – Risk Management	Roger Barker / Cathrine Steenberg

8. WORKING GROUP 1 – NAVIGATIONAL REQUIREMENTS (WG1)

8.1 Response to input papers

The Working Group reviewed the list of input papers and allocated them to current tasks. The below input paper was received from US Coast Guard regarding use of chart datum:

8.1.1 ARM12-3.2.9 Information paper from USCG

The working group considered input paper ARM12-3.2.9 from the US Coast Guard regarding historical use of chart datum. In 2020 the US Government discontinued their DGPS augmentation service, at the same time

they announced that within five years they will cease all production of paper charts. IHO has decided that WGS-84 datum shall be used on all position fixing devices (SOLAS vessels). The US Government have decided to update all references to older chart datum for AtoN (NAD-83). Positions in former datum will be converted to WGS-84. As a result other nations should consider updating their information regarding US AtoN accordingly. No action further is required from the ARM Committee.

8.1.2 Develop guidance on Marine Aids to Navigation and VTS Awareness for Mariners

In cross-committee collaboration with VTS, a draft Recommendation on Marine aids to navigation and VTS awareness for navigators' was reviewed. The document was agreed through a joint silent approval process and will be sent as an output from VTS as it was on their work programme.

Action item:

*The **IALA Secretariat** is requested to forward the VTS49-12.1.3.3 IALA Recommendation on Marine Aids to Navigation and VTS Awareness for Mariners to IALA Council for approval.*

8.2 Reformat and review the IALA MBS incorporating MAtoN (Task 1.5.1)

Task group: Natasha McMahon, Peter Douglas, Laura Snoep, Risto Lang and James Collocott, Pasquale Guida, Liu Jiangna, Chaerim Yoon, Gaelle Nassif, Trevor Harris, Dave Merrill.

The task group continued revising the MBS, taking into consideration the initial gap analysis that was done at ARM9. The work is now 95% complete and a final draft was produced at ARM12. A major focus of the work was on incorporating electronic and mobile applications.

Other tasks related to the MBS, such as 1.5.3 and 1.5.10, are being worked on simultaneously and have been considered in the revision of the current MBS.

The task group have proposals regarding the naming of the MBS that will require wider Committee discussion. At the Closing Plenary the Committee noted the Chairs comments that the MBS is referenced in the SOLAS Convention and of course the 1982 'Agreement on the IALA Maritime Buoyage System' also bears this name.

A draft document is ready for circulation and to be sent with a liaison note to all committees seeking their review and input to ARM14.

A liaison note has been received during ARM12 from LAP, this note is related to the graphical presentation in the MBS of region A&B in polar regions.

The task group liaised with the Secretariat in terms of publication specifications and confirmed responsibilities for this.

Intersessional work will be carried out to standardise the layout in terms of the relevant IALA documentation template and provided as input to ARM13.

Action items:

*The **IALA Secretariat** is requested to forward working papers ARM12-11.2.2.1 on the review of the IALA MBS to ARM13.*

*The **IALA Secretariat** is requested to forward ARM12- 11.2.1.1 liaison note regarding revision of MBS R1001 and the working paper to all committees.*

*The **IALA Secretariat** is requested to forward ARM12-11.2.2.2 Liaison Note from LAP regarding the MBS in Polar Regions to ARM13.*

*That **Committee Participants** wishing to join the intersessional group working on the IALA MBS specifically on standardising the layout in terms of the relevant IALA documentation template, should contact Natasha McMahon (natasha.mcmahon@dfo-mpo.gc.ca) by 15 November 2020.*

*That the **IALA Secretariat** provides input to ARM13 regarding the current title of the IALA Maritime Buoyage System.*

8.3 Undertake a gap analysis and review of Guideline 1078 The Use of AtoN in the Design of Fairways (June 2011). (Task 1.5.3)

Task group: James Collocott, Peter Douglas, Juan Frias, Sebastian García, Daniel González, , Pasquale Guida, Jiangna Liu, Natasha McMahon, Dave Merrill, Gaëlle Nassif, Johan Pettersson, Juan Pablo Sanchez, Wang Shuo and Laura Snoep.

The task group compiled a gap analysis (ARM12-11.2.2.2). The content of the identified gaps was developed and work continued on revising G1078. The work is now at 98% completion and a final draft should be produced at ARM13 for review by the Committee.

An amendment to the title and the description of a fairway, waterway, and channel for inclusion in the IALA Dictionary are being considered, and should be available during ARM13 for consideration by the Committee.

Some intersessional work will be necessary in order to ensure completion during ARM13.

Action item:

The IALA Secretariat is requested to forward ARM12-11.2.2.3 WP G1078 - The Use of AtoN in the Design of Fairways, ARM12-11.2.2.4 WP Task 1.5.3 - Descriptions for IALA Dictionary and ARM12-11.2.2.2 Gap analysis Guideline 1078 The Use of AtoN in the Design of Fairways to ARM13 as working papers.

8.4 Develop a guideline for the Use of Mobile AtoN (Task 1.5.10)

Task group: Trevor Harris, Guttorm Tomren, Dave Lewald, Wang Shuo, Peter Dam, Peter Douglas.

The draft guideline was finalized during ARM12 taking into account the comments received intersessionally following ARM11 and a new input paper from China MSA. After assessment, the guideline was considered complete and put forward for approval.

Once the Guideline is approved by Council:

1. Recommendation E-110 Rhythmic Characters of Lights on AtoN needs to be amended with the new character associated with MAtoN.
2. IALA Guideline 1046 and IALA Recommendation 1015, need to be reopened and updated regarding MAtoN.

Recommendation R1016 was opened and brought into line with definitions included in the draft guideline and also put forward for approval.

A liaison note was drafted to inform ENG regarding Recommendation E-110 Rhythmic Characters of Lights on AtoN.

Action item:

The IALA Secretariat is requested to forward ARM12-11.2.1.2 revised Recommendation R1016 Mobile Marine Aid to Navigation (MAtoN) and ARM12-11.2.1.3 Guideline on the use of Mobile AtoN to IALA Council for approval.

The IALA Secretariat is requested to forward ARM12-11.2.1.4 Liaison Note regarding Recommendation E-110 Rhythmic Characters of Lights on AtoN to the ENG Committee.

8.5 Develop guidance on AtoN provision in polar regions (Task 1.5.6)

No work was done on this task during ARM12

8.6 Review Recommendation R-0139 on Marking of Man-made Offshore Structures (Task 1.5.8)

Task group: Trevor Harris, Peter Douglas, Mahesh Alimchandani, Peter Dam, Chaerim Yoon, Kidam Kim, Peter Bendixen, Tony Maffia, Zhang Peng.

Work commenced on the proposed new guideline by considering the input paper from China MSA and previous inputs from ARM10 and ARM11. Significant work was put into the sections on Offshore Windfarms and Breakwaters. It has been suggested that a section is developed in this guideline to encompass offshore infrastructure like the *Ocean Clean Up* project which the Netherlands have been working on.

As the document is being split into a Recommendation and a new Guideline only minor work was undertaken on the Recommendation at ARM12. This is not expected to be a large work item as the Guideline progresses and hopefully could be completed at either ARM13 or ARM14

This task is also feeding into the MBS review and both Task Groups liaised with each other.

Action item:

The IALA Secretariat is requested to forward the ARM12-11.2.2.5 draft Recommendation R0139 and ARM12-11.2.2.6 draft Guideline on marking of man made offshore structures to ARM13 as working papers.

8.7 Review guideline G1081 Provision of Virtual Aids to Navigation and Recommendation R O143 on Virtual Aids to Navigation (Task 1.6.1)

Task group: Yves Jacques, Kjell Johansson, David Lewald, Kyle Berry, Ivan Vargas, Wang Shuo, Mats Hörström and Joonatan Ahlroos.

The draft Guideline was finalized during ARM12 taking into account the intersessional work before the meeting and some editing work and a figure change done prior to, and during ARM12. The guideline was considered much more complete, providing in-depth guidance and therefore put forward for Committee approval.

Now that the Guideline has been approved by Committee it stands ready to be approved by Council and published once the Recommendation R0143 has been revised and brought into line with the guidance held in the new G1081. Work on R0143 has started at ARM12. The introduction and annex up to section three were revised, with clear and up-to-date definitions along with some clarifications on the comparative between the 3 AIS AtoN types. It is hoped that both the Guideline and Recommendation will be sent to Council after ARM13.

The minutes for all three Task Group sessions provides all the details on the achievement and are available on request.

Some intersessional work might be necessary in order to guarantee completion during ARM13.

Action item:

The IALA Secretariat is requested to forward ARM12-11.2.2.7 Committee Approved draft guideline on the Provision of Virtual Aids to Navigation G1081 and ARM12-11.2.2.8 WP Recommendation R O143 on Virtual Aids to Navigation to ARM13. Once both documents are approved by the ARM Committee they will be forwarded to IALA Council together for approval.

8.8 Revise G1052 Quality Management in Aids to Navigation Service Delivery (Task 1.4.1)

Task group: Johan Westerlund, Juan Pablo Sánchez, Yang Jun, Liu Jiangna, Joris Brouwers

Work on this item was progressed during the session, primarily by updating references to IMO documents and changing wording related to them. The document is estimated to be at 90% completion and should be finalised at ARM13. Some task members moved over to task 1.1.2 during the meeting and have offered to provide intersessional input to be considered at ARM13.

Action item:

The **IALA Secretariat** is requested to forward ARM12-11.2.2.9 draft Guideline G1052 to ARM13 as a working paper.

8.9 Revise G1054 Preparing for a Voluntary IMO Audit on Aids to Navigation Service Delivery (Task 1.1.2)

Task group: Yang Jun, Joris Brouwer, Juan Frias, Juan Pablo Sanchez, Johan Westerlund, Liu Jiangna, Pasquale Guida, Xavier Stephane Hernoë, James Collocott.

Work on this task was progressed at this session and will continue at ARM13. Most sections other than ANNEX A and B to the draft Guideline were agreed upon. These two annexes, which contain a lot of technical detail on the preparation for an IMO audit will be left for next session to finalize. Intersessional work will continue by correspondence and submit input to ARM13.

Action item:

The **IALA Secretariat** is requested to forward ARM12-11.2.2.10 draft Guideline 1054 Preparing for a Voluntary IMO Audit on Aids to Navigation Service Delivery to ARM13 as working paper.

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

As elsewhere WG2 attendance was virtual and because of this, the Chair and Vice-chair decided on a selection of high-priority tasks to be conducted during the meeting. Despite the virtual nature of the meeting, the WG plenary attracted some 22 participants. The Chair and Vice-Chair expressed their appreciation for the hard work and enthusiasm of the Work Group.

9.1 Develop guidance on Maritime Services including the production of an 'e-Navigation Operational Service Description' (Task 5.1.1)

Task group: Peter Hooijmans, LeeAnne Gordon, Michael Strandberg and Minsu Jeon.

The Task Group (TG) scheduled three meetings during the committee session period: these were attended by both ARM and ENAV committee members. The objective for the session was to discuss the comments made by the ENAV committee on the “draft guideline on producing an e-Navigation Operational Service Description” and amend the document. The fruitful discussions and comments led to changes to the document and resulted in the revised and renamed draft Guideline “On the development of a description of a maritime service in the context of e-navigation.”

This draft Guideline is to support IALA members in bridging an identified information gap between the information provided by Maritime Service descriptions and the information needed for both the Maritime Service Specification and technical design documents. The TG finalized the document and deemed it fit for approval by the ARM Committee.

Action items:

The **IALA Secretariat** is requested to change the name of the task to “Develop guidance on Maritime Services including the production of a Guideline “on the development of a description of a maritime service in the context of e-Navigation.”

The **IALA Secretariat** is requested to forward ARM12-11.3.1.1 Guideline on the development of a description of a maritime service in the context of e-navigation and ARM12-11.3.1.1.1 ANNEX A Maritime Service Description Template to IALA Council for approval.

9.2 Continue to Develop Product Specification S-201 in the Task Group already assigned (Task 5.1.3)

Task group: Sewoong Oh, assisted by Eivind Mong, *et al.*

The S-201 TG reviewed the ARM12-8.5.1 input paper - proposed S-201 extensions which suggested creating the S-201 Feature Catalogue (FC) and extending the S-201 data model.

After reviewing the input paper, the TG agreed to create new version of FC adding missing definitions and role/associations. The TG leader will draft the permitted values for all listed values in S-201 and the TG members will review it intersessionally. The TG recommends that IALA liaises with IHO on the AtoN definition update. The TG leader will investigate the status of the emergency wreck marking buoy and compare it to the G-1122 AtoN Pictogram. Eivind Mong will extend the S-201 data model based on the TG discussion.

There was no progress on the S-201 Annex C Implementation guideline.

9.3 Develop Requirements for S-125 (Task 5.1.5)

Task group: Sewoong Oh, assisted by Eivind Mong, Jan-Hendrik Oltmann, Dave Lewald, Martin Bransby, *et al.*

A scoping exercise was undertaken and a rudimentary sketch of a draft working paper was drawn up. This outlines the thoughts and ideas of the WG on S-125. Jan-Hendrik Oltmann also presented a functional hierarchy document that will be developed intersessionally. Further work will be conducted at the ARM13 session.

A Liaison Note was drafted to inform the IHO NIPWG regarding a "Marine Navigational Services Product Specification – Vision outline."

Action items:

The IALA Secretariat is requested to forward ARM12-11.3.2.1 S-125 draft papers to ARM13 as working documents for further work.

The IALA Secretariat is requested to forward ARM12-11.3.1.2 Liaison Note on "Marine Navigational Services Product Specification – Vision outline" to IALA Council for approval and then onto IHO NIPWG.

9.4 Develop guidance on MRN for users (Task 5.1.7)

Task group: LeeAnne Gordon, Dave Lewald, Martin Bransby, Nicholas Bonser, Martijn Ebben, Pasquale Guida, Mark Healy, Kimmo Heiskari, Peter Hooijmans, Minsu Jeon, Minschol Ji, Kangon Kim, Yeongjae Kim, Hosung Kim, Julius Moeller, Eivind Mong, Sewoong Oh, Jin H. Park.

Michael StrandbergThe MRN Task Group met on four occasions during the Committee session. Participants from Canada, China, Denmark, Finland, Germany, Korea, Netherlands, United Kingdom and United States participated in robust discussions on the specific needs of IALA members with regards to the IALA MRN documentation. A polished draft of G1143 v2.0, incorporating comments on the definition of "uniqueness," clarification of the responsibility for ensuring uniqueness, and giving several examples of MRN applicability to real-world scenarios, was produced and circulated for comment. This document has been forwarded for silent approval and forwarding to IALA Council 72.

Action items:

The IALA Secretariat is requested to forward ARM12-11.3.1.3 Guideline 1143 Unique Identifiers for Maritime Resources to IALA Council for approval.

9.5 Develop MRN Registry Submission & Maintenance Guideline for IALA Secretariat (Task 5.1.8)

Task group: LeeAnne Gordon, Dave Lewald, Martin Bransby, Nicholas Bonser, Martijn Ebben, Pasquale Guida, Mark Healy, Kimmo Heiskari, Peter Hooijmans, Minsu Jeon, Minschol Ji, Kangon Kim, Teongjae Kim, Hosung Kim, Julius Moeller, Eivind Mong, Sewoong Oh, Jin H. Park.

The MRN Task Group discussed the need for additional documentation on MRN. Discussions included points on IALA management, country code assignment, application procedures for establishing Organizational IDs (OIDs) and recognising official entities. The Task Group acknowledged that applications for OIDs have already been submitted to the IALA Secretariat for several years. The Task Group acknowledged that there is an eager audience for MRN documentation and determined that it would be necessary to undertake intersessional work prior to ARM13 and possibly beyond, to draft and discuss appropriate documentation.

Two intersessional groups have been identified, with tasks assigned: one will cover documentation and procedures for assigning/reserving/applying ISO 3166 country codes within the IALA type namespaces identified within G1143; the other will consider what high-level documentation is needed, looking to IHO S-99 and IALA G1087 for comparison on procedures and documentation needed for MRN management.

The Task Group also acknowledged that MRN Management is a large, multi-faceted task with an eager audience. It is presumed that the Task Group will be needed throughout the remainder of this Work Plan, and potentially into the next.

Action item:

*The **IALA Secretariat** is requested to forward ARM12-11.3.2.2 MRN Management note to ARM13 as a working document.*

*That **Committee Participants** wishing to participate in the intersessional group working on the development of guidance on "MRN Registry Submission, Country Code Assignment, and Maintenance Guideline for IALA Secretariat" should contact LeeAnne Gordon (LeeAnne.E.Gordon@nga.mil) by 12 November 2020.*

9.6 Develop Guideline on ship reporting from the shore-side perspective (Task 5.2.2)

Task group: Fred Pot, assisted by Jon Leon Ervik, Michele Fiorini, Yung Yu Ho, Peter Hooijmans, Dave Lewald, Marc-André Morin, Dmitry Rostopshin, Todd Schuett, Michel Strandberg, Boon Wee Teng, Thomas Christensen, Martijn Ebben, Jens Schröder-Fürstenberg and Jarle Hauge.

Work was carried out on draft Guideline. Many comments were received and discussed within the TG. Hence, many amendments were made throughout the document; however, apart from abbreviations, acronyms, table of contents, list of figures and list of tables, it was felt that the Guideline was ready to be presented to the WG2 and ARM Committee plenary sessions using the silent approval process and thence to Council.

Discussion at the WG2 plenary indicated that numerous comments will likely be received upon approval by Council. This work will be addressed intersessionally. Of particular note, input from Canada will be addressed. Additionally, the ARM vice-chair will liaise with the VTS Committee to seek possible revisions to edition 2.0.

Action items:

*The **IALA Secretariat** is requested to forward ARM12-11.3.1.4 Guideline on Ship Reporting to IALA Council for approval.*

*That **Committee Participants** wishing to join the intersessional group working on the development of guidance on Ship Reporting should contact Fred Pot (fred.pot@bergmann-marine.com) by 15 November 2020.*

*The **ARM vice-chair** is requested to liaise with the VTS Committee regarding input to Edition 2.0 of the Guideline.*

10. WORKING GROUP 3 – RISK MANAGEMENT (WG3)

As a number of new participants attended WG3, the WG Chair started by giving an introduction to the Working Group and emphasized the importance of the work carried out by the WG participants within the field of risk management with the aim of improving safety at sea for all mariners.

The WG Chair also touched upon this rather unusual situation with the work carried out by virtual meetings instead of physical attendance at the IALA HQ in Saint Germain en Laye.

Thereafter, each WG participant gave an introduction of themselves and their background.

Each WG participant were encouraged to sign up for work in the task group by sending an email to WG Chair and WG Vice chair.

A list of WG3 participants was circulated in the working group and also put on file share including email addresses to all WG members. The Working Group participants were:

Chair: Roger Barker

Vice-chair: Cathrine Steenberg

Task Group Leaders: Ernst Bolt, Edward Rogers and Jakob Bang

Task Group participants: Raul Escalante, Antonella Mancere, Juan Pablo Sanchez, Mohamed Mostafa, Peter Jensen Schjeldahl, Jaehoon Jeong, Martijn Ebben, Samuel Grignon, Valtteri Laine, Peter Dam, Juan Carlos Frias, Ke Ranxuan, Xu Haibo.

The WG Chair then went through the Task Plan 2018-2022 and the WG commenced its work by agreeing on the draft agenda based on Task Plan 2018-2022:

- Review of G1018 Risk Management and also review of G1123, G1124, and G1138 (Task 1.2.1)
- Review of R0142 Maritime Data Sharing IALA Net (Task 1.2.2)
- Review of G1086 Global Sharing of Maritime Data (Task 1.2.3)
- Review of R0138, G1058 and G1097 (Task 1.2.4)
- Develop Recommendation for marine data sharing for risk assessment analysis (Task 1.2.5)
- Develop document to promulgate IALA risk management tool box to IMO (Task 1.2.7)
- Review of G1020 in collaboration with WWA (Task 3.1.1)
- Review relevant sections of the NAVGUIDE (Task 3.2.1)
- Cooperation with WWA in providing Risk Seminars (Task 6.1.1)

10.1 Review G1018 Risk Management to ensure compatibility with risk toolbox. Includes full review of underlying Risk Toolbox documentation G1123, G1124, G1138 (Task 1.2.1)

Task group leader: Ernst Bolt

A small task group of the WG continued the thorough and comprehensive revision of the current Risk Management guideline G1018, which was later discussed in a working group plenary session.

The aim for the guideline is to be an overarching document for the Risk Assessment Toolbox and the revision of the guideline should consider all tools in the IALA Risk Assessment Toolbox. Special emphasis must be on guidance of which method or tool to apply to a specific case and how to come to a decision on acceptability. Specific guidance on how to use each tool, should be moved to the guidelines for PAWSA, IWRAP, SIRA, and Simulation.

The Chair at this stage reiterated his comments to the WG regarding the importance of a full review of the risk management documentation to ensure that the flow of information required by the user is clear and succinct and without unnecessary duplication. As such he detailed that the work required this week will include the specific attention to the core structure of the risk management portfolio of documentation.

The revision of G1018 is expected to be finalised during ARM13.

Task group leader: Edward Rogers

The review of the guideline for SIRA (G1138) continued. It was recognised among the task group participants that a simpler version of SIRA is needed and that it would be appropriate to embed it in the overarching guideline G1018 rather than a separate document or guideline.

Furthermore, a questionnaire was considered with the aim to provide more insight into how the Risk Management Toolbox is used by IALA members. Hence, a questionnaire has been developed by this Task Group and will be issued amongst ARM members, who are encouraged to respond to it.

The work on G1138 will continue at ARM13.

Task group leader: Jakob Bang

The review of the guideline for IWRAP (G1123) continued. Further revisions have been made and a clean draft was presented in working group plenary for discussion.

The revision of G1123 is expected to be finalised during ARM13.

Regarding the guideline for PAWSA (G1124) there was not any experienced users among the participants at ARM12. Hence it was decided to postpone the work on the G1124 until ARM13.

Action items:

*The **IALA Secretariat** is requested to forward ARM12-11.4.2.1 WP_Guideline_1018_Risk_Management, ARM12-11.4.2.2 WP Guideline 1123 Ed1 The use of IWRAP MkII-Oct 2020_with TC_20201023_Working paper for ARM 13, ARM12-11.4.2.3 Guideline 1124 Ed.1 The use of PAWSA MkII and ARM12-11.4.2.4 WP Guideline 1138 Ed.1 The use of SIRA Dec2017 to ARM13 as working papers.*

*That **Committee Members** are requested to complete the questionnaire ARM12-11.4.2.5 ARM 12 Risk Management Toolbox Questionnaire – 211020 and send their answers to both Roger Barker (Roger.Barker@trinityhouse.co.uk) and Cathrine Steenberg (cms@force.dk) by 31 January 2021.*

*That the **IALA Secretariat** highlights the ARM12-11.4.2.5 ARM 12 Risk Management Toolbox Questionnaire – 211020 to IALA Members and requestes them to send their answers to both Roger Barker (Roger.Barker@trinityhouse.co.uk) and Cathrine Steenberg (cms@force.dk) by 31 January 2021.*

10.2 Review R0142 Maritime Data Sharing IALA Net to reflect new title “Maritime data sharing” and the storage and use of historical [AIS and other] data for risk analysis (Task 1.2.2) and Review G1086 Global Sharing of Maritime Data (June 2012)

The Dean of the WWA, who has the specific competence in IALANET, was unfortunately not able to work on this item during ARM12, however, the Chair and WWA Dean have discussed the way ahead. Hence, work on R0142 and G1086 will continue in cooperation with the Dean of the WWA during ARM13.

Action items:

*The **IALA Secretariat** is requested to reformat Recommendation R0142 On Maritime Data Sharing IALANET into the new IALA format for Recommendations.*

*The **IALA Secretariat** is requested to forward the ARM12-11.4.2.6 WP Recommendation R0142 On Maritime Data Sharing IALANET and ARM12-11.4.2.7 WP Guideline 1086 Ed.1 Global Sharing of Maritime Data & Information to ARM13 as working papers.*

10.3 In cooperation with ENG (Task 1.2.1) revise R0138 and G1058 and G1097 on simulation use by AtoN authorities (Task 1.2.4)

Task group leader: Cathrine Steenberg

The Guideline for simulation G1058 has been reviewed and modified during ARM10 and is close to being finalized. However, further improvements must be expected once the review of G1018 has been completed, whereas the draft guideline will be forwarded as input for ARM13 as a working paper.

Review of the Guideline G1097 has been initiated. The current guideline is rather technical with a level of high detail, which makes it more or less outdated as soon as it is approved due to the fast development in technology. Therefore, the aim for the review of the Guideline is to make it more generic and as such the direction being taken by ARM in review of the Guideline.

Comments from Korea has been received during ARM12 which have been carefully considered by the task group. The Committee Chair has been asked to liaise by email with the ENG Committee Chair as to how the comments are implemented.

Review of Recommendation R0138 will be postponed until the next Committee meeting ARM 13.

Action items:

*The **IALA Secretariat** is requested to forward ARM12-11.4.2.8 WP Recommendation R0138 Ed.1 The Use of GIS and Simulation by Aids to Navigation Authorities, ARM12-11.4.2.9 WP Guideline 1058 Ed.2 Use of Simulations a Tool for Waterway Design and AtoN Planning and ARM12-11.4.2.10 WP Draft Guideline 1097 Ed.1.1 Technical Features and Technology Relevant for Simulation of AtoN with TC_20201021 to ARM13 as working papers.*

10.4 Develop document to promulgate IALA risk management tool box to IMO (SN circular) (Task 1.2.7)

Task 1.2.7 will be started when the full review of Guideline G1018 together with the supporting toolbox guidelines have been brought to a significant level of maturity (Task 1.2.4).

10.5 Review G1020 Training Related to [Marine] Aids to Navigation (Dec 2005) (Task 3.1.1)

A draft version of the IALA Model Course L1.3 on Risk Management Tool Ed 2 was sent to WWA for final amendment after ARM9. The Model Course has since been approved by Council.

10.6 Review relevant sections of NAVGUIDE as requested by Secretariat (Task 3.2.1)

In conjunction with other WGs, WG3 has been assigned to various sections to be included in the revised NAVGUIDE and commenced early assessment of the requirements. In addition, on completion of the revision of G1018 suggested amendments to the NAVGUIDE text will be provided.

10.7 Cooperate with WWA in providing Risk Seminar(s) (Task 6.1.1)

Coordination and cooperation between the WWA, its lecturers and WG 3 is essential for providing guidance to National Members as well as education through the Risk Management Courses provided by WWA.

The WG Chair confirmed that WG3 are continuing to fully support, where appropriate, the WWA in delivery of Risk Management Seminars.

11. ANY OTHER BUSINESS

Work Programme 2022 - 2026

In accordance with the general regulations, committees need to prepare task item proposals for the next quadrennial Work Programme for approval of the Council. The purpose of the Work Programme is to clearly identify any items of work with outcomes and priorities taking account of the strategic vision 2018-2026, the current drivers and trends, and the IALA position document on the development of Marine Aids to Navigation (AtoN).

The Chair explained that work on this should commence in the first half of 2021 and be finalized in 2022. Committee Participants are requested to submit proposals for task items to ARM13 by providing input to the meeting.

The Committee Management Team reviewed that current task plan and identified items that will potentially carry over to the next work programme. This review is contained in *ARM12-11.1.2 Draft ARM Task Plan 2022 - 26* that will be forwarded to ARM13 for further consideration.

Action items:

That **Committee Participants** are requested to submit proposals for task items to ARM13 for the 2022-2026 Work Programme.

The **IALA Secretariat** is requested to forward ARM12-11.1.2 draft ARM Task Plan 2022 - 2026 to ARM13.

12. REVIEW OF OUTPUT AND WORKING PAPERS

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

The output from ARM12 was approved by the Committee using the silent approval procedure. The output documents are listed in Annex D.

The Committee Chair then thanked the Working Group Chairs, Vice-Chairs and participants of the working groups for all their efforts during the week.

13. DATE AND VENUE OF NEXT MEETING

ARM13 is planned to be held between 12 - 16 April 2021 at IALA Headquarters, Saint Germain-en-Laye, France. The Secretariat will continue to monitor global events of the COVID-19 pandemic and advise its Members of any changes that may be instigated.

Other IALA events will be publicised on the IALA website.

14. CLOSING OF THE MEETING

The Committee Chair thanked the Committee and Working Group chairs for their hard work and effective output during the session.

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

Finally, the Chair asked if there were any final comments that members wished to make; there were none, at which he hoped to meet all participants once again during ARM13.

15. LIST OF ANNEXES

1 Agenda

A copy of the agenda is in Annex A.

2 Participants

A list of participants is in Annex B.

3 Input Papers

A list of input papers is in Annex C.

4 Output and Working papers

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

5 Action items

A list of action items is in Annex E.



12th Meeting of the AtoN Requirements and Management Committee (ARM12)

The 12th meeting of the **ARM Committee** will be held from 28 September – 22 October 2020 virtually.

The opening plenary will commence at 1000 – 1200 UTC on Monday 28 September 2020, and the closing plenary will begin at 1000 – 1200 UTC on Thursday 22 October.

Agenda

1. Introduction
 - 1.1. Welcome address from the Secretary-General
 - 1.2. Approval of agenda
 - 1.3. Apologies and introductions
 - 1.4. Working arrangements
 - 1.4.1. ARM Social Programme
2. Review of action items
3. Review of input papers
 - 3.1. Input papers to ARM 12
 - 3.2. Input papers not related to an existing task
4. Reports from other bodies
 - 4.1. IALA
 - 4.1.1. IALA Council Minsu Jeon
 - 4.1.2. IALA Policy Advisory Panel (PAP) Dave Lewald
 - 4.2. IMO Minsu Jeon
 - 4.3. e-Navigation Underway / Digital@Sea Minsu Jeon
 - 4.4. IHO/IALA liaison Minsu Jeon
5. Online presentations (via webinars on specific dates and times to be announced)
 - 5.1. IALA World-wide Academy Kevin Gregory
 - 5.2. IALA's Role and Strategy for the S-200 product specifications Minsu Jeon
 - 5.3. Ship Reporting from a Shore Based Perspective Fred Pot
6. Work Programme (2018 - 2022)
 - 6.1. ARM Task Plan
 - 6.2. Action plan for ARM12
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)
- 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. Workshop(s)
- 9. Establish WG3 - Risk management
 - 9.1. Risk management
 - 9.2. Training and certification
 - 9.3. Seminar
- 10. Any other business
- 11. Review of output and working papers
 - 11.1. ARM task plan
 - 11.2. WG1
 - 11.3. WG2
 - 11.4. WG3
- 12. Review of session report
- 13. Date and venue of next meeting
- 14. Close of the meeting

ANNEX B

LIST OF PARTICIPANTS

The following list of participants is grouped by their organisation in alphabetical order:

Name	Organisation	E-mail
Mr William CAIRNS	American Pilot's Association Inc	bcairns@americanpilots.org
Mr Henry ARRIAGADA	Armada de Chile, Dirección General del Territorio Marítimo y Marina Mercante - DIRECTEMAR	harriagada@directemar.cl
Mr Francisco CERDA	Armada de Chile, Dirección General del Territorio Marítimo y Marina Mercante - DIRECTEMAR	fcerdav@directemar.cl
Capt Daniel GONZALEZ	Armada de Chile, Dirección General del Territorio Marítimo y Marina Mercante - DIRECTEMAR	dgonzalez@directemar.cl
Commander Enrique GRUNWALD	Armada de Chile, Dirección General del Territorio Marítimo y Marina Mercante - DIRECTEMAR	egrunwald@directemar.cl
Mr Juan Pablo SANCHEZ	Armada de Chile, Dirección General del Territorio Marítimo y Marina Mercante - DIRECTEMAR	juanpablo412@gmail.com
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Mr Mahesh ALIMCHANDANI	Australian Maritime Safety Authority	mahesh.alimchandani@amsa.gov.au
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Mr Eivind MONG	Canadian Coast Guard	eivind.mong@dfo-mpo.gc.ca
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Mr Jiali CHEN	China Maritime Safety Administration	170120@qq.com
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Mr Zhang PENG	China Maritime Safety Administration	zhapede@163.com
Ms Shuo WANG	China Maritime Safety Administration	hailey722@163.com
Mr Yang WENSHI	China Maritime Safety Administration	chinamsaywz@126.com
Mr Haibo XU	China Maritime Safety Administration	344460428@qq.com
Mr Jun YANG	China Maritime Safety Administration	523724224@qq.com
Mr Michael BERGMANN	Comité International Radio Maritime	michael.bergmann@bergmann-marine.com
Mr Mark HEALY	Commissioners of Irish Lights	mark.healy@irishlights.ie
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Mr Lucas Gaston VELIZ	Crux Marine	lveliz@crux-marine.com
Mr Jakob BANG	Danish Maritime Authority	cjb@dma.dk

Name	Organisation	E-mail
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Mr Michael STRANDBERG	Danish Maritime Authority	mst@dma.dk
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All papers are posted on the Committee section of the IALA website.

Meeting	Paper Number	Input Paper Title	Source	Presented by / WG
ARM12-	1.2.1	Provisional Agenda 230820	IALA Secretariat	All
ARM12-	1.4.1	Virtual Committee Working Arrangements	IALA Secretariat	All
ARM12-	2.1.1	Action items from ARM11	IALA Secretariat	All
ARM12-	2.1.2	Report of ARM11	IALA Secretariat	All
ARM12-	3.0.1	List of input papers	IALA Secretariat	All
ARM12-	3.2.1	Draft Recommendation Input Paper - Marine Aids to Navigation and VTS awareness for Navigators	IALA Secretariat	WG1
ARM12-	3.2.1.1	Draft Recommendation - Marine Aids to Navigation and VTS awareness for Navigators	IALA Secretariat	WG1
ARM12-	3.2.2	S1010 AtoN Planning & Service Requirements	IALA Secretariat	All
ARM12-	3.2.3	S1020 AtoN Design and Delivery	IALA Secretariat	All
ARM12-	3.2.4	S1050 Training and Certification	IALA Secretariat	All
ARM12-	3.2.5	S1060 Digital Communication Technologies	IALA Secretariat	All
ARM12-	3.2.6	S1070 Information Services	IALA Secretariat	All
ARM12-	3.2.7	Technical documents Catalogue	IALA Secretariat	All
ARM12-	3.2.8	Dictionary management	IALA Secretariat	All
ARM12-	3.2.9	Geodetic Datum as it Relates to Positioning Aids to Navigation	US Coast Guard	WG1
ARM12-	4.1.1.1	Final report Council 71	IALA Secretariat	All
ARM12-	6.1.1	ARM Task Plan 20200311	ARM11	All
ARM12-	6.1.1.1	ARM Task Plan Updated 24092020	CMT	All
ARM12-	7.1.1	ARM12-7.1.1 Proposals for revision of IALA Guideline G1054	China MSA	WG1
ARM12-	7.1.1.1	ARM12-7.1.1.1 Draft PREPARING FOR AN VOLUNTARY IMO AUDIT ON AIDS TO NAVIGATION SERVICE DELIVERY	China MSA	WG1

Meeting	Paper Number	Input Paper Title	Source	Presented by / WG
ARM12-	7.2.1	WP 1052-Ed.3-Quality-Management-Systems-for-Aids-to-Navigation-Service-Delivery (ARM11-13.2.9)	ARM11	WG1
ARM12-	7.3.1	Workshop proposal on Marine AtoN in the autonomous world (PAP39-8.4)	C71	WG1
ARM12-	7.3.2	NL Paper on the Impact of MASS on VTS	C71	WG1
ARM12-	7.3.3	WP R1001 Ed1 The IALA Maritime Buoyage System_XXX (1) (ARM11-13.2.13)	ARM11	WG1
ARM12-	7.3.3.1	WP MBS Review gap analysis initial (ARM11-8.2.2)	ARM11	WG1
ARM12-	7.3.3.2	History of the MBS	ARM11	WG1
ARM12-	7.3.4	WP for ARM12 Draft guideline on man made structures - Extracted from O139 (ARM11-13.2.8)	ARM11	WG1
ARM12-	7.3.4.1	WP Draft Recommendation O139 Marking of man made offshore structure (ARM11-13.2.7) - Guidance extracted to draft guideline	ARM11	WG1
ARM12-	7.3.5	WP 1078 - The use of AtoN in the design or fairways (ARM11-13.2.10)	ARM11	WG1
ARM12-	7.3.6	WP Draft IALA Guideline on Mobile AtoN (ARM11-13.2.1)	ARM11	WG1
ARM12-	7.3.6.1	Draft IALA Guideline on Mobile AtoN post plenary clean version prior arm12 (ARM11-13.2.1)	Post ARM11 Plenary	WG1
ARM12-	7.3.6.2	R1016-Ed1-Mobile-Marine-Aid-to-Navigation-MAtON_Dec2017 post plenary clean version prior ARM12	Post ARM11 Plenary	WG1
ARM12-	7.3.7	WP Liaison note to ENG to amend Recommendation E-110 with the character for Mobile AtoN (ARM11-13.2.5)	ARM11	WG1
ARM12-	7.3.8	Feature specification of the Physical Mobile Aids to Navigation	China MSA	WG1
ARM12-	7.3.9	Modification proposal for R0139 (O-139)The Marking of man-made offshore structures	China MSA	WG1
ARM12-	7.3.10	Information paper to IALA technical committee JCG meeting	Japan Coast Guard	WG1
ARM12-	7.3.10.1	Report of international meeting for MASS infrastructure	Japan Coast Guard	WG1
ARM12-	7.4.1	WP Draft Guideline G1081 Provision of Virtual Aids to Navigation (ARM11-13.2.2)	ARM11	WG1
ARM12-	7.4.1.1	Input paper for approval Guideline G1081 Provision of Virtual Aids to Navigation	Yves Jacques et al	WG1
ARM12-	7.6.1	WP NAVGUIDE 2022 publication plan ARM 11 ARM WG 1 (ARM11-13.2.12)	ARM11	WG1

Meeting	Paper Number	Input Paper Title	Source	Presented by / WG
ARM12-	7.6.2	Input paper revision on NAVGUIDE	Republic of Korea	WG1
ARM12-	8.4.1	WP Draft Guideline on producing an e-Navigation Operational Service Description (ARM11-13.3.4)	ARM11	WG2
ARM12-	8.4.2	WP S-125 vision outline_draft2 (ARM11-13.3.5)	ARM11	WG2
ARM12-	8.4.3	WP 2020ISO-IALA (ARM11-13.3.6)	ARM11	WG2
ARM12-	8.4.4	WP Management of Maritime Resource Name (MRN) (ARM11-13.3.7)	ARM11	WG2
ARM12-	8.4.5	WP ANNEX-A-OPERATIONAL-SERVICE-DESCRIPTION-TEMPLATE (ARM11-13.3.8)	ARM11	WG2
ARM12-	8.4.6	WP ARM Maritime Service Guideline development V1.2 (ARM11-13.3.9)	ARM11	WG2
ARM12-	8.4.7	Council comments on draft G1143 on unique identifiers for maritime resources	C71	WG2
ARM12-	8.4.7.1	G1143 Unique Identifiers for Maritime Resources (ARM11-13.3.3) Ed.2.0	C71	WG2
ARM12-	8.4.8	Canadian position on G1143 - uniqueness within the context of Maritime Resource Name (MRN)	Canadian Coast Guard	WG2
ARM12-	8.4.9	Management of Maritime Resource Name (MRN) C65-11.4.2.29 (ENAV21-14.1.8)	ARM11	WG2
ARM12-	8.5.1	Input paper - Proposed S-201 extensions_final	Canadian Coast Guard, KRISO & MOF	WG2
ARM12-	8.5.2	ARM12-8.5.2 Aton information system compatible with the S-201 data model	KRISO & MOF	WG2
ARM12-	8.5.3	Update of S-201 Testbed	KRISO & MOF	WG2
ARM12-	8.5.4	Draft Guideline on Ship Reporting v1.9 Clean Copy	F Pot et al	WG2
ARM12-	9.1.1	WP GL1018_work_2019.03.13 (ARM11-13.4.1)	ARM11	WG3
ARM12-	9.1.2	WP Guideline 1123 Ed1 The use of IWRAP MKII-June 2017 (ARM11-13.4.3)	ARM11	WG3
ARM12-	9.1.3	WP Guideline 1124 Ed1 The use of PAWSA MKII June 2017 (ARM11-13.4.4)	ARM11	WG3
ARM12-	9.1.4	WP Guideline 1138 Ed.1 The use of SIRA Dec2017 (ARM11-13.4.5)	ARM11	WG3
ARM12-	9.1.5	WP Draft Guideline 1097 Ed.1.1 Technical Features and Technology Relevant for Simulation of AtoN (ARM11-13.4.11)	ARM11	WG3

Meeting	Paper Number	Input Paper Title	Source	Presented by / WG
ARM12-	9.1.6	WP Recommendation RO138 (O-138) Use of GIS and Simulation by AtoN Authorities (ARM11-13.4.9)	ARM11	WG3
ARM12-	9.1.7	WP Guideline G1058 Ed.2 (ARM11-13.4.10)	ARM11	WG3
ARM12-	9.1.8	WP 1086 Ed1 Global Sharing of Maritime Data_22Jun2012 (ARM11-13.4.8)	ARM11	WG3
ARM12-	9.1.9	WP IALA SIRA Recommendations (ARM10-13.4.6)	ARM11	WG3

ANNEX D

LIST OF OUTPUT DOCUMENTS AND WORKING PAPERS

Output documents are submitted for review/action by a body other than the Committee initiating the document.

Meeting	Paper Number	Output Paper Title	Source	Action
ARM12	11.2.1.1	Liaison note regarding revision of MBS R1001 plus Working Paper	ARM12	To all committees
ARM12	11.2.1.2	Revised Recommendation R1016 Mobile Marine Aid to Navigation (MAtoN)	ARM12	To Council
ARM12	11.2.1.3	Guideline on the use of Mobile AtoN	ARM12	To Council
ARM12	11.2.1.4	Liaison Note to ENG regarding Recommendation E-110 Rhythmic Characters of Lights on AtoN	ARM12	To ENG
ARM12	11.3.1.1	Guideline on the development of a description of a maritime service in the context of e-Navigation	ARM12	To Council
ARM12	11.3.1.1.1	ANNEX A Maritime Service Description Template	ARM12	To Council
ARM12	11.3.1.2	Liaison Note to IHO NIPWG on “Marine Navigational Services Product Specification – Vision outline”	ARM12	To Council and then IHO NIPWG
ARM12	11.3.1.3	Guideline 1143 Unique Identifiers for Maritime Resources	ARM12	To Council
ARM12	11.3.1.4	Guideline on Ship Reporting	ARM12	To Council

Working Papers are documents that will remain within the committee for further review.

Meeting	Paper Number	Output Paper Title	Source	Action
ARM12	11.0.1	WP NAVGUIDE	ARM12	To ARM13
ARM12	11.1.1	ARM Committee Task Plan	ARM12	To ARM13
ARM12	11.1.2	Draft ARM Task Plan 2022 - 26	ARM12	To ARM13
ARM12	11.2.2.1	WP Review of the IALA MBS	ARM12	To ARM13
ARM12	11.2.2.1	Liaison Note from LAP regarding the MBS in Polar Regions	ARM12	To ARM13
ARM12	11.2.2.2	Gap analysis Guideline 1078 The Use of AtoN in the Design of Fairways	ARM12	To ARM13
ARM12	11.2.2.3	WP G1078 - The Use of AtoN in the Design of Fairways	ARM12	To ARM13
ARM12	11.2.2.4	WP Task 1.5.3- Descriptions for IALA Dictionary	ARM12	To ARM13
ARM12	11.2.2.5	WP Draft Recommendation R0139	ARM12	To ARM13

Meeting	Paper Number	Output Paper Title	Source	Action
ARM12	11.2.2.6	WP Draft Guideline on marking of man made offshore structures	ARM12	To ARM13
ARM12	11.2.2.7	Committee Approved draft guideline on the Provision of Virtual Aids to Navigation G1081	ARM12	To ARM13
ARM12	11.2.2.8	WP Recommendation R O143 on Virtual Aids to Navigation	ARM12	To ARM13
ARM12	11.2.2.9	WP draft Guideline G1052	ARM12	To ARM13
ARM12	11.2.2.10	WP Draft Guideline 1054 Preparing for a Voluntary IMO Audit on Aids To Navigation Service Delivery	ARM12	To ARM13
ARM12	11.3.2.1	S-125 draft papers	ARM12	To ARM13
ARM12	11.3.2.2	MRN Management Note	ARM12	To ARM13
ARM12	11.3.2.3	WP ARM Maritime Service Guideline development V1.2 (ARM12-8.4.6)	ARM12	To ARM13
ARM12	11.4.2.1	WP_Guideline_1018_Risk_Management	ARM12	To ARM13
ARM12	11.4.2.2	WP Guideline 1123 Ed1 The use of IWRAP MKII-Oct 2020_with TC_20201023_Working paper for ARM 13	ARM12	To ARM13
ARM12	11.4.2.3	WP Guideline 1124 Ed.1 The use of PAWSA MkII	ARM12	To ARM13
ARM12	11.4.2.4	WP Guideline 1138 Ed.1 The use of SIRA Dec2017	ARM12	To ARM13
ARM12	11.4.2.5	ARM 12 Risk Management Toolbox Questionnaire – 211020	ARM12	To ARM13
ARM12	11.4.2.6	WP Recommendation R0142 On Maritime Data Sharing IALANET	ARM12	To ARM13
ARM12	11.4.2.7	WP Guideline 1086 Ed.1 Global Sharing of Maritime Data & Information	ARM12	To ARM13
ARM12	11.4.2.8	WP Recommendation R0138 Ed.1 The Use of GIS and Simulation by Aids to Navigation Authorities	ARM12	To ARM13
ARM12	11.4.2.9	WP Guideline 1058 Ed.2 Use of Simulations a Tool for Waterway Design and AtoN Planning	ARM12	To ARM13
ARM12	11.4.2.10	WP Draft Guideline 1097 Ed.1.1 Technical Features and Technology Relevant for Simulation of AtoN with TC_20201021	ARM12	To ARM13

ANNEX E ACTION ITEMS

Action Items for Secretariat

1. The **IALA Secretariat** is requested to forward working paper ARM12- 11.3.2.3 WP ARM Maritime Service Guideline development V1.2 (ARM12-8.4.6) to ARM13. 11
2. The **IALA Secretariat** is requested to forward the Task Plan (ARM12-11.1.1) to ARM13. 13
3. The **IALA Secretariat** is requested to forward working papers ARM12-11.0.1 draft NAVGUIDE to ARM13. 13
4. The **IALA Secretariat** is requested to forward the VTS49-12.1.3.3 IALA Recommendation on Marine Aids to Navigation and VTS Awareness for Mariners to IALA Council for approval. 14
5. The **IALA Secretariat** is requested to forward working papers ARM12-11.2.2.1 on the review of the IALA MBS to ARM13. 14
6. The **IALA Secretariat** is requested to forward ARM12- 11.2.1.1 liaison note regarding revision of MBS R1001 and the working paper to all committees. 14
7. The **IALA Secretariat** is requested to forward ARM12-11.2.2.2 Liaison Note from LAP regarding the MBS in Polar Regions to ARM13. 14
8. That the **IALA Secretariat** provides input to ARM13 regarding the current title of the IALA Maritime Buoyage System. 14
9. The **IALA Secretariat** is requested to forward ARM12-11.2.1.2 revised Recommendation R1016 Mobile Marine Aid to Navigation (MAtoN) and ARM12-11.2.1.3 Guideline on the use of Mobile AtoN to IALA Council for approval. 15
10. The **IALA Secretariat** is requested to forward ARM12-11.2.1.4 Liaison Note regarding Recommendation E-110 Rhythmic Characters of Lights on AtoN to the ENG Committee. 15
11. The **IALA Secretariat** is requested to forward the ARM12-11.2.2.5 draft Recommendation R0139 and ARM12-11.2.2.6 draft Guideline on marking of man made offshore structures to ARM13 as working papers. 16
12. The **IALA Secretariat** is requested to forward ARM12-11.2.2.7 Committee Approved draft guideline on the Provision of Virtual Aids to Navigation G1081 and ARM12-11.2.2.8 WP Recommendation R O143 on Virtual Aids to Navigation to ARM13. Once both documents are approved by the ARM Committee they will be forwarded to IALA Council together for approval. 16
13. The **IALA Secretariat** is requested to forward ARM12-11.2.2.9 draft Guideline G1052 to ARM13 as a working paper. 17
14. The **IALA Secretariat** is requested to forward ARM12-11.2.2.10 draft Guideline 1054 Preparing for a Voluntary IMO Audit on Aids to Navigation Service Delivery to ARM13 as working paper. 17
15. The **IALA Secretariat** is requested to change the name of the task to “Develop guidance on Maritime Services including the production of a Guideline “on the development of a description of a maritime service in the context of e-Navigation.” 17
16. The **IALA Secretariat** is requested to forward ARM12-11.3.1.1 Guideline on the development of a description of a maritime service in the context of e-navigation and ARM12-11.3.1.1.1 ANNEX A Maritime Service Description Template to IALA Council for approval. 17
17. The **IALA Secretariat** is requested to forward ARM12-11.3.2.1 S-125 draft papers to ARM13 as working documents for further work. 18
18. The **IALA Secretariat** is requested to forward ARM12-11.3.1.2 Liaison Note on “Marine Navigational Services Product Specification – Vision outline” to IALA Council for approval and then onto IHO NIPWG. 18
19. The **IALA Secretariat** is requested to forward ARM12-11.3.1.3 Guideline 1143 Unique Identifiers for Maritime Resources to IALA Council for approval. 18
20. The **IALA Secretariat** is requested to forward ARM12-11.3.2.2 MRN Management note to ARM13 as a working document. 19

21. The **IALA Secretariat** is requested to forward ARM12-11.3.1.4 Guideline on Ship Reporting to IALA Council for approval. 19
22. The **IALA Secretariat** is requested to forward ARM12-11.4.2.1 WP_Guideline_1018_Risk_Management, ARM12-11.4.2.2 WP Guideline 1123 Ed1 The use of IWRAP MkII-Oct 2020_with TC_20201023_Working paper for ARM 13, ARM12-11.4.2.3 Guideline 1124 Ed.1 The use of PAWSA MkII and ARM12-11.4.2.4 WP Guideline 1138 Ed.1 The use of SIRA Dec2017 to ARM13 as working papers. 21
23. That the **IALA Secretariat** highlights the ARM12-11.4.2.5 ARM 12 Risk Management Toolbox Questionnaire – 211020 to IALA Members and requestes them to send their answers to both Roger Barker (Roger.Barker@trinityhouse.co.uk) and Cathrine Steenberg (cms@force.dk) by 31 January 2021. 21
24. The **IALA Secretariat** is requested to reformat Recommendation R0142 On Maritime Data Sharing IALANET into the new IALA format for Recommendations. 21
25. The **IALA Secretariat** is requested to forward the ARM12-11.4.2.6 WP Recommendation R0142 On Maritime Data Sharing IALANET and ARM12-11.4.2.7 WP Guideline 1086 Ed.1 Global Sharing of Maritime Data & Information to ARM13 as working papers. 21
26. The **IALA Secretariat** is requested to forward ARM12-11.4.2.8 WP Recommendation R0138 Ed.1 The Use of GIS and Simulation by Aids to Navigation Authorities, ARM12-11.4.2.9 WP Guideline 1058 Ed.2 Use of Simulations a Tool for Waterway Design and AtoN Planning and ARM12-11.4.2.10 WP Draft Guideline 1097 Ed.1.1 Technical Features and Technology Relevant for Simulation of AtoN with TC_20201021 to ARM13 as working papers. 22
27. The **IALA Secretariat** is requested to forward ARM12-11.1.2 draft ARM Task Plan 2022 - 2026 to ARM13. 23

Action Items for Participants

28. That **Committee Participants** wishing to join the intersessional group working on the IALA MBS specifically on standardising the layout in terms of the relevant IALA documentation template, should contact Natasha McMahon (natasha.mcmahon@dfo-mpo.gc.ca) by 15 November 2020. 14
29. That **Committee Participants** wishing the participate in the intersessional group working on the development of guidance on "MRN Registry Submission, Country Code Assignment, and Maintenance Guideline for IALA Secretariat" should contact LeeAnne Gordon (LeeAnne.E.Gordon@nga.mil) by 12 November 2020. 19
30. That **Committee Participants** wishing to join the intersessional group working on the development of guidance on Ship Reporting should contact Fred Pot (fred.pot@bergmann-marine.com) by 15 November 2020. 19
31. The **ARM vice-chair** is requested to liaise with the VTS Committee regarding input to Edition 2.0 of the Guideline. 19
32. That **Committee Members** are requested to complete the questionnaire ARM12-11.4.2.5 ARM 12 Risk Management Toolbox Questionnaire – 211020 and send their answers to both Roger Barker (Roger.Barker@trinityhouse.co.uk) and Cathrine Steenberg (cms@force.dk) by 31 January 2021. 21
33. That **Committee Participants** are requested to submit proposals for task items to ARM13 for the 2022-2026 Work Programme. 23



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Association Internationale de Signalisation Maritime