



ARM7-2.2

# REPORT OF THE 6<sup>TH</sup> SESSION OF THE IALA ATON REQUIREMENTS AND MANAGEMENT (ARM) COMMITTEE

24 to 28 April 2017

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## Report of the 6<sup>th</sup> Session of the IALA AtoN Requirements and Management (ARM) Committee Executive Summary

42 Members from 21 countries and one Sister Organisation participated in ARM6; 6 participants for the first time. There was one observer.

This was the sixth meeting for the 2014-18 Work Programme and the ARM Committee considered 90 input papers and produced 23 output papers of three Working Groups.

The arrangements made by the hosts US Coast Guard for ARM6 were excellent. The Committee have had good facilities, technical tour (visit to Coast Guard Cutter Henry Blake) and committee dinner during the week. The very kind hospitality together with the efforts made for the week was really appreciated.

Key outputs included:

Completion and/or revision of the following Recommendations and Guidelines:

- Recommendation on Maritime Buoyage System;
- Recommendation on Risk Management;
- Guideline on the use of pictograms on Aids to Navigation;
- Recommendation on Disaster Recovery;
- Guideline on Disaster Recovery;
- Recommendation on the Involvement of Authority in MSP;
- Guideline on Navigational Safety within Marine Spatial Planning;
- Guideline on PAWSA MKII;
- Guideline on IWRAP MKII;
- Recommendation O-130 Categorisation and Availability Objectives for Short Range Aids to Navigation (revision);
- Guideline 1004 Ed.3 on Level of Service (revision).

The following liaison notes were prepared:

- To Council to approve the draft Recommendations and Guidelines as given above;
- To the IALA Secretariat on the 2018 IALA Questionnaire and 2018 IALA NAVGUIDE;
- To all Committees on the 2018 IALA NAVGUIDE and Mobile AtoN;
- To ENG and VTS on Mobile AtoN;
- To ENAV on MSP;
- To ENG on Guideline 1041;
- To DWG on new definitions.

The first draft of the new Work Programme for the Committee (2018-2022) was compiled and reviewed. It will be forwarded to ARM7 for further completion.

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 ARM6:

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		☒	☐	☐	Completed ARM6
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 Completed ARM6
1.1.5					☐	☐	☒	Task merged with 1.1.4 ARM3
1.1.6	Guideline on the use of mobile AtoN	4	7	WP 18-22	☐	☒	☐	
1.2.1	Populate S-100 as requested by ENAV Committee	1	7		☒	☐	☐	Commenced ARM1 Ongoing WP 18-22
TD#2 – Management for AtoN services								
2.1.1	Develop guidance for AtoN authorities on disaster recovery	1	4	6	☒	☐	☐	Commenced ARM1 Completed ARM6
2.1.2	Contribute to standards generated by Secretariat	4	7		☒	☐	☐	Completed ARM6
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	6	☒	☐	☐	Commenced ARM1 Completed ARM6
3.4.1	Oversee development of Risk Management Toolbox	4	7		☒	☐	☐	New task ARM4 WG3 Ongoing WP 18-22
3.4.2	Develop guidance on PAWSA	4	7		☒	☐	☐	New task ARM4 WG3 Completed ARM6
3.4.3	Develop guidance on SQUART / ISTAR	4	7		☒	☐	☐	New task ARM4 WG3
3.4.4	Develop guidance on use of IWRAP	5	7		☒	☐	☐	New task ARM4 WG3 Completed ARM6
3.4.5	Training / workshop / seminar in association with WWA	5	7	WP 18-22	☐	☒	☐	New task ARM4 WG3
3.4.6	IALANET	5	7		☒	☐	☐	New task ARM4 WG3 Ongoing WP 18-22
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 Completed ARM6
4.2.7	Rewrite ARM documentation to meet new document structure in conjunction with IALA assistance	3	7		☒	☐	☐	New task ARM3 Commenced ARM3 Ongoing WP 18-22

## Table of Contents

Executive Summary .....	3
Table of Contents .....	5
1. Introduction .....	7
1.1 Administrative announcements	8
1.2 Approval of the agenda	8
1.3 Introductions and apologies	8
1.4 Programme for the week	8
2. Review of Action Items from ARM5 .....	8
2.1 Action Items – IALA Secretariat	8
2.2 Action Items – ARM Committee Members	8
3. Review of input papers .....	8
4. Reports from other bodies .....	8
4.1 IALA Council	8
4.2 IALA Policy Advisory Panel	9
4.3 IMO	9
5. Reports from Rapporteurs .....	9
5.1 e-Navigation - shore side	9
5.2 IHO liaison	9
6. Presentations .....	9
6.1 Smart Buoy Service	9
6.2 AIS AtoN implementation on the Orcadas Islands and Antarctic Zone	10
6.3 Uses of Mobile AtoN in Korea	10
6.4 Risk Assessment Pacific Community	10
6.5 19 <sup>th</sup> IALA Conference 2018	10
7. Establish Working Groups .....	11
8. Working Group 1 – Navigational Requirements (WG1) .....	11
8.1 Contribute to develop a standard for the provision of AtoN (Task 1.1.1.)	11
8.2 Develop guidance for AtoN authorities on Disaster Recovery (Task 2.1.1.)	11
8.3 Develop guidance for AtoN authorities on the use of Marine Spatial Planning (Task 3.1.1.)	11
8.4 Develop guidance on the Marking of Wrecks as defined by the Nairobi Wreck Convention (Task 1.1.3)	12
8.5 Develop guidance on the use of Mobile AtoN (Task 1.1.6)	12
8.6 Consider guidance for authorities on the use of enavigation services (Task 2.1.3 shared with WG2)	12

9.	Working Group 2 – Continuous Improvement (WG2) .....	12
9.1	Develop guidance on the use of pictograms on AtoN - Task 1.1.4	13
9.2	Develop guidance on the Management of AtoN in Environmentally Protected Areas - Task 2.5.1	13
9.3	Update and revision of the IALA NAVGUIDE including use of IALA-Wiki - Task 4.2.2	13
9.4	Amend the IALA Dictionary as appropriate including harmonisation of definition of AtoN - Task 4.2.5	13
9.5	Populate S-100 as requested by the ENAV Committee - Task 1.2.1	14
9.6	Rewrite existing ARM documentation to meet new document structure in conjunction with IALA assistance - Task 4.2.7 (shared with WG1)	14
9.7	Input Papers reviewed by Working Group 2	14
10.	Working group 3 – Risk Management.....	15
10.1	Oversee development of Risk Management Toolbox – Task 3.4.1	15
10.2	Develop guidance on PAWSA – Task 3.4.2	16
10.3	Develop guidance on ISTAR – Task 3.4.3	16
10.4	Develop guidance on use of IWRAP – Task 3.4.4	16
10.5	Training / workshop / seminar in association with WWA – Task 3.4.5	16
10.6	IALANET – Task 3.4.6	17
10.7	Develop of Recommendation of Risk Management	17
11.	Review of Work Programme .....	17
11.1	Current Work Programme (2014 – 2018)	17
11.2	Future Work Programme (2018 – 2022)	17
12.	Review of output and working papers .....	19
13.	Any Other Business .....	19
13.1	Technical Tour	19
13.2	Patent issues	20
13.3	PIANC	20
14.	Review of session report .....	20
15.	Date and venue of next meetings .....	20
16.	Closing of the Meeting .....	20
17.	List of Annexes .....	21
ANNEX A	ARM6 Committee Agenda.....	22
ANNEX B	ARM6 Participants.....	24
ANNEX C	Working Group Participants.....	30
ANNEX D	List of input papers.....	32
ANNEX E	List of Output Documents and Working Papers.....	36
ANNEX F	Action Items .....	38

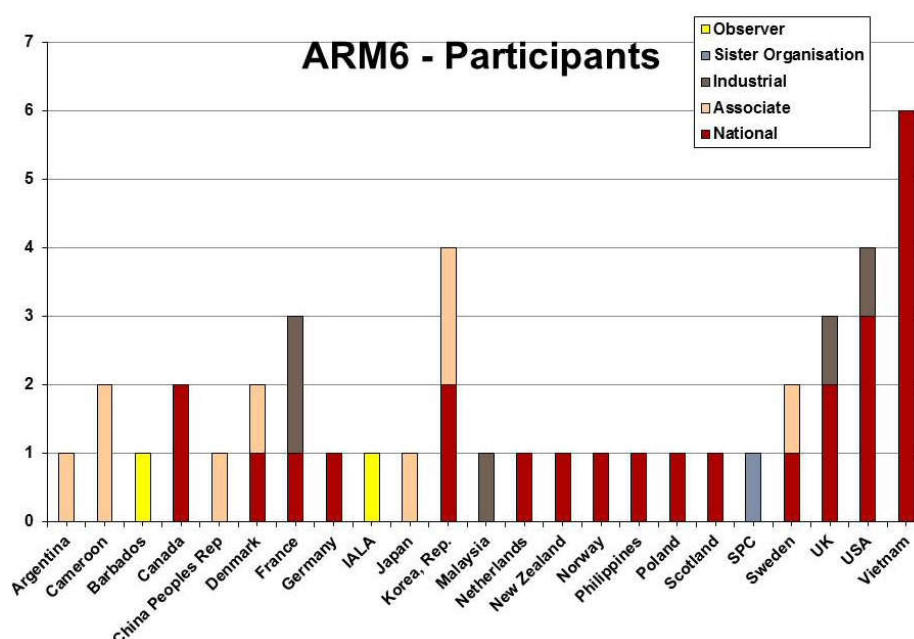
## Report of the 6<sup>th</sup> Session of the IALA

### AtoN Requirements and Management (ARM) Committee

#### 1. INTRODUCTION

The 6<sup>th</sup> meeting of the ARM Committee was held from 23 to 28 April 2017 at the Seattle Public Library, Central Library Branch, Seattle, WA, USA.

The Chair was Phil Day and Justin Kimura was Vice Chair. The Secretary for the meeting was Wim van der Heijden. 42 Members from 21 countries and one Sister Organisation participated in ARM6; 6 participants for the first time.



The Chair opened the meeting by welcoming all participants to ARM6 being the sixth session of the working period 2014-2018 with a special welcome to members participating for the first time. He thanked the US Coast Guard for hosting and organising ARM6. He then introduced Justin Kimura being the new Vice Chair for ARM6 and ARM7 and informed that Michael Skov has left the DMA and thanked him for the work done as Vice Chair of the Committee for a long time.



### **1.1 Administrative announcements**

A short administration and safety briefing was given by Justin Kimura. He referred to a brochure with general information handed out at the registration desk.

### **1.2 Approval of the agenda**

The agenda was reviewed and adopted (ARM6-1.2). It was noted that a new version is available on the file share facility.

### **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 given in ANNEX B.

### **1.4 Programme for the week**

The Chair explained the programme for the week (ARM6-1.4). Members were attended on the meeting of Working Group 3 on Tuesday and Wednesday and the Technical Tour to the Coast Guard Cutter Henry Blake 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 ARMS**

Input paper ARM6-2.1 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 from the Committee Member actions the following actions are standing or ongoing:

26, 27, 28 and 31. All other actions had been completed.

## **3. REVIEW OF INPUT PAPERS**

Before the review of 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 one month after the meeting. Output documents (real output and working documents for the next meeting) should be submitted to the Secretary directly.

The input papers were reviewed and appointed to the working groups or were noted by the Committee (no further action required). Some new late input documents were received and the seven draft IALA Standards as posted on the IALA web-site were replaced by newer editions as result of the PAP33 meeting. 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:

63<sup>rd</sup> Session, IALA, December 2016, paper ARM6-4.1.1 refers.

The Council approved the Recommendation O-149 on Accreditation of training organisations.

The Council noted the report of the Workshop AIS AtoN (real and virtual) developments and their uses and supported the cooperative action of the two Committees involved.

## **4.2 IALA Policy Advisory Panel**

The Committee noted the PAP32 report, paper ARM6-4.2.1 refers.

Many actions from PAP32 are superseded by the next PAP33 meeting, 5-7 April 2017. The Chair gave a brief report of the most relevant discussions.

The Strategy document was discussed and progressed.

The Committee structure for the next working period was discussed. The ENAV Committee will most likely be renamed and some tasks will be handed over to other Committees in order to spread the number of participants. Possible tasks for the ARM Committee can be: symbology and portrayal and the S-100 related development.

## **4.3 IMO**

The Committee noted the report of IMO NCSR4, March 2017. Paper ARM6-4.3.1 refers.

# **5. REPORTS FROM RAPPORTEURS**

## **5.1 e-Navigation - shore side**

Rapporteur: Martin Bransby

Paper ARM6-5.1 (presentation) refers.

The status report of the S-200 developments was presented. IALA is approved by IHO as a submitting organisation and domain controller for the S-200 series of standards. Two product specifications (S-201 and S-240) are under review, others are under development or planned.

## **5.2 IHO liaison**

Rapporteur: Guttorm Tomren

Paper ARM6-5.2 (presentation) refers.

In the introduction the Chair thanked the Norwegian Administration for the supporting liaison task for IALA and the IHO.

The rapporteur informed about the developments on S-100 and the problems with the encryption. There is no date foreseen for the launch of the new S-101.

The ENCWG is reluctant for any changes which can result that S-57 will exist for another 10 to 15 years.

Some examples were presented of overlapping text on electronic charts.

# **6. PRESENTATIONS**

## **6.1 Smart Buoy Service**

Paper ARM6-6.1 (presentation) refers.

Marek Ledóchowski presented an update of the Smart Buoy System, part of the EfficienSea2 project. After a short introduction of the system he introduced the questionnaire to investigate the requirements. The technical project includes the definition of functionalities and the design of a smart buoy. Modules of the block diagram were selected and a prototype is under development. The system will be installed on a buoy later on in 2017.

## 6.2 AIS AtoN implementation on the Orcadas Islands and Antarctic Zone

Paper ARM6-6.2 (presentation) refers.

Raul Escalante presented an update of 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.

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

## 6.3 Uses of Mobile AtoN in Korea

Paper ARM6-6.3 (presentation) refers.

Hyun YoungSub presented an overview of the uses of mobile AtoNs defined as a non-fixed or un-moored AtoN but not including a fixed or moored buoy that is in drift from its station.

Some examples of MAtoNs were presented: an Ocean Data Acquisition System; a Search and Rescue application; the monitoring for water quality and pollution and the marking of wrecks.

## 6.4 Risk Assessment Pacific Community

Paper ARM6-6.4 (presentation) refers.

Minsu Jeon presented the results of an AtoN Risk Assessment in the Pacific based on the IALA Risk Management Toolbox. He explained how the toolbox can be used by competent authorities to plan, operate and manage the AtoN service. He showed a Risk Level table for the area with several scenarios.

## 6.5 19<sup>th</sup> IALA Conference 2018

Paper ARM6-6.5 (presentation) refers.

Lee Se Uk presented the 19<sup>th</sup> IALA Conference in Incheon, Republic of Korea which will be from 27 May till 2 June 2018. The theme for the Conference is “Successful voyages, sustainable planet – A new era for Marine Aids to Navigation in a Connected World”. For further information: [www.iala2018korea.org](http://www.iala2018korea.org)

Participants were reminded that the deadline for submission of abstracts of papers to be presented during the 19<sup>th</sup> IALA Conference has been extended till 30 June 2017. See for details the IALA web-site:

[http://www.iala-aism.org/content/uploads/2016/12/Call-for-papers\\_Final.pdf](http://www.iala-aism.org/content/uploads/2016/12/Call-for-papers_Final.pdf)

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The Chair thanked all speakers for the presentations which are available on the ARM6 page in the Committee section of the IALA web-site.

## 7. ESTABLISH WORKING GROUPS

The Chair 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. A list of working group participants is at Annex C.

Working Group (WG)	Working Group Chair / Vice Chair
WG1 – Navigational Requirements	Roger Barker / Alfredo Dominguez
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 finished and continued at the current session. There was a small discussion about 2 tasks, 8.4 and 8.5, that need to be scrutinized for accuracy, synergies, and improving the content overall.

### 8.1 Contribute to develop a standard for the provision of AtoN (Task 1.1.1.)

Task Leader: Roger Barker

Action item is closed.

### 8.2 Develop guidance for AtoN authorities on Disaster Recovery (Task 2.1.1.)

Task Leader: Marek Ledochowski

Assisted by: Gerhard Muller-Hagen, Peter Dolan, Jaehoon Jeong.

The draft Guideline and Recommendation were reviewed and very small syntax changes were made. The content is approved by the working team and it was proposed that it is presented to the Committee for approval.

#### *Action item:*

*The **Committee Secretary** is requested to forward the draft Recommendation (ARM6-12.1.8) and the draft Guideline on Disaster Recovery (ARM6-12.1.9) to Council for approval.*

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

Task Leader: Ernst Bolt

Assisted by: Mats Hörström, Jean-Jacques Quinquis, Jakob Bang

The WG finished the development of the Guideline and Recommendation, resulting in two mature working papers. The WG recommends that both papers are sent to plenary for approval.

The WG recommends that the dictionary definition be included in the IALA Dictionary permanently.

The WG takes notice of the comments derived from the PIANC draft report and added a reference to the PIANC report in the MSP Guideline.

#### *Action item:*

*The **Committee Secretary** is requested to forward the draft Recommendation on MSP (ARM6-12.1.10) and the draft Guideline (ARM6-12.1.11) to Council for approval.*

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

Task Leader: Jim Foye

Assisted by: Donette Dolina, Raul Escalante, Terrance Morgan

The recommendation was reviewed and 3 documents were referenced for the relevance of their content to the subject. M-AtoN, Guideline 1046, and MBS are all cited as guidelines to properly mark a drifting wreck. The team also reviewed guideline 1046 and will remain as a working document for ARM 7.

##### *Action item:*

*The **Committee Secretary** is requested to forward the draft Recommendation on Marking of Wrecks (ARM6-12.2.4) and Guideline 1046 (ARM6-12.2.5) to ARM7.*

#### 8.5 Develop guidance on the use of Mobile AtoN (Task 1.1.6)

Task Leader: Youngsub Hyun

Assisted by: Michel Prodhon, Se Uk Lee, Josue Youmba, Nadine Epara, Tran Minh Thuan, Quoc Suy Pham

The draft Guideline and Recommendation were revised to include some wording regarding the notes forwarded by ENAV.

It is also important to notice that the document is still in working draft and ARM will continue to liaise across all committees recognizing the consensus that to ensure the new mobile AtoN requires, if possible, a completely new character to ensure absolute clarity of recognition for the Mariner.

##### *Action items:*

*The **Committee Secretary** is requested to forward the draft Guideline (ARM6-12.2.7) and the draft Recommendation on Mobile AtoN (ARM6-12.2.6) to ARM7.*

*The **Committee Secretary** is requested to forward the Liaison Notes on Mobile AtoN to ENG (ARM6-12.1.12) and VTS (ARM6-12.1.13) Committees.*

*The **Committee Secretary** is requested to forward the Liaison Note on MAtoN (ARM6-12.1.23) to all Committees.*

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

Task Leader: Roger Barker

This item was considered in the plenary session where the decision was that whilst the importance of cross-committee engagement on E-Navigation matters is recognized, the specific work task is closed.

### 9. WORKING GROUP 2 – CONTINUOUS IMPROVEMENT (WG2)

The working group progressed on tasks as detailed below. In addition, an input paper from the NCA about divergence in guidance to Sector Lights was considered and a liaison note to ENG committee drafted.

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

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

The Chair advised that the priority tasks for WG2 at ARM6 were:

- To progress and if possible finalise the development of guidance on the use of pictograms on AtoN (Task 1.1.4).
- To progress and if possible finalise 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).
- Rewrite 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: Johan Westerlund, Dave Merrill, Martin Bransby

Work was completed on this task during ARM6. The task group found reference to Categories of Special Marks in the S-201 Product Specification, Annex D; Feature Catalogue, and decided to expand the scope of the guideline to include more examples of pictograms, thereby covering most of the categories listed in S-201. Expanded and more specific pictogram designs may be developed nationally, according to principles in the Guideline.

#### *Action item:*

*The **Committee Secretary** is requested to forward the draft Guideline on the use of pictograms (ARM6-12.1.16) to Council for approval.*

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

Acting Task Leader: Youki Mallette, (Previous Task Leader Gaelle Nassif not present at ARM6)

Assisted by: Bo Hermanson

Work progressed on this task during ARM6, the guideline is near completion and will be finalised at ARM7.

#### *Action item:*

*The **Committee Secretary** is requested to forward the draft Guideline on the Management of AtoN in EPA (ARM6-12.2.2) as input for ARM7.*

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

Task leader: Dave Merrill

Assisted by: Martin Bransby, Johan Westerlund

The NAVGUIDE chapters managed by ARM were mostly completed at ARM5. Input for ARM6 was received from ENAV stating that the ENAV section of the NAVGUIDE will be completed and the final draft submitted ahead of ARM7. ENG also provided an updated tracking table detailing their progress, showing that most items are completed, while the rest are in progress. The tracking table was updated to include all reported progress. ARM7 is deadline for populating IALA Wiki NAVGUIDE section prior to IALA Conference in 2018. A liaison note reminding the other committees to complete NAVGUIDE updates prior to ARM7 was drafted.

#### *Action item:*

*The **Committee Secretary** is requested to forward the liaison note (ARM6-12.1.17) and the updated NAVGUIDE Tracking table (ARM6-12.1.18) 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

Assisted by: Youki Mallette, Ivan Vargas

Work progressed on this task during ARM6. The two drafted proposals regarding Light Float and Fog/Audible Signal were reviewed and complemented with Spanish and French language versions.

#### Action items:

**ARM members** are requested to provide relevant changes to the IALA Dictionary to the task leader prior to ARM7 ([david.merrill@uscg.mil](mailto:david.merrill@uscg.mil)).

The **Committee Secretary** is requested to forward the two Dictionary amendment forms (ARM6-12.1.21 and ARM6-12.1.22) to the DWG as input for the IALA Dictionary.

### 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

A liaison note was received from ENAV Committee regarding the input provided from ARM after ARM5. ENAV Committee has noted the input provided and will update documentation accordingly. In addition ENAV Committee forwarded a presentation on the S-100 which was given at plenary by Martin Bransby.

### 9.6 Rewrite 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

Mapping of documents was completed prior to ARM6. Rewriting and editing of documents that needed to alter context continued during ARM6. The following documents were rewritten and finalised for approval:

- Recommendation O-130 on Categorisation and Availability Objectives for Short Range Aids to Navigation
- Guideline 1004 on Level of Service.

#### Action item:

The **Committee Secretary** is requested to forward the reviewed Recommendation O-130 (ARM6-12.1.19) and the Guideline 1004 (ARM6-12.1.20) to Council for approval.

### 9.7 Input Papers reviewed by Working Group 2

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

- ARM6-3.2.10 from the NCA about divergence in Guideline 1041 on Sector Lights, between previous versions and the latest version finalised in June 2016. A liaison note to ENG Committee was drafted.

#### Action item:

The **Committee Secretary** is requested to forward the Liaison on divergence in Guideline 1041 (ARM6-12.1.15) with the input paper attached to ENG Committee for further consideration.

- ARM6-3.3.2 from ENAV Committee requesting that the ARM Committee take into consideration the current development of the draft IALA MSP Guideline. ENAV Committee further requested that the ARM Committee provide suggested text regarding MSP17, so that further work on the document can be finalised at ENAV21. A liaison note to ENAV Committee with some suggested text was drafted.

#### Action item:

The **Committee Secretary** is requested to forward the Liaison on Draft IALA guideline on MSP (ARM6-12.1.14) to the ENAV Committee.

## 10. WORKING GROUP 3 – RISK MANAGEMENT

The WG commenced its work by agreeing on the draft agenda from the ARM6 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)
7. Develop Recommendation on risk Management

### 10.1 Oversee development of Risk Management Toolbox – Task 3.4.1

The IALA Risk Management toolbox and the need for further improvement and development were discussed around the table. Words to amplify the importance of doing risk assessment are necessary, especially at the IALA courses. Tools should be chosen based on extent and complexity of risk and also available resources. The users of the tools should be aware of advantages of each risk assessment tool and possible uncertainties in the results as a consequence of the used methods, and that the tools are complementing each other. As an example: IWRAP used in the wrong way, or in isolation, can give misleading results.

The further development of the Risk Management Toolbox was discussed, and the WG identified the following topics:

- 1) IWRAP – develop a consequence model and model the mitigating effects of AtoN/VTs as well as routing measures.
- 2) SQUART/ISTAR – keep it as simple as possible and consider renaming it.
- 3) Simulation – develop more tools such as the Korean AtoN simulator

The WG chair asked for possible research topics where research is needed in order to support the work of IALA committees. Potential research topics identified were:

- Numerical navigator technology – a step towards autonomous ships. The human aspect should be modelled, self-learning systems and artificial intelligence are matured and becoming mainstream solutions. Progress within these domains will in time contribute to the possibility to develop such a tool. However, still further research has to be done.
- Real-time assessment of risk with feedback to navigator.
- New principles for unique visual identification of AtoN (e.g. mobile AtoN)
- VDES channel soundings (modulation scheme)
- Risk Assessment (IWRAP), effect of AtoN, routing measures, Causation factors, effect of reduced AtoN light intensity/range due to financial pressure

The IALA World-Wide Academy aims at publishing a list of prioritized research topics in the near future and liaise with universities worldwide, encouraging research within these areas.

#### *Action item:*

**WG3 members** are requested to consider other potential areas of development of the IALA Risk Management Toolbox as well as required research topics and provide as input to ARM7.

## 10.2 Develop guidance on PAWSA – Task 3.4.2

The Chair explained that in terms of providing guidance on PAWSA, two aspects have to be considered:

- 1) Extract from Recommendation O-134 and put this into a guideline
- 2) A handbook/manual for simplified use of PAWSA now exist made by Turkey

Input paper ARM6-10.2.9 was discussed. The WG agreed that the simplified version of PAWSA should be named 'PAWSA MKII'.

The WG noted the input paper ARM6-10.2.1 and recognised the need for a revision of the implementation guide including all annexes. The WG recommends the implementation guide to be included as an annex to the Guideline on use of PAWSA (ARM6-10.2.9).

### Action items:

*The **Committee Secretary** is requested to make editorial changes to input papers ARM6-10.2.3 through ARM6-10.2.8 and insert them as annexes to output paper ARM6-12.1.7.*

*The **Committee Secretary** is requested to forward Guideline on PAWSA MKII (ARM6-12.1.7) to Council for approval.*

## 10.3 Develop guidance on ISTAR – Task 3.4.3

Input papers ARM6-12.2.18 and the accompanying spreadsheets were opened for discussion. Experience by SPC using ISTAR and also experience by Ernst Bolt using a similar method used by the Dutch Authority formed the basis for the discussion.

The WG found that further refinement of the spreadsheets was required to guide the users through the risk assessment process. Hence, a revision of spreadsheet C (Risk Assessment) was developed.

The classification of probability criteria and impact criteria were discussed in detail and revised expanding the range from three to five levels.

The text in the guideline requires further discussion and revision and is forwarded as an input paper to ARM7.

The WG considered the naming of this simplified tool and agreed on RAMS (Risk Assessment Made Simple).

The WG recommends Guideline 1018 to be revised during the next working period to incorporate the lessons learnt from the development of RAMS.

### Action item:

*The **Committee Secretary** is requested to forward the draft Guideline on the use of RAMS (ARM6-12.2.3) as input to ARM7.*

## 10.4 Develop guidance on use of IWRAP – Task 3.4.4

Extract of output from Recommendation O-134 forms the basis for a new draft guideline on IWRAP prepared for ARM6 by Peter Dolan from Pharos Marine (very late input paper).

The WG agreed that the guideline shall address the free version of IWRAP Mk II and not the commercial version. The difference lies within the pre and post-processing of data where the commercial version has an advantage.

### Action item:

*The **Committee Secretary** is requested to forward the draft Guideline on IWRAP MKII (ARM6-12.1.6) to Council for approval.*

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

The Chair went through the background for the Risk Management course delivered by the Academy.

There is an increasing interest for the Risk Management course, however, WWA cannot deliver a lot of courses themselves. The role of WWA is to facilitate the delivery of courses by Accredited Training Organisations.

The WG expressed a need for a refresher course for IWRAP. Distance learning could be a way to offer refresher courses.

*Action Item:*

ARM WG3 request **WWA** to look into the need for developing a refresher course for IWRAP.

#### 10.6 IALANET – Task 3.4.6

The Chair described the functioning and required improvement of the IALANET system. To date this system has been hosted by the Danish Maritime Authority but this arrangement has ended and the system will be hosted by IALA in the future.

The WG must consider the ongoing benefits of sharing data through the IALANET and other value propositions/services such as data sharing system, trusted AIS repository, AIS-store, AIS coverage analysis, Risk levels on global scale. The WG found that IALANET can be a valuable resource for IALA national members.

#### 10.7 Develop of Recommendation of Risk Management

The Chair introduced the draft recommendation on risk management for Aids to Navigation and related services which has been revised by PAP with the purpose of complying with the new IALA document structure.

The WG discussed the recommendation and it has been finalised and is submitted to Council as an output.

*Action items:*

The **Committee Secretary** is requested to forward the draft Recommendation on Risk Management for marine aids to Navigation (ARM6-12.1.5) to Council for approval.

The **Committee Secretary** is requested to revoke Recommendation O-134 upon Council approval.

### 11. REVIEW OF WORK PROGRAMME

#### 11.1 Current Work Programme (2014 – 2018)

Input papers ARM6-11.1.1 and ARM6-11.1.2 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 (ARM6-11.1.3) to ARM7.

#### 11.2 Future Work Programme (2018 – 2022)

The first draft of the new Work Programme 2018 – 2022 was compiled, presented and discussed. Participants are invited to review the proposed work items for further discussion.

*Action item:*

The **Committee Secretary** is requested to forward the draft future Work Programme (2018 – 2022) (ARM6-11.2.1) as working document to ARM7 for completion.

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		☒	☐	☐	Completed ARM6
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 Completed ARM6
1.1.5					☐	☐	☒	Task merged with 1.1.4 ARM3
1.1.6	Guideline on the use of mobile AtoN	4	7	WP 18-22	☐	☒	☐	
1.2.1	Populate S-100 as requested by ENAV Committee	1	7		☒	☐	☐	Commenced ARM1 Ongoing WP 18-22
TD#2 – Management for AtoN services								
2.1.1	Develop guidance for AtoN authorities on disaster recovery	1	4	6	☒	☐	☐	Commenced ARM1 Completed ARM6
2.1.2	Contribute to standards generated by Secretariat	4	7		☒	☐	☐	Completed ARM6
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	6	☒	☐	☐	Commenced ARM1 Completed ARM6
3.4.1	Oversee development of Risk Management Toolbox	4	7		☒	☐	☐	New task ARM4 WG3 Ongoing WP 18-22
3.4.2	Develop guidance on PAWSA	4	7		☒	☐	☐	New task ARM4 WG3 Completed ARM6
3.4.3	Develop guidance on SQUART / ISTAR	4	7		☒	☐	☐	New task ARM4 WG3
3.4.4	Develop guidance on use of IWRAP	5	7		☒	☐	☐	New task ARM4 WG3 Completed ARM6
3.4.5	Training / workshop / seminar in association with WWA	5	7	WP 18-22	☐	☒	☐	New task ARM4 WG3
3.4.6	IALANET	5	7		☒	☐	☐	New task ARM4 WG3 Ongoing WP 18-22
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 Completed ARM6
4.2.7	Rewrite ARM documentation to meet new document structure in conjunction with IALA assistance	3	7		☒	☐	☐	New task ARM3 Commenced ARM3 Ongoing WP 18-22

## 12. REVIEW OF OUTPUT AND WORKING PAPERS

The Working Group Chairs 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 Chair 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 April a Technical Tour has been made to the US Coast Guard Cutter (CGC) Henry Blake. In two groups the Committee made a tour on the ship during which the full operation was explained. It was highly appreciated by all Committee members. The tour was followed by the Committee dinner at Ivar's Acres of Clams.



### 13.2 Patent issues

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 meeting. 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 PIANC

Paper ARM6-3.4.1 refers

The Committee was asked if anyone was able to represent IALA on a new work group task relating to the influence of recreational navigation infrastructures on waterfront projects. No volunteer was identified.

## 14. REVIEW OF SESSION REPORT

The report of the meeting (ARM6-14) was reviewed and approved by the Committee on the 28<sup>th</sup> April 2017. Deadline for comments and corrections can be submitted until 22 May 2017.

#### *Action Item:*

*The **Committee Secretary** is requested to forward summary of the report of ARM6 (ARM6-14) after completion (deadline 22 May 2017) to the IALA Council, to note.*

## 15. DATE AND VENUE OF NEXT MEETINGS

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

**19<sup>th</sup> IALA Conference** will be from 28 May till 2 June 2018, Incheon, Republic of Korea.

The Committee received an invitation from Argentina to have an ARM Committee meeting in Buenos Aires in May 2019.

## 16. CLOSING OF THE MEETING

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

He thanked the US Coast Guard for hosting the Committee meeting and LTJG Curtis Hayes for the perfect arrangements made.

The Chair then closed the ARM6 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.



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

The 6<sup>th</sup> meeting of the **ARM Committee** will be held from 24 – 28 April 2017, at the Seattle Public Library, Central Library Branch, Seattle, WA, USA.

The opening plenary will commence at 1000 on Monday 24 April, and the closing plenary will end at approximately 1500 on Friday 28 April.

Committee Chair, Vice-Chair and Working Group Chairpersons are requested to meet at 1400 on Sunday 23 April.

### 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 ARM5
  - 2.2. Final Report from ARM5 - for reference
3. Review of input papers
  - 3.1. IALA Standards
  - 3.2. ARM Committee related input
  - 3.3. Input from other Committees
4. Reports from other bodies:
  - 4.1. IALA Council - 63<sup>rd</sup> Session, December 2016
  - 4.2. Policy Advisory Panel (PAP) – PAP32, October 2016
  - 4.3. IMO
5. Reports from rapporteurs
  - e-Navigation shore side Martin Bransby
  - IHO liaison Guttorm Tomren
6. Presentations (15 minutes)
  - Smart Buoy System, current status and standardization perspectives Marek Ledóchowski
  - AIS AtoN in Antarctica Raoul Escalante
  - Use of Mobile AtoN in Korea Hyun YoungSub
  - Report Risk Assessment tool in the Pacific Minsu Jeon
  - 19<sup>th</sup> IALA Conference, Incheon, Republic of Korea Lee Se Uk

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)
  - 10.7. Develop Recommendation on Risk Management
11. Work Programme
  - 11.1. Current Work Programme (2014 – 2018)
  - 11.2. Future Work Programme (2018 -2022)
12. Review of output and working papers
  - 12.1. Output papers
  - 12.2. Working papers
13. Any Other Business
  - 13.1. Develop Recommendation on Maritime Buoyage System
  - 13.2. Prepare the 2018 IALA Questionnaire
14. Review of session report
15. Date and venue of next meeting
16. Close of the meeting

## ANNEX B

## ARM6 PARTICIPANTS

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**Apologies** were received from the following.

Name	Organisation	Country
Artur MARQUES	Portugese Hydrographic Office	Portugal
Jorge TELES	Direccao de Faroís	Portugal
Johan PETTERSSON	Swedish Transport Agency	Sweden
Jean-Luc FONTAN	DAM	France
James COLOCCOTT	SAMSA	South Africa
Jean-Charles CORNILLOU	Cerema	France

#### **New Members**

Name	Organisation	Country
Terrance MORGAN	CCG	Canada
Ranxuan KE	Jimei University	China
Bo HERMANSON	MOBILIS	France
Michel PRODHON	MOBILIS	France
Jim FOYE	Maritime New Zealand	New Zealand
Curtis HAYES	USCG	USA

#### **Observers**

Name	Organisation	Country
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## ANNEX C WORKING GROUP PARTICIPANTS

### Working Group 1 Navigational Requirements

	Name	Organisation / Country
1	Roger Barker (Chair)	THLS / England and Wales
2	Alfredo Dominguez (Vice Chair)	Tideland Signal Corporation / USA
3	Gerhard Muller-Hagen	Federal Waterways and Shipping Admin / Germany
4	Terrance Morgan	Canadian Coast Guard / Canada
5	Jakob Bang	Danish Maritime Authority / Denmark
6	Marek Ledochowski	Maritime Office Gdynia / Poland
7	Peter Dolan	Greenfinder / Malaysia
8	Se Uk Lee	Ministry of Oceans and Fisheries / Rep. of Korea
9	Youngsub Hyun	Ministry of Oceans and Fisheries / Rep. of Korea
10	Jaehoon Jeong	Korea Association of Aids to Navigation / Rep. of Korea
11	Michel Prodhon	Mobilis / France
12	Ernst Bolt	Ministry of Infrastructure and Environment / the Netherlands
13	Mats Hörström	Swedish Transport Agency / Sweden
14	Tamotsu Ikeda	Japanese Aids to Navigation Association / Japan
15	Jim FoyeE	Maritime New Zealand / New Zealand
16	Jean-Jacques Quinquis	Cerema / France
17	Raul Escalante	Hidrovia SA / Argentina
18	Tran Minh Thuan	Southern Vietnam Maritime Safety Corp. / Vietnam
19	Donette Dolina	Philippines Coast Guard / Philippines
20	Josue Youmba	Cameroon Autorité Portuaire Nationale / Cameroon
21	Nadine Epara	Cameroon Autorité Portuaire Nationale / Cameroon
22	Quoc Suy Pham	Southern Vietnam Maritime Safety Corp. / Vietnam

## Working Group 2 Continuous Improvement

	Name	Organisation / Country
1	Guttorm Tomren (Chairman)	NCA / Norway
2	Johan Westerlund (Vice Chair)	SMA / Sweden
3	Martin Bransby	General Lighthouse Authorities / UK & Ireland
4	Minsu Jeon	SPC / Sister Organisation
5	Bo Hermanson	Mobilis Sea & River Equipment / France
6	Ivan Vargas	Pharos Marine Automatic Power / UK
7	Youki Mallette	Canadian Coast Guard / Canada
8	Junki BAE	Korea Association of Aids to Navigation / Rep. of Korea
9	Catherine Steenberg	FORCE Technology / Denmark
10	Dave Merrill	U.S. Coast Guard / USA
11	George K. Fergusson	Barbados Port Inc. / Barbados

## Working Group 3 Risk Management

	Name	Organisation / Country
1	Omar Frits Eriksson (Chair)	IALA
2	Roger Barker (Vice Chair)	THLS / England and Wales
3	Raul Escalante	Hidrovia SA / Argentina
4	Minsu Jeon	SPC
5	Ke Ranxuan	Research Center, Navigation Aids Technology / Peoples Rep. of China
6	Catherine Steenberg	Force Technology / Denmark
7	Peter Dolan	Greenfinder / Malaysia
8	Tamotsu Ikeda	JANA / Japan
9	Jakob Bang	DMA / Denmark
10	Mats Hörström	Swedish Transport Agency / Sweden
11	Ernst Bolt	Ministry of Infrastructure and Environment / the Netherlands
12	Jaehoon Jeong	Korean Association of Aids to Navigation / Rep. of Korea
13	Gerhard Muller-Hagen	Federal Waterways & Shipping Administration
14	Jean-Jacques Quinquis	CERAMA / France
15	Jim Foye	Maritime New Zealand / New Zealand
16	Terry Morgan	Canadian Coast Guard / Canada
17	Marek Ledochowski	Maritime Office Gdynia / Poland

## ANNEX D LIST OF INPUT PAPERS

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

	Document number	Agenda item	Title
1.	ARM6-1.2	1.2	Agenda
2.	ARM6-1.4	1.4	Programme for the week
3.	ARM6-2.1	2.1	Actions items ARM5
4.	ARM6-2.2	2.2	(ARM5-14) Report of ARM5
5.	ARM6-3.1.0	3.1	ARM6-3.1.0 Draft IALA Standards
6.	ARM6-3.1.1	3.1	(PAP33-18.1) Draft IALA Standard 1010 AtoN Planning & Service Requirements
7.	ARM6-3.1.2	3.1	(PAP33-18.2) Draft IALA Standard 1020 AtoN Design and Delivery
8.	ARM6-3.1.3	3.1	(PAP33-18.3) Draft IALA Standard 1030 Radionavigation Services
9.	ARM6-3.1.4	3.1	(PAP33-18.4) Draft IALA Standard 1040 Vessel Traffic Services
10.	ARM6-3.1.5	3.1	(PAP33-18.5) Draft IALA Standard 1050 Training and Certification
11.	ARM6-3.1.6	3.1	(PAP33-18.6) Draft IALA Standard 1060 Digital Communication Technologies
12.	ARM6-3.1.7	3.1	(PAP33-18.7) Draft IALA Standard 1070 Information Services
13.	ARM6-3.1.8	3.1	(PAP33-10.2) Recommendations Plans for Standards
14.	ARM6-3.2.1	3.2	Revision of Working Papers
15.	ARM6-3.2.2	3.2	(ENAV19-14.1.12) ITU liaison letter to WP 5B for ARMD
16.	ARM6-3.2.3	3.2	R15-WP5B-160510-TD-0024!!MSW-E-IMO+IALA_Liaison
17.	ARM6-3.2.4	3.2	ITU R15-WP5B.AR-C-0040!!MSW-E Report Joint IMO-ITU EG 12 meeting
18.	ARM6-3.2.5	3.2	R15-WP5B-C-0071!N04!MSW-E Workplan AMRD
19.	ARM6-3.2.6	3.2	R15-WP5B-C-0071!N21!MSW-E WD PDNR AMRD
20.	ARM6-3.2.7	3.2	Report IALA Workshop on AIS AtoN developments
21.	ARM6-3.2.8	3.2	AIS AtoN Workshop - Seoul - Oct 2016 - WG2-rev1
22.	ARM6-3.2.9	3.2	AIS AtoN Workshop VDES & AtoN-mind map vs2
23.	ARM6-3.2.10	3.2	Divergence in guidance to sector lights
24.	ARM6-3.3.1	3.3	(ENAV20-4.9) MTCAS- An e-Navigation Assistance System for Cooperative Collision Avoidance at Sea
25.	ARM6-3.3.2	3.3	(ENAV20-14.1.13) Liaison from ENAV to ARM re MSPs post plenary
26.	ARM6-3.3.3	3.3	(ENAV20-14.1.20) Liaison to ENG-ANM-VTS On Use of Racons in Busy Harbours
27.	ARM6-3.3.4	3.3	(ENAV20-13.11) On Racons in Busy Harbours 24 February 2017
28.	ARM6-3.3.5	3.3	(ENG6-11.1.24) The 19th IALA Conference Incheon Declaration Purpose, Content and Ac_v170329_second draft

	Document number	Agenda item	Title
29.	ARM6-3.4.1	3.4	PIANC-WG 202
30.	ARM6-4.1.1	4.1	(C63-19-2) Approved report of Council 63
31.	ARM6-4.2.1	4.2	(C63-8.1) Report PAP32
32.	ARM6-4.3.1	4.3	IMO NCSR 4 report final
33.	ARM6-8.3.1	8.3	(ARM5-12.2.1) WG1-WP1 draft Recommendation on Disaster Recovery
34.	ARM6-8.3.2	8.3	(ARM5-12.2.1) WG1-WP1 draft Recommendation on Disaster Recovery rev MH 31Oct16
35.	ARM6-8.3.3	8.3	(ARM5-12.2.2) WG1-WP1 draft Guideline on Disaster Recovery
36.	ARM6-8.3.4	8.3	(ARM5-12.2.2) WG1-WP1 draft Guideline on Disaster Recovery rev MH 31Oct16
37.	ARM6-8.3.5	8.3	(ARM5-12.2.5) WG1 Dictionary amendment proposal form 20161025 MSP
38.	ARM6-8.3.6	8.3	Input paper on ARM6-8.3.3
39.	ARM6-8.4.1	8.4	(ARM5-12.2.3) WG1-Draft Recommendation on MSP Oct2016-1
40.	ARM6-8.4.2	8.4	(ARM5-12.2.3) WG1-Draft Recommendation on MSP Oct2016-1 rev MH 1Nov16
41.	ARM6-8.4.3	8.4	(ARM5-12.2.4) WG1-Draft Guideline on Navigational Safety within MSP 27 Oct 2016-1
42.	ARM6-8.4.4	8.4	(ARM5-12.2.4) WG1-Draft Guideline on Navigational Safety within MSP rev MH 1Nov16
43.	ARM6-8.4.5	8.4	(ARM5-12.2.6) WG1 IALA Recommendation on Marking Drifting Wreckage ARM5
44.	ARM6-8.4.6	8.4	(ARM5-12.2.3) WG1-Draft Recommendation on MSP Oct2016-1 MH Mar2017
45.	ARM6-8.4.7	8.4	(ARM5-12.2.4) WG1-Draft Guideline on Navigational Safety within MSP reformatted Mar2017
46.	ARM6-8.4.8	8.4	PIANC_WG161_OWF
47.	ARM6-8.4.9	8.4	ARM6-8.4.9 WG161_Report_Rev_11
48.	ARM6-8.5.1	8.5	(ARM5-12.2.7) WG1 IALA Recommendation MAtoN ARM 5_v2
49.	ARM6-8.5.2	8.5	(ARM5-12.2.8) WG1 IALA Guideline MAtoN ARM 5 v2
50.	ARM6-8.5.3	8.5	(ENAV20-14.1.23) Liaison Note to ARM6 re Mobile AtoN plenary
51.	ARM6-8.5.4	8.5	(ENAV20-14.1.30) Draft IALA Recommendation on Mobile AtoN
52.	ARM6-8.5.5	8.5	(ENAV20-14.1.31) IALA Guideline on use of Mobile AtoN
53.	ARM6-8.5.6	8.5	(VTS43-12.1.14) Liaison to ARM on MAtoNs
54.	ARM6-8.5.7	8.5	(ENG6-11.1.23) Liaison note to ARM Committee on Mobile AtoN post plenary
55.	ARM6-9.2.1	9.2	(ARM5-12.2.14) WG2-Draft Guideline on uses of pictogram(Oct 27)
56.	ARM6-9.3.1	9.3	(ARM5-12.2.15) WG2-Draft Guideline on EPA 2016-10-27
57.	ARM6-9.4.1	9.4	(ARM5-12.2.9) WG2-navguide_2015_tracking_table

	Document number	Agenda item	Title
58.	ARM6-9.4.2	9.4	(ENAV20-14.1.1) Liaison note to the ARM Cttee - Progress report on the review and update of Ch 4 of NAVGUIDE plenary
59.	ARM6-9.4.3	9.4	(ENAV20-14.1.1.1) NAVGUIDE tracking table updated at ENAV20
60.	ARM6-9.4.4	9.4	(ENG6-11.1.20) Liaison Note to ARM re NAVGUIDE revision post plenary
61.	ARM6-9.4.5	9.4	(ENG6-11.1.20.1) WG2 Navguide 2015 tracking table - updated ENG6
62.	ARM6-9.5.1	9.5	(ARM5-12.2.16) WG2 Dictionary amendment proposal form 20160927_Light Float
63.	ARM6-9.5.2	9.5	(ARM5-12.2.17) WG2 Dictionary amendment proposal form 20161027_Fog Signal_Audible Signal
64.	ARM6-9.6.1	9.6	(ENAV20-14.1.7) Draft Liaison note to ARM Committee on amendments to S-201 post plenary
65.	ARM6-9.6.2	9.6	20170322 Report to IALA secretariat v02
66.	ARM6-9.8.1	9.8	(ARM5-12.2.10) WG2 O-130 Categorisation and Availability Objectives for Short Range Aids to Navigation_draft ARM4
67.	ARM6-9.8.2	9.8	(ARM5-12.2.10) WG2 Draft Recommendation O-130 Categorisation and Availability Objectives for Short Range Aids to Navigation_draft ARM4 rev MH 1Nov16
68.	ARM6-9.8.3	9.8	(ARM5-12.2.11) WG2 O-XXX Response plan for marking of new wrecks recommendation
69.	ARM6-9.8.4	9.8	(ARM5-12.2.11) WG2 Draft Recommendation O-XXX Response plan for the marking of new wrecks rev MH 1Nov16
70.	ARM6-9.8.5	9.8	(ARM5-12.2.12) WG2 IALA Guideline 1004 Ed.3 on Level of Service May 2013 v02
71.	ARM6-9.8.6	9.8	(ARM5-12.2.12) WG2 IALA Guideline 1004 Ed.3 on Level of Service May 2013 rev MH 1Nov16
72.	ARM6-9.8.7	9.8	(ARM5-12.2.13) WG2 IALA Guideline 1046 Ed.1 Response Plan for Marking New Wrecks December 2005 rev1
73.	ARM6-9.8.8	9.8	(ARM5-12.2.13) WG2 IALA Guideline 1046 Ed.2 Response Plan for Marking New Wrecks December 2005 rev2 rev MH
74.	ARM6-10.2.1	10.2	Updated draft of the PAWSA Implementation Guide
75.	ARM6-10.2.2	10.2	PAWSA Implementation Guide 20170103
76.	ARM6-10.2.3	10.2	Annex 1 - Book 1 Team Expertise
77.	ARM6-10.2.4	10.2	Annex 2 - Book 2 Risk Factor Rating Scales
78.	ARM6-10.2.5	10.2	Annex 3 - Book 3 Baseline Risk Levels
79.	ARM6-10.2.6	10.2	Annex 4 - Book 4 Mitigation Effectiveness
80.	ARM6-10.2.7	10.2	Annex 5 - Book 5 Additional Mitigations
81.	ARM6-10.2.8	10.2	Annex 6 - PAWSA Software
82.	ARM6-10.2.9	10.2	(ARM5-12.2.19) WG3 draft IALA Guideline ### Ed.1 Use of PAWSA Rev 0
83.	ARM6-10.2.10	10.2	(ARM5-12.2.20) WG3 Notes to Draft Guideline on PAWSA
84.	ARM6-10.3.1	10.3	(ARM5-12.2.18) WG3 draft IALA Guideline ##### Ed.1.01 Use of SQUART

	Document number	Agenda item	Title
85.	ARM6-10.3.2	10.3	SPC Aids to Navigation Risk Assessment in Kiriritimati for ARM 6
86.	ARM6-10.4.1	10.4	Guideline xxx IWRAP_ Draft
87.	ARM6-10.7.1	10.7	(PAP33-10.2.5) Draft Recommendation on Risk management for aids to navigation and related services
88.	ARM6-11.1.1	11.1	(ARM5-11.3) ARM Work Programme 2014-2018 revised ARM5
89.	ARM6-11.1.2	11.1	(ARM5-11.4) Status report ARM5
90.	ARM6-11.2.1	11.2	Proposal 2018-2022 new working item from Korea

### **Presentations given by rapporteurs and presenters**

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

Document number	Agenda item	Title
ARM6-5.1	5	Status Report on S-200 and S-201
ARM6-5.2	5	IHO liaison report
ARM6-6.1	6	Smart Buoy System
ARM6-6.2	6	AIS-AtoN Antartico 2011 - 2016
ARM6-6.3	6	Uses of MAtoN in Korea
ARM6-6.4	6	Risk Management in the Pacific
ARM6-6.5	6	19th IALA Conference Promotional Presentation

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

Number	Title	Status
ARM6-14	Report ARM6	To Council to note
ARM6-12.1.1	IALA Recommendation on the MBS	To Council to approve
ARM6-12.1.2	Liaison ARM to Secretariat on IALA Questionnaire	To Secretariat to action
ARM6-12.1.3	Liaison ARM to Secretariat on Navguide	To Secretariat to action
ARM6-12.1.4	Liaison ARM to Council on draft Recommendations and Guidelines	To Council to note
ARM6-12.1.5	Recommendation on Risk Management for Marine Aids to Navigation	To Council to approve
ARM6-12.1.6	Guideline on the use of IWRAP MKII	To Council to approve
ARM6-12.1.7	Guideline on the use of PAWSA MKII	To Council to approve
ARM6-12.1.8	Recommendation on Disaster Recovery	To Council to approve
ARM6-12.1.9	Guideline on Disaster Recovery	To Council to approve
ARM6-12.1.10	Recommendation on MSP	To Council to approve
ARM6-12.1.11	Guideline on Navigational Safety within MSP	To Council to approve
ARM6-12.1.12	Liaison ARM to ENG on Marking of Mobile AtoN	To ENG to action
ARM6-12.1.13	Liaison ARM to VTS on MAtoNs	To VTS to action
ARM6-12.1.14	Liaison ARM to ENAV on MSP guideline	To ENAV to action
ARM6-12.1.15	Liaison ARM to ENG on disparity between editions of guideline 1041	To ENG to action
ARM6-12.1.16	Guideline on uses of pictogram	To Council to approve
ARM6-12.1.17	Liaison to all committees and Secretariat - reminder on the NAVGUIDE 02	To ENAV, VTS and ENG to action
ARM6-12.1.18	(ARM6-9.4.1) WG2-navguide_2015_tracking_table 02	To ENAV, VTS and ENG to action
ARM6-12.1.19	Recommendation O-130 Categorisation and Availability Objectives for Short Range Aids to Navigation	To Council to approve
ARM6-12.1.20	Guideline 1004 Ed.3 on Level of Service	To Council to approve
ARM6-12.1.21	Dictionary amendment proposal on_Light Float - Rev1_FR	To PAP-DWG to action
ARM6-12.1.22	Dictionary amendment proposal on_Fog Signal_Audible Signal - Rev1_FR	To PAP-DWG to action
ARM6-12.1.23	Liaison ARM to all Committees on mobile AtoN	To ENAV, VTS and ENG to action

**Working papers** will remain within the Committee for further review during ARM7.

Number	Title
ARM6-11.2.1	Proposed ARM 2018-2022 Work Programme, revised ARM6
ARM6-12.2.1	(ARM6-9.4.1) WG2-navguide_2015_tracking_table 02
ARM6-12.2.2	(ARM6-9.3.1) WG2-Draft Guideline on EPA 2017-04-27 01
ARM6-12.2.3	WG3 Working Paper 1 Draft Guideline on the use of RAMS
ARM6-12.2.4	(ARM6-8.4.5) WG1 IALA Recommendation on Marking Drifting Wreckage ARM6 - April 2017
ARM6-12.2.5	(ARM6-9.8.8) WG2 IALA Guideline 1046 Ed.2 Response Plan for Marking New Wrecks December 2005 ARM6 - April 2017
ARM6-12.2.6	(ARM6-8.5.1) WG1 IALA Recommendation MAtoN ARM6 - 26 April 2017
ARM6-12.2.7	(ARM6-8.5.2) WG1 IALA Guideline MAtoN ARM6 - April 26 2017

*Action Items for Secretariat*

1. The **Committee Secretary** is requested to forward the draft Recommendation (ARM6-12.1.8) and the draft Guideline on Disaster Recovery (ARM6-12.1.9) to Council for approval. 11
2. The **Committee Secretary** is requested to forward the draft Recommendation on MSP (ARM6-12.1.10) and the draft Guideline (ARM6-12.1.11) to Council for approval. 11
3. The **Committee Secretary** is requested to forward the draft Recommendation on Marking of Wrecks (ARM6-12.2.4) and Guideline 1046 (ARM6-12.2.5) to ARM7. 12
4. The **Committee Secretary** is requested to forward the draft Guideline (ARM6-12.2.7) and the draft Recommendation on Mobile AtoN (ARM6-12.2.6) to ARM7. 12
5. The **Committee Secretary** is requested to forward the Liaison Notes on Mobile AtoN to ENG (ARM6-12.1.12) and VTS (ARM6-12.1.13) Committees. 12
6. The **Committee Secretary** is requested to forward the Liaison Note on MAtoN (ARM6-12.1.23) to all Committees. 12
7. The **Committee Secretary** is requested to forward the draft Guideline on the use of pictograms (ARM6-12.1.16) to Council for approval. 13
8. The **Committee Secretary** is requested to forward the draft Guideline on the Management of AtoN in EPA (ARM6-12.2.2) as input for ARM7. 13
9. The **Committee Secretary** is requested to forward the liaison note (ARM6-12.1.17) and the updated NAVGUIDE Tracking table (ARM6-12.1.18) to all committees. 13
10. The **Committee Secretary** is requested to forward the two Dictionary amendment forms (ARM6-12.1.21 and ARM6-12.1.22) to the DWG as input for the IALA Dictionary. 14
11. The **Committee Secretary** is requested to forward the reviewed Recommendation O-130 (ARM6-12.1.19) and the Guideline 1004 (ARM6-12.1.20) to Council for approval. 14
12. The **Committee Secretary** is requested to forward the Liaison on divergence in Guideline 1041 (ARM6-12.1.15) with the input paper attached to ENG Committee for further consideration. 14
13. The **Committee Secretary** is requested to forward the Liaison on Draft IALA guideline on MSP (ARM6-12.1.14) to the ENAV Committee. 14
14. The **Committee Secretary** is requested to make editorial changes to input papers ARM6-10.2.3 through ARM6-10.2.8 and insert them as annexes to output paper ARM6-12.1.7. 16
15. The **Committee Secretary** is requested to forward Guideline on PAWSA MKII (ARM6-12.1.7) to Council for approval. 16
16. The **Committee Secretary** is requested to forward the draft Guideline on the use of RAMS (ARM6-12.2.3) as input to ARM7. 16
17. The **Committee Secretary** is requested to forward the draft Guideline on IWRAP MKII (ARM6-12.1.6) to Council for approval. 16
18. ARM WG3 request **WWA** to look into the need for developing a refresher course for IWRAP. 17
19. The **Committee Secretary** is requested to forward the draft Recommendation on Risk Management for marine aids to Navigation (ARM6-12.1.5) to Council for approval. 17
20. The **Committee Secretary** is requested to revoke Recommendation O-134 upon Council approval. 17
21. The **Committee Secretary** is requested to forward the updated version of the current status overview of the ARM Work Programme (ARM6-11.1.3) to ARM7. 17
22. The **Committee Secretary** is requested to forward the draft future Work Programme (2018 – 2022) (ARM6-11.2.1) as working document to ARM7 for completion. 17
23. The **Committee Secretary** is requested to forward summary of the report of ARM6 (ARM6-14) after completion (deadline 22 May 2017) to the IALA Council, to note. 20

#### *Action Items for Members*

- |     |                                                                                                                                                                                         |    |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 24. | <b>ARM members</b> are requested to provide relevant changes to the IALA Dictionary to the task leader prior to ARM7 (david.merrill@uscg.mil).                                          | 14 |
| 25. | <b>WG3 members</b> are requested to consider other potential areas of development of the IALA Risk Management Toolbox as well as required research topics and provide as input to ARM7. | 15 |



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International Association of Marine Aids to Navigation and Lighthouse Authorities  
Association Internationale de Signalisation Maritime