REPORT OF THE 5TH SESSION OF THE IALA ATON REQUIREMENTS AND MANAGEMENT (ARM) COMMITTEE

24 to 28 October 2016

Wim van der Heijden
Committee Secretary

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Report of the 5th Session of the IALA
AtoN Requirements and Management (ARM) Committee
Executive Summary

48 Members from 20 countries participated in ARM5; 9 participants for the first time;

This was the fifth meeting for the 2014-18 Work Programme and the ARM Committee considered 47 input papers and produced 14 output papers of three Working Groups;

- The arrangements made by the hosts Ministry of Oceans and Fisheries and the Korea Association of Aids to Navigation for ARM5 and the preceding workshop have been second to none. We have had excellent facilities, food, technical tour (canal cruise to inspect Gyeong-in Ara Waterway) and committee dinner during the week. A large number of Association staff were involved before and during the events.
The Committee would like to thank the Ministry for hosting and sponsoring the events and KAAN for their organisation and facilitating the two events. The very kind hospitality together with the efforts from so many staff to make both weeks a success, was really appreciated.

- There is a clear need to ensure portrayal of Aids to Navigation in current and future ENC is considered further by IHO and the provision of AtoN is not undermined by how it is portrayed on ENC. Following a presentation on S-201 by an ENAV representative at ARM5 it became clear that the S-201 only covers the data sets to describe an AtoN but does not cover how it will be portrayed. This aspect is covered by the IHO rules for portrayal. In addition during the ARM/ENAV workshop on AIS it was clearly identified, as a workshop conclusion, that portrayal was an issue that IALA and IHO must liaise on. The Committee believes that IALA involvement at IHO is equally important as IMO and ITU.

  For IALA to influence the portrayal rules attendance is necessary at S-100 and ENC working groups and HSSC meetings (HSSC9 is 6-10 November 2017 in Ottawa, Canada). Guttorm Tomren of Norway has volunteered to represent IALA at the ENC and S-100 working groups for which IALA accreditation is required. Guttorm has previously represented Norway and a clear distinction in this new role is required. The ARM Committee believes the HSSC meetings would be best attended by the SG or DSG.

- At the Joint ARM/ENAV workshop on AIS held in Seoul a clear conclusion was that there is significant benefit in joint meetings to share knowledge and understanding. This was also evident in the joint VTS/ENAV meeting in Kuala Lumpur. In discussions at ARM5 with the working group Chairs, ENG Vice chair and WWA Dean it became evident there was a desire for a more joint working approach.

The Committee proposed that:

1. The 2018-2022 work programme is a period of consolidation with committees to varying degrees concentrating on revision of existing documentation and only work on new or progressing areas of importance.
2. The committees are re structured to balance numbers and technical domain.
3. The working between committees is encouraged by:
   - The restructured committees meet in April/May and Oct/Nov.
   - A series of no/low cost inter-sessional meeting opportunities timetabled well ahead in the IALA calendar for inter-committee working group meetings on areas of common interest.

The following are initial ideas for 2018-2022 work items across committees:

1. Review documentation identified in mapping exercise for update ,to align with the new document structure
2. Liaise with other committees on development work on VDES, S-201 etc.
3. Review and update recommendation and guidance on simulation in AtoN planning to include fast time simulation and other developments.

4. Liaise with IHO regarding the portrayal of AtoN in S-57 and S-100 ENC.
5. Create Recommendation and Guidelines on the portrayal of AtoN
6. Dependant on committee structure undertake workshops, at low/no cost, with other committees
7. Environmental issues and concerns.
8. Consider the impact of autonomous vessels on AtoN provision and services.
9. Consider the requirement for Cyber security in AtoN and associated services.
10. Risk (to be further expanded)
11. Maritime connectivity (to be further expanded)
12. Training (provide guidance for navigation officer)

Key outputs included:

- Completion of a new Recommendation on Accreditation of Training Organisations.

The following liaison notes were prepared:

- To Council to approve the Recommendation on Accreditation of Training Organisations.

- To the Secretary General and Deputy Secretary General on:

    - Discussion regarding Recommendations and Guidelines.

    - Proposal on future committee structure and work programme.

    - Proposed 2018-2022 work items.

- To the ENAV, VTS and ENG Committee on:

    - Mobile AtoN.

    - Reminder of the NAVGUIDE update.

- To the ENAV Committee on the S-100 Product Specification.

- To the ENG Committee on the update of Recommendation E-106 on Retroreflecting Materials.

The Committee noted the response of the USCG regarding Intellectual Property Rights of the PAWSA model which was developed by the George Washington University, Institute for Crisis, Disaster, and Risk Management. It was noted that there are no proprietary rights or copyright limitations with the model. Organizations and member states are free to use and modify the PAWSA model in any way they feel is appropriate for their particular port or waterway.

> All Members are kindly requested to send photographs for inclusion in the 2018 edition of the IALA NAVGUIDE.

Overall status of the ARM Committee 2014-2018 Work Programme after ARM5:

Task		Start Session	Planned End Session	Revised End Session	Progress Indicator			Status Overview
					Green	Yellow	Red	
TD#1 – Requirements for AtoN systems								
1.1.1	Contribute to standards generated by Secretariat	4	7		☐	☐	☐	
1.1.2	Workshop on AIS AtoN (real and virtual)	2	4	5	☒	☐	☐	Initiated ARM2 Completed ARM5
1.1.3	Guideline on the marking of wrecks as defined by the Nairobi Wreck Convention	4	7		☒	☐	☐	
1.1.4	Guideline on the use of pictograms on AtoN	3	5	7	☒	☐	☐	Commenced ARM3
1.1.5					☐	☐	☒	Task merged with 1.1.4 ARM3
1.1.6	Guideline on the use of mobile AtoN	4	7		☒	☐	☐	
1.2.1	Populate S-100 as requested by ENAV Committee	1	7		☒	☐	☐	Commenced ARM1
TD#2 – Management for AtoN services								
2.1.1	Develop guidance for AtoN authorities on disaster recovery	1	4	56	☒	☐	☐	Commenced ARM1
2.1.2	Contribute to standards generated by Secretariat	4	7		☒	☐	☐	
2.1.3	Consider guidance for authorities on the use of enavigation services	4	7		☐	☐	☒	Stopped due to ENAV progression
2.5.1	Develop guidance on the management of AtoN in environmentally protected areas	2	7		☒	☐	☐	Commenced ARM2
TD#3 – Marine Spatial Planning								
3.1.1	Develop guidance for AtoN authorities on the use of Marine Spatial Planning	1	4	56	☒	☐	☐	Commenced ARM1
3.4.1	Oversee development of Risk Management Toolbox	4	7		☒	☐	☐	New task ARM4 WG3
3.4.2	Develop guidance on PAWSA	4	7		☒	☐	☐	New task ARM4 WG3
3.4.3	Develop guidance on SQUART	4	7		☒	☐	☐	New task ARM4 WG3
3.4.4	Develop guidance on use of IWRAP	5	7		☒	☐	☐	New task ARM4 WG3
3.4.5	Training / workshop / seminar in association with WWA	5	7		☒	☐	☐	New task ARM4 WG3
3.4.6	IALANET	5	7		☒	☐	☐	New task ARM4 WG3
TD#4 – International coordination and liaison								
4.1.1					☐	☐	☒	Task cancelled ARM3
4.2.1					☐	☐	☒	Task cancelled ARM3
4.2.2	Coordinate a limited review of the IALA Navguide to incorporate amended guidelines and recommendations and other necessary updates via wiki	1	7		☒	☐	☐	Commenced ARM1
4.2.3					☐	☐	☒	Task cancelled ARM3
4.2.4					☐	☐	☒	Task cancelled ARM3
4.2.5	Amend IALA dictionary as appropriate including harmonisation of definition of AtoN	1	7		☒	☐	☐	Commenced ARM1 Completed ARM5
4.2.6	Map existing ARM documentation to 7 overarching standards	3	7		☒	☐	☐	New task ARM3 Commenced ARM3
4.2.7	Rewrite ARM documentation to meet new document structure in conjunction with IALA assistance	3	7		☒	☐	☐	New task ARM3 Commenced ARM3

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Report of the 5th Session of the IALA
AtoN Requirements and Management (ARM) Committee

1.   INTRODUCTION

The 5th meeting of the ARM Committee was held from 23 to 28 October 2016 at the Best Western Premier Seoul Garden Hotel, Seoul, Republic of Korea.

The Chairman was Phil Day and Michael Skov was Vice Chairman. The Secretary for the meeting was Wim van der Heijden. 48 Members from 20 countries participated in ARM5; 9 participants for the first time.
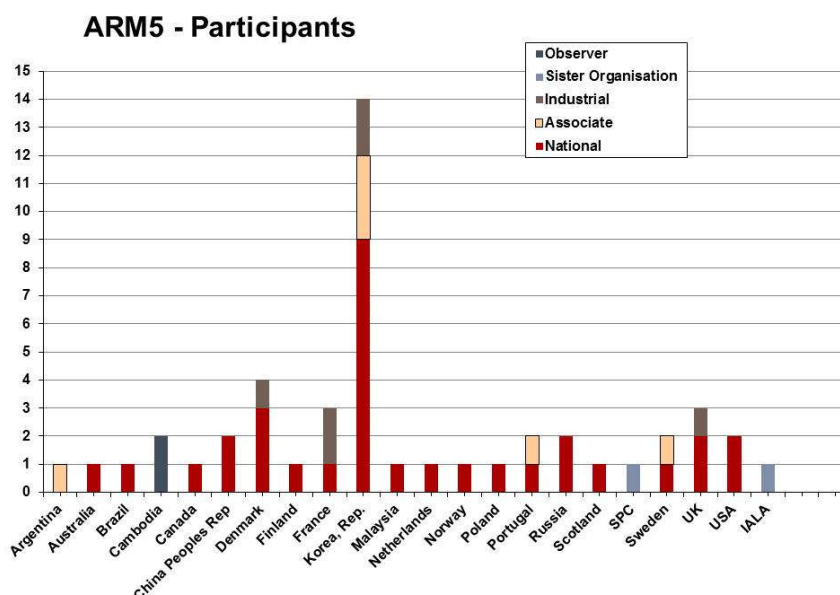
The Chairman opened the meeting by welcoming all participants to ARM5 being the fifth session of the working period 2014-2018 with a special welcome to members participating for the first time. He memorized the successful workshop on AIS AtoN developments the week before and the excellent organisation of the workshop and the Committee meeting by the Ministry of Oceans and Fisheries and the Korea Association of Aids to Navigation.

1.1 Administrative announcements

The Administration and safety briefing was given by Jung Jin of the Korea Association of Aids to Navigation. She referred to a booklet handed out at registration. All participants were requested to read this document carefully because it contains important safety information. Additional information is included like the technical tour and lunch facilities.

1.2 Approval of the agenda

The agenda was reviewed and adopted (ARM5-1.2).

1.3 Introductions and apologies

Individual Committee members were asked to introduce themselves.

The Committee noted apologies from members who were unable to attend as noted in ANNEX B.

1.4 Programme for the week

The Chairman explained the programme for the week (ARM5-1.4). Members were attended on the meeting of Working Group 3 on Tuesday and Wednesday and the Technical Tour to the Gyeong-in Ara Waterway followed by the Committee dinner. The ice-breaking event to be held on Monday just after the closing of the plenary session in order to get to know each other, the new members in particular.

2. REVIEW OF ACTION ITEMS FROM ARM4

Input paper ARM5-2.1 refers.

2.1 Action Items – IALA Secretariat

It was noted that all IALA Secretariat actions from ARM5 had been completed.

2.2 Action Items – ARM Committee Members

It was noted that all Committee Member actions had been completed.

3. REVIEW OF INPUT PAPERS

Before the review of the input documents, the Committee Secretary introduced the file share system to be used by Working Groups during the meeting. He highlighted the fact that all documents will be removed after one month. He informed that the draft report of the workshop AIS AtoN developments from last week is now available on the file share. Output documents (real output and working documents for the next meeting) should be submitted to the Secretary directly.

The list of input papers is automatically generated by the IALA web site when downloading one or more documents. Input papers are numbered in line with the agenda.

The input papers were reviewed and appointed to the working groups. Three new late input documents were received as output of the ENG Committee meeting the week before: ARM5-3.3, ARM5-9.4.2, and ARM5-9.4.3. Besides on the IALA web they are also available on the file share system.

4. REPORTS FROM OTHER BODIES

4.1 IALA Council

The Committee noted the following Council report:

- 62nd Session, Lisbon, Portugal, 21 – 24 June 2016, paper ARM5-4.1.1 refers.

The Council approved the revised ARM Working Programme 2014 – 2018 with respect to the addition of the work of the IALA Risk Management Tool Steering Group in the Committee.

The Chair also informed about the approval for submission to the next General Assembly of the seven proposed IALA Standards.

4.2   IALA Policy Advisory Panel

The Committee noted the PAP31 report, paper ARM5-4.2.1 refers.

The Committee also noted the report of the Dictionary Working Group, paper ARM5-4.2.2 refers.

Contrary to earlier information it has been decided during PAP32 to keep definitions in Recommendations and Guidelines in order to improve the readability of the document. However definitions should be cross-checked with the IALA Dictionary to ensure consistency.

4.3   IMO MSC96

The Committee noted the report of IMO MSC96, May 2016, paper ARM5-4.3.1 refers.

It was remarked that IALA has just an observer status at IMO at this moment and IALA cannot initiate new work items. To be more pro-active it was suggested to do this via Member States from both IALA and IMO in which case IALA can support input as observer.

4.4   Workshop on AIS AtoN (real and virtual) developments and their uses

The week before the ARM Committee meeting a workshop has been held on AIS AtoN (real and virtual) developments and their uses. The workshop was organised in cooperation with the ENAV Committee.

The draft report of the workshop was available on the file share as ARM5-3.4. Remarks and corrections can be submitted till 4 November 2016.

Action item:

*The **Committee Secretary** is requested to forward the final version of the report of the workshop AIS AtoN developments to ARM6 and the ENAV Committee for further consideration and to Council to note.*

5.   REPORTS FROM RAPPORTEURS

5.1   e-Navigation - shore side

Rapporteur: Martin Bransby

Paper ARM5-5.1 refers.

Due to ill health, the report was presented as input paper of the meeting.

6.   PRESENTATIONS

6.1   Risk Assessment Pacific Community

Paper ARM5-6.1 (presentation) refers.

Minsu Jeon gave a presentation on the improving safety of navigation in the Pacific through enhanced capacity and systems. He explained that the Pacific Community (SPC) has 26 members including 22 Pacific Island countries. It is the principal scientific and technical organisation supporting development in the Pacific region.

Maritime Transport is very important but difficult on the other hand because of the enormous distances, low population and low volumes which causes high maritime transport costs.

The Pacific Safety of Navigation project and its objectives were explained and an overview was given of the expected outputs. SPC is in the process to be an Accredited Training Organisation (ATO) in the Pacific region in accordance with IALA Recommendations and Giudelines.

6.2 Status of IALA S-201 AtoN Development

Paper ARM5-6.2 (presentation) refers.

Sewoong Oh explained the relationship between the IALA S-201 and IHO S-100 Universal Hydrographic Data Model. He explained that the S-2xx domain has been appointed to IALA, S-201 to AtoN. An overview was given on the IALA Guidelines related to S-100 and S-200. There is a draft Product Specification for S-201 now available for review. Several others are under development. On the end of 2016 a demonstration project will be carried out as part of the EU Horizon 2020 EfficienSea2 project.

6.3 Smart Buoy Service

Paper ARM5-6.3 (presentation) refers.

From the EfficienSea2 project within HORIZON 2020, Marek Ledóchowski explained the role of smart buoys to support operations of port approach. A questionnaire was made to investigate the requirements and the functionality of different user groups of smart buoys. The results were presented and a technical project was defined. This includes the definition of functionalities and the design of a block diagram of a smart buoy. Modules of the block diagram have been selected for a prototype test which will be executed on the end of 2016.

6.4 IALA World-Wide Academy (WWA)

Paper ARM5-6.4 (presentation) refers.

The presentation was made by Omar Frits Eriksson, Dean of the WWA.

The presentation focussed on the role of the WWA: Education, Training and Capacity Building.

An overview was given of the training courses given on VTS and AtoN in 2016. A start has been made on Distance Learning.

In the last four years, 20 awareness seminars for AtoN and VTS, 16 need assessment missions and 7 high-level visits were given. The number of Accredited Training Organisations was increased to 31.

6.5 AIS AtoN implementation on the Orcadas Islands and Antarctic Zone

Paper ARM5-6.5 (presentation) refers.

Raul Escalante presented on the project to monitor the performance of AIS AtoN in extreme cold weather conditions. AIS AtoN can enhance the safety of navigation in this complicated area. Benefits are the reception of real and virtual AtoN and the projection on the ECDIS, information of targets behind islands or other obstacles, transmission of weather information via AIS, etc.

Results were presented of equipment performance under severe weather conditions such as very low temperatures and strong wind.

At the moment 3 real and 12 virtual AIS AtoN stations are installed, 5 real and 20 virtual stations will be installed in the next period.

It was concluded that all stations were working well under bad weather conditions and the safety of navigation has been improved significantly.

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The Chairman thanked all speakers for the presentations which are available on the ARM5 page in the Committee section of the IALA web-site.

7. ESTABLISH WORKING GROUPS

The Chairman outlined the procedure to be followed by working groups, including the associated paperwork, after which WG1, WG2 and WG3 were established and their tasks outlined. WG3 will meet on Tuesday and Wednesday morning only. A list of working group participants is at Annex C.

Working Group (WG)	Working Group Chairman / Vice Chairman
WG1 – Navigational Requirements	Roger Barker / Jorge Teles
WG2 – Continuous Improvement	Guttorm Tomren / Johan Westerlund
WG3 – Risk Management	Omar Frits Eriksson / Roger Barker

8. WORKING GROUP 1 – NAVIGATIONAL REQUIREMENTS (WG1)

The WG commenced its work by reviewing the agenda items and tasks assigned. The Chair provided clarification on what work needed to be developed at ARM 5.

8.1 Contribute to develop a standard for the provision of AtoN - Task 1.1.1

Task Leader: Roger Barker
The WG, in cooperation with WG2 and the Chairs, discussed the correlation between the IALA Standards and the existing documentation.

8.2 8.2 Develop guidance for AtoN authorities on Disaster Recovery - Task 2.1.1

Task Leader: Marek Ledochowski
The draft Guideline and Recommendation went through a final revision. The documents will now go to ARM6 for approval.

Action item:

The **Committee Secretary** *is requested to forward the draft Guideline (ARM5-12.2.2) and the draft Recommendation (ARM5-12.2.1) on Disaster Recovery as input to ARM6.*

8.3 Develop guidance for AtoN authorities on the use of Marine Spatial Planning - Task 3.1.1

Task Leader: Ernst Bolt
The WG finished the development of the Guideline and Recommendation, resulting in two mature working papers to be reviewed approved at ARM6.
The WG also produced a proposed definition to be included in the IALA Dictionary, which will be finalized at ARM6.

Action item:

The **Committee Secretary** *is requested to forward the draft Guideline (ARM5-12.2.4), the draft Recommendation (ARM5-12.2.3) and the Dictionary definition (ARM5-12.2.5) on MSP as input to ARM6.*

8.4 Develop guidance on the Marking of Wrecks as defined by the Nairobi Wreck Convention – Task 1.1.3

Task Leader: Artur Marques
The draft Recommendation was revised in order to incorporate the latest developments arising from task 1.1.6 (Mobile AtoN).

Action item:

*The **Committee Secretary** is requested to forward the draft Recommendation on the marking of wrecks (ARM5-12.2.6) as input to ARM6.*

8.5 Develop guidance on the use of Mobile AtoN - Task 1.1.6

Task Leader: Artur Marques
The draft Guideline and Recommendation where further progressed in order to incorporate the developments of the IALA Workshop on AIS AtoN (Seoul, 19/21 Oct 2016)).
The Guideline and the Recommendation will be sent to the other committees for comments.

Action items:

*The **Committee Secretary** is requested to forward the draft Guideline (ARM5-12.2.8) and the draft Recommendation (ARM5-12.2.7) on Mobile AtoN as input to ARM6.*

*The **Committee Secretary** is requested to forward the Liaison Note (ARM5-12.1.5) together with the draft Guideline and Recommendation on Mobile AtoN to ENAV, VTS and ENG for comments.*

9. WORKING GROUP 2 – CONTINUOUS IMPROVEMENT (WG2)

Portrayal of visual aids to navigation with respect to the Human Element is essential for safe navigation. Input papers related to this subject were received from ENAV Committee and IHO. IHO have requested IALA to be represented at meetings regarding development of the new S-100 standards. IALA have made the same conclusions and will revert to IHO on the effort. ENAV Committee input related to S-201 and populating S-100 standards was reviewed and populated to our best ability. Intersessional work might be needed on this task, from members of the WG and technical experts on UML coding. The ENG Committee submitted input paper regarding retroreflective material.

Some WG members participated on both Risk Management (WG3) and WG2.

The Chair provided a brief overview of the objectives for this meeting and the input papers were reviewed.

The Chair advised that the priority tasks for the WG2 at ARM5 were:

- To progress the development of guidance on the use of pictograms on AtoN (Task 1.1.4).
- To progress the development of guidance on the Management of AtoN in Environmentally Protected Areas. (Task 2.5.1).
- To progress the updating and revision of the IALA NAVGUIDE including use of IALA-Wiki. (Task 4.2.2).
- To amend the IALA Dictionary as appropriate including harmonisation of definition of AtoN (Task 4.2.5).
- To populate S-100 as requested by the ENAV Committee (Task 1.2.1).
- Map existing ARM documentation to meet new document structure in conjunction with IALA assistance (Task 4.2.7 shared with WG1).

9.1 Develop guidance on the use of pictograms on AtoN - Task 1.1.4

Task Leader: JunKi Bae
Assisted by: Andrey Oleynikov, Victoria Pogosian, Minsu Jeon, Miyoung Kang

Work continued on this task during ARM5. Pictogram design for the special marks examples in MBS is included. Further pictogram design to be developed nationally, according to principles in Guideline. Task is scheduled to be completed at ARM7.

Action items:

***ARM Committee members** are requested to provide input, after reviewing the draft Guideline on the use of pictograms on AtoN (ARM5-12.2.14), to ARM6.*

*The **Committee Secretary** is requested to forward the draft Guideline on the use of pictograms (ARM5-12.2.14) as input to ARM6.*

9.2 Develop guidance on the Management of AtoN in Environmentally Protected Areas - Task 2.5.1

Task Leader: Gaelle Nassif

Work continued on this task during ARM5. The IALA DWG have rejected proposed definitions on marine protected area and environmental protected area. Required IMO definitions by IALA DWG do not exist, yet. Proposed guideline was reviewed and comments made.

Action items:

ARM Committee members *are requested to provide input on issues and best practice of the Management of AtoN in Environmentally Protected Areas to ARM6.*

*The **Committee Secretary** is requested to forward the draft Guideline on the Management of AtoN in EPA (ARM5-12.2.15) as input to ARM6.*

9.3 Update and revision of the IALA NAVGUIDE including use of IALA-Wiki - Task 4.2.2

Task leader: Dave Merrill
Assisted by: David Jeffkins, Martin Bransby, Johan Westerlund, Dahye Kim, Changmin Kang

Task has progressed during ARM5. ARM related information is almost completed. Other IALA Committees need to address this subject. ARM7 is the final deadline for populating IALA Wiki prior to IALA Conference in 2018.

Action item:

*The **Committee Secretary** is requested to forward the reminder of the NAVGUIDE update (ARM5-12.1.8) and the NAVGUIDE Tracking table (ARM5-12.2.9) to all Committees.*

9.4 Amend the IALA Dictionary as appropriate including harmonisation of definition of AtoN - Task 4.2.5

Task Leader: Dave Merrill

Work progressed on this task during ARM5. Two new amendment proposals to the IALA Dictionary were drafted:

- Light float
- Fog signal / Audible signal

Both will be reviewed during ARM6.

Action item:

ARM members *are requested to provide relevant changes to the IALA Dictionary to the task leader prior to ARM6 (david.merrill@uscg.mil).*

*The **Committee Secretary** is requested to forward the two Dictionary amendment forms (ARM5-12.2.16 and ARM5-12.2.17) to ARM6 for approval.*

9.5 Populate S-100 as requested by the ENAV Committee - Task 1.2.1

Task Leader: Martin Bransby
Assisted by: Johan Westerlund, Guttorm Tomren

Work has progressed during ARM5 on this task. The task is rather comprehensive and WG2 do not have detailed knowledge regarding UML coding. WG2 have submitted comments directly into the attached

documents, as remarks. It might be relevant to have further intersessional work when the "encoder" shall review WG2 remarks.

Revised documents sent to the ENAV Committee as attachments of the liaison note.

Action item:

The **Committee Secretary** *is requested to forward the Liaison on the amendments to S-100 (ARM5-12.1.9) and the amended S-100 Product Specification documents (ARM5-12.1.10, ARM5-12.1.11 and ARM5-12.1.12) to the ENAV Committee to action.*

9.6 Map existing ARM documentation to meet new document structure in conjunction with IALA assistance - Task 4.2.7 (shared with WG1)

Task Leader: Cathrine Steenberg
Assisted by: Guttorm Tomren

Preliminary mapping of documents is completed. Rewriting and editing of documents that need to alter context commenced during ARM5. For documents that are in accordance with documents structure as is, WG2 supports that the IALA Secretariat rewrites documents according to new templates.

WG2 have worked on following documents: Recommendation O-130, Guideline(s) 1004, 1046.

In addition of Guideline 1046 a new draft Recommendation was made for a response plan for marking of new wrecks.

Guideline 1005 will be revised during ARM6.

Action:

The **Committee Secretary** *is requested to forward the reviewed Recommendation O-130 (ARM5-12.2.10) and the Guidelines 1004 (ARM5-12.2.12) and 1046 (ARM5-12.2.13) as input to ARM6.*

The **Committee Secretary** *is requested to forward the draft new Recommendation on a response plan for marking of new wrecks (ARM5-12.2.11) as input to ARM6.*

9.7 Input Papers reviewed by Working Group 2

The following input papers, not directly linked to ARM work program tasks, were also reviewed:

- ARM5-3.1 IHO input on portrayal of sector lights
- ARM5-3.2 (ENAV19-14.1.14) Liaison note to ARM on portrayal of lights
- ARM5-3.3 (ENG5-11.1.21) Draft Recommendation E-106 Retroreflecting materials

WG2 reviewed the revised Recommendation on retroreflective materials, some minor comments were made to spelling and layout. A liaison note with the amended document to be sent the ENG Committee.

Action item:

The **Committee Secretary** *is requested to forward the Liaison on the amendments of the draft Recommendation E-106 (ARM5-12.1.13) and the amended Recommendation E-106 (ARM5-12.1.14) to ENG for further consideration.*

10. WORKING GROUP 3 – RISK MANAGEMENT

The WG commenced its work by agreeing on the draft agenda from the ARM5 plenary session.

1. Oversee development of Risk Management Toolbox (Task 3.4.1)
2. Develop guidance on PAWSA (Task 3.4.2)
3. Develop guidance on SQUART (Task 3.4.3)

4. Develop guidance on use of IWRAP (Task 3.4.4)

5. Training / workshop / seminar in association with WWA (Task 3.4.5)

6. IALANET (Task 3.4.6)

10.1 Oversee development of Risk Management Toolbox – Task 3.4.1

After a round of introduction, the chair introduced the background and historical development of the IALA Risk Management Toolbox. Further to the opening meeting of WG3 at ARM4, he explained to new participants that in order to streamline the organization for developing IALA documents, it has been decided that the management of the IALA Risk Management Toolbox shall reside within the ARM Committee, and that the former IALA Risk Management Toolbox Steering Group shall be merged into the new WG3 of ARM.

He went on to give a more detailed description of the three elements of the IALA Risk Assessment, PAWSA, IWRAP and Simulation. He included a short presentation taken from the IALA Risk workshops which helped to further explain to the group members the tools available.

There was a discussion around the possibility for tools to actually model the physical characteristic of a waterway and how these influence the overall risk, recognising the human factors.

IALA Guideline 1018 was discussed and it was agreed that although minor amendment are required with regard to document references, the document continues to provide for appropriate guidance for considering.

Action items:

WG3 *is requested to update IALA Guideline 1018 at ARM6 with respect to document references, updating of risk matrix and other minor amendments.*

WG3 *is requested to update IALA Recommendation O-134 at ARM6.*

ARM Committee members *are requested to provide information on their own authorities needs for Risk Assessment Tools as well as ongoing Risk Assessment developments in their country.*

A potential area for development of the toolbox was the assessment of vessel domain interaction and consideration of CPA incursions.

There was also input regarding the need to use simulation for specific AtoN requirements in a waterway.

10.2 Develop guidance on PAWSA – Task 3.4.2

The group noted the input papers ARM5-10.2.3, ARM5-10.2.4 and ARM5-10.2.5 and recognised the response from the USCG regarding Intellectual Property Rights.

Quote from the USCG response*:*

The PAWSA model was originally developed by the George Washington University, Institute for Crisis, Disaster, and Risk Management, with funding provided by the United States Coast Guard. Because it was developed using public funding there are no proprietary rights or copyright limitations with the model. Therefore, individuals, organizations and member states are free to use and modify the PAWSA model in any way they feel is appropriate for their particular port or waterway.

Input papers ARM5-10.2.1 and ARM5-10.2.2 were discussed.

It was agreed that the recommendation O-134 requires amendment. The need to review and approve the PAWSA handbook and reference this handbook in the revised PAWSA Guideline was identified.

Action Items:

The **Committee Secretary** *is requested to advise* **Tunchai Çehreli**, *VTS Committee Chair, to provide the updated PAWSA handbook as input to ARM6.*

The **Committee Secretary** is requested to forward input papers ARM5-10.2.1 and ARM5-10.2.2 as input to ARM6 (working papers ARM5-12.2.19 and ARM5-12.2.20).

The Chairman explained the basics of the PAWSA qualitative risk assessment tool emphasizing the fact that it will generally a combination of tools used when considering overall risk in a particular waterway.

10.3 Develop guidance on SQUART – Task 3.4.3

Input papers ARM5-10.3.1 and ARM5-10.3.2 were opened for discussion

The draft guideline was assessed in detail. The accompanying spreadsheets, included with input ARM5-10.3.2 were also assessed against the draft guideline. While the risk assessment principles applied in this tool were found to be sound and in good harmony with the principles described in IALA Guideline 1080, the WG found that further refinement of both the Annex of the draft Guideline and the spreadsheets is needed.

The name of the simplified tool was considered by the group with broad agreement that the current name is not popular with many participants. The WG Chairman therefore asked participants for suggestions to rename the tool. After much deliberation, including some humorous suggestions, it was decided that the name ISTAR (IALA Simplified Tool for Assessment of Risk) was appropriate.

The WG Chairman recognised the very significant work carried out by Stephen Bennett in bringing this tool to the current level which has provided an excellent platform for the ongoing process.

Action Items:

Justin Kimura, Ernst Bolt and Jorge Teles to assess and further refine items ARM5-10.3.1 and ARM5-10.3.2 and provide revised draft documents back to ARM6.

The **World Wide Academy** is requested to carry out a full-scale validation test of the SQUART method and provide a report to ARM6.

SPC to collaborate with WWA to carry out the full scale validation test in the Pacific region and to provide update and progress ar ARM6.

The **Committee Secretary** is requested to forward the draft Guideline on the use of SQUART (ARM5-12.2.18) as input to ARM6.

10.4 Develop guidance on use of IWRAP – Task 3.4.4

A description of the underlying methodology of the IWRAP tool, particularly for newcomers to the committee, was given by the Chairman.

The Chairman explained the IALA IWRAP WIKI and after discussing it he requested that any input or advice on the WIKI would be welcomed.

Questions were raised with regard to the incorporation of risk reduction factors for Aids to Navigation and the Chairman explained the detailed work to date in this area, displaying the most recent Bayesian diagram.

It was agreed that the detailed references and annex to IWRAP in recommendation O-134 are to be separated and a stand guideline on or including IWRAP is to be developed.

Ernst Bolt provided commentary on the MARIN paper, ARM5-10.4.1, and noted the content and conclusions. WG3 recognised the huge amount of work that has gone into the MARIN approach and we should continue to monitor and consider future developments.

It was noted that the two methods of assessment IWRAP and SAMSON, whilst having clear similarities, stand alone as separate systems. Future linking and interfacing however will continue to be assessed.

The MARIN Risk Index was discussed. This is based on the way SAMSON calculates the risk, using dynamic data. This is of interest to the wider risk modelling process and developments should be monitored closely.

The Chairman recognized the benefits of the dynamic risk index which could be in some way be combined with the information provided by IALANET.

Jorge Teles gave brief information regarding the use of vessel CPA analysis to highlight hotspots from the AIS density plot.

Action Item:

Peter Dolan *from Pharos Marine was requested to extract he information on IWRAP contained in Annex C of recommendation O-134, develop a draft Guideline on IWRAP and provide this as input to ARM6.*

10.5   Training / workshop / seminar in association with WWA – Task 3.4.5

The Chairman described the regular risk assessments workshops provided by IALA.

An enquiry as to whether there were plans for distance learning on elements of the Risk Assessment process was made. The Chairman advised that expansion of distance learning, where appropriate are being considered and developed.

10.6   IALANET – Task 3.4.6

The Chairman described the beginnings and functioning of the IALANET system. To date this system has been hosted by the Danish Maritime Authority but this arrangement is now drawing to a close. In the future the system will be hosted by a commercial company.

The WG group must consider the ongoing benefits of sharing data through the IALANET.

10.7   Faros Project

The WG considered the paper ARM5-10.7.1, the Faros project. The group noted the report and thanked Dr Puisa for the submission.

10.8   IALA Recommendation on Accreditation

The chairman introduced a draft recommendation on accreditation which should precede the two guidelines on AtoN and VTS training.

The recommendation has being finalised and is submitted to Council as an output.

Action item:

*The **Committee Secretary** to forward the liaison note (ARM5-12.1.6) and the draft Recommendation on Accreditation (ARM5-12.1.7) to Council for approval.*

11.   REVIEW OF WORK PROGRAMME

11.1   Current Work Programme (2014 – 2018)

Input papers ARM5-11.1 and ARM5-11.2 refers.

The overall status table of the ARM Work Programme 2014 -2018 was reviewed and updated.

Action item:

*The **Committee Secretary** is requested to forward the updated version of the current status overview of the ARM Work Programme (ARM5-11.3) to ARM6.*

11.2   Future Work Programme (2018 – 2022)

At the Joint ARM/ENAV workshop on AIS held in Seoul, Korea a clear conclusion was that there was significant benefit in joint meetings to share knowledge and understanding. This was also evident in the joint VTS/ENAV meeting in Kuala Lumpur, Malaysia. In discussions at the following ARM meeting with the

working group chairs, ENG Vice Chair and WWA Dean it became evident there was a desire for a more joint working approach. After discussion the following proposals were made:

1. The 2018-2022 work programme is a period of consolidation with committees to varying degrees concentrating on revision of existing documentation and only work on new or progressing areas of importance.
2. The committees are re structured to balance numbers and technical domain.
3. The working between committees is encouraged by:
    - The restructured committees meet in April/May and Oct/Nov.
    - A series of no/low cost inter-sessional meeting opportunities timetabled well ahead in the IALA calendar for inter-committee working group meetings on areas of common interest.

Based on the assumption that the seven IALA Standards will be approved by the General Assembly, the following initial ideas for 2018-2022 work items across committees are proposed:

1. Review documentation identified in mapping exercise for update ,to align with the new document structure
2. Liaise with other committees on development work on VDES, S-201 etc.
3. Review and update recommendation and guidance on simulation in AtoN planning to include fast time simulation and other developments.
4. Liaise with IHO regarding the portrayal of AtoN in S-57 and S-100 ENC.
5. Create Recommendation and Guidelines on the portrayal of AtoN
6. Dependant on committee structure undertake workshops, at low/no cost, with other committees
7. Environmental issues and concerns.
8. Consider the impact of autonomous vessels on AtoN provision and services.
9. Consider the requirement for Cyber security in AtoN and associated services.
10. Risk (to be further expanded)
11. Maritime connectivity (to be further expanded)
12. Training (provide guidance for navigation officer)

Two discussion papers were drafted to IALA SG and DSG for further consideration of the issues mentioned above.

Action item:

*The **Committee Secretary** is requested to forward the discussion papers on the committee structure (ARM5-12.1.2) and proposed work items (ARM5-12.1.3) to the IALA SG and DSG (informative to PAP).*

	Task	Start Session	Planned End Session	Revised End Session	Progress Indicator			Status Overview
					Green	**Yellow**	**Red**	
TD#1 – Requirements for AtoN systems								
1.1.1	Contribute to standards generated by Secretariat	4	7		□	□	□	
1.1.2	Workshop on AIS AtoN (real and virtual)	2	4	5	⊠	□	□	Initiated ARM2 Completed ARM5
1.1.3	Guideline on the marking of wrecks as defined by the Nairobi Wreck Convention	4	7		⊠	□	□	
1.1.4	Guideline on the use of pictograms on AtoN	3	5	7	⊠	□	□	Commenced ARM3
1.1.5					□	□	⊠	Task merged with 1.1.4 ARM3
1.1.6	Guideline on the use of mobile AtoN	4	7		⊠	□	□	
1.2.1	Populate S-100 as requested by ENAV Committee	1	7		⊠	□	□	Commenced ARM1
TD#2 – Management for AtoN services								
2.1.1	Develop guidance for AtoN authorities on disaster recovery	1	4	5 6	⊠	□	□	Commenced ARM1
2.1.2	Contribute to standards generated by Secretariat	4	7		⊠	□	□	
2.1.3	Consider guidance for authorities on the use of enavigation services	4	7		□	□	⊠	Stopped due to ENAV progression
2.5.1	Develop guidance on the management of AtoN in environmentally protected areas	2	7		⊠	□	□	Commenced ARM2
TD#3 – Marine Spatial Planning								
3.1.1	Develop guidance for AtoN authorities on the use of Marine Spatial Planning	1	4	5 6	⊠	□	□	Commenced ARM1
3.4.1	Oversee development of Risk Management Toolbox	4	7		⊠	□	□	New task ARM4 WG3
3.4.2	Develop guidance on PAWSA	4	7		⊠	□	□	New task ARM4 WG3
3.4.3	Develop guidance on SQUART	4	7		⊠	□	□	New task ARM4 WG3
3.4.4	Develop guidance on use of IWRAP	5	7		⊠	□	□	New task ARM4 WG3
3.4.5	Training / workshop / seminar in association with WWA	5	7		⊠	□	□	New task ARM4 WG3
3.4.6	IALANET	5	7		⊠	□	□	New task ARM4 WG3
TD#4 – International coordination and liaison								
4.1.1					□	□	⊠	Task cancelled ARM3
4.2.1					□	□	⊠	Task cancelled ARM3
4.2.2	Coordinate a limited review of the IALA Navguide to incorporate amended guidelines and recommendations and other necessary updates via wiki	1	7		⊠	□	□	Commenced ARM1
4.2.3					□	□	⊠	Task cancelled ARM3
4.2.4					□	□	⊠	Task cancelled ARM3
4.2.5	Amend IALA dictionary as appropriate including harmonisation of definition of AtoN	1	7		⊠	□	□	Commenced ARM1 Completed ARM5
4.2.6	Map existing ARM documentation to 7 overarching standards	3	7		⊠	□	□	New task ARM3 Commenced ARM3
4.2.7	Rewrite ARM documentation to meet new document structure in conjunction with IALA assistance	3	7		⊠	□	□	New task ARM3 Commenced ARM3

12.   REVIEW OF OUTPUT AND WORKING PAPERS

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

The output documents listed at Annex E were reviewed and agreed.

The Committee Secretary was requested to forward the output documents, as indicated earlier in the report.

The Chairman then thanked the Chairs, Vice Chairs and members of the working groups for all their efforts during the week.

13.   ANY OTHER BUSINESS

13.1   Technical Tour

On Wednesday 26 October a Technical Tour has been made to the Gyeong-in Ara Waterway. A boat tour included some entertainment and an interesting presentation of the construction and function of the waterway by K-Water. This was followed by the Committee dinner at Ara Marina Convention.

13.2   Patent issues

During the opening session attendees were invited to advise the Committee if anyone had 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 the workshop. It was stated that any information provided to the Committee could not be subject to intellectual property rights claims (IPR) unless the IPR was claimed at time of submission.

13.3   Implementation of Standards and Recommendation

The proposed document structure for IALA was considered and discussed. It is understood that this will be initially composed of seven Standards covering topic areas already approved by Council. These Standards will refer to existing IALA Recommendations and identify which are normative (should be followed) and which are informative (may be followed). Considerations on this issue are given in an output document to IALA SG and DSG.

Action item:

The **Committee Secretary** *is requested to forward the discussion paper on the implementation of Standards and Recommendations (ARM5-12.1.1) to the IALA SG and DSG (informative to PAP).*

13.4   IHO representation

Based on some concerns of IALA Members regarding the portrayal of Aids to Navigation in S-57 and future S-100 formats there was correspondence between IALA and IHO in which IHO proposed IALA to participate the HSSC-8 meeting in November. After discussion Guttorm Tomren of Norway has volunteered to represent IALA at the ENC and S-100 working groups for which IALA accreditation is required. The Committee drafted a liaison note to SG on the attendance.

Action item:

*The **Committee Secretary** is requested to forward the liaison note on IHO participation to IALA SG (ARM5-12.1.4).*

14.   REVIEW OF SESSION REPORT

The report of the meeting (ARM5-14) was reviewed and approved by the Committee on the 28th October 2016. Deadline for comments and corrections can be submitted until 7 November 2016.

Action Item:

*The **Committee Secretary** is requested to forward summary of the report of ARM5 (ARM5-14) after completion (deadline 7 November 2016) to the IALA Council, to note.*

15.   DATE AND VENUE OF NEXT MEETING

ARM6 will be from 24 – 28 April 2017 most likely in Seattle, WA, USA. Details will be available later this year and members will be informed by e-mail invitation.

ARM7 has been scheduled 23 – 27 October 2017 at IALA HQ, Saint Germain en Laye, France.

16.   CLOSING OF THE MEETING

The Chairman again expressed his thanks for all the hard work done during the meeting.

He thanked the Ministry of Oceans and Fisheries for hosting the workshop and the Committee meeting and the Korea Association of Aids to Navigation for the perfect arrangements made.

Mr Kim, Deputy Director of Aids to Navigation Division, Ministry of Oceans and Fisheries hoped that all participants had a good time in Korea and will return home with a beautiful memory of the meeting. He wished to see all again in the future. He was thanked with a warm applause from the Members.

The Chairman then closed the ARM5 meeting and wished everyone a pleasant and safe journey home.

17. LIST OF ANNEXES

1   Agenda

A copy of the agenda is at Annex A.

2   Participants

A list of participants is at Annex B.

3   Working Group Participants

A list of working group participants is at Annex C.

4   Input Papers

A list of input papers is at Annex D.

5   Output and Working papers

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

6   Action Items

A list of action items is at Annex F.

5th Meeting of the AtoN Requirements and Management Committee (ARM)

The 5th meeting of the **ARM Committee** will be held from 24 – 28 October 2016, at the Best Western Seoul Garden Hotel, Seoul, Republic of Korea.

The opening plenary will commence at 0930 on Monday 24 October, and the closing plenary will end at approximately 1300 on Friday 28 October.

Committee Chair, Vice-Chair and Working Group Chairpersons are requested to meet at 1430 on Friday 21 October.

Agenda

1.   Introduction

   1.1.   Administration and Safety Briefing

   1.2.   Approval of agenda

   1.3.   Apologies and introductions

   1.4.   Programme for the week

2.   Review of action items from last meeting

   2.1.   Review of action items from ARM4

   2.2.   Final Report from ARM4 - for reference

3.   Review of input papers

4.   Reports from other bodies:

   4.1.   IALA Council, 62th Session, June 2016

   4.2.   Policy Advisory Panel (PAP)

   •   PAP31, April 2016

   •   DWG5, July 2016

   4.3.   IMO MSC96, May 2016

5.   Reports from rapporteurs

   •   e-Navigation shore side   Martin Bransby

6.   Presentations (15 minutes)

   •   Risk assessment Pacific Community   Minsu Jeon

   •   Status of IALA S-201 AtoN Development   Sewoong Oh

   •   Smart Buoy Service (part of EfficienSea2)   Marek Ledóchowski

   •   Update WWA activities   Omar Frits Eriksson

   •   AIS AtoN implementation on Arcadas Islands and Antarctic Zone   Raul Escalante

7.   Establish Working Groups

8.   WG1 - Navigational requirements

   8.1.   Contribute to standards generated by the Secretariat (Task 1.1.1)

   8.2.   Develop guidance on the marking of wrecks as defined by the Nairobi Wreck Convention (Task 1.1.3)

   8.3.   Develop guidance for AtoN authorities on disaster recovery (Task 2.1.1)

   8.4.   Develop guidance for AtoN authorities on the use of Marine Spatial Planning (Task 3.1.1)

   8.5.   Develop guidance on the use of mobile AtoN (Task 1.1.6)

   8.6.   Consider guidance for authorities on the use of enavigation services (Task 2.1.3 shared with WG2)

9.   WG2 - Continuous improvement

   9.1.   Contribute to standards generated by the Secretariat (Task 2.1.2)

   9.2.   Develop guidance on the use of pictograms on AtoN (Task 1.1.4)

   9.3.   Develop guidance on the management of AtoN in environmentally protected areas (Task 2.5.1)

   9.4.   Coordinate a limited review of the IALA NAVGUIDE to incorporate amended recommendations and guidelines and other necessary update via IALA Wiki (Task 4.2.2)

   9.5.   Amend IALA Dictionary as appropriate including harmonisation of definition of AtoN (Task 4.2.5)

   9.6.   Populate S-100 as requested by the ENAV Committee (Task 1.2.1)

   9.7.   Map existing ARM documentation to standards generated by Secretariat (Task 4.2.6)

   9.8.   Rewrite ARM documentation to meet new document structure in conjunction with IALA assistance (Task 4.2.7 shared with WG1)

10.   WG3 - Risk management

   10.1.   Oversee development of Risk Management Toolbox (Task 3.4.1)

   10.2.   Develop guidance on PAWSA (Task 3.4.2)

   10.3.   Develop guidance on SQUART (Task 3.4.3)

   10.4.   Develop guidance on use of IWRAP (Task 3.4.4)

   10.5.   Training / workshop / seminar in association with WWA (Task 3.4.5)

   10.6.   IALANET (Task 3.4.6)

11.   Review of Current Work Programme (2014 – 2018)

12.   Review of output and working papers

   12.1.   Output papers

   12.2.   Working papers

13.   Any Other Business

14.   Review of session report

15.   Date and venue of next meeting

Close of the meeting

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Apologies were received from the following.

Name	Organisation	Country
George Detweiler	US Coast Guard	USA
Scott Windover	Canadian Coast Guard	Canada
Youki Mallette	Canadian Coast Guard	Canada
James Collocott	SAMSA	South Africa
Alfredo Dominguez	Tideland Signal	USA

New Members

Name	Organisation	Country
BAE JunKi	KAAN	South Korea
KWON Minwoo	MOF	South Korea
KIM Jeong Sik	MOF	South Korea
KIM Hee Tae	MOF	South Korea
KANG Changmin	MOF	South Korea
KANG Miyoung	MOF	South Korea
LEE Se Uk	MOF	South Korea
LIM Dahye	MOF	South Korea
SANCHES Iohana	Centro de Sinalização Náutica Almirante Moraes Rego	Brazil

Observers

Name	Organisation	Country
SING Seno	Port Autonome of Sihanoukville	Cambodia
LY Sophak	Ministry of Public Works and Transport	Cambodia

ANNEX C　　　WORKING GROUP PARTICIPANTS

Working Group 1　　　Navigational Requirements

	Name	Organisation / Country
1	Roger Barker (Chairman)	THLS / England & Wales
2	Jorge Teles (Vice Chairman)	Direcção de Faróis / Portugal
3	Artur Dias Marques	Portuguese Hidrographic Office / Portugal
4	Ernst Bolt	Ministry of Infrastructure and the Environment / The Netherlands
5	Hashim Haswan	Malaysia Marine Department / Malaysia
6	Hee-Tae Kim	Ministry of Oceans and Fisheries / Republic of Korea
7	Iohana Sanches	Adm. Morais Rego Aids to Navigation / Brasil
8	Jakob Bang	DMA / Denmark
9	Jinju Lee	Woori Haeyang / Republic of Korea
10	Jung Jin	Korea Association of Aids to Navigation / Republic of Korea
11	Justin Kimura	US Coast Guard / USA
12	Kang Miyoung	Ministry of Oceans and Fisheries / Republic of Korea
13	Lang Rongway	China MSA / Peoples Republic of China
14	Ly Sophak	MPW & T / Cambodia
15	Marek Ledochowski	Maritime Office Gdynia / Poland
16	Mats Hörström	Swedish Transport Agency / Sweden
17	Omar Frits Eriksson	WWA / IALA
18	Peter Dam	Danish Maritime Authority / Denmark
19	Peter Dolan	Pharos Marine / UK
20	Raul Escalante	Hidrovia SA / Argentina
21	Risto Lang	Finnish Transport Agency / Finland
22	Samir Benouda	Mobilis / France
23	Sing Seno	Port Autonome of Sihanoukville / Cambodia
24	Young Kee Bang	Daekee Marine Corp / Republic of Korea
25	Young-Sub Hyun	Ministry of Oceans and Fisheries / Republic of Korea
26	Yves Jacques	Canadian Coast Guard / Canada

Working Group 2   Continuous Improvement

	Name	Organisation / Country
1	Guttorm Tomren (Chairman)	NCA / Norway
2	Johan Westerlund (Vice Chair)	SMA / Sweden
3	Andrew Oleynikov	Department of Navigation and Oceanography / Russia
4	Catrine Steenberg	Force Technology / Denmark
5	Changmin Kang	Ministry of Maritime Affairs / Republic of Korea
6	Dahye Kim	Ministry of Maritime Affairs / Republic of Korea
7	David Jeffkins	AMSA / Australia
8	David Merrill	US Coast Guard / USA
9	Gaëlle Nassif	CEREMA / France
10	Junki Bae	Korea Association of Aids to Navigation / Republic of Korea
11	Martin Bransby	General Lighthouse Authorities / UK
12	Minsu Jeon	SPC / Fiji
13	Minwoo Kwon	Ministry of Maritime Affairs / Republic of Korea
14	Miyoung Kang	Ministry of Maritime Affairs / Republic of Korea
15	Victoria Pogosian	Department of Navigation and Oceanography / Russia
16	Yeong Jae Kim	Ministry of Maritime Affairs / Republic of Korea

Working Group 3   Risk Management

	Name	Organisation / Country
1	Omar Frits Eriksson (Chair)	DMA / Denmark
2	Roger Barker (Vice Chair)	THLS / England and Wales
3	Catrine Steenberg	Force Technology / Denmark
4	Jakob Bang	DMA / Denmark
5	Jorge Teles	PLA / Portugal
6	Justin Kimura	US Coast Guard / USA
7	Marik Ledochowski	Maritime Office / Poland
8	Minsu Jeon	SPC / Fiji
9	Peter Dolan	Pharos / UK
10	Sopak LY	MPW & T / Cambodia
11	Yves Jacques	Canadian Coast Guard / Canada

ANNEX D   LIST OF INPUT PAPERS

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

	Document number	Agenda item	Title
1	ARM5-1.2	1.2	Agenda
2	ARM5-1.4	1.4	Programme for the week
3	ARM5-2.1	2.1	Actions items ARM4
4	ARM5-2.2	2.2	(ARM4-14) Report of ARM4
5	ARM5-3.1	3	IHO input on Portrayal of Sector lights
6	ARM5-3.2	3	(ENAV19-14.1.14) Liaison note to ARM on portrayal of lights
7	ARM5-3.3	3	(ENG5-11.1.21) Draft Recommendation E-106. Retroreflecting materials post plenary
8	ARM5-3.4	3	Draft report workshop on AIS AtoN developments
9	ARM5-4.1.1	4.1	Final report Council 62
10	ARM5-4.2.1	4.2	(PAP31-21 1) Draft report PAP31_V2
11	ARM5-4.2.2	4.2	DWG5 Report - Dictionary Working Group 20160701
12	ARM5-4.3.1	4.3	IMO MSC 96 report
13	ARM5-4.3.2	4.3	C 116-4-1 - Trends, Developments and Challenges facing the IMO in the 20...
14	ARM5-8.2.1	8.2	(ARM4-12.2.6) WG1- WP3 draft Guideline on Wreckage
15	ARM5-8.3.1	8.3	(ARM4-12.2.1) WG1-WP1 draft Recommedation on Disaster Recovery
16	ARM5-8.3.2	8.3	(ARM4-12.2.2) WG1-WP1 draft Guideline on Disaster Recovery
17	ARM5-8.4.1	8.4	(VTS42-12.1.7) Liason note to ARM on Marine Spatial Planning
18	ARM5-8.4.2	8.4	(ARM4-12.2.3) WG1-Draft Guideline on Navigational Safety within MSP 20 APR 2016-1
19	ARM5-8.4.3	8.4	(ARM4-12.2.4) WG1-Draft Recommendation on MSP Feb2016
20	ARM5-8.4.4	8.4	(ARM4-12.2.5) WG1-Draft Dictionary input from Guideline on MSP
21	ARM5-8.5.1	8.5	(ARM4-12.2.7) WG1-Draft Guideline on Mobile AtoN
22	ARM5-8.5.2	8.5	info paper France
23	ARM5-8.5.3	8.5	IMO-ITU EG 12-5-3
24	ARM5-8.5.4	8.5	IMO-ITU EG 12-5-7
25	ARM5-8.5.5	8.5	IMO-ITU EG 12-5-11
26	ARM5-8.5.6	8.5	IMO-ITU EG 12-5-12
27	ARM5-9.2.1	9.2	(ARM4-12.2.11) WG2-Draft Guideline on Uses of Pictogram
28	ARM5-9.3.1	9.3	(ARM4-12.2.8) WG2-Draft Guideline on EPA 2016-04-21
29	ARM5-9.4.1	9.4	(ARM4-12.2.10) WG2-navguide_2015_tracking_table

	Document number	Agenda item	Title
30	ARM5-9.4.2	9.4	(ENG5-11.1.18) Liaison Note to ARM re NAVGUIDE updates
31	ARM5-9.4.3	9.4	(ENG5-11.2.10) Navguide Update Plan updated at ENG5
32	ARM5-9.5.1	9.5	DWG liaison note to ARM5 re Dictionary definitions
33	ARM5-9.5.2	9.5	Liaison note from DWG re definition of availability
34	ARM5-9.6.1	9.6	Report from S100WG1
35	ARM5-9.7.1	9.7	(ARM4-12.2.9) WG2-mapping_of_arm_documentation
36	ARM5-9.9.1	9.9	(ENAV19-14.1.13) Response to ARM4-12.1.3 Liaison to ENAV on S-201 PS rev 1
37	ARM5-10.2.1	10.2	IALA Guideline #### Ed.1 Use of PAWSA Rev 0
38	ARM5-10.2.2	10.2	Notes to Draft Guideline on PAWSA
39	ARM5-10.2.3	10.2	Letter to Capt Scott Smith on PAWSA
40	ARM5-10.2.4	10.2	Letter to USA Council Member re PAWSA July 15
41	ARM5-10.2.5	10.2	20151006_Letter_on_PAWSA_IPR_from_S_J_Smith_USCG
42	ARM5-10.3.1	10.3	IALA Guideline #### Ed.1 Use of SQUART final draft July 16
43	ARM5-10.3.2	10.3	SQUART workbook final draft July 2016
44	ARM5-10.4.1	10.4	IWRAP 27656-2-mscn-rev.2
45	ARM5-10.7.1	10.7	(ARM4-12.2.12) WG3 Final public summary of FAROS Project
46	ARM5-11.1	11	(ARM4-11.3) ARM Work Programme 2014-2018 revised ARM4
47	ARM5-11.2	11	(ARM4-11.4) Status report ARM4

Presentations given by rapporteurs and presenters

All presentations are posted on the Committee section of the IALA website

Document number	Agenda item	Title
ARM5-5.1	5	e-Navigation for ARM5
ARM5-6.1	6	Risk assessment Pacific Community
ARM5-6.2	6	Status of IALA S-201 AtoN Development (KRISO)
ARM5-6.3	6	Smart Buoy Service (part EfficienSea2)
ARM5-6.4	6	IALA WWA brief
ARM5-6.5	6	AIS-AtoN Antarctic zone

ANNEX E   LIST OF OUTPUT DOCUMENTS, E-MAILS AND WORKING PAPERS

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

Number	Title	Status
ARM5-14	Report ARM5	To Council to note
ARM5-11.3	(ARM5-11.1) ARM Work Programme 2014-2018 revised ARM5	To ARM6
ARM5-12.1.1	Discussion regarding recommendations and guidelines	To SG and DSG to consider To PAP to note
ARM5-12.1.2	Proposal on future committee structure and work programme	To SG and DSG to consider To PAP to note
ARM5-12.1.3	Proposed 2018-2022 work items	To SG and DSG to consider To PAP to note
ARM5-12.1.4	Liaison to SG on IHO representation	To SG and DSG to action
ARM5-12.1.5	Liaison to ENAV, VTS and ENG on Mobile AtoN (including ARM5-12.2.7 and ARM5-12.2.8)	To ENAV, VTS and ENG to comment
ARM5-12.1.6	Liaison to Council on Accreditation of Training Organisations	To Council to note
ARM5-12.1.7	Draft IALA Recommendation XXX Ed.1 on Accreditation	To Council to approve
ARM5-12.1.8	Liaison to all committees - reminder on the NAVGUIDE (including NAVGUIDE tracking table ARM5-12.2.9)	To ENAV, VTS and ENG to action
ARM5-12.1.9	Liaison to ENAV on amends to S-201 products-1	To ENAV to action
ARM5-12.1.10	(ENAV19-9.2.2) S-201 Product Specification - draft 0 0 4 arm5 day2	To ENAV to action
ARM5-12.1.11	S-201 Product Specification - draft 0.0.1 Annex A DCEG_rev5 arm5 gt day2	To ENAV to action
ARM5-12.1.12	S-201 Product Specification - draft 0.0.1 Annex D.1 Feature Catalogue_mb edits	To ENAV to action
ARM5-12.1.13	Liaison Note to ENG on updates to Draft Recommendation E-106. Retroreflecting materials	To ENG to note
ARM5-12.1.14	(ENG5-11 1 21) Draft Recommendation E-106 on Retroreflecting materials post plenary	To ENG to action

e-Mails are submitted for answer/review/action to external parties and other Committees.

Number	Title	Status
ARM5-12.3.1	To Tuncay Çehreli to inform him about the requested action on the provision of an updated version of the PAWSA handbook to ARM6.	

Working papers will remain within the Committee for further review during ARM6.

Number	Title
ARM5-12.2.1	(ARM5-8.3.1) WG1-WP1 draft IALA Recommendation on Disaster Recovery
ARM5-12.2.2	(ARM5-8.3.2) WG1-WP1 draft IALA Guideline on Disaster Recovery
ARM5-12.2.3	(ARM5-8.4.3) WG1-Draft Recommendation on MSP Oct2016-1
ARM5-12.2.4	(ARM5-8.4.2) WG1-Draft Guideline on Navigational Safety within MSP 27 Oct 2016-1
ARM5-12.2.5	(ARM5-8.4.4) WG1 Dictionary amendment proposal form 20161025 MSP
ARM5-12.2.6	WG1 IALA Recommendation on Marking Drifting Wreckage ARM5
ARM5-12.2.7	WG1 IALA Recommendation MAtoN ARM 5_v2
ARM5-12.2.8	WG1 IALA Guideline MAtoN ARM 5 v2
ARM5-12.2.9	(ARM5-9.4.1) WG2-navguide_2015_tracking_table
ARM5-12.2.10	WG2 O-130 Categorisation and Availability Objectives for Short Range Aids to Navigation_draft ARM4
ARM5-12.2.11	WG2 O-XXX Response plan for marking of new wrecks recommendation
ARM5-12.2.12	WG2 IALA Guideline 1004 Ed.3 on Level of Service May 2013 v02
ARM5-12.2.13	WG2 IALA Guideline 1046 Ed.1 Response Plan for Marking New Wrecks December 2005 rev1
ARM5-12.2.14	(ARM5-9.2.1) WG2-Draft Guideline on uses of pictogram(Oct 27)
ARM5-12.2.15	(ARM5-9.3.1) WG2-Draft Guideline on EPA 2016-10-27
ARM5-12.2.16	WG2 Dictionary amendment proposal form 20160927_Light Float
ARM5-12.2.17	WG2 Dictionary amendment proposal form 20161027_Fog Signal_ Audible Signal
ARM5-12.2.18	(ARM5-10.3.1) WG3 draft IALA Guideline #### Ed.1.01 Use of SQUART
ARM5-12.2.19	(ARM5-10.2.1) WG3 draft IALA Guideline #### Ed.1 Use of PAWSA Rev 0
ARM5-12.2.20	(ARM5-10.2.2) WG3 Notes to Draft Guideline on PAWSA

ANNEX F   **ACTION ITEMS**

Action Items for Secretariat

1. The **Committee Secretary** is requested to forward the final version of the report of the workshop AIS AtoN developments to ARM6 and the ENAV Committee for further consideration and to Council to note.   10

2. The **Committee Secretary** is requested to forward the draft Guideline (ARM5-12.2.2) and the draft Recommendation (ARM5-12.2.1) on Disaster Recovery as input to ARM6.   12

3. The **Committee Secretary** is requested to forward the draft Guideline (ARM5-12.2.4), the draft Recommendation (ARM5-12.2.3) and the Dictionary definition (ARM5-12.2.5) on MSP as input to ARM6.   12

4. The **Committee Secretary** is requested to forward the draft Recommendation on the marking of wrecks (ARM5-12.2.6) as input to ARM6.   13

5. The **Committee Secretary** is requested to forward the draft Guideline (ARM5-12.2.8) and the draft Recommendation (ARM5-12.2.7) on Mobile AtoN as input to ARM6.   13

6. The **Committee Secretary** is requested to forward the Liaison Note (ARM5-12.1.5) together with the draft Guideline and Recommendation on Mobile AtoN to ENAV, VTS and ENG for comments.   13

7. The **Committee Secretary** is requested to forward the draft Guideline on the use of pictograms (ARM5-12.2.14) as input to ARM6.   14

8. The **Committee Secretary** is requested to forward the draft Guideline on the Management of AtoN in EPA (ARM5-12.2.15) as input to ARM6.   14

9. The **Committee Secretary** is requested to forward the reminder of the NAVGUIDE update (ARM5-12.1.8) and the NAVGUIDE Tracking table (ARM5-12.2.9) to all Committees.   14

10. The **Committee Secretary** is requested to forward the two Dictionary amendment forms (ARM5-12.2.16 and ARM5-12.2.17) to ARM6 for approval.   14

11. The **Committee Secretary** is requested to forward the Liaison on the amendments to S-100 (ARM5-12.1.9) and the amended S-100 Product Specification documents (ARM5-12.1.10, ARM5-12.1.11 and ARM5-12.1.12) to the ENAV Committee to action.   15

12. The **Committee Secretary** is requested to forward the reviewed Recommendation O-130 (ARM5-12.2.10) and the Guidelines 1004 (ARM5-12.2.12) and 1046 (ARM5-12.2.13) as input to ARM6.   15

13. The **Committee Secretary** is requested to forward the draft new Recommendation on a response plan for marking of new wrecks (ARM5-12.2.11) as input to ARM6.   15

14. The **Committee Secretary** is requested to forward the Liaison on the amendments of the draft Recommendation E-106 (ARM5-12.1.13) and the amended Recommendation E-106 (ARM5-12.1.14) to ENG for further consideration.   15

15. The **Committee Secretary** is requested to forward input papers ARM5-10.2.1 and ARM5-10.2.2 as input to ARM6 (working papers ARM5-12.2.19 and ARM5-12.2.20).   17

16. The **World Wide Academy** is requested to carry out a full-scale validation test of the SQUART method and provide a report to ARM6.   17

17. The **Committee Secretary** is requested to forward the draft Guideline on the use of SQUART (ARM5-12.2.18) as input to ARM6.   17

18. The **Committee Secretary** to forward the liaison note (ARM5-12.1.6) and the draft Recommendation on Accreditation (ARM5-12.1.7) to Council for approval.   18

19. The **Committee Secretary** is requested to forward the updated version of the current status overview of the ARM Work Programme (ARM5-11.3) to ARM6.   18

20. The **Committee Secretary** is requested to forward the discussion papers on the committee structure (ARM5-12.1.2) and proposed work items (ARM5-12.1.3) to the IALA SG and DSG (informative to PAP).   19

Action Items for Members

IALA