



IALA ARM COMMITTEE

REPORT OF THE 15TH SESSION OF THE IALA ATON REQUIREMENTS AND MANAGEMENT (ARM) COMMITTEE

**11 to 25 March 2022
Virtual Meeting**

Thomas Southall
Committee Secretary

25 March 2022

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International Association of Marine Aids to Navigation and Lighthouse Authorities
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**Report of the 15th Session of the IALA
AtoN Requirements and Management (ARM) Committee
11 to 25 March 2022
Executive Summary**

The 15th Session of the ARM Committee was held virtually from 11 to 25 March 2022 with Phil Day as Chair and Dave Lewald as Vice-Chair. The Secretary for the meeting was Thomas Southall.

78 Participants from 24 countries participated in ARM15. 8 participants attended for the first time.

The Committee continued the work for the 2018 - 2023 work period. Working in three working groups, the Committee considered 48 input papers and produced 26 output and working documents.

The meeting was carried out in accordance with the Virtual Committee Arrangements online. Approximately 44 meetings were arranged.

Key outputs completed included:

- Revised Recommendation R1001 The IALA Maritime Buoyage System
- Draft Recommendation on Maritime Resource Name Guidance
- Revised Guideline G1018 Risk Management
- Revised Guideline G1123 The use of IWRAP
- Revised Guideline G1124 The Use of PAWSA MKII
- Revised Guideline G1058 The Use of Simulation as a Tool for Waterway Design and AtoN Planning

The following liaison notes were prepared:

- Liaison note to the ENG Committee regarding Buoy Tender Crew Training
- Liaison note to all committees on cyber security
- Liaison note to VTS on Guideline 1105
- Liaison Note to ENAV regarding the Ship Reporting Guideline

Overall status of the ARM Committee 2018-2022 Work Programme after ARM15:

| 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 | 14 | | | | Complete at ARM14 |
| 1.4.1 | Revised Guideline G1052 Quality Management in [Marine] Aids to Navigation Service Delivery (Dec 2013), removing ISO copied text. | 10 | 12 | 14 | | | | |
| 1.5.1 | Reformat and review the IALA MBS incorporating MAtoN. Needs General Assembly approval. | 8 | 12 | 14 | | | | Complete at ARM15 |
| 1.5.2 | Assist ENAV with development of radio aspects of MAtoN and AMRD with IEC and ITU | 8 | 11 | 12 | | | | Complete |
| 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 | | | | Complete at ARM14 |
| 1.5.4 | Develop guidance for navigators on the use of AtoN | 13 | 14 | 16 | | | | |
| 1.5.5 | Review G1096 Anticipated User e-Navigation Requirements from Berth to Berth, for AtoN Authorities (May 2013) | 10 | 11 | | | | | Deleted |
| 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) | 14 | 16 | | | | | |
| 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 | 14 | | | | Complete at ARM14 |
| 1.5.9 | Identify options for the future use of DGNSS stations in conjunction with ENG review of Recommendation R0150. | 10 | 12 | | | | | ENG Completed |
| 1.5.10 | Develop Guideline on the Use of MAtoN | 8 | 10 | | | | | Complete at ARM12, update of A-126 complete at ARM14 |
| 1.6.1 | Review R0143 Provision of virtual aids to navigation and G1081 Virtual AtoN to reflect developments | 8 | 11 | 13 | | | | Completed at ARM13 |
| 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 | | | | | Postponed until 2022. |
| 3.2.1 | Review relevant sections of NAVGUIDE as requested by Secretariat | 8 | 14 | 15 | | | | Ongoing |
| | Review IALA AtoN questionnaire | | | | | | | Complete |
| WG#2 – Information Services and Portrayal | | | | | | | | |
| 2.2.1 | Review G1084 Procedure of the Authorization of AIS AtoN | 10 | 11 | | | | | Incorporated in review of AIS documentation |

| Task | | Start Session | Planned End Session | Revised End Session | Progress Indicator | | | Status Overview |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------|---------------------|--------------------|--------|-----|---------------------------------------------|
| | | | | | Green | Yellow | Red | |
| 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 | | | | | Incorporated in review of AIS documentation |
| 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 | 16 | | | | Ongoing |
| 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 | 16 | | | | Ongoing |
| 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 | 16 | | | | Ongoing |
| 5.1.5 | Develop Requirements for S-125 | 8 | 14 | 16 | | | | Ongoing |
| 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 | 16 | | | | Ongoing |
| 5.1.7 | Develop guidance on MRN for users | 8 | 14 | | | | | Complete at ARM13 |
| 5.1.8 | Develop MRN Registry Submission & Maintenance Guideline for IALA Secretariat | 8 | 14 | | | | | Completed at ARM14 |
| 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 | 16 | | | | Ongoing |
| 5.1.11 | Monitor the development of S-201 Testbed | 8 | 14 | 16 | | | | Ongoing |
| 5.2.1 | Review G1105 shore side portrayal ensuring harmonisation with e-Navigation related information | 9 | 14 | 16 | | | | Ongoing |
| 5.2.2 | Develop Guideline on ship reporting from the shore-side perspective | | | | | | | Completed at ARM13 |
| 5.3.1 | Develop guidance on the symbology and portrayal of AtoN for charting | 9 | 14 | 16 | | | | Ongoing (with 5.2.1) |
| 6.2.1 | Joint IMO IHO IALA Workshop regarding the management of S-100 PS | 9 | | | | | | TBC |
| 6.2.2 | Participate in ARM led joint workshop on cyber security | 8 | 14 | 16 | | | | Ongoing |
| 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 | 15 | | | | Completed at ARM15 |
| 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 | | | | | Delayed due to developments in IALANET |
| 1.2.3 | Review G1086 Global Sharing of Maritime Data (June 2012) in collaboration with task 1.2.2 (R0142 review) | 9 | 14 | | | | | Delayed due to developments in IALANET |

| Task | | Start Session | Planned End Session | Revised End Session | Progress Indicator | | | Status Overview |
|-------|-----------------------------------------------------------------------------------------------------------------------------|---------------|---------------------|---------------------|--------------------|--------|-----|----------------------------------------------------------|
| | | | | | Green | Yellow | Red | |
| 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 | 15 | | | | |
| 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 toolbox to IMO (SN circular) | 13 | | 15 | | | | Will be progressed at the completion of all other tasks. |
| 3.1.1 | Review G1020 Training Related to [Marine] Aids to Navigation (Dec 2005) | 8 | 14 | | | | | Complete |
| 6.1.1 | Cooperate with WWA in providing Risk Seminar(s) | 8 | 14 | 16 | | | | Ongoing |

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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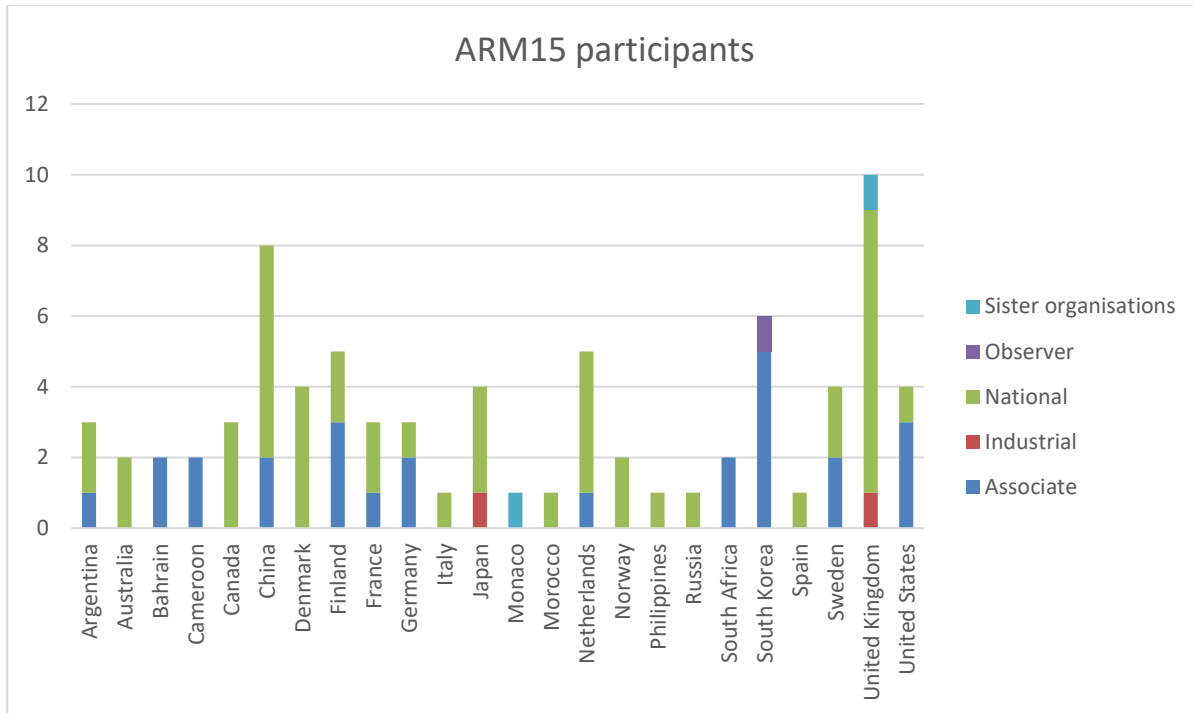
Report of the 15th Session of the IALA

AtoN Requirements and Management (ARM) Committee

1. INTRODUCTION

The 15th Session of the ARM Committee was held virtually from 11 to 25 March 2022 with Phil Day as Chair and Dave Lewald as Vice-Chair. The Secretary for the meeting was Thomas Southall.

78 Participants from 24 countries participated in ARM15. 8 participants attended for the first time.



1.1 Welcome from the Chair of the ARM Committee

The Committee Chair, Phil Day, welcomed the Committee to the fifteenth session of the ARM Committee (ARM15). 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 welcomed all participants to ARM15; he stated:

"I would like to welcome you to ARM 15, which is hopefully the last virtual meeting of the COVID pandemic. More and more countries have lifted or are in the process of lifting the restrictions and it seems like the virus is getting weaker and allow us to live a normal life.

The Secretariat have started normal work routine in the HQ and travels are starting to fill up the agendas again.

So hopefully we will all be together at the next round of committee meetings, but of course with a possibility to participate online if travel is not an option. But we do recommend meeting f2f as soon as possible.

I see you have a very busy schedule for this meeting with a lot of interesting input documents and a lot of work to finish from previous meetings.

I have noted with special interest the many papers on MASS that is taking more and more time, and which is truly cross committee work. Many of the papers relates to VTS, which is again linked to the single window

reporting etc. Very important work on AtoN, MST and related issues to the IMO. The MBS is now in a final stage ready for LAP, Council, and the GA. Also, many interesting papers on Risk Management and of course the draft Standards that needs to be finalized before the GA next year. I must thank the Chinese MSA who has been very productive and posted many papers for the session. Good luck – there will not be much spare time.

As you probably know we hosted a very successful signing ceremony on the new IALA IGO convention. Never has St. Germain en Laye seen so many big black Mercedes with ambassadors from all over the world. A fantastic day and with the great result, that 51 States have now signed the Convention. When 30 States have ratified, accepted, or acceded to the Convention, IALA will be an IGO. That could happen within the next few years, so we need to be prepared. The Secretariat is working on all the new structures and administrative issues that need to be in place for the new Organization.

We thought that things should be normal now after the COVID pandemic, but an even more serious situation is now a reality. We have war in Europe and at this difficult time our thoughts are with our friends and their families and the people of Ukraine.

At times like this, it reminds me that we are privileged to work for an organisation that seeks to bring people together in a spirit of cooperation and compromise, and where understanding and mutual respect are so important. The international institutions and global corporation have again proven to be very important.

I wish you good luck with the meeting and thank you for all the work you are doing in the well-known spirit of the IALA family.”

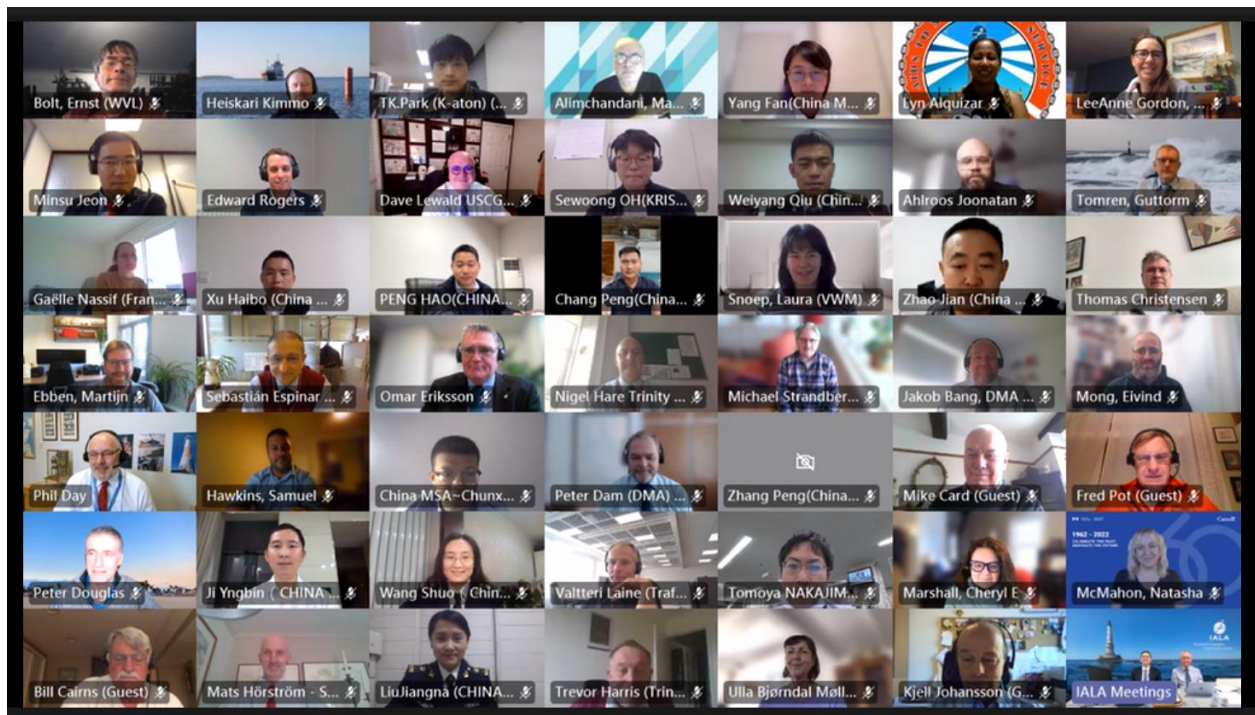
1.3 Approval of the agenda

The agenda was reviewed and approved (ARM15-1.2.1).

1.4 Introductions and Apologies

The Chair welcomed the new participants of the Committee. No apologies were received.

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 ARM15 Action Plan that had been agreed by the ARM Committee Management Team to be progressed during ARM15 through virtual Task Groups (TG). Each task had a deadline for expressions of interest to participate to the specified Task Group Leader by a certain date. Timings of the TG meetings were arranged by each Task Group Leader in liaison with the Secretariat and displayed on a committee dashboard calendar.

Task items that were worked on at ARM15 were displayed in the *Action Plan*, which can be found on IALA Dashboard for ARM.

The deadline for submitting documents to the silent approval procedure was set to 21 March at 17:00 UTC.

2. REVIEW OF ACTION ITEMS FROM ARM14

Input paper ARM15-2.1 refers.

The Committee Secretary confirmed that all Secretariat actions from ARM14 were completed.

3. REVIEW OF INPUT PAPERS

3.1 Input papers to ARM15

Input papers were noted as listed in ARM15-3.1.1.

3.2 Input papers not related to an existing task

The Chair highlighted the following papers:

- ARM15-3.2.1 – Proposals on new guidelines on buoy tender crew operation (From ENG)
Allocated to WG1 for consideration, whilst recognizing a gap in IALA documentation on this topic it was also highlighted that there is a number of ways internationally that these operations are handled.
- ARM15-3.2.2 – ENG Liaison note to ARM on Sustainability (ENG14-12.0.2)
Allocated to WG1 and 3 for consideration, sustainability is something that we should all consider going forward and WG3 have been encouraged to also include this in their work.
- ARM15-3.2.3 – ASM survey result
A draft proposal for a submission to IMO has been received from the Canadian Coast Guard (ARM15-3.2.6) and participants are encouraged to support the submission of this input.
- ARM15-7.3.7 – The IALA Maritime Buoyage System post Style Guide review Feb 22
Considered a principal document for IALA, the working group will finalize the draft, it will be submitted for comment and then discussed with a view to approve the recommendation for Council.

4. REPORTS FROM OTHER BODIES

4.1 IALA

4.1.1 Report on IALA Council

The 74th session of the IALA Council was held virtually from 13 to 17 December 2021 by videoconference. Technical Manager, Minsu Jeon, highlighted the approved documents and points of interest of the ARM Committee.

The report highlighted that:

- Strategy Drafting Group meeting was held on 13 December 2021
- KRISO Technical cooperation on MRN MOU signing ceremony was held on 16 December 2021
- Council workshop on MASS was held 16 December 2021
- 17 new and revised technical documents were approved including 12 guidelines, 2 recommendations and 3 model courses
- Withdrawn IALA Recommendation R0200 overview of E-200 series (E-200-0).
- Update to VTS documentation on the adoption of revised IMO resolution A.1158(32)
- Update of the current drivers and trends
- Approved the revised committee workshop programme for 2023 - 2027
- Input paper on AIS ASM survey

4.1.2 Report of the IALA Policy Advisory Panel

The 44th session of PAP was held virtually over three sessions held between 08 - 10 February 2022.

Key outcomes included:

- The draft recommendation and guideline on MASS currently being developed by ENAV should be jointly developed cross-committee with each committee authoring different topics within them, with ENAV being the committee ultimately responsible for its development. This does not affect the committees' individual tasks currently underway.
- The PAP encouraged an abstract on sustainability should be submitted to be delivered at the IALA Conference and a future workshop or seminar should be planned in the future.
- The PAP also proposed that ENG committee consider a workshop on sustainability in the provision of AtoN.
- There will be an inter-committee task group working on maritime services, that will consider many issues surrounding this topic, such as:
 - Merging MS 1, 2 and 3 (VTS)
 - Develop a new MS 17 on AtoN (ARM)
 - Develop a new MS 18 on PNT (ENG)
 - Develop an IALA guideline on MS (ARM)
 - To highlight to IMO the inconsistencies that have become apparent in the period since the MSC.1/Circ.1610 Circular was first approved.

Output from this group will be circulated to all committees and an update submitted to NCSR 9 to inform IMO of the work of IALA in this area. The deadline for submission to IMO for small papers of less than 6 pages is 18th April 2022.

- That the ENAV Committee develop a proposal for a workshop on digital maritime radiocommunication and submit it to Council for consideration.

4.2 IMO

Minsu briefed the Committee on the programme of IMO for this year and pointed out the topics of interest as depicted below.

| Date | Meeting | Type | Topics |
|-----------------|----------------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------|
| 7 – 11 February | SUB-COMMITTEE ON HUMAN ELEMENT, TRAINING AND WATCHKEEPING (HTW) – 8th session | Remote meeting | • STCW |
| 20 – 29 April | MARITIME SAFETY COMMITTEE (MSC) – 105th session | TBC | • MASS |
| 9 – 13 May | FACILITATION COMMITTEE (FAL) – 46th session | TBC | • Compendium, MSW |
| 16 – 20 May | 6th meeting of the Expert Group on Data Harmonization | TBC | • Data elements |
| 21 – 30 June | SUB-COMMITTEE ON NAVIGATION, COMMUNICATIONS AND SEARCH AND RESCUE (NCSR) – 9th session | TBC | • Maritime service • SOLAS, GMDSS • PS for satellite receiver • ITU • ECDIS |
| 25 – 29 July | SUB-COMMITTEE ON IMPLEMENTATION OF IMO INSTRUMENTS (III) – 8th session | TBC | • IMSAS |
| 2-11 Nov | MARITIME SAFETY COMMITTEE (MSC) – 106th session | TBC | |

4.3 Digital@Sea

The schedules of the D@S conferences have been disturbed by the COVID situation, but now things are getting back to normal, and the D@S North America will take place on 11 - 12 May 2022, followed by the Asia Pacific event in the 3rd quarter of 2022 and finally D@S International in 2023.

The schedules of the D@S conferences have been disturbed by the COVID situation, but now things are getting back to normal. D@S North America will take place on 11 - 12 May 2022 in conjunction with the RTCM Annual Assembly 9-10 May. Digital @ Sea participants are encouraged to register for and attend the RTCM Annual Assembly as well. These events will be followed by the Asia Pacific event in the 3rd quarter of 2022 and finally D@S International in 2023.

4.3 IHO/IALA liaison

The joint IALA / IHO workshop on S-100/200 will take place 5 – 9 September in Norway.

The sixth IALA/IHO technical cooperation meeting was held on 26 Nov 2021. The meeting discussed how to harmonize the terms and definitions of Marine Aids to Navigation and portrayal of IALA related product specifications. it was a good chance to exchange the development status of the product specifications.

| Domain | PS | Title | Developer | Version |
|-------------|------------|------------------------------------|-----------|---------|
| Positioning | AtoN S-201 | AtoN information | ARM | 1.0.0 |
| | S-240 | DGNSS almanac | ENG | 1.0.0 |
| | S-245 | eLoran ASF | ENG | 1.0.0 |
| | S-246 | eLoran almanac | ENG | 1.0.0 |
| | S-247 | eLoran reference stations | ENG | 1.0.0 |
| Comms. | S-230 | Application Specific Message (ASM) | ENAV | Planned |
| VTS | S-210 | Inter VTS exchange | VTS | Started |
| | S-211 | Port Call Message | IPCDMC | 1.0.0 |
| | S-212 | VTS digital information service | VTS | 0.6.4 |

Minsu reported the result of IHO GI Registry Domain Control Body (DCB) workshop which was held on 3 Feb 2022. The event was a training event and summarized the roles and responsibilities of the DCB.

4.4 ITU

Minsu Jeon highlighted IALA / ITU matters including a report from Stefan Bober. He highlighted the work surrounding VDES and AIS. He anticipated input from IMO NCSR which may trigger the revision of the ITU AIS standard.

4.5 ESNB Tsunami Monitoring

Minsu Jeon reported that the UN regional body called ESNB had its 4th session in October 2021 on this matter. The body is working on the technical side of monitoring waves specifically utilising underwater cables with pressure sensors.

5. PRESENTATIONS

All recordings of the presentations given at ARM15 can be found on the IALA Dashboard for All Committees under Resources / Committee Presentations (login necessary). The following presentations were given at ARM15:

- SMART AtoN project / Sewoong Oh
- Digitizing the IALA Questionnaire: IALA portal / Minsu Jeon, IALA

6. WORK PROGRAMME (2018 - 2023)

6.1 ARM Task Plan

An updated Task Plan (ARM15-11.1.1) will be forwarded to ARM16.

Action item:

The Secretariat is requested to forward the Updated Task Plan post-ARM15 (ARM14-11.1.1) to ARM16.

6.2 Action Plan for ARM15

The ARM15 Action Plan, which can be found [here](#), was noted by the Committee. The Secretary reminded participants that all meetings during the session would be posted on the ARM15 dashboard.

6.3 ARM task proposals for work programme 2023 – 2027

The new task register for the next Work Programme (WP) will, beside the tasks that are being carried over from this WP, include new tasks that are provided in the new template format for the next working period.

The Chair urged that any task proposals should be accompanied by a full entry for the Task Register using the updated template found in the resources section of the ARM dashboard.

Action items:

Committee participants are asked to provide proposals of new tasks for the next WP in the new template format, found in the resources section of the ARM dashboard as input to ARM16.

6.4 IALA Standards

The work on the standards have been completed by the committees and they are now with the Secretariat for finalizing.

6.5 IALA MBS

See section 8. WORKING GROUP 1 – NAVIGATIONAL REQUIREMENTS (WG1)

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 |
| WG3 – Risk Management | Roger Barker / Ed Rogers |

8. WORKING GROUP 1 – NAVIGATIONAL REQUIREMENTS (WG1)

ARM15 has been an exciting session, several documents have been processed by the various WG1 task groups with some output submitted for IALA Council approval. As Chair of WG1 Guttorm Tomren stated how proud he was of the work and commitment that the WG members have shown during this session. The major development is of course the finalization of the MBS, which commenced at ARM9. As documented below, nearly all the planned activities have been concluded.

8.1 Response to input papers

WG1 received an input from the ENG Committee (ARM15-3.2.2) regarding enhancing environmental sustainability. The ARM Committee notes the input and suggests that the ENG Committee consider submitting a cross-committee task proposal 2023-2027 on this subject.

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

Task group leader: Natasha McMahon

The task group continued the revision of the MBS, taking into consideration the initial gap analysis that was completed at ARM9, as well as all the work from ARM 10, 11, 12, 13 & 14. For ARM15, there was also input from ENAV (ARM15-7.3.8 & 7.3.8.1), we thank the Committee for their input. The input was shared informally and included in the review during ARM14. During ARM15, the task group reviewed the draft again to ensure all input was considered. In February 2022, the MBS was put through a style guide exercise by the Secretariat to conform with IALA style requirements. The task group reviewed and input some comments received, cleaned up some of the language to improve clarity and ensured each section was standardized. The AIS AtoN ITU message and code numbers were removed as well as the addition of a section addressing consideration of inclusion of sustainability.

Other tasks related to the MBS, such as tasks 1.5.3 (GAP for MBS) and 1.5.10 (MAtoN), are completed and have been considered in the revision of the current MBS.

The task group have considered all the liaison notes and edits. We would like to thank all IALA members who have provided comments.

Action items:

The Secretariat is requested to forward ARM15-11.2.1.1 Recommendation R1001 The IALA Maritime Buoyage System to LAP and subsequently to Council for approval.

The Secretariat is requested to use the depicting graphics and accompanying chart found at the end of the document and update them with MAtoN and AIS in the visual image.

8.3 Revise R0113 Marking of Bridges to become a guideline positioned under R0139 (Task 1.5.8.1)

Task group leader: Trevor Harris

The input paper ARM15-7.3.10 “R0113 The modifications to the marking of fixed bridges and other structures over navigable waters” was presented by China MSA and discussed by the group. The group also discussed

the information papers brought forward from ARM14 (ARM15-7.3.5 from China MSA and ARM15-7.3.6 from KAtON).

The group agreed to consider these proposals when reviewing the document and incorporate the examples given where possible and if applicable. It was noted that in paper ARM15-7.3.10 the light flash characteristic shown for the “Pier Warning” marking is identical to a North Cardinal mark, although China MSA pointed out the colour is different (Yellow and not White).

KAtON introduced their information paper (ARM15-7.3.6) and the necessity to give better guidance on the marking of bridge piers, as this is very vague in the current R0113, and this was agreed.

China MSA had submitted the information paper (ARM15-7.3.5) on Bridge Collision Warning Systems to ARM14 and this was again discussed. China MSA’s paper on Marine Electronic Fence (ARM15-3.2.4) was mentioned although this paper will be considered further under other ARM tasks involving AIS documentation. The group discussed this type of electronic system and AMSA provided a document they had presented to the IMO on similar usage of AIS for warning of dangers. The USCG showed a picture of a “smart bridge” project they have underway showing AIS AtoN marking bridge piers and navigable channels. All these points will be taken into consideration when formulating the new document, input on these matters can now be given drawn from these experiences around the world.

Two sessions were held and Recommendation R0113 was copied into the Guideline template to become a working paper. It was decided that the document needs to also reference other types of bridges and not just fixed bridges so the title will likely be changed.

Work continued enhancing and reordering the text and adjusting the layout of the document to incorporate some of the suggestions provided in the submitted papers. A track changed working paper has been shared between the group and is also on the file share.

Action items:

The Secretariat is requested to forward document ARM15-1.5.8.1 WP Track Changed Draft Guideline Gxxxx Marking of Bridges to ARM16 as a working paper.

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

Task group leader: Johan Westerlund

No meetings were held at ARM15. Work on this item was completed during ARM14 and is awaiting feedback from the current round of committee meetings. Any feedback received will be taken into consideration during ARM16, after that, the document will be sent to Council for approval. The input paper ARM15-7.2.2 Proposal for revision of IALA Recommendation R0132 was considered, and it is suggested that the recommendation is opened to be revised at ARM16, along with any feedback received to the revised G1052.

Action items:

The Secretariat is requested to forward ARM15-11.2.2.2 WP Proposal for revision of IALA Recommendation R0132 Quality Management for Aids to Navigation Authorities (ARM15-7.2.2) to ARM16 as a working paper.

8.5 Develop Guidance for Navigators on the use of AtoN (Task 1.5.4)

Task group leader: James Collocott

Three input papers were considered at ARM15:

- ARM15-3.2.1 Proposals on new guidelines on buoy tender crew operation (From ENG). This was considered with a view of incorporating it in the draft ARM WP TG-1 5 4_WP-Guidance on AtoN Training and Awareness for Mariners, as the latter includes a section on the training of mariners regarding AtoN. Following discussion, the view was that the topic of the draft TG-1 5 4_WP is not well-suited to address the training requirements of the buoy tender crew operation as it does not fall within the ambit of providing guidance on AtoN training and awareness for mariners. The Committee agreed that the topic of buoy tender crew operations dealing with the deployment and retrieval of AtoN does warrant guidance being issued by IALA and hence supports the idea of a new guideline to address this topic. The Committee was furthermore of the opinion that such a guideline may require cross-

committee work between ARM and ENG. Therefore, a liaison note to the ENG Committee was approved.

- ARM15-7.3.2 WP TG-1 5 4 WP Guidance on AtoN Training and Awareness for Mariners V2 was reviewed paragraph by paragraph and work continued during the whole ARM15.
- ARM15-7.3.9 WP WG 1 Task 1.5.4 IALA Dictionary New and amended definitions, this will be attended to once item (Guidance on Aton) above has been finalized, noting that all the contents of this paper relate to item (b) above. Meaning that both will have to be reviewed to before Task 1.5.4 can be complete.

To progress this task with a view to finalise it at ARM16, intersessional work is envisaged post ARM15.

Action item:

The Secretariat is requested to forward the ARM15-11.2.1.2 Liaison note to the ENG Committee regarding Buoy Tender Crew Training for their consideration.

The Secretariat is requested to forward ARM15-11.2.2.3 WP_Guidance on AtoN Training and Awareness for Mariners to ARM16 as a working paper.

That Committee participants are invited to join the intersessional task group working on Task 1.5.4 develop Guidance for Navigators on the use of AtoN and to express their interest to James Collocott (james@collocott.co.za) by 22 April 2022 noting the dates and times of the intersessional meetings will be published on the IALA ARM Committee Dashboard. The Intersessional Group Leader to provide input from the group to ARM16.

8.6 Develop guidance on the provisions of AtoN for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS), (Task 1.5.7)

Task group leader: Guttorm Tomren

This task was initially started at ARM14, two intersessional meeting have been held after ARM14. During ARM15 three meetings were conducted. The intersessional input paper was used for these meetings. Input papers were also considered. One meeting was held with the ARM Chair to seek guidance on collaboration with the other committees. The task will continue at ARM16, input papers are to be forwarded as working papers. Intersessional work is planned, which may also include other committees. The TG have been liaising with the ENAV TG leader informally on this task.

Action items:

The Secretariat is requested to forward input papers ARM15-11.2.2.4 WP Input paper on MASS (ARM15-7.3.1), ARM15-11.2.2.5 WP Draft MASS Rec-WG2 review (ARM15-7.3.1.1), ARM15-11.2.2.6 WP Draft MASS Guideline-WG2 review (ARM15-7.3.1.2), ARM15-11.2.2.7 WP Report on the IALA Workshop on marine AtoN in the autonomous world (ARM15-7.3.1.1), ARM15-11.2.2.8 WP Possible case studies- Operations and Trials of Autonomous Ships (ARM15-7.3.4), ARM15-11.2.2.9 WP TG1.2.5 Discussion paper – Implications of MASS from a VTS perspective post plenary (ARM15-7.3.4.1), ARM15-11.2.2.10 WP intersessional (post meeting 3) (ARM15-7.3.11) to ARM16 as a working paper.

That Committee participants are invited to join the intersessional task group working on ARM's work on MASS and to express their interest to Guttorm Tomren (guttorm.tomren@kystverket.no) by 22 April 2022 noting the dates and times of the intersessional meetings will be published on the IALA ARM Committee Dashboard and the Intersessional Group Leader to provide input to ARM16.

8.7 Full review of A-126, G1084 and other AIS associated documentation (Task 2.2.1a)

Task group leader: Johan Westerlund

The task group conducted two meetings during ARM15 and discussed how best to structure AIS and ASM documentation going forward. Several documents including A-126 are more than ten years old, AIS and the use thereof has developed since then. It was also found that documentation is often in contradiction with others.

The documentation spans at least two standards, more than one recommendation and several guidelines, it may be necessary for this task to be made a cross committee task between ARM, ENG, ENAV and VTS. The work will also impact the IALA NAVGUIDE.

The group agreed on dividing guidelines under the recommendation in two categories – Operational Use of AIS AtoN and Technical Description of AIS AtoN. The initial focus of the task group will be mapping existing documents and allocating them to either category, and thereafter start revising the contents of the documents to see if some documents may be merged or need to be split into separate guidelines. The Secretariat are requested to assist in this task.

The input papers from China MSA, 3.2.4 *Proposals on formulating technical standards for Marine Electronic Fence* and 3.2.5 *Application of e-AtoN for marking wrecks in Shanghai Port*, were discussed and the group agreed that these are excellent user cases and would like to include them as examples in future documentation as this task progresses.

The task group will have intersessional meetings to discuss and identify documents that need to be considered.

Action items:

That the Secretariat considers taking a coordinating role and review the document catalogue for documentation relating to AIS and set up a spreadsheet listing all identified documentation, the responsible committee for each document and a time plan for their revision during the upcoming work period.

*The Secretariat is requested to forward ARM15-11.2.2.11 WP *Proposals on formulating technical standards for Marine Electronic Fence* (ARM15-3.2.4) and ARM15-11.2.2.12 WP *Application of e-AtoN for marking wrecks in Shanghai Port* (ARM15-3.2.5) to ARM16 as working papers.*

That Committee participants are invited to join the intersessional task group working on the full review of A-126, G1084 and other AIS associated documentation (Task 2.2.1a) and to express their interest to Johan Westerlund (Johan.Westerlund@Sjofartsverket.se) by 22 April 2022 noting the dates and times of the intersessional meetings will be published on the IALA ARM Committee Dashboard. The Intersessional Group Leader to provide input from the group to ARM16.

8.8 Revision of IALA NAVGUIDE

The NAVGUIDE volunteers assisting the Secretariat held a meeting during ARM15 to discuss updates and comments brought forward for the new version of the NAVGUIDE. It was noted that certain sections of the NAVGUIDE had been amended substantially and participants expressed their concern on this. The group propose that a discussion in PAP should consider whether substantial amendments, particularly the deletion of large amounts of valid information should be accepted.

Action items:

That the PAP should consider whether substantial amendments, particularly the deletion of large amounts of valid information should be accepted.

The Secretariat should consider developing update procedures for the NAVGUIDE and propose them to PAP.

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

As elsewhere, WG2 attendance was virtual and because of this, the 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 many participants (18). The Chair expressed his appreciation for the hard work and enthusiasm of the Working Group.

A review of the following input paper & Liaison Notes was conducted by the WG Plenary:

- ARM15-8.5.1 Liaison note to ARM regarding Ship Reporting Guideline (ENAV28-12.2.1) – Noted and a response LN was drafted by the Ship Reporting TG.

9.1 Develop guidance on cyber security for AtoN authorities in collaboration with all other Committees. (Task 1.2.6.)

Task group leader: Martijn Ebben

During ARM15 and ENAV29 a joint task group on cyber security (ENAV WG1 / ARM WG2 TG1.2.6) was formed, led by Martijn Ebben. 15 Participants from all technical committees, including those who have attended ENG and VTS, joined. The task group used the report from the cyber security workshop in November 2021 as a starting point for drafting a guideline and a recommendation on cybersecurity. Various other input documents, received in various committees over the recent years have also been considered.

The two draft documents focus on the IALA-specific aspects of cybersecurity, namely Maritime Services in the Context of e-Navigation and AtoN including VTS. A Liaison Note, requesting the review, comments and amendments on the recommendation and guideline, was sent to all technical committees.

The task group hopes to proceed on the documents during the second half 2022 committee season, depending on the received input and the possibilities to cooperate inter-committee when meetings will be physical again.

Various other topics following from the report of the cyber security workshop have been discussed and may lead to further action during the next working period.

Action items:

That the Secretariat is requested to forward ARM15-11.3.2.1 WP draft Recommendation on Cyber Security and ARM15-11.3.2.2 WP Guideline on Cyber Security to ARM16 as working papers.

The Secretariat is requested to forward the ARM15-11.3.1.1 LN from ARM to all committees on cyber security for their consideration.

9.2 Maritime Connectivity (Task 4.2.1)

Task group leader: David Lewald

No action taken in ARM15.

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

Task group leader: Michael Strandberg

No action taken in ARM15. However, an inter-committee group led by the ARM Vice-chair was convened to draft an input paper to IMO NCSR9 regarding IALA's intention to merge Maritime Services 1, 2, and 3 into a single MS Service description and to create a new MS description for AtoN.

9.4 New Guideline on Operational considerations for S-200 (S-201 AtoN information and S-230 Application Specific Messages) (Task 5.1.2)

Task group leader: David Lewald

No action taken during ARM15.

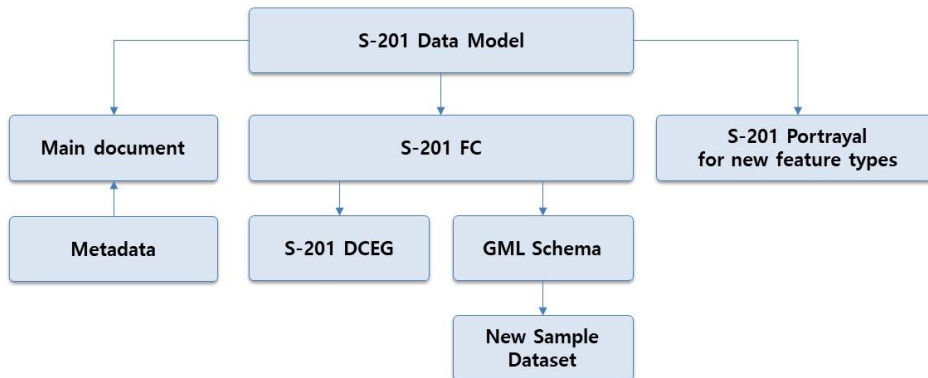
9.5 Develop a Product Specification S-201 (Task 5.1.3) & Develop Requirements for S-125 (Task 5.1.5)

Task Group Leader: Dr. Sewoong Oh

The task group held 4 meetings during the ARM15 session. Building on work completed in previous ARM sessions, the TG worked on 3 separate work areas:

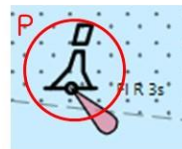
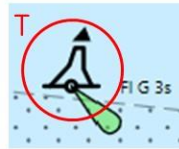
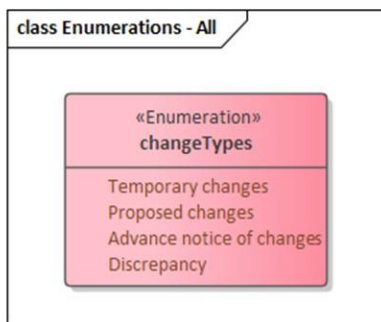
1. Updating the S-201 AtoN information product specification (also see diagram below)
- The TG reviewed the agreed data model and noted the S-201 feature catalogue development.

- The registry issues were discussed, and new data types will be registered in the S-100 GI registry.
- The TG agreed to follow the S-100 edition 5.0 which includes major changes like GML schema and metadata.
- Portrayal for new feature types like moorings will be developed. USCG provided examples of their visualization of moorings and the group agreed to develop portrayals from these user cases.
- Updating process of S-201 packages was identified and will be followed intersessionally after ARM15.



2. Drafting the S-125 Maritime Navigational Service product specification

- The group review the proposed data model and drafted main document.
- The S-125 data model includes information type named as AtoNStatusInformation which includes attribute types to deliver Aton changes like change details and change types.
- The group reviewed the data model and agreed upon some amendments. The data model will now be used for the further development of first feature catalogue.
- The metadata values like edition number, update number, issue date and issue time will be used to update the S-125 dataset.
- An important issue is how to portray the Aton changes. Using the change types (temporary changes, proposed changes, advance notice changes, discrepancy), a Circle and letter symbol might be used with the existing AtoN symbols.
- The group agreed that the proposed portrayal could be a baseline to improve the S-125 portrayal through testing and consultation.
- The portrayal discussion of AtoN will be opened to whole ARM members and any comments and feedback will be welcomed.



Change Types

1. Temporary changes : T
2. Proposed changes : P
3. Advance notice of change : A
4. Discrepancy : D

(Option) Restored



3. Vision outline of S-125 marine navigational services product specification

- The group reviewed the questions and comments from the IHO NIPWG and answered their questions.
- A liaison paper to IHO will be prepared at a later date.
- The group discussed the change the title of S-125 and intend to submit the proposed title as digital list of marine AtoNs to the IHO NIPWG.

Action items:

That Committee participants provide comments on the portrayal of AtoN to Sewoong Oh (osw@kriso.re.kr).

9.6 Develop Annex C to S-201 (Task 5.1.4)

Task group leader: Dr. Sewoong Oh

Work is ongoing. No discussions were held on implementation guidance documents, but it was recognized that the IALA ARM membership should be encouraged to share their experience with implementation of S-201 as the guidance is intended to be a collection of experience and best practice.

9.7 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) (Task5.1.6)

Task group leader: David Lewald

Work is ongoing.

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

Task group leader: LeeAnne Gordon

The Task Group met once during ARM15 to review and finalize the Recommendation on Maritime Resource Name, which was forwarded for silent approval during the session.

Additionally, the Task Group met once to consider future steps for MRN and possible action items for the next Work Plan. The Maritime Resource Registry (MRR) was discussed, as well as anticipated updates to MRN documentation, including G1143, G1164, and the newly created Recommendation.

Action item:

The Secretariat is requested to forward ARM15-11.3.1.2 Recommendation on MRN to Council for approval.

9.9 Develop Recommendation to cover MRN Guidelines (Task 5.1.9)

Task group leader: LeeAnne Gordon

As above, section 9.8.

9.10 Coordinate Committee support for IALA representation at IHO working groups in cooperation with Secretariat (HSSC, S-100WG, NIPWG) (Task 5.1.10)

Task group leader: David Lewald

Work is ongoing.

9.11 Monitor the development of S-201 Testbed (Task 5.1.11)

Task group leader: Dr. Sewoong Oh

Work is ongoing.

9.12 Review G1105 shore side portrayal ensuring harmonisation with e-Navigation related information inc. (Task 5.3.1)

Task group leader: David Lewald

During ARM13 - 15, WG2 has undertaken a review of the guideline: SHORE-SIDE PORTRAYAL ENSURING HARMONISATION WITH e-NAVIGATION RELATED INFORMATION (G1105). Simultaneously, the VTS Committee has also been preparing edits to G1105. With the ARM Committee convening prior to VTS in the sequence of the first half 2022 committee sessions, WG2 harvested the latest version of the VTS draft (from VTS50 working papers) and merged the two drafts. A liaison note to VTS was drafted introducing the merged draft guideline for their review. WG2 intends to finalize the draft guideline in ARM16.

Action item:

The Secretariat is requested to forward the ARM15-11.3.1.3 Liaison Note to VTS on Guideline 1105 for their consideration.

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

Task group leader: Fred Pot

The TG met once during ARM15 and completed a draft response to ENAV Liaison Note (ARM15-8.5.1). During the drafting session, it was noted that future work on Ship Reporting will require cross-committee coordination with ENAV and VTS to address harmonization of ship/shore information exchange methodologies for all e-Navigation Maritime Services.

While considering future work on this task during the ARM15 WG2 Opening Plenary, it was decided not to consider offering a second edition of the Guideline for the remainder of this work period. Confirmation and clarification from Council is needed regarding their expectations related to ship reporting within the IALA remit. We expect that future work on this topic will be indicated at IALA Conference and will be taken up when ARM reconvenes for the next work period.

Action item:

The Secretariat is requested to forward the ARM15-11.3.1.4 Liaison Note to ENAV regarding the Ship Reporting Guideline for their consideration.

10. WORKING GROUP 3 – RISK MANAGEMENT (WG3)

Once again, the work was carried out by virtual meetings instead of physical attendance at the IALA HQ in Saint Germain-en-Laye. Based on the experience from the last Committee session, and as WG3 is a rather small working group, it was decided by the Chair and Vice-chair to complete most meetings, in general, as a rolling working group plenary.

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

Thereafter an introduction of Chair and Vice-Chair and their background.

- Chair: Roger Barker
- Vice-chair: Edward Rogers
- Task Group Leaders: Ernst Bolt, Sarah Robinson, Jakob Bang, and Edward Rogers.
- Working Group Participants: Raul Escalante, Valario Cordialo, Dawn Seepersad, Tom Southall, Omar Erikson, Moahmed Khurshid, Pieter-Chris Blom, Valtteri Laine, Naehyuk Yoo, Zhimin Zhang, Yeo Jimin, Ke Ranxuan, and Ji Jongbin.

The WG commenced its work by agreeing on an agenda based on Task Plan 2018 - 2022:

- 1.2.1 Review G1018 Risk Management to ensure compatibility with risk toolbox. Includes full review of underlying Risk Toolbox documentation G1123, G1124, G1138.
- 1.2.1.1 Review of underlying Risk Toolbox documentation – G1138 The Use of The Simplified IALA Risk Assessment Method (SIRA) (part of task 1.2.1).
- 1.2.1.2 Review of underlying Risk Toolbox documentation -G1124 The Use of Ports and Waterways Safety Assessment (PAWSA) MkII Tool (part of task 1.2.1).
- 1.2.1.3 Review of underlying Risk Toolbox documentation -G1123 The Use of IALA Waterway Risk Assessment Programme (IWRAP MkII) (part of task 1.2.1).
- 1.2.4 In cooperation with ENG (task 1.2.1) revise R0138 and G1058 and G1097 on simulation use by AtoN authorities.
- 1.2.7. - Develop document to promulgate IALA risk management toolbox to IMO (SN circular).

The agenda for ARM15 was primarily to finalize the over-arching guideline G1018 Risk Management and the underlying guidelines for PAWSA (G1124), and IWRAP (G1123). Ongoing work was undertaken on development of SIRA G1138 (in conjunction with the IALA WWA) and G1058 on Simulation.

During ARM15 the following guidelines were submitted for Committee silent approval, G1018 Risk Management, G1124 PAWSA, G1123 IWRAP and G1058 Simulation.

10.1 Review G1018 Risk Management to ensure compatibility with risk toolbox. (Task 1.2.1)

Task Group leader: Ernst Bolt

The TG continued a comprehensive review of the finalized risk management guideline G1018 document in plenary. The core structure was confirmed to be in place and the level of information provided to the users is clear and succinct without unnecessary duplication in the guidelines for PAWSA, IWRAP, SIRA, and Simulation. The guideline has been submitted for silent approval by the ARM committee.

Included within G1018 is the new IALA Risk Management Summary (IRMAS) / One Page Risk Assessment (OPRA). As was recognized in ARM14, organizations need to both record and document the process of risk assessment (IRMAS) and have a simple risk assessment tool for small scale assessments (OPRA).

A consolidated IRMAS/OPRA tool was developed intersessionally in both excel standalone format (Ernst Bolt) and as a web-based application (Edward Rogers).

Having completed submission of the underlying guideline for silent approval, work was then undertaken for committee to be appraised of new IRMAS/OPRA tools. It was agreed to develop these tools further during intersessional work up to ARM16 in conjunction with IALA WWA to ensure the tools could be easily accessed by members.

Action item:

The Secretariat is requested to forward ARM15-11.4.1.1 Guideline G1018 Risk Management to Council for approval.

10.2 The review of the Guideline for SIRA (G1138)

Task group leader: Edward Rogers

The review of the Guideline for SIRA (G1138) continued in WG plenary.

An overview was given regarding queries still to be addressed with the correlation between the SIRA G1138, G1018 Risk Management, IALA dictionary and the documentation currently used by the WWA in training courses.

Much discussion was undertaken around SIRA definitions and interface with G1018, IMO FSA and IALA WWA training courses. A standardized list of definitions was developed and the WG Chair Roger Barker, requested IALA World-Wide Academy (WWA) (Dawn Seepersad / Sarah Robinson) review these definitions in relation to the IALA Dictionary and WWA SIRA training course notes / workbook – this will be undertaken intersessionally. Following this an intersessional meeting will be hosted to review the SIRA G1138 with IALA WWA and Task Group Leader Edward Rogers to develop a draft G1138 for input into ARM16.

Action item:

The Secretariat is requested to forward ARM15-11.4.2.2 WP Guideline G1138 SIRA to ARM16 as a working paper.

10.3 The review of the Guideline for IWRAP (G1123)

Task group leader: Jakob Bang

The finalization of the Guideline G1123 IWRAP continued in plenary, with very minor final revisions made. The Guideline entered the silent approval process as one of the first documents at the beginning of ARM15.

Action item:

The Secretariat is requested to forward ARM15-11.4.1.2 Guideline G1123 The use of IWRAP to Council for approval.

10.4 The review of the Guideline for PAWSA (G1124)

Task group leader: Sarah Robinson

The task group reviewed the work carried out at ARM14 and finalized the review of the Guideline. The output document has been drafted for submission to Council as a revised Guideline version. This revision includes separation of the overview of the Guideline from the annex.

The annex contains the previously formed “how to guide” for the PAWSA methodology within the Guideline but this will now form a separate PAWSA “manual”, which will be held and maintained by the IALA WWA.

The revised Guideline now presents an overview of the PAWSA methodology, together with suggested strengths and limitations and guidance on where to find the manual. A small group (including Mahesh Alimchandani, Neil Trainor, Samuel Hawkins, and Dawn Seepersad) will work on the manual over the next couple of months to ensure it is fit for purpose and aligned with the revised Guideline and the teachings of the IALA WWA.

Action item:

The Secretariat is requested to forward ARM15-11.4.1.3 Guideline G1124 The Use of PAWSA MKII to Council for approval.

10.5 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)

Task group leader: Roger Barker

Further development of the IALANET has been affected by the pandemic and is currently put on hold.

This task and specific work on R0142 and G1086 will be progressed in future sessions of the group depending on progress of the IALANET. However, the Chairman will maintain close contact with the WWA and the Dean on this important area of work.

Action item:

The Secretariat is requested to forward ARM15-11.4.2.1 WP Guideline 1086 Ed.1 Global Sharing of Maritime Data & Information (ARM15-9.1.9) as a working paper to ARM16 for further consideration.

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

Task group leader: Roger Barker (formerly Cathrine Steenberg)

The Guideline for simulation G1058 had been reviewed and modified during ARM10, ARM13, ARM14.

As part of the review of G1058, it was decided to discontinue G1097 on the technical features of simulation, combining this document as an annex to G1058.

An overview of the amended document was presented to WG3 and after very minor textual amendments was submitted for silent approval.

Action item:

The Secretariat is requested to forward ARM15-11.4.1.4 Guideline G1058 The Use of Simulation as a Tool for Waterway Design and AtoN Planning to Council for approval and also to approve the withdrawal of Guideline G1097 Technical Features and Technology Relevant for Simulation of AtoN.

10.7 Develop document to promulgate IALA risk management toolbox to IMO (SN circular) (Task 1.2.7)

Task 1.2.7 will be started at ARM16 now that G1018 Risk Management has been finalized.

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

Coordination and cooperation between the WWA, its lecturers and WG3 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

No matters arising.

12. REVIEW OF OUTPUT AND WORKING PAPERS

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

The output from ARM15 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 ARM15 session.

13. DATE AND VENUE OF NEXT MEETING

ARM15 is planned to be held between 24 - 28 October 2022 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 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 in person during ARM16.

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.



15th Meeting of the AtoN Requirements and Management Committee (ARM15)

The 15th meeting of the **ARM Committee** will be held from 11 - 25 March 2022 virtually.

The opening plenary will commence at 1100 – 1300 UTC on Friday 11 March 2022, and the closing plenary will begin at 1100 – 1300 UTC on Friday 25 March 2022.

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 15
 - 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) Minsu Jeon
 - 4.2. IMO Minsu Jeon
 - 4.3. Digital@Sea Minsu Jeon
 - 4.4. IHO/ITU/IALA liaison Minsu Jeon
5. Online presentations (via webinars on specific dates and times to be announced)
 - 5.1. SMART AtoN project Sewoong Oh
 - 5.2. Digitizing the IALA Questionnaire: IALA portal Minsu Jeon
6. Work Programme (2018 - 2022)
 - 6.1. ARM Task Plan
 - 6.2. Action plan for ARM15
 - 6.3. ARM task proposals for work programme 2023 – 2027
 - 6.4. IALA Standards
 - 6.5. IALA MBS
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. Committee wide (inc. 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 organization in alphabetical order:

| Surname | Name | Organization | E-mail |
|----------------|---------------|----------------------------------------------------------|----------------------------------------------|
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ANNEX C LIST OF INPUT PAPERS

All papers are posted on the Committee section of the IALA website.

| Meeting | Paper Number | Input Paper Title | Source | Presented by / WG |
|---------|--------------|-----------------------------------------------------------------------------------------------------------|----------------------|-------------------|
| ARM15- | 1.2.1 | Provisional Agenda | IALA Secretariat | All |
| ARM15- | 2.1 | Action Items from ARM14 | IALA Secretariat | All |
| ARM15- | 3.0 | Input paper committee meeting template | IALA Secretariat | All |
| ARM15- | 3.1.1 | Input paper list | IALA Secretariat | All |
| ARM15- | 3.2.1 | Proposals on new guidelines on buoy tender crew operation (From ENG) | ENG14/China MSA | WG1 |
| ARM15- | 3.2.2 | ENG Liaison note to ARM on Sustainability (ENG14-12.0.2) | ENG14 | WG1 |
| ARM15- | 3.2.3 | ASM survey result | IALA Secretariat | WG2 |
| ARM15- | 3.2.4 | Proposals on formulating technical standards for Marine Electronic Fence | China MSA / GMU | WG1/2 |
| ARM15- | 3.2.5 | Application of e-AtoN for marking wrecks in Shanghai Port | China MSA | WG1 |
| ARM15- | 3.2.6 | Update on submission to NCSR on AIS connection to ECDIS | Canadian Coast Guard | WG2 |
| ARM15- | 4.4.1 | IALA Report on ITU-R WP5B meeting 29 Nov to 12 Dec 2021 fin | S Bober | WG2 |
| ARM15- | 4.4.2 | Liaison statement to IMO on the revision of ITU-R M.1371-5 | IALA Secretariat | WG2 |
| ARM15- | 4.4.2.1 | LIAISON STATEMENT TO INTERNATIONAL MARITIME ORGANIZATION ON THE REVISION OF RECOMMENDATION ITU-R M.1371-5 | IALA Secretariat | All |
| ARM15- | 4.4.3 | Report IHO IALA Technical 6th Coordination Meeting v3 | IALA Secretariat | All |
| ARM15- | 6.1.1 | ARM Task Plan post ARM15 Chairs Meeting | ARM CMT | All |
| ARM15- | 7.2.1 | WP draft Guideline G1052 Quality-Management-Systems-for-AtoN-Service-Delivery (ARM14-7.2.2) | ARM14 | WG1 |
| ARM15- | 7.2.2 | Proposal for revision of IALA Recommendation R0132 Quality Management for Aids to Navigation Authorities | China MSA | WG1 |
| ARM15- | 7.3.1 | WP Input paper on MASS (ARM14-7.2.2) | ARM14 | WG1 |
| ARM15- | 7.3.1.1 | WP Draft MASS Rec-WG2 review (ARM14-7.3.3.1) | ARM14 | WG1 |
| ARM15- | 7.3.1.2 | WP Draft MASS Guideline-WG2 review (ARM14-7.3.3.2) | ARM14 | WG1 |
| ARM15- | 7.3.2 | WP TG-1 5 4_WP_Guidance on AtoN Training and Awareness for Mariners_V2 | ARM14 | WG1 |
| ARM15- | 7.3.2.1 | WP Task 1 5 4_AtoN Awareness for Mariners_Gap Analysis_V1 (ARM14-7.3.5.2) | ARM14 | WG1 |
| ARM15- | 7.3.3 | WP Input paper on the report of IALA WS on MASS (ARM14-7.3.6) | ARM14 | WG1 |
| ARM15- | 7.3.1.1 | WP Report on the IALA Workshop on marine AtoN in the autonomous world_FINAL (1) | ARM14 | WG1 |

| Meeting | Paper Number | Input Paper Title | Source | Presented by / WG |
|---------|--------------|--------------------------------------------------------------------------------------------------------------|--------------------|-------------------|
| ARM15- | 7.3.4 | WP TG1.2.5 Possible case studies - Operations and Trials of Autonomous Ships | ARM14 | WG1 |
| ARM15- | 7.3.4.1 | WP TG.1.2.5 Discussion paper - Implications of MASS from a VTS perspective post plenary | ARM14 | WG1 |
| ARM15- | 7.3.5 | WP Application of Bridge Collision Prevention Warning System in China (ARM14-3.2.2) | ARM14 | WG1 |
| ARM15- | 7.3.6 | WP Proposal of Additional Marking on Fixed Bridge (ARM14-3.2.8) | ARM14 | WG1 |
| ARM15- | 7.3.7 | The IALA Maritime Buoyage System post Style Guide review Feb 22 | IALA Secretariat | WG1 |
| ARM15- | 7.3.8 | Liaison note to ARM on the final draft revision of MBS R1001_draft ver2.0 (ENAV28-12.0.1) | ENAV28 | WG1 |
| ARM15- | 7.3.8.1 | (ENAV Comment) ENAV28-5.2.11.1 draft WP The IALA MBS (ENAV28-12.0.2) | ENAV28 | WG1 |
| ARM15- | 7.3.9 | WP WG 1 Task 1.5.4 IALA Dictionary_New and amended definitions_2021021 | ARM14 | WG1 |
| ARM15- | 7.3.10 | R0113 (O-113) - The modifications to the Marking of Fixed Bridges and Other Structures over Navigable Waters | China MSA and DMU | WG1 |
| ARM15- | 7.3.11 | Intersessional Group paper on Draft MASS Guideline_20220303 | IG on MASS | WG1 |
| ARM15- | 8.4.1 | WP Draft_Recommendation_on_MRN (ARM14-11.3.2.2) | ARM14 | WG2 |
| ARM15- | 8.4.2 | WP draft Maritime Service 17 AtoN v.0.2_update | ARM14 | WG2 |
| ARM15- | 8.4.3 | Work on a technical service for provisioning of AtoN information | DLR, Germany et al | WG2 |
| ARM15- | 8.4.3.1 | Provision of AtoN Information Service to End-users_DRAFT (10Feb2022) | DLR, Germany et al | WG2 |
| ARM15- | 8.5.1 | Liaison note to ARM regarding Ship Reporting Guideline (ENAV28-12.2.1) | ENAV28 | WG2 |
| ARM15- | 9.1.1 | WP G1124 PAWSA ARM 14 Outstanding items (ARM-14-9.1.6) | ARM14 | WG3 |
| ARM15- | 9.1.2 | WP Guideline 1138 Ed.1 The use of SIRA Dec2017 (ARM14) | ARM14 | WG3 |
| ARM15- | 9.1.3 | WP Guideline G1058 Ed.2 (ARM13-9.1.8) | ARM14 | WG3 |
| ARM15- | 9.1.4 | G1018_Risk_Management_211027_style_clean | ARM14 | WG3 |
| ARM15- | 9.1.5 | WP Guideline 1123 The use of IWRAP MKII_20211027_clean version final | ARM14 | WG3 |
| ARM15- | 9.1.6 | WP Guideline 1124 Ed1 The use of PAWSA MKII June 2017 (ARM14-9.1.5) | ARM14 | WG3 |
| ARM15- | 9.1.7 | WP New Definitions for IALA Dictionary_ARM14-9.1.1 | ARM14 | WG3 |
| ARM15- | 9.1.8 | WP Recommendation RO138 (O-138) Use of GIS and Simulation by AtoN Authorities (ARM14-9.1.7) | ARM14 | WG3 |
| ARM15- | 9.1.9 | WP 1086 Ed1 Global Sharing of Maritime Data_22Jun2012 (ARM14-9.1.9) | ARM14 | 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 |
|---------|--------------|---------------------------------------------------------------------------------------|--------|--------------------|
| ARM15- | 11.2.1.1 | Recommendation R1001 The IALA Maritime Buoyage System | WG1 | To LAP and Council |
| ARM15- | 11.2.1.2 | Liaison note to the ENG Committee regarding Buoy Tender Crew Training | WG1 | To ENG16 |
| ARM15- | 11.3.1.1 | LN from ARM to all committees on cyber security | WG2 | To all committees |
| ARM15- | 11.3.1.2 | Recommendation on MRN | WG2 | To Council |
| ARM15- | 11.3.1.3 | LN from ARM to VTS on Guideline 1105 | WG2 | To VTS52 |
| ARM15- | 11.3.1.4 | Liaison Note to ENAV regarding the Ship Reporting Guideline | WG2 | To ENAV |
| ARM15- | 11.4.1.1 | Revised Guideline G1018 Risk Management | WG3 | To Council |
| ARM15- | 11.4.1.2 | Revised Guideline G1123 The use of IWRAP | WG3 | To Council |
| ARM15- | 11.4.1.3 | Revised Guideline G1124 The Use of PAWSA MKII | WG3 | To Council |
| ARM15- | 11.4.1.4 | Guideline G1058 The Use of Simulation as a Tool for Waterway Design and AtoN Planning | WG3 | To Council |

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

| Meeting | Paper Number | Output Paper Title | Source | Action |
|---------|--------------|---------------------------------------------------------------------------------------------------------------------------|--------|----------|
| ARM15- | 11.1.1 | Updated Task Plan post-ARM15 | CMT | to ARM16 |
| ARM15- | 11.2.2.1 | WP Track Changed Draft Guideline Gxxxx Marking of Bridges | WG1 | to ARM16 |
| ARM15- | 11.2.2.2 | WP Proposal for revision of IALA Recommendation R0132 Quality Management for Aids to Navigation Authorities (ARM15-7.2.2) | WG1 | to ARM16 |
| ARM15- | 11.2.2.3 | WP_Guidance on AtoN Training and Awareness for Mariners | WG1 | to ARM16 |
| ARM15- | 11.2.2.4 | WP Input paper on MASS | WG1 | to ARM16 |
| ARM15- | 11.2.2.5 | WP Draft MASS Rec-WG2 review | WG1 | to ARM16 |
| ARM15- | 11.2.2.6 | WP Draft MASS Guideline-WG2 review | WG1 | to ARM16 |
| ARM15- | 11.2.2.7 | WP Report on the IALA Workshop on marine AtoN in the autonomous world | WG1 | to ARM16 |
| ARM15- | 11.2.2.8 | WP Possible case studies- Operations and Trials of Autonomous Ships | WG1 | to ARM16 |

| Meeting | Paper Number | Output Paper Title | Source | Action |
|---------|--------------|----------------------------------------------------------------------------------------------------|--------|----------|
| ARM15- | 11.2.2.9 | WP TG1.2.5 Discussion paper – Implications of MASS from a VTS perspective post plenary | WG1 | to ARM16 |
| ARM15- | 11.2.2.10 | WP intersessional (post meeting 3) (<i>ARM15-7.3.11</i>) | WG1 | to ARM16 |
| ARM15- | 11.2.2.11 | WP Proposals on formulating technical standards for Marine Electronic Fence (<i>ARM15-3.2.4</i>) | WG1 | to ARM16 |
| ARM15- | 11.2.2.12 | WP Application of e-AtoN for marking wrecks in Shanghai Port (<i>ARM15-3.2.5</i>) | WG1 | to ARM16 |
| ARM15- | 11.3.2.1 | WP draft Recommendation on Cyber Security | WG2 | to ARM16 |
| ARM15- | 11.3.2.2 | WP Guideline on Cyber Security | WG2 | to ARM16 |
| ARM15- | 11.4.2.1 | WP Guideline 1086 Ed.1 Global Sharing of Maritime Data & Information (<i>ARM15-9.1.9</i>) | WG3 | to ARM16 |
| ARM15- | 11.4.2.2 | WP Guideline G1138 SIRA | WG3 | to ARM16 |

ANNEX E ACTION ITEMS

Action Items for Secretariat

1. The Secretariat is requested to forward the Updated Task Plan post-ARM15 (ARM14-11.1.1) to ARM16. 13
2. The Secretariat is requested to forward ARM15-11.2.1.1 Recommendation R1001 The IALA Maritime Buoyage System to LAP and subsequently to Council for approval. 14
3. The Secretariat is requested to use the depicting graphics and accompanying chart found at the end of the document and update them with MAtoN and AIS in the visual image. 14
4. The Secretariat is requested to forward document ARM15-1.5.8.1 WP Track Changed Draft Guideline Gxxxx Marking of Bridges to ARM16 as a working paper. 15
5. The Secretariat is requested to forward ARM15-11.2.2.3 WP_Guidance on AtoN Training and Awareness for Mariners to ARM16 as a working paper. 16
6. The Secretariat is requested to forward input papers ARM15-11.2.2.4 WP Input paper on MASS (ARM15-7.3.1), ARM15-11.2.2.5 WP Draft MASS Rec-WG2 review (ARM15-7.3.1.1), ARM15-11.2.2.6 WP Draft MASS Guideline-WG2 review (ARM15-7.3.1.2), ARM15-11.2.2.7 WP Report on the IALA Workshop on marine AtoN in the autonomous world (ARM15-7.3.1.1), ARM15-11.2.2.8 WP Possible case studies- Operations and Trials of Autonomous Ships (ARM15-7.3.4), ARM15-11.2.2.9 WP TG1.2.5 Discussion paper – Implications of MASS from a VTS perspective post plenary (ARM15-7.3.4.1), ARM15-11.2.2.10 WP intersessional (post meeting 3) (ARM15-7.3.11) to ARM16 as a working paper. 16
7. That the PAP should consider whether substantial amendments, particularly the deletion of large amounts of valid information should be accepted. 17
8. The Secretariat should consider developing update procedures for the NAVGUIDE and propose them to PAP. 17
9. That the Secretariat is requested to forward ARM15-11.3.2.1 WP draft Recommendation on Cyber Security and ARM15-11.3.2.2 WP Guideline on Cyber Security to ARM16 as working papers. 18
10. The Secretariat is requested to forward the ARM15-11.3.1.1 LN from ARM to all committees on cyber security for their consideration. 18
11. The Secretariat is requested to forward ARM15-11.3.1.2 Recommendation on MRN to Council for approval. 20
12. The Secretariat is requested to forward the ARM15-11.3.1.4 Liaison Note to ENAV regarding the Ship Reporting Guideline for their consideration. 21
13. The Secretariat is requested to forward ARM15-11.4.1.1 Guideline G1018 Risk Management to Council for approval. 23
14. The Secretariat is requested to forward ARM15-11.4.2.2 WP Guideline G1138 SIRA to ARM16 as a working paper. 23
15. The Secretariat is requested to forward ARM15-11.4.1.2 Guideline G1123 The use of IWRAP to Council for approval. 23
16. The Secretariat is requested to forward ARM15-11.4.1.3 Guideline G1124 The Use of PAWSA MKII to Council for approval. 23
17. The Secretariat is requested to forward ARM15-11.4.2.1 WP Guideline 1086 Ed.1 Global Sharing of Maritime Data & Information (ARM15-9.1.9) as a working paper to ARM16 for further consideration. 24
18. The Secretariat is requested to forward ARM15-11.4.1.4 Guideline G1058 The Use of Simulation as a Tool for Waterway Design and AtoN Planning to Council for approval and also to approve the withdrawal of Guideline G1097 Technical Features and Technology Relevant for Simulation of AtoN. 24

Action Items for Participants

19. That Committee participants are invited to join the intersessional task group working on Task 1.5.4 develop Guidance for Navigators on the use of AtoN and to express their interest to James Collocott (james@collocott.co.za) by 22 April 2022 noting the dates and times of the intersessional meetings will be published on the IALA ARM Committee Dashboard. The Intersessional Group Leader to provide input from the group to ARM16. 16
20. That Committee participants are invited to join the intersessional task group working on ARM's work on MASS and to express their interest to Guttorm Tomren (guttorm.tomren@kystverket.no) by 22 April 2022 noting the dates and times of the intersessional meetings will be published on the IALA ARM Committee Dashboard and the Intersessional Group Leader to provide input to ARM16. 16
21. That Committee participants are invited to join the intersessional task group working on the full review of A-126, G1084 and other AIS associated documentation (Task 2.2.1a) and to express their interest to Johan Westerlund (Johan.Westerlund@Sjofartsverket.se) by 22 April 2022 noting the dates and times of the intersessional meetings will be published on the IALA ARM Committee Dashboard. The Intersessional Group Leader to provide input from the group to ARM16. 17
22. That Committee participants provide comments on the portrayal of AtoN to Sewoong Oh (osw@kriso.re.kr). 20



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