Report of the IALA Workshop
on the
Short range AtoN in the e-Navigation era
Executive Summary

A workshop on the subject of Short range AtoN in the e-Navigation era was held at Le Quartz Conference centre in Brest between 8 and 12 October 2012. The workshop was held within the overall context of SeaTechWeek and was kindly sponsored by CETMEF.

An exhibition by 14 Industrial members, was held using 12 booths forming a discrete 'cell' within the overall SeatechWeek exhibition area.

The workshop was attended by 113 delegates representing 27 countries (see Annex A).

A series of 24 presentations were given under five broad headings:

- Daymark conspicuity and applications
- AIS installation on Buoys & Beacons
- Cost engineering of Short Range AtoN and asset management
- Buoys and buoy stability

The workshop then broke into 4 Working Groups to discuss and then produce guidance under the headings of:

1 Daymark conspicuity and applications.

2 AIS installation on Buoys & Beacons.

3 Cost engineering of Short Range AtoN and asset management.

4 Hydrostatic design of buoys.

There was a technical visit to the Brest AtoN maintenance base, which included a practical test, establishing freeboard and stability of a buoy.

A full social programme was provided, by SeaTechWeek, and there was a separate, optional visit to Ushant on Saturday13 October.

The workshop produced:

1 Four output papers (see ANNEX D).

2 Twelve conclusions and twelve recommendations (see ANNEX E).

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Short range AtoN in the e-Navigation era

1 INTRODUCTION

A workshop on the subject of Short range AtoN in the e-Navigation era was held at Le Quartz Centre, Brest, France between 8 and 12 October 2012. The workshop was attended by 113 delegates representing 27 countries.

A list of participants is at ANNEX A.

All presentations and a video prepared for the technical visit form part of the output of the workshop, posted to the FTP server.

2 SESSION 1 - OPENING

Chaired by Gary Prosser, Secretary-General of IALA.

2.1 Welcome from CETMEF

The following welcome was given by Jean-Jacques Quinquis, CETMEF Technical Director.

Dear Colleagues,

I am very pleased to welcome you to Brest and to introduce this workshop focussing on 'Short range AtoN in the e-Navigation age'.

First, I want to thank IALA and the Steering Group for their agreement to choose France as the host country for this technical session, four years after the successful workshop on floating aids to Navigation, set in Brest in April 2008.

My institute, CETME, is the French technical centre involved in sea and inland waters, concentrating on hydraulic items, harbour buildings, shore protection, marine environment and especially in the field of AtoN; it has participated in the work of IALA since the creation of this Association. We have reinforced our participation in the last two years and are honoured by the confidence of IALA.

I also wish to thank the local authorities in Brest for facilitating the organisation of is workshop as an integral part of SeatechWeek, giving also to IALA members the opportunity of expounding on their interest on activities relied to others maritime aims this week. They have also organised the social events, which I think that you will appreciate after your working sessions.

In France, Brest is especially concerned and involved in in maritime navigation safety, with a large density and variety of AtoN implemented n the Brittany coast, and a MRCC to survey the Traffic Sharing System at the entry of the Channel settled in 1982 after the wreck of the Amoco Cadiz.

The equipment have has to be efficient, strong, fitted for marine environment (salinity and rough seas), low energy consuming, they always have to be improved, in terms of availability and low cost: they also have to be updated by taking account new technologies, such as LED, use of new materials, use of alternative ways of using AIS.

The exchanges with our colleagues under IALA organisation is a fantastic way to share information, evaluate and promote these technologies, through the guidelines reviewed during this session.

Now I want to wish you and efficient workshop, led by Omar, our intergalactic EE Chairman, during this week.

I also invite those who have decided to stay in Brest this Saturday, in order to enjoy our so sunny country, to take the option of travelling to Ushant, which includes visit of French Aids to Navigation museum. Now let me give way to the IALA Secretary-General, Gary Prosser.

2.2 Welcome from IALA

Gary Prosser, Secretary-General of IALA

Gary Prosser thanked Jean-Jacques Quinquis for CETMEF's hosting of the workshop and then making the arrangements, saying that it was fantastic to be back in Brest, which is an excellent location for the coming discussion, due to its long maritime history.

He then turned to thank the exhibitors and the members, including a number of new members, for supporting the workshop. He then thanked the workshop Steering Group and the Secretariat for producing the technical programme.

The number of 113 delegates was noted as a record attendance for a workshop / seminar, whilst the combination of the workshop with the activities of SeaTechWeek was viewed as a good way to integrate IALA's activities with others in the maritime field.

Remarking on the quality of the programme, it was hoped that the delegates would be able to enjoy Brest, whilst also carrying out a profitable exchange of views, ideas and experience.

Finally, the Secretary-General announced the appointment of Michael Card in the new post of IALA Deputy Secretary-General, which was met with around of applause for this recent past member of the EEP Committee.

2.3 Administrative and health and safety information

This was provided by Mike Hadley, IALA Technical Co-ordination Manager, by means of a presentation.

2.4 Workshop aim & objectives

Ómar Frits Eriksson – DMA (Denmark) & Workshop Chairman

Ómar Frits Eriksson said that he was very pleased to see everyone and remarked that the IALA family continues to grow.

By means of a short presentation, he indicated that the objectives of the work were to:

- Be inspired by presentations by experts;
- Exchange information and ideas;

- Provide Guidance to IALA members;
- Have fun.

The Working Groups and their topics were then indicated and the respective leaders introduced. The provisional allocation of the available Working Group rooms were confirmedafter a show of hands by the delegates.

3 SESSION 2 – DAYMARK CONSPICUITY AND APPLICATIONS

Chaired by Richard Moore, Canadian Coast Guard

3.1 Draft IALA Guideline on daymarks, including the fundamentals

The presentation was made by Frank Hermann, Traffic Technologies Centre, German Federal Waterways Administration.

Presentation abstract

It was explained that although the IALA Maritime Buoyage System defines shapes and colours for the daymarks of visual Aids to Navigation, it does not provide a technical description and does not give guidance to evaluate different daymark designs. Thus the IALA EEP Committee is developing a Guideline on Daymarks. The guideline is focused towards the visual aspects. It lists the factors that influence conspicuity and gives hints about achieving a long visual range.

A general methodology for the design of daymarks is included in the draft Guideline and explained by examples.

It is planned to continue work on the draft guideline at the workshop.

The key points of the presentation were:

1 Maritime buoyage system

2 Design of daymarks

3 Conspicuity

4 Visual range

3.2 IALA guidance on daymarks, including daymarks for leading lines – A little history, and the content of existing Guidance

The presentation was made by Christian Lagerwall, Swedish Maritime Administration.

Presentation abstract

The sea has always offered the best opportunities for transportation. Leaving the coast has not caused any major problems. The place of departure is known and the time and therefore weather has been able to be selected. Approaching the coast has often been a difficult task; a more or less unknown coast demanded identification marks, natural or man-made. Most old daymarks were constructed of materials that people had at hand. Size and shape were determined at the local level, by means of trial and error; people designed daymarks using their experience.

This presentation described the technical history of daymarks and leading lines and how their design was calculated in the past before covering the present guidance.

The key points of the presentation were:

1 Technical history of daymarks

2 National guidance

3 Leading lines

3.3 The need for / navigation value of daymarks from a navigator's perspective

The presentation was made by Kevin Whitney, Commissioners of Irish Lights

Presentation abstract

Physical / visual Aids to Navigation continue to play a vital role for the navigator in executing safe passage for a vessel.

Visual Aids to Navigation are recognised by navigators and maritime pilots as the primary method of navigation for ships / vessels that are transiting areas that are constrained by underwater obstructions and the narrow width of navigable channels.

The navigator uses Visual Aids to navigation, whilst undertaking coastal passages and making land falls; they are used in conjunction with other navigational aids to execute a safe passage.

Navigators, therefore require visual Aids to Navigation to be conspicuous in all regards and to have daymarks of a nature that will make them readily recognisable and conspicuous to the Bridge Team.

The key points of the presentation were:

1 The value of Daymarks on fixed and floating AtoN.

2 The navigator's perspective on his/her requirements for conspicuous daymarks.

3 The problems with buoyage, regarding their conspicuity.

3.4 Use of astronomical clocks for the switching of AtoN

The presentation was made by Enrique Bernabeu, La Maquinista Valenciana, Spain.

Presentation abstract

The development of port areas has led to an extensive use of increasingly complex marking systems, comprising a considerable number of floating and fixed Aids to Navigation.

The sensitivity differences in photocells and different orientations of photocells on buoys produce large time gaps in the switching on of its lights. The different intensity of lights of leading lines during day and night also causes confusion, when changes occur in paired lights at different times.

Because of this, beaconing can be difficult to understand at times of day-night transition. In order to avoid confusion that can occur in the beacon during the day-night changes LMV has proven the use of commercial astronomical clocks of small size and consumption, including GPS synchronisation.

This type of equipment has allowed us to make complex systems including buoys and leading lights become fully effective in day-night transitions, greatly facilitating navigation in the worst period of the day. The presentation outlined LMV's experience in this matter.

The key points of the presentation were:

1 The sensitivity differences in photocells and different orientations of photocells on buoys produce large time gaps in the switch on of the lights.

2 The different intensity of lights of the leading lines at day and at night, also causes confusion in day-night transitions, when changes occur in paired lights at different times.

3 Astronomical clocks can be used to make complex beaconing systems fully effective in day-night transitions.

3.5 Questions / Discussion

In response to a question, Frank Hermann said that in his presentation rather than a 3-D profile, he had referred to rotational symmetry rather than a 3-D profile. He went on to say that, in order of preference, a day mark should have rotational symmetry (with a top mark), crossed plates and finally a lattice design.

In response to a further question Frank Hermann said that currently general guidance can be given about a lattice design but that specific designs needed to be modelled for allow for more precise guidance could be given.

Kevin Whitney said that, in his experience it is better to paint a sea wall as well as the daymark at the seaward end for best conspicuity.

In considering the comparison of day and night range of marks, Frank Hermann said that there was, as yet, no specific definition for daymarks that could be applied but that the range of daymarks is significantly less than for lights.

4 SESSION 3 – DAYMARK CONSPICUITY AND APPLICATIONS (CONTINUED)

Chaired by Simon Millyard, Trinity House Lighthouse Service, UK.

4.1 Practical experience with daymarks on sea buoys

The presentation was made by Philippe Renaudin, CETMEF, France.

Presentation abstract

For 10 years, new plastic buoys have been placed along the Channel coastline, Atlantic coastline and more recently along the Mediterranean coastline. These new, modular buoys bear a high visibility aluminium superstructure.

Their design has followed two objectives: nautical service for the mariner and fulfilling maintenance and sea operations requirements; their superstructures are light and allow easy recognition and identification.

From the beginning of their exploitation, they have undergone few modifications in order to improve their functions.

Up to now, no serious damage has been experienced.

The key points of the presentation were:

1 Buoy.

2 Nautical service for mariners.

3 High visibility superstructure.

4 Topmark.

4.2 The concept, purpose, and value of a suite of IALA guidance documents on visual signalling

The presentation was made by Malcolm Nicholson, GLA R&RNAV, UK & Ireland.

Presentation abstract

Malcolm Nicholson began by covering the history of recent IALA guidance concerning daymarks and then provided some thought provoking suggestions for the future revision of existing and the drafting of new guidance.

The key points of the presentation were:

1 History of E-200.

2 The purpose of a suite of documents.

3 The value of a suite of documents.

4 The current state of visual signalling documents in IALA.

5 Proposal for a new suite of documents.

4.3 Application of European standard EN 12966 on low range visual signalling

The presentation was made by Frank Hermann, Traffic Technologies Centre, German Federal Waterways Administration.

Presentation abstract

Following the example of road transport, variable message signs are used to show information in waterways with strong tidal streams. For example the water level, the clearance of bridges, stream direction and strength. Other applications are signalling the closure of a waterway or information for traffic regulation.

The presentation showed how to design the visual features of a variable message sign and is based on:

- IALA report 1990, Studies on the recognisability of symbols and lettering on AtoN;
- European Standard EN 12966 on Variable message traffic signs.

The key points of the presentation were:

1 Variable message signs.

2 Water level.

3 Visual range.

4.4 Experience with plastic buoys

The presentation was made by Marco Krings, Traffic Technologies Centre, German Federal Waterways Administration.

Presentation abstract

At the end of the last century, the Traffic Technologies Centre of the German Federal Waterways and Shipping Administration initiated the development of new buoys made of plastic for inland waterways. Over the past ten years this has led to the gaining of a lot of experience in the manufacture and operation of plastic buoys.

The presentation's themes were the manufacturing method, the material (polyethylene), the shape, the colour and the durability of plastic buoys.

The presentation showed different types of plastic buoys, their operational areas and some challenges in their use and construction.

The presentation ended with a list of 'challenges', some which were relevant to following presentations and which would also be of interest to the workshop's Working Groups.

The key points of the presentation were:

1 Plastic buoys.

2 Inland waterways.

3 Polyethylene.

4 Extrusion.

5 Rotational moulding.

4.5 Optimizing your AIS AtoN and e-Navigation service

The presentation was made by Magnus Nyberg, Automatic Power Group / Pharos Marine.

Presentation abstract

The implementation of AIS to navigational aids; real, synthetic or virtual will increase the visibility of fairways and isolated dangers and in the end increase safety at sea. However, the medium transferring the data, the AIS VHF Data link, is a shared entity used by several entities for commercial traffic, pleasure traffic, monitoring, safety related and lifesaving messaging.

This presentation discusses existing and potential problems as the number of users of the AIS datalink increases and offers solutions for monitoring and measuring the performance level of your AIS AtoN and e-Navigation service.

The key points of the presentation were:

1 AIS and e-Navigation.

2 AIS operation.

3 Problems seen in the AIS system.

4 Solutions for monitoring and measuring performance in the AIS system.

4.6 Questions / Discussion

Many of the questions were aimed at Magnus Nyberg. He indicated that there are no known tools that can identify spoofers, at the moment, but that there are techniques that can provide a good idea of where they are. With regard to what to do when an anomaly is detected in the VDL who should take corrective action. The initial answer is the transmitter but authorities detecting anomalies should contact the Flag State of the next port of call, for the vessel to be inspected. He then said that one needed a specialist AIS receiver to attach to iNAVPRO, suggesting that a base station would suffice.

Philippe Renaudin said that he believed that the guidance to paint a buoy grey arose from IALA Guidance from some 10 years ago. He also said that the manufacturing cost of lattice superstructure is known.

Marco Krings indicated that far from easing, due to global warming, the problems experienced with plastic buoys in ice had been getting worse since 2008. He also said that cost benefit analysis of choosing plastic, as against, steel buoys is available, adding that there is a difference between sea and inland water usage. He further commented that plastic buys are recycled typically every 10 years, whereas steel buoys generally last for many more years.

5 FORMAL OPENING OF SEATECHWEEK

SeaTechWeek exhibition was opened by François Cuillandre, Mayor of Brest, at 0900, who visited each booth before opening the SeaTechWeek plenary session.

6 SESSION 4 – AIS INSTALLATION ON BUOYS & BEACONS

Chaired by Aivar Usk, Cybernetica, Estonia.

6.1 Background - Overview of IALA guidance and ITU and IEC standards for AIS AtoN

The presentation was made by Seamus Doyle, IALA

Presentation abstract

Seamus Doyle acknowledged the assistance given to him by Mike Card and Nick Ward in the compilation of his presentation. He said that AIS is an essential element of e-Navigation and his presentation provided an overview of IALA guidance and ITU and IEC standards for AIS AtoN.

The key points of the presentation were:

1 AIS AtoN IALA guidance.

2 AIS AtoN Standards.

6.2 Practical examples of fitting AIS on buoys

The presentation was made by Chris Proctor, Sealite Pty, Australia

Presentation abstract

The presentation covered past projects involving the fitting of AIS on buoys, with particular emphasis on polyethylene buoys. The presentation then discussed the challenges experienced in the mechanical interfacing of AIS equipment with floating AtoN. Drawing extensively on case studies, the presentation covered lessons learned, mechanical design parameters and the affect that additional payloads may have on buoy stability.

The key points of the presentation were:

1 Fitting AIS on buoys.

2 Mechanical interfacing of AIS equipment

3 Stability.

6.3 Practical AIS AtoN experience to date – a summary of experience at Hidrovia since IALA Cape Town

The presentation was made by Mariano Luis Marpegan, Hidrovia, Argentina

Presentation abstract

The presentation showed the AIS-AtoN network installed by Hidrovia S.A. and then the upgrade done since 2005 on the first AIS-Aton installations. It then discussed the situation worldwide and the continuous improvement in the implementation of AIS-AtoN and the operational aspects on installations on buoys.

A project to install an AIS-Aton on a beacon in the Antarctic was then presented. The extreme environmental conditions were shown, as were monitoring and analysis of the operation of the device and the technical barriers that are presented by this kind of installation.

The key points of the presentation were:

1 AIS-AtoN network.

2 Continuous improvement.

3 Challenges in extreme weather conditions.

6.4 Questions / Discussion

In response to a query about experience with IP69, Mariano Marpegnan said that there had been no problems after almost a year of use. He went on to say that the loss of synchronisation that he had referred to in his presentation had been due to ship damage to a buoy and that the damage had been to the AIS unit and not to the light.

A general question about what an AIS AtoN display would look like was answered by several people, from which it emerged that work on symbology is being co-ordinated through an IMO Correspondence group, led by Cdr. Hideki Naguchi, JCJ and an IALA Committee member. IALA continues to provide input to this 'work in progress', whilst displays have been seen at sea.

Chris Proctor confirmed that AIS integration has been used to monitor lights but that loss of the AIS service does not impact on the operation of a buoy's light. When queried about whether Sealite had considered generating a standardised distress message, as a result of theft, he noted that most thefts involved the batteries. However, he accepted that there were ways to overcome this impact of a loss of power.

Seamus Doyle explained that his presentation covered existing standards and that much work is going on to expand in this area and that there is still much to learn, not only with regard to AIS integration but also functionality. The results of this work are expected to be fed back into the body of standards.

7 SESSION 5 – AIS INSTALLATION ON BUOYS & BEACONS (CONTINUED)

Chaired by Seamus Doyle, IALA.

7.1 Practical aspects and experience of AIS AtoN installations on buoys

The presentation was made by Pierre-Yves Martin, CETMEF, France

Presentation abstract

Since 2008, the French Lighthouse Authorities have carried out several projects in which AIS AtoN have been installed. The most important one is undoubtedly the renewal of a remote monitoring system. This project was started in 2011 and is currently ongoing. About 400 fixed aids to navigation are likely to be equipped with type 3 AIS AtoN. The AIS transponders transmit the reporting message 21 and the monitoring message 6.

Another project, which aimed to enhance the service provided by floating aids, was completed in 2010. This project related to about forty buoys that had been equipped with type 1 AIS AtoN for the transmission of the report message 21. The main practical aspects about installation of AIS transponders on buoys, such as power consumption optimization or the setting of the status bits in the AIS report message, were presented.

The control of operation was described before reaching the following conclusions:

- Application of IALA Recommendation A-124 for the optimisation of power consumption;
- Standardised outputs 'Device error' and 'Device ON' would be welcome;
- Mobile equipment for the control of operation during installation are effective.

The key points of the presentation were:

1 AIS enhancement of AtoN service.

2 Power consumption.

3 Status bits.

4 Automatic control via AIS.

5 Operational control.

7.2 AIS Remote control and monitoring of AtoN, Data acquisition, power consumption and availability

The presentation was made by Isabelle Saget, OROLIA SAS (ex-Kannad), France

Presentation abstract

AIS is now recognized as a key tool for the enhancement of maritime safety. As a first step, the company has developed a range of AIS systems, taking into account the main constraints associated with AtoN electronic equipment: robustness, lightness, reliability, low power consumption and being user friendly. Today it equips numerous AtoN, all over the world, thus contributing to marine safety.

The use of AIS for the remote control and monitoring of Aids to Navigation is a new step for the safety and the security of mariners. The presentation showed a complete solution for the remote monitoring and control of AtoN by the integration of AIS.

From AtoN, where AIS KANAtoN Stations are installed, to the AIS Shore Station network, where monitored data are received, connected to a server with Web access.

The use of AIS technology for remote monitoring of navigation aids also allows important savings, as compared to GSM solutions, because there are no additional communication costs.

The presentation answered most of the issues encountered for the remote control and monitoring of AtoN; especially data acquisition, power consumption and reliability of the system. The presentation also showed the processing of the monitored data.

The key points of the presentation were:

1 AIS

2 AIS AtoN

3 Remote monitoring

4 Remote control

5 AIS Shore station

7.3 The draft new IALA Guideline on AIS AtoN installation – progress made and work remaining

The presentation was made by Simon Millyard, Trinity House Lighthouse Service, UK.

Presentation abstract

The Draft IALA Guideline considers the application of AIS on buoys and is designed to provide practical guidance regarding specification, installation and maintenance of AIS on floating AtoN. This Guideline should be considered as complimentary to higher-level documents such as IALA Recommendation A-126.

Over the last 18 months a working group in the Engineering, Environmental & Preservation committee (EEP) of IALA has been developing this Guideline, information has been drawn from practical and technical experience from IALA members around the world.

The Guideline covers all aspects about the practical application of AIS on buoys including the initial selection, physical application, commissioning and testing, maintenance and operation, equipment selection and system integration.

The Guideline is not complete but is considered ready for review and final editing. A working group later this week and the following week at EEP19 in Paris should complete the document ready for IALA Council approval. Any delegate at Brest with an interest in or with expertise in AIS on Buoys is welcome to join the working group later this week to contribute to the Guideline's content.

When complete, this Guideline will offer sound guidance to any Competent Authority that is considering placing AIS AtoN on their buoys.

The key points of the presentation were:

1 There is a new IALA Guideline being developed on the application of AIS on Buoys.

2 The Guideline is well developed and should be completed following work at Brest and then EEP19.

3 Delegates are welcome to join the Working Group later this week to contribute to the Guideline's content.

7.4 AIS (T1 and T3) installation on new buoys and existing buoys

The presentation was made by Samir Benouda, Mobilis, France.

Presentation abstract

MOBILIS shared their experience with AIS integration on Aids to Navigation and, in particular, on floating AtoN. The preliminary test results demonstrated the high capacity of AIS transponder. The presentation showed the selected solutions: the AIS transponder integrated on the buoy, in separate components or in a self-contained compact unit. It also showed the many different possible applications for aids to navigation, data buoy, data transmitter and also a receiver for monitoring AIS traffic.

The delegates were left with an unanswered question, resulting from damage to a buoy shortly after AIS had been installed on it. Do mariners see AIS AtoN as Virtual AtoN; are we seeing AIS assisted collisions with AtoN?

The key points of the presentation were:

1 AIS / AtoN integration.

2 Selected solutions based on test results.

3 Variety of applications for use of AIS with AtoN.

7.5 Questions / Discussion

In response to the query posed by Samir Benouda, it was remarked that something similar was seen at the introduction of racons on buoys, with a number of buoys being lost / damaged until the mariner had become used to them.

Following a query about the capability of T1 and T3 AIS, Isabelle Saget said that remote control of AtoN required T3.

At this stage it was noted that in a number of presentations it could be seen that suppliers / purchasers of buoys were wanting their sensors / AIS at the top of the buoy or as high as possible on the buoy structure, sometimes to the detriment of the topmark / light. Canvassing the user delegates, it was clear that they gave more significance to the topmark / light. Of a floating AtoN

Samir Benouda said that the sensors used to provide transmitted environmental data is calibrated.

A general question was asked, as to whether the time of the racon is coming to an end; is AIS now able to replace a racon? There was a groundswell of resistance to the implied proposition, with the following comments being made:

- the mariner can turn off AIS symbology on his / her display;
- the racon's datum is the buoy;
- racons and AIS complement each other.

When asked about the policy of switching off a racon when its buoy was not on station, rather than switching the transmission to the letter 'D', as recommended by IALA, Pierre-Yves Martin said that was an organisational issue. It was noted that Trinity House does the same.

8 SESSION 6 – COST ENGINEERING OF SHORT RANGE ATON AND ASSET MANAGEMENT

Chaired by Jonas Linberg. Sabik Oy, Finland

8.1 Battery life, lantern life, and maintenance policy for self-contained marine lanterns

The presentation was made by Peter Dobson, Trinity House Lighthouse Service, UK.

Presentation abstract

The presentation identified the components that form part of a self contained lantern and how they interact. It then focused on the factors that influence the life and performance of each of these components and identified how they can be managed to achieve the desired life expectancy. Some practical examples were then shown.

It considered future developments in self-contained lanterns and the impact that this may have was briefly discussed.

The key points of the presentation were:

1 Identify the key components and operation of a self-contained lantern.

2 Identify the factors that influence the life and performance of each component.

3 Identify control measures that can be used in a maintenance policy.

4 Consider the impact of future development could have on a maintenance policy.

8.2 Too Many Fixed Aids - Not Enough Money How to Set Priorities

The presentation was made by Richard Moore, Canadian Coast Guard

Presentation abstract

It is something that is well known: Managing a large number of fixed aids when there is not enough money is difficult. And when it is time to refurbish them, the challenge grows to a point where you have to ask yourself: Where do we start? Which site is the most important?

In order to manage the refurbishment of its 6000 fixed aids efficiently, the Canadian Coast Guard developed a simple methodology in order to prioritize its various refurbishment activities.

Everybody knows that the operational priority of each site must be considered. That's easy. But how do you integrate the condition of the asset in the equation? How do you account for the risk represented by the physical asset on the environment or the safety of your employees?

The presentation showed the various criteria that are considered in the establishment of the national priorities for the Canadian Coast Guard. It was also explained how they will be integrated to allow for the development of a list of national priorities

The key points of the presentation were:

1 Objective

2 Operational priority

3 Technical priority

4 Establishment of priorities

8.3 Life of plastic buoys, purchasing policy, and cost management

The presentation was made by Sipke Hoekstra, RWS, The Netherlands

Presentation abstract

The presentation showed the development and cost aspects of plastic buoys in the Netherlands. After a period of 6 years (2000-2006) of testing and improving plastic buoys the AtoN department of the Netherlands decided to replace all the steel floating aids by plastic in a 10-year programme. The decision was based on financial reasons and the technical outcome. The cost aspects, Life Cycle Costs (LCC) comparison between steel and plastic, formed part of the presentation. The final conclusion was that plastic buoys have a lot of advantages compared to steel and their use results in significant savings.

The key points of the presentation were:

1 Development of plastic buoys.

2 Programme for installing plastic buoys.

3 Procurement of plastic buoys.

4 Cost aspects of plastic buoys (LCC).

5 Advantages of plastic buoys.

8.4 Key Performance Indicators for AtoN provision and management

The presentation was made by Seamus Doyle, IALA.

Presentation abstract

In the current global economic downturn, effective management is becoming more critical, driven by the need to improve productivity and to mitigate business risk. There is a common idiom that "you cannot manage that which you cannot measure". Key Performance Indicators (KPIs) are commonly used by an organisation to evaluate its success towards its key goals. Choosing the right KPIs is reliant upon having a good understanding of what is important to the organisation. The presentation suggested some KPIs for AtoN service providers and considered aspects of the use of KPIs for cost effective management.

The key points of the presentation were:

1 The need / benefits of Key Performance Indicators (KPIs).

2 KPIs for AtoN service provision.

3 KPI measurement.

4 Benefits and risks in KPI benchmarking.

8.5 Questions / Discussion

There was only one question, which was addressed to Richard Moore. When asked if the CCG system had automated the priority criteria that he had outlined he said that the system's performance is kept under annual review.

Ómar Frits Eriksson then mentioned that a light experiment would be set up, at the Chairman's desk, during the coffee break.

9 SESSION 7 – BUOYS AND BUOY STABILITY

Chaired by Adrian Wilkins, Pharos Marine, UK.

9.1 Structure durability and the benefits of modular design

The presentation was made by Greg Hansen, AMSA, Australia.

Presentation abstract

The presentation focussed on solutions that the Australian Maritime Safety Authority (AMSA) has implemented in its AtoN network to enhance the durability of structures and therefore reduce maintenance intensity and frequency. AMSA is continually looking into innovative ways that design and material selection can reduce structure maintenance without compromising durability. Three structure types were studied and the practical implementation of durable materials were discussed.

The key points of the presentation were:

1 Summary of Australia's AtoN network.

2 Usage of glass reinforced plastic (GRP) huts and the implementation of modular Hexagonal GRP towers.

3 Improvements in design of piled offshore structures.

4 Extending the maintenance intervals for AMSA's buoy fleet and observations from the implementation of polyethylene buoys.

9.2 Plastic buoys' colour retention, impact absorption, abrasion resistance, etc. and testing methodologies

The presentation was made by Alfredo Dominguez, Tideland Signal, USA

Presentation abstract

For the past few decades there has been a change in the way that buoys used as aids to maritime navigation are designed and manufactured. Size has changed, shapes have evolved and new materials are being used. This all leads to good competition, which in turn generates some studies and, consequently, technological advancements. However it also comes at a price. There has been a flood of polyethylene buoy manufacturers in the already small market that has lead to a diminishing in quality standards. This is especially true in the sense of material composition and its durability in the harsh environment in which every marine aid to navigation has to operate.

While it is true that there are a number of types or polyethylene, not all of them are appropriate for their use in Aids to Navigation (AtoN). The presentation discussed the proper characteristics, testing procedures and quality properties that the polyethylene used in navigational aids should have, in order to be acceptable by the Competent Authorities and worldwide users.

The key points of the presentation were:

1 Polyethylene Testing Procedures.

2 Polyethylene Characteristics.

3 Test Results.

4 Should IALA take a closer look?

9.3 Presentation of "CALMAR" a new Catenary mooring calculation software for AtoN

The presentation was made by Henry David, Mobilis, France.

Presentation abstract

Appreciating that AtoN buoy mooring lines are often sized by rule of thumb and regularly end up as being too short for most site conditions, MOBILIS has developed an easy to use numerical catenary mooring line calculator, derived from their own mooring calculators. This tool integrates a few more load parameters than IALA guidelines and other simple calculators. This tool allows users to use or input libraries of buoy models or easily build their own buoy model for calculation. It also allows the user to compare the results between two different buoys or two different buoy mooring lines.

This software will be offered for free distribution to IALA members.

The key points of the presentation were:

1 Aim and Scope of "CALMAR" software.

2 Bases and Method of calculations.

3 User interface.

4 Limitations and future developments.

5 Distribution and free use of "CALMAR".

9.4 Monitoring of platform stability

The presentation was made by Aivar Usk, Cybernetica, Estonia.

Presentation abstract

The presentation provided an overview of activities undertaken in Estonia, in order to establish an AtoN telematics system that performs regular heel angle measurement on floating aids, collects the results in a shore-side monitoring centre database, and compiles automated reports on availability of the light signals of floating AtoN based on the combination of measured heel angles and known vertical divergence angles of the light sources installed on each AtoN. The AtoN telematics modules installed on the Estonian buoy fleet are fitted with an on-board solid-state (microelectromechanical) triaxial acceleration sensor for continuous heel angle measurement with results calculated in-situ, collision and submersion detection. Optionally, acceleration measurement results can be streamed to the monitoring centre in near real-time for further processing; data acquired this way can be used for more detailed research of floating platform (buoy) dynamics, buoy / lantern combination suitability assessment, etc. Trials are underway for shore side wave height estimation based on acceleration data received from navigational buoys, with the objective of broadcasting such wave height information to the mariners as an e-Navigation service in the form of AIS METOC messages, utilizing a shore-side AIS infrastructure, as a complement to the already established synthetic AIS AtoN messaging.

The key points of the presentation were:

1 Navigational buoys may heel at angles limiting the visibility range of LED lanterns exhibiting narrow and sharply cut vertical divergence profiles even in calm weather.

2 Contemporary AtoN telematics solutions enable cost efficient monitoring of buoy dynamics.

3 Combination in the shore side information system of recorded buoy heel angles and known lantern parameters obtained using SFEEAPI PIF's enables automated AtoN availability calculations.

4 Implementation of synthetic AIS AtoN service based on cellular data links offers advantages like high bandwidth for e-Navigation solutions and over-the-air mission updates at cost comparable to regular AIS.

5 While near-real-time wave height estimation requires calibration of different buoy hull types, accumulated floating platform acceleration data can be used in buoy dynamics research.

9.5 Questions / Discussion

There were no questions at the end of this session. However, Malcolm Nicholson, who had set up the flickering light source, emitting three separate lights, on the chairman's desk, asked a series of questions about how the delegates viewed the brightness of the lights. Ómar Frits Eriksson recorded the results and then said, rather teasingly, that the purpose of the 'experiment' would be revealed later in the workshop.

10 SESSIONS 8 & 9 – TECHNICAL VISIT

A technical visit was organised to view buoys brought to the workshop by exhibitors and already in situ and to see the method for conducting trials to assess the centre of gravity, the immersion due to static loading, stability and establishing the metacentric height of a buoy. A running commentary, as the trials progressed, was provided by Adrian Wilkins. The visit was held at the Departement Phares et Balises, in Brest, and included the viewing of a video made earlier by CETMEF of the buoy trials. The video is included as part of the output of the workshop.

11 SESSIONS 10 TO 15 – WORKING GROUPS

The workshop broke into 4 Working Groups to discuss and then produce guidance under the headings of:

1 Daymark conspicuity and applications – Leader Aivar Usk.

2 AIS installation on Buoys & Beacons – Leader Simon Millyard.

3 Cost engineering of Short Range AtoN and asset management – Leader Seamus Doyle.

4 Hydrostatic design of buoys – Leader Adrian Wilkins.

Work, overall, was co-ordinated by Ómar Frits Eriksson.

12 SESSIONS 16 & 17 – REPORT OF WORKING GROUPS AND REVIEW OF DOCUMENTATION

The Working Group Chairmen reported on the outcome of the efforts of their groups. Each reported that the delegates attached to their working groups had introduced considerable experience, not always available at an EEP meeting, and each recorded their thanks for this input of knowledge and the enthusiasm with which it was delivered.

12.1 Working Group 1 - Daymark conspicuity and applications

The Working Group Chairman was Aivar Usk, Cybernetica, Estonia.

Frank Hermann was thanked for excellent preparatory work that he had done for the workshop and it was Aivar Usk's view that the document had benefited considerably from the expert input provided and that it should be ready to submit to Council at the end of EEP19. He felt that the aim had been achieved and thanked his working group for all their hard work.

He remarked that the work had shown a divergence in technical terminology and that this emphasised the need to check such terms with the IALA dictionary.

Malcolm Nicholson then gave a short presentation on an option to produce a suite of daymark documents, which it taken up would be commenced in the IALA 2014 – 2018 Work Programme.

12.2 Working Group 2 - AIS installation on Buoys & Beacons

The Working Group Chairman was Simon Millyard, Trinity House Lighthouse Service, UK.

The draft Guideline, input to the workshop thanks to the work of Mariano Luis Marpegan, was reviewed and, again with the help of a number of AIS experts, was improved. Further comments are expected to be available for EEP but it was anticipated that the draft Guideline would be ready to submit to Council at the end of EEP19.

Simon Millyard ended by thanking his working group delegates for the level of expertise that had been brought to bear on the task, for the wide-ranging views expressed and for the consensus that had then been achieved.

During the making of this report, Mike Card gave an explanation of the work being undertaken by the e-NAV Committee on VHF Data Exchange (VDE).

In response to a comment about the monitoring of AIS AtoN, there was a show of hands indicating that twelve national members had already implemented AIS AtoN and that six were currently monitoring their performance.

12.3 Working Group 3 - Cost engineering of Short Range AtoN and asset management

The Working Group Chairman was Seamus Doyle, IALA.

It was explained that working group had started with a blank sheet of paper and, after splitting into two sub-groups, the 10 delegates in the group had forged ahead and made a creditable start on a draft Guideline. Has this was a brand new document, he then gave a brief overview of it, touching on, where necessary, the methodology used.

AS well as thanking the members of his group he also thanked Christian Lagerwall and Peter Dobson for leading the two sub-groups. It was expected that the draft Guideline would be ready to submit to Council at the end of EEP19.

12.4 Working Group 4 - Hydrostatic design of buoys

The Working Group Chairman was Adrian Wilkins, Pharos Marine, UK

Adrian Wilkins said that the workshop had offered a unique opportunity to benefit from the delegates' expert knowledge. This had led to a significant improvement in the technical content of the draft Guideline. It was assessed that it might take two meetings after EEP19 to complete te document and make it ready to submit to Council.

He then thanked CETMEF for arranging the facility for the exhibition of buoys and the physical demonstration during the technical visit on Wednesday 10 October, 2012. In regard to the video of the test procedures, also provided by CETMEF, it was reported that a commentary would be added and that, when complete, the video would be available via the internet.

Adrian Wilkins ended by thanking his working group for such a good week.

12.5 Chairman's remarks

Ómar Frits Eriksson thanked both the delegates and the Working Group Chairmen, concluding the workshop's mission had been accomplished.

13 SESSION 18 – CONCLUSIONS AND CLOSING

Ómar Frits Eriksson ran through 12 draft guidelines. These were discussed and a finalised list of conclusions and recommendations determined. These are at ANNEX A.

During a discussion on the desirability of the monitoring of the performance AIS AtoN, there was a show of hands, in which 12 National members indicated that they have installed AIS AtoN, of which 6 indicted that they are monitoring performance.

Based on the tool presented by Aivar Usk (Cybernetica), there was then a discussion about monitoring the performance of buoy operations.

The Chairman then gave the delegates the opportunity to provide ideas for the future of IALA and for the 2014 – 2018 Work Programme, reminding them that we are now at the stage of the current work programme where we are beginning to plan for the next. He then introduced and briefly described the IALA Dictionary, IALA Wiki and IALA LinkedIn.

Responding to a request, Ómar Frits Eriksson outlined the types of IALA publications, indicating that a good start is to consult the list of publications.

13.1 Flashing red lights at Brest

Malcolm Nicholson, described the optical experiment that had been run during Session 7, which involved trains of flashes (see the presentation at ANNEX F).

Following the closure of the workshop, Ómar Frits Eriksson led a small party of willing volunteers to a nearby theatre to conduct a further optical experiment.

13.2 Any other business

The Chairman offered the delegates the chance to make comment on the future development of IALA and ideas for future work, noting that it is now the mid-point of the current work programme, which is when planning starts for the next one.

He then presented the IALA dictionary and how I can be used, followed by a similar explanation of the IALA Wiki and then some comments about IALA LinkedIn.

13.3 Closing of the workshop

The Chairman thanked everyone for attending and working so hard; he hoped tat they had been able to also ‘have fun’. He had a particular welcome for new members and those attending an IALA event for the first time.

Mike Card, Deputy Secretary-General of IALA, then thanked the exhibitors; saying that is was good to see a mixture of old and new faces. With output from the workshop very much in mind, he remarked that IALA’s strength was its documentation, which is, of course, produced by the members. Once approved by the Council, the workshop’s output documents would be posted to the IALA website, where they would be available worldwide and probably being read by people who had no knowledge of how much time and effort is put into their creation.

Noting the two other events that had been held in conjunction with the workshop: the IMC mid-term meeting and the WorldWide Academy board meeting, Mike Card said that he had encountered some unfamiliarity amongst Industrial members at the exhibition booths, which showed a need for further effort in familiarisation. He also said that e hoped that the Industrial members would consider joining in the activities of the WorldWide Academy.

Having also thanked all the delegates, Mike Card then made presentations to the Working Group Chairman, thanking the Secretariat and the workshop chairman, ending with a presentation to CETMEF. He then gave his personal thanks to Michel Cosquer for the considerable personal effort that he had put into the organising of the workshop.

Mike Card concluded by commenting on the use of the IALA dictionary and the need for common terminology.

The Chairman then declared the workshop closed.

14 EXHIBITION

An exhibition by IALA Industrial members ran from Tuesday 9 October until Thursday 11 2012. The exhibition was a distinct 'cell' within the overall SeaTechWeek exhibition and conveniently placed adjacent to one of the two refreshment stations.

Those exhibiting were:

CYBERNETICA AS, Estonia

FLOATEX SRL, Italy

GISMAN, France

IDEAL TECHNOLOJI, Turkey

MEDITERRANEO SENALES MARITIMAS, Spain

MOBILIS, France

OROLIA SAS (Ex Kannad), France

PHAROS MARINE-Automatic Power, UK

PINTSCH ABEN BV, The Netherlands

SABIK OY & CARMANAH Tech. (joint), Finland

SEALITE PTY Ltd., Australia

TIDELAND SIGNAL Ltd., USA

15 SOCIAL PROGRAMME

The workshop social programme was fully integrated into that organised by SeaTechWeek.

On Tuesday 9 October there was a private and guided visit of the tropical and polar aquariums at Oceanopolis, followed by: drinks in front of the aquariums.

On Wednesday 10 October there was a visit to the circus, Zingaro, prior to which there was a wine and cheese party held at the venue.

16 OPTIONAL VISIT TO USHANT

On Saturday 13 October 24 people took the opportunity to visit the island of Ushant and see the Stiff and Creac'h lighthouses and the excellent lighthouse museum. Although now awaiting restoration the 'Phare du Stiff' is fully functioning and is probably one of the oldest lighthouses in the world, having been built in 1699.

Phare du Stiff

17 OTHER EVENTS

During the workshop, there were two other IALA events. The Industrial Members held their mid-term meeting on Monday 8 October at Le Quartz and the World-Wide Academy held a Board meeting on Wednesday 10 October at the Oceania hotel.

ANNEX A LIST OF DELEGATES

Argentina

Hidrovia S.A

Mr Mariano Luis MARPEGAN
Corrientes 316 CP
1043 AAQ Buenos Aires
Argentina
Phone: +54 11 4320 6900
Fax: +54 11 4320 6931
Mobile phone: +54 911 6363 0594
e-mail: e-mail mlmarpegan@hidrovia-gba.com.ar.

Australia

Australian Maritime Safety Authority

Mr David JEFFKINS
Level 5
82 Northbourne Avenue
Braddon, ACT 2612
Australia

Phone: +61 2 6279 5677
Fax: +61 2 6279 5002
Mobile: +61 4 8635 797
e-mail (main): djj@amsa.gov.au
e-mail (alternative): david.jeffkins@amsa.gov.au

Australian Maritime Safety Authority

Mr. Greg HANSEN
82 Northbourne Ave.
Braddon ACT 2612
GPO Box 2181, Canberra ACT 2601
Australia

Phone: +61 2 6279 5613
Fax: +61 2 6279 5002
Mobile: +61 4 0791 8223
e-mail: greg.hansen@amsa.gov.au.

Australian Maritime Systems

Mr. Steve HILL
655, Mac Arthur Avenue Pinkeba
4008 Queensland
Australia
Phone: + 61 417 112 169
e-mail: srh@marsys.com.au

Australian Maritime Systems

Mr. Pierre MINGOT
655, Mac Arthur Avenue Pinkeba
4008 Queensland
Australia
Phone: + 61 417 112 169
e-mail: pbm@marsys.com.au

Sealite Pty Ltd

Mr. Chris PROCTER
11, Industrial Drive,
Somerville, Victoria 3912
Australia
Phone: + 61 3 5977 6128
Mobile: + 61 3 4021 5240
Fax: + 61 3 5977 6124
e-mail: info@sealite.com

Sealite Pty Ltd

Mr. Bert FRAME
11, Industrial Drive,
Somerville, Victoria 3912
Australia
Phone: + 61 3 5977 6128
Fax: + 61 3 5977 6124
e-mail: info@sealite.com

Bahrain **Middle East Navigations Aids Services-Menas**

Mr. Abdulla JAFFER
P.O.BOX 66 Manama
Bahrain
Phone: + 90 232 328 1725
Mobile: + 90 973 3962 8541
Fax: + 90 973 1772 7765

Menas

Mr. Mahdi AL-MOSAWI
P.O.BOX 66 Manama
Bahrain
Phone: + 90 232 328 1725
Mobile: + 90 532 415 5726
Fax: + 90 973 1772 7765

Canada **Canadian Coast Guard**

Mr. Richard MOORE
200, Kent Street
Ottawa, Ontario K1A OE6
Canada
Phone: +1 613 949 9137
Mobile: +1 613 296 6664
e-mail: Richard.P.Moore@dfo-mpo.gc.ca

Carmanah Technologies Corporation

Mr. Simon PROCTOR
250 Bay Street
Victoria BC 9A 3K5
Phone: + 250 412 8314
Mobile: + 250 727 1581
e-mail: sproctor@carmanah.com.

Carmanah Technologies Corporation

Mr. Paul LONGLEY
250 Bay Street
Victoria BC 9A 3K5
Phone: + 250 412 8367
Fax: + 250 389 0040
Mobile: + 250 516 2465
e-mail: plongley@carmanah.com

Colombia

Direccion General Maritima

Mr. Willie MAY CONEO
Carrera 54 N°2650
CAN Bogota
Colombia

Phone: + 57 220 04 90
Fax: +57 220 04 90
Mobile: +57 311 676 0029
e-mail Wmay@dimar.mil.co.

Direccion General Maritima

Mr. Carlos URBANO MONTES
Carrera 54 N°2650
CAN Bogota
Colombia

Phone: + 57 220 04 90
Fax: +57 220 04 90
Mobile: +57 311 676 0029
e-mail: jefgsemac@dimar.mil.co

Cote d'Ivoire

Port Autonome d'Abidjan

Mr. Ahoua Jonas DJESSOU
BP V85 Abidjan
Cote d'Ivoire

Phone: +225 21 23 80 30
Mobile: +225 21 04 82 15 69
Fax: +225 21 23 80 30
e-mail: djessou-jonas@yahoo.fr

Port Autonome d'Abidjan

Mr. Pengini KOUAHO
BP V85 Abidjan
Cote d'Ivoire

Phone: +225 21 23 80 30
Mobile: + 225 21 23 80 30
e-mail: kouaho.peingni@yahoo.fr.

Denmark

Danish Maritime Authority

Mr. Omar Frits ERIKSSON
Overgaden Oven Vandet 62B
P.O.BOX 1919
Dk-1023 Copenhagen K
Denmark

Phone: +45 32 68 95 98
Mobile: +45 21 676 644
e-mail: ofe@dma.dk

Danish Maritime Authority

Mr. Anders Viborg KRISTENSEN
Vermundsgade 38C
2100 Kobenhavn O
Denmark
Phone: + 45 39 17 44 37
Mobile: + 45 20 41 42 52
Fax: +45 39 17 44 01
e-mail: avk@dma.dk

Danish Maritime Authority

Mr Peter DAM
Vermundsgade 38C
2100 Kobenhavn O
Denmark

Phone: +45 39 17 44 31
Mobile: +45 27 59 38 53
Fax: + 45 39 17 44 01
e-mail: ped@dma.dk

Danish Maritime Authority

Mr Joergen ROYAL PETERSEN
Soebatteriet 2
DK- 4220 Korsoer
Denmark

Phone: +45 58 36 00 32
Mobile: +45 24 28 82 96
e-mail: jrp@dma.dk

Danish Maritime Authority

Mr Christian KOPP PEDERSEN
Overgaden Oven Vandet 62B
P.O.BOX 1919
Dk-1023 Copenhagen K
Denmark

Phone: +45 32 68 95 98
Mobile: +45 41 28 45 56
Fax: +45 32 57 43 41
e-mail: ckp@dma.dk

Djibouti **Port Autonome de Djibouti**

Mr. DABALEH Ali DABALE
BP 2107 Djibouti
Djibouti

Phone +253 21 35 64 51
Mobile: +253 77 81 54 54
e-mail dabaleh.ali@port.dj

Estonia **Estonian Maritime Administration**

Mr. Andry RUTKINEN
4 Valge Street
11413 Tallinn
Estonia

Phone: +372 6205 603
Mobile: + 372 5043 814
Fax: + 372 6205 686
e-mail: andry@vta.ee

Estonian Maritime Administration

Mr Lauri TOOMISTE
Valge 4
Tallinn
Estonia

Phone: +372 6205 603
Mobile: +372 5243 876
Fax: + 372 6205 603
e-mail: lauri.toomiste@vta.ee

Estonian Maritime Administration

Mr Tiit PALGI
Valge 4
Tallinn
Estonia

Phone: +372 6205 603
Mobile: +372 5243 876
Fax: + 372 6205 603
e-mail tiit.palgi@vta.ee

Cybernetica AS

Mr Aivar USK
Mäeluse 2
12618 Tallinn
Estonia

Phone: +372 639 7991
Mobile: +372 513 1021
Fax: +372 639 7992
e-mail: Aivar.usk@cyber.ee

Cybernetica AS

Mr Sven NEEME
Mäeluse 2
12618 Tallinn
Estonia

Phone: +372 639 7991
Mobile: +372 566 4254
Fax: +372 639 7992
e-mail: sven.neeme@cyber.ee

Finland

Sabik Oy

Mr Lars MANSNER
P.O.BOX 19
FI- 06150 Porvoo
Finland

Phone: +358 19 560 1100
Mobile: +358 400 711 174
Fax: +358 19 560 1120
e-mail: lars.mansner@sabik.com

Sabik Oy

Mr Jonas LINDBERG
P.O.BOX 19
FI- 06150 Porvoo
Finland

Phone: +358 19 560 1100
Mobile: +358 408 289 460
Fax: +358 19 560 1120
e-mail: Jonas.lindberg@sabik.com

Sabik Oy

Mr Jens BERG
P.O.BOX 19
FI- 06150 Poorvoo
Finland

Phone: +358 19 560 1100
Mobile: +358 400 718 393
Fax: +358 19 560 1120
e-mail: jens.berg@sabik.com

France

Ministère de l'Ecologie-Direction des Affaires Maritimes

Mr Bruno Hauret
La Grande Arche
1,Parvis de la Défense
Secteur Défense7
92055 Paris la Défense Cedex
France

Phone: +33 1 40 81 61 09
Fax +33 1 40 81 80 72
e-mail Bruno.hauret@developpement-durable.gouv.fr

Ministère de l'Ecologie et du developpement durable

Mr Jean Luc FONTAN
La Grande Arche
1, Parvis de la Défense
Secteur Défense7
92055 Paris la Défense Cedex
France

Phone: +33 1 40 81 61 09
Mobile: +33 6 73 34 17 99
Fax: +33 1 40 81 80 72
e-mail: jean-luc.fontan@developpement-durable.gouv.fr

CETMEF

Mr. Jean Jacques QUINQUIS
2, Boulevard Gambetta
BP 60039 Compiegne Cedex
France

Phone: +33 2 98 05 67 78
Fax: +33 2 98 05 67 67
e-mail: jean-jacques.quinquis@developpement-durable.gouv.fr

CETMEF

Mr Michel COUSQUER
2, Boulevard Gambetta
BP 60039 Compiegne Cedex
France

Phone: +33 2 98 05 67 78
Mobile: +33 6 63 37 44 59
Fax: +33 2 98 05 67 67
e-mail: Michel.cousquer@developpement-durable.gouv.fr

CETMEF

Mr Philippe RENAUDIN
2, Boulevard Gambetta
BP 60039 Compiegne Cedex
France

Phone: +33 2 98 05 67 78
Fax: +33 2 98 05 67 67
e-mail: philippe.renaudin@developpement-durable.gouv.fr

CETMEF

Mr Smail HIDOUCHE
2, Boulevard Gambetta
BP 60039 Compiegne Cedex
France
Phone +33 2 98 05 67 78
Fax +33 2 98 05 67 67
e-mail smail.hidouche@developpement-durable.gouv.fr

CETMEF

Mr Yves-Marie BLANCHARD
2, Boulevard Gambetta
BP 60039 Compiegne Cedex
France

Phone: +33 2 98 05 67 78
Fax: +33 2 98 05 67 67
e-mail: Yves-marie.blanchard@developpement-durable.gouv.fr

CETMEF

Mr Nicolas FADY
Technopôle Brest Iroise BP 5
29280 Plouzane
France

Phone: +33 2 98 05 67 78
Fax: +33 2 98 05 67 67
e-mail: Nicolas.fady@developpemenet-durable.gouv.fr

CETMEF

Mr Philippe LIJOUR
2, Boulevard Gambetta
BP 60039 Compiegne Cedex
France

Phone: +33 2 98 05 67 78
Fax: +33 2 98 05 67 67
e-mail: philippe.lijour@developpement-durable.gouv.fr

CETMEF

Mr Pierre-Yves MARTIN
2, Boulevard Gambetta
BP 60039 Compiegne Cedex
France

Phone: +33 2 98 05 67 78
Fax: +33 2 98 05 67 67
e-mail: pierre-Yves.martin@developpement-durable.gouv.fr

GISMAN

Mr Vincent ROGET
7, Rue Louis Blériot
ZA de Toul Garros
56400 Auray
France

Phone: + 33 2 97 29 41 21
Mobile: + 33 6 88 29 13 70
e-mail: Vincent.roget@gisman.fr

OROLIA SAS
Mme Isabelle SAGET
ZI des 5 Chemins
56520 Guidel
France

Phone: + 33 2 97 02 49 49
Mobile: + 33 7 86 01 42 57
Fax: + 33 2 97 65 00 20
e-mail: isabelle.saget@orolia.COM

OROLIA SAS

Mr Patrick MOEËLO
ZI des 5 chemins
56520 Guidel
France

Phone: + 33 2 97 02 49 49
Mobile: + 33 6 26 25 39 27
e-mail: Patrick.moelo@orolia.com

Orolia SAS

Mr Pierre-Jean JANNIN
ZI des 5 chemins
56520 Guidel
France

Phone: + 33 2 97 02 49 49
Mobile: + 33 6 77 72 10 67
e-mail: pierre-jean.jannin@orolia.com

Mobilis SAS

Mr Michel OZANNAT
270 Rue Jean Guiramand
ZI les Milles
BP 49000
13792 Aix en Provence
France

Phone: + 33 4 42 37 15 00
Fax: + 33 4 42 37 15 01
e-mail: mozammat@mobilis-sa.com

Mobilis SAS

Mr David HENRY
270 Rue Jean Guiramand
ZI les Milles
BP 49000
13792 Aix en Provence
France

Phone: + 33 4 42 37 15 00
Fax: + 33 4 42 37 15 01
e-mail: david-henry@wanadoo.fr

Germany

Federal Waterways and Shipping Administration

Mrs Astrid RÖDER
Moorweiden str.14
20148 Hamburg
Germany

Phone: +49 40 44 110 415
Mobile: +49 173 623 7700
Fax: +49 40 44 110 365
e-mail: astrid.roeder@wsv.bund.de

German Federal Waterways and Shipping Administration

Mr Marco KRINGS
Am Berg 3
56070 Koblenz
Germany

Phone: +49 261 98 19 2132
Mobile: +49 177 260 7727
Fax: +49 261 9819 2355
e-mail: marco.krings@wsv.bund.de

Federal Waterways & Shipping Administration

Mr Peter SCHNEIDER
Am Eisenbahndock 3
26725 Emden
Germany

Phone: + 49 27 1877 291
Mobile: + 49 27 1877 299
e-mail: peter.schneider@wsv.bund.de

Federal Waterways & Shipping Administration

Mr Frank HERMANN
Am Berg 3
56070 Koblenz
Germany

Phone: +49 261 9819 2400
Mobile: +49 1607459095
Fax: +49 261 9819 2155
e-mail: frank.hermann@wsv.bund.de

Federal Waterways & Shipping Directorate

Mr Joerg UNTERDERWEIDE
Am Berg 3
56070 Koblenz
Germany

Phone: +49 261 9819 2413
Mobile: +49 151 2642 2240
Fax: +49 261 9819 2155
e-mail: joerge.unterderweide@wsv.de

IALA **IALA, Secretary General**

Mr Gary PROSSER
10 rue des Gaudines
78100 Saint-Germain-en-Laye
France

Phone: +33 1 34 51 70 01
Fax: +33 1 34 51 82 05
e-mail: gary.prosser@iala-aism.org

Deputy Secretary General

Mr Michael D. CARD
10 rue des Gaudines
78100 Saint-Germain-en-Laye
France

Phone +33 1 34 51 70 01
Fax +33 1 34 51 82 05
e-mail mike.card@iala-aism.org

Dean WorldWide Academy

Mr Jean- Charles LECLAIR
10, Rue des Gaudines
78100, Saint Germain en Laye
France
Phone +33 1 34 51 70 01
Fax +33 1 34 51 82 05
e-mail jean-charles.leclair@iala-aism.org

Programme Manager, WWA

Mr Stephen BENNETT
10 rue des Gaudines
Saint Germain en Laye
France

Phone: +44 243 533 148
Fax: +33 1 34 51 82 05
Mobile phone: +44 7787 320 761
e-mail: stephen.bennett@iala-aism.org

Senior Advisor

M. Jacques MANCHARD
10 rue des Gaudines
Saint Germain en Laye
78100
France

Phone: +33 1 34 51 70 01
Fax: +33 1 34 51 82 05
e-mail: jacques.manchard@iala-aism.org

Technical Co-ordination Manager

Dr. Mike HADLEY
10 rue des Gaudines
78100 Saint Germain en Laye
France

Phone: +33 1 34 51 70 01
Fax: +33 1 34 51 82 05
e-mail: mike.hadley@iala-aism.org
e-mail (alternative): advnav@btinternet.com

Membership & Finance Officer

Ms Lorraine MBONG
10 rue des Gaudines
78100 Saint Germain en Laye
France

Phone: +33 1 34 51 70 01
Fax: +33 1 34 51 82 05
e-mail: lorraine.mbong@iala-aism.org

Consultant

Mr Seamus DOYLE
10, Rue des Gaudines
78100, Saint Germain en Laye
France

Phone: +353 1295 7332
Mobile: +353 8798 77983
e-mail: sd208@gmail.com

IRAN **Ports and Maritime Organization (PMO)**

Mr Ali KHEDMAT GOZAR

Vanak Sq. Jahan, Kodak Cross Road

End of Shahid Rashidi St. N°1
Tehran
Iran

Phone: +98 21 849 21 43
Mobile: +98 911 38 56 862
Fax: +98 181 322 45 03
e-mail: khedmatzogar@anzaliport.ir

Ports and Maritime Organization (PMO)

Mr Ali EBRAHIMZADEH

Vanak Sq. Jahan, Kodak Cross Road
End of Shahid Rashidi St. N°1
Tehran
Iran

Phone: +98 21 849 21 43
Mobile: +98 917 37 11 383
Fax: +98 181 322 32 03
e-mail: ebrahimzadeh1@gmail.com

Ireland **Commissioners of Irish Lights**

Mr. Kevin WHITNEY
Harbour Road
Dun Laoghaire
Co. Dublin
Ireland

Phone: +353 1 271 5478
Fax: +353 1 271 5565
e-mail soo@granuaile.cil.ie

Italy **FLOATEX**

Mr Rudy ZUURBIER
Via Cave N°12
25050 Provoglio D'Iseo
Italy

Phone: +39 86 6376634
Fax: +39 03 98 23 599
e-mail: sale@floatex.it

Japan

Japan Aids to Navigation Association (JANA)

Mr Tamotsu IKEDA
4-5 Kouji-Machi
Chiyoda-ku
Tokyo 102 0083
Japan

Phone: +81 3 3230 1470
Fax: +81 3 3230 1050
e-mail: ikeda-t@jana.or.jp

Zeni Lite Buoy Co., Ltd.

Mr. Hisataka MURAKAMI
2-176-1 Toyoshima Minami
Ikeda-City
Osaka 563-0035
Japan

Phone: +81 72 761 1313
Fax: +81 72 761 1122
e-mail: h-murakami@zenilite.co.jp

Zeni Lite Buoy Co.; Ltd.

Ms. Mariko IKEGAI
2-176-1 Toyoshima Minami
Ikeda-City
Osaka 563-0035
Japan

Phone: +81 72 761 1313
Fax: +81 72 761 1122
e-mail: m-ikegai@zenilite.co.jp

Zeni lite Buoy Co Ltd. Singapore

Mr Anders HELLMAN
10, Anson Road
International Plaza
Singapore 079903

e-mail: hellman@senilite.co.jp

Malaysia

Marine Department Malaysia

Mr Azri HASAN
PO BOX 12
42007 Port Klang
Malaysia

Phone: + 60 13 2200 030
Fax: + 60 3 31 685 020
e-mail: azri@marine.gov.my

Marine Department Malaysia

Mr Mohd Azahari AYOB
PO BOX 12
42007 Port Klang
Malaysia

Phone	+ 60 177955795
Fax	+ 60 331685020
e-mail	azahariayob@marine.gov.my

Netherlands **Ministry of Transport**

Mr Sipke HOEKSTRA
PO BOX 5807
2280 HV Rijkwijk
The Netherlands

Phone:	+31 652562718
e-mail	sipke.hoekstra@rws.nl

Pintsch Aben

Mr Alex VENDRIG
Herenweg 24a
3602 AP Maarssen
The Netherlands

Phone:	+31 346 583 950
Mobile:	+31 651 5955 99
Fax:	+31 346 554 393
e-mail:	Alex.vendrig@pintschaben.com

Pintsch Aben

Mr Bjoern LAGERWEIJ
Herenweg 24a
3602 AP Maarssen
The Netherlands

Phone:	+31 346 583 950
Mobile:	+31 635 112 464
Fax:	+31 346 554 393
e-mail:	Bjoern.lagerweij@pintschaben.com

New Zealand **Vega Industries**

Mr Alistair TAYLOR
21 Heriot Drive
5022 Porirua
New Zealand

Phone	+64 4 238 0202
Mobile phone:	+64 4 237 4392
e-mail:	alistair.taylor@vega.co.nz

Norway

Norwegian Coastal Administration

Mr Ernst Kare JAKOBSEN
Langdragsun 67
8357 Valberg
Norway

Phone + 47 977 404 34
e-mail Ernst.kare.jakobsen@kystverket.no

Norwegian Coastal Administration

Mr. Oyvind SCHRODER
P.O.BOX 1507
N 6025
6002 Alesund
Norway

Phone: +47 701 601 43
Mobile: +47 92669459
e-mail: oyvind.schroder@kystverket.no

Norwegian Coastal Administration

Mr Bjornar BORGUND
P.O.BOX 1507
N 6025
6002 Alesund
Norway

Phone: +47 701 601 41
Mobile: +47 90 822 883
e-mail: bjornar.borgund@kystverket.no

Oman

Arabian Maritime & Navigation Aids Services (AMNAS)

Mr Issa AL- KIYUMI
PO BOX 1677
CPO PC Seeb PC111
Sultanate of Oman

Phone: +968 24462000
Mobil: +968 995 722 16
Fax: +968 24462010
e-mail: tech_c@amnas-oman.com

AMNAS

Mr Yousef AL- RAHBI
PO BOX 1677
CPO PC Seeb PC111
Sultanate of Oman

Phone: +968 2 4510 283
Mobile: +968 922 826 92
Fax: +968 2 4510 432
e-mail: yousef.alrahbi@amnas-oman.com

AMNAS

Mr Yasser AL-YAHMADI
PO BOX 1677
CPO PC11 Seeb
Sultanate of Oman

Phone +968 2 4462005
Mob +968 990 619 41
Fax +968 2 4462010
e-mail Yasser.alyahmadi@amnas-oman.com

AMNAS

Mr Yahya AL-BREIKI
PO BOX 1677
CPO PC11 Seeb
Sultanate of Oman

Phone: +968 2 4510 283
Mobile: +968 95213661
Fax: +968 2 4510 432
e-mail: tech_n@amnas-oman.com

Poland

Maritime Office Szczecin

Mr. Mr Piotr JESION
PL Batorego 4
70204 Szczecin
Poland

Phone: +91 4403 499
Mobile: +91 6937 9784
Fax: +9 641 421 53
e-mail: pjesion@ums.gov.pl

Spain

Puertos del Estados

Mr Jose Carlos DIEZ
Avda del Parténon N°10
28042 Madrid
Spain

Phone: +34 91 524 550 00
Fax: +34 91 524 550 06
e-mail: jc.diez@puertos.es

La Maquinista Valenciana S.A

Mr Enrique BERNABEU
Barrio Del Cristo E46960 Aldaya
Valencia
Spain

Phone: +34 961 59 60 71
Fax: +34 961 59 60 73
e-mail: Enrique.bernabeu@lmvsa.com

Almarin

Mr Patrick LINDLEY
Costa Brava 25-29, Local 13
008030 Barcelona
Spain

Phone: +34 933 601 101
Fax: +34 676 14 31 34
e-mail: Patrick@almarin.es

Almarin

Mr Luis VASCONCELOS DIAS
Costa Brava 25-29, Local 13
008030 Barcelona
Spain

Phone: +34 933 601 101
Fax: +34 676 14 31 34
e-mail: lvdias@lindley.pt

Mediterraneo Senales Maritimas SLL

Mr Antonio MARTINEZ TANCO
Pol. Ind Mas de Tous, C/Belgado Nave 6
46185 La Pobla de Valbona
Valencia
Spain

Phone + 34 96 276 10 22
Fax +34 616 44 09 48
e-mail amartinez@mesemar.com

Mediterraneo Senales Maritimas SLL

Mr Fernando ROMERO NOREÑA
Pol. Ind Mas de Tous, C/Belgado Nave 6
46185 La Pobla de Valbona
Valencia
Spain

Phone: +34 96 276 10 22
Mobile: +34 616 44 09 48
e-mail: fromero@mesemar.com

Mediterraneo Senales Maritimas SLL

Mr Ignacio RODRIGUEZ MARTINEZ
Pol. Ind Mas de Tous, C/Belgado Nave 6
46185 La Pobla de Valbona
Valencia
Spain

Phone: +34 96 276 10 22
Mobile: +34 616 44 08 28
e-mail: irodriguez@mesemar.com

Sweden **Swedish Maritime Administration (SMA)**

Mr. Christian LAGERWALL
S-60178 Norrköping
Sweden

Phone: + 46 10 478 4932
Mobile: +46 708 191 193
e-mail: Christian.lagerwall@sjofartsverket.se

Swedish Maritime Administration (SMA)

Mr. Sigge GUSTAFSSON
S-601 78 Norrköping
Sweden

Phone +46 10 478 4932
Mobile phone: +46 708 191 330
e-mail sigge.gustafsson@sjofartsverket.se

Mr Kjell JOHANSSON
S-601 78 Norrköping
Sweden

Phone: +46 10 478 4652
Mobile: +46 708 191 205
e-mail: kjell.johansson@sjofartsverket.se

Turkey **iDeal Technoloji Inc**.

Mr. Taner AKDENIZ
AOSB
10015 Sok N°3 Cigli
Izmir
Turkey

Phone: +90 2323281725
Mobile: +90 5324155726
Fax: +90 2323281728
e-mail: taner.akdeniz@idealteknoloji.com

UK **Trinity House Lighthouses Service (THLS)**

Mr Peter DOBSON
Trinity House
The Quay, Harwich, Essex
CO12 3JW
UK

Phone: +44 1 255 245 063
Mobile: +44 7768 03 60 02
Fax: +44 1 255 24 50 38
e-mail: peter.dobson@thls.org

Trinity House Lighthouses Service (THLS)

Mr Roger LEWIS
Trinity House
The Quay, Harwich, Essex
CO12 3JW
UK

Phone +44 1 255 245 075
e-mail roger.lewis@thls.org

Trinity House Lighthouses Service (THLS)

Mr Simon MILLYARD
Trinity House
The Quay, Harwich, Essex
CO12 3JW
UK

Phone: +44 1 255 245 152
Fax: +44 1 255 245 038
e-mail: Simon.millyard@thls.org

GLA R&RNAV

Mr Malcolm NICHOLSON
Trinity House
The Quay, Harwich, Essex
CO12 3JW
UK

Phone: +44 1 255 245 153
Mobile: +44 776 850 55 79
Fax: +44 1 255 245 038
e-mail: Malcolm.nicholson@gla-rrnav.org

Northern Lighthouse Board

Mr Roddy MACKAY
84 George Street
EH2 3DA Edinburgh
UK

Phone: +44 131 473 3170
Mobile: + 44 783 6662 060
e-mail: roddym@nlb.org.uk

Northern Lighthouse Board

Mr Mike SPAIN
84 George Street
EH2 3DA Edinburgh
UK

Phone +44 131473 3199
Mob +44 770645859
Fax +44 131 220 2093
e-mail mike.spain@nlb.org.uk

Northern Lighthouses Board

Mr Ewen MACKERCHAR
84 George Street
EH2 3DA Edinburgh
UK

Phone: +44 131473 3100
e-mail: ewen.mackerchar@nlb.org.uk

AB Pharos Marine/Automatic Power

Mr Adrian WILKINS
65 Sylvan Avenue
East Cowes
Isle of Wight
PO32 6QS
UK

Phone: +44 198 329 958
Mobile: +44 790 040 0272
e-mail: adrian.wilkins@talk21.com

AB Pharos Marine/Automatic Power

Mr Ezmil SAHRANI
No. 49, Jin Badminton
Tadisma Business Park
40100 Shah Alam Selangor
Malaysia

Phone: + 603 55 11 38 50
e-mail: ezmil@greenfinder.asia

Pharos Marine/Automatic Power

Mr Magnus NYBERG
Granckullevagen 1B
S-192 73 Sollentuna
Sweden

Phone: +44 198 329 958
Mobile: +46 723 295 350
e-mail: m.nyberg@automaticpower.com

Pharos Marine / Automatic Power

Mr Owen JAMES
Steyning Way
Hounslow
UK

Phone: +44 208 538 11 00
Mobile: +44 7767 7857 94
Fax: +44 208 5774 170
e-mail: ojames@pharos.marine.com

Ukraine

State Hydrographic of Ukraine

Mr Sergii SYMONENKO
23, Gagarine Avenue
Kiev
Ukraine

Phone: +38 04 292 32 98
Fax: +38 04 292 32 98
e-mail: miagkova.@hydro.gov.ua

State Hydrographic of Ukraine

Mr Sergii OSYPCHUK
23, Gagarine Avenue
Kiev
Ukraine

Phone: +38 04 292 32 98
Fax: +38 04 292 32 98
e-mail: miagkova.@hydro.gov.ua

State Hydrographic of Ukraine

Mrs Alla MIAGKOVA
23, Gagarine Avenue
Kiev
Ukraine

Phone +38 04 292 32 98
Fax +38 04 292 32 98
e-mail miagkova.@hydro.gov.ua

USA

Tideland Signal Corporation

Mr Clive QUICKENDEN
PO BOX 924507
Houston
USA

Phone +1 713 681 6101
Fax +1 713 681 6233
e-mail cwq@tidelandsignal.com

Tideland Signal Corporation
Mr Alfredo DOMINGUEZ
PO BOX 924507
Houston
USA
Phone +1 713 681 6101
Fax +1 713 681 6233
e-mail afredod@tidelandsignal.com

Automatic Power

Mr Alan TROJANOWSKI
1081 Little York Rd Suite 130
TX 77041
Texas
USA
Phone + 1 713 228 5208
Fax + 1 713 681 6233
e-mail atrojanowski@automaticpower.com

ANNEX B WORKING GROUP PARTICIPANTS

Working Group 1 Daymark conspicuity and applications

	Name	Organisation / Country
1	Aivar Usk (Chair)	Cybernetica / Estonia
2	Frank Hermann (Vice Chair)	Federal German Waterways and Shipping Administration
3	Mohd Azahari Ayob	Marine Department Malaysia
4	Yves-Marie Blanchard	CETMEF / France
5	Bjornar Borgund	NCA / Norway
6	Luis Vasconcelos Diez	ALMARIN / Spain
7	Alfredo Dominguez	Tideland Systems / USA
8	Sigge Gustafsson	SMA / Sweden
9	Greg Hansen	AMSA / Australia
10	Sipke Hoekstra	Northsee Directorate / The Netherlands
11	Mariko Ikegai	Zeni Lite Buoy Co. / Japan
12	Anders Viborg Kristensen	DMA / Denmark
13	Björn Lagerweij	Pintsch Aben BV / The Netherlands
14	Roger Lewis	Trinity House / UK
15	Ewen Mackerchar	NLB / Scotland
16	Sven Neeme	Cybernetica / Estonia
17	Malcolm Nicholson	GLA R&RNAV
18	Michel Ozannat	MOBILIS / France
19	Tiit Palgi	EMA / ESTONIA
20	Joergen Royal Petersen	DMA / Denmark
21	Fernando Romero	MSM
22	Oyvind Schroder	NCA / Norway
23	Kevin Whitney	CIL / Ireland

Working Group 2 AIS installation on Buoys & Beacons

	Name	Organisation / Country
1	Simon Millyard (Chair)	THLS / UK
2	Richard Moore (Vice Chair)	CCG / Canada
3	Taner Akdeniz	iDeal Technoloji Inc. / Turkey
4	Mahadi Al Mosawi	MENAS / Bahrain
5	Yasser Hamood Al-Yahmadi	AMNAS / Oman
6	Mohd Azri Ayob	Marine Department Malaysia
7	Enrique Bernabeu	LMV / Spain
8	Jean-Francoise Bouclat	Mobilis / France
9	Peter Dam	DMA / Denmark
10	Ahoua Jonas Djessou	Port Autonome d'Abijan / Cote d'Ivoire
11	Bert Frame	Pelangi Int. / Sealite / Astralia
12	Stephen Hill	AMS / Australia
13	Abdulla Jaffer	MENAS / Bahrain
14	Ernst-Kåre Jakobsen	NCA / Norway
15	David Jeffkins	AMSA / Australia
16	Kjell Johansson	SMA / Sweden
17	Pengini Kouaho	Port Autonome d'Abijan / Cote d'Ivoire
18	Jonas Lindberg	DMA / Denmark
19	Paul Longley	Carmanah Tech. / Canada
20	Mariano Luis Marpegan	Hidrovia / Argentina
21	Pierre Mingot	AMS / Australia
22	Patrick Moëlo	OROLIA SAS / France
23	Magnus Nyberg	Pharos Marine / UK
24	Vincent Roget	GISMAN / France
25	Isabelle Saget	OROLIA SAS / France
26	Ezmil Sahrani	Greenfinder / Malaysia
27	Peter Schneider	WSV / Germany
28	Alistair Taylor	Vega Industries / New Zealand

Working Group 3 Cost engineering of Short Range AtoN and asset management

	Name	Organisation / Country
1	Seamus Doyle (Chair)	IALA
2	Yousef Khalifa Al-Rahbi	AMNAS / Oman
3	Peter Dobson	THLS / UK
4	Nicholas Fady	CETMEF / France
5	Anders Hellman	Zene Lite / Japan
6	Christian Lagerwall	SMA / Sweden
7	Histaka Murakami	Zene Lite / Japan
8	Astrid Röder	German Federal Waterways and Shipping Administration
9	Andry Rŭtkinen	Estonian Maritime Administration
10	Mike Spain	Northern Lighthouse Board / UK

Working Group 4 Hydrostatic design of buoys

	Name	Organisation / Country
1	Adrian Wilkins (Chair)	Pharos Marine / UK
2	Issa Al-Kiyumi	AMNAS / Oman
3	David Henry	Mobilis
4	Smail Hidouche	CETMEF / France
5	Khaled Jaber	Pintsch Aben B.V. / The Netherlands
6	Abdulla Jaffer	MENAS / Bahrain
7	Marco Krings	Federal German Waterways and Shipping Administration
8	Patrick Lindley	Almarin / Spain
9	Philippe Renaudin	CETMEF / France
10	Lauri Toomiste	Estonian Maritime Administration
11	Jörg Unterderweide	Federal German Waterways and Shipping Administration
12	Rudy Zuurbier	Floatex / Italy

ANNEX C WORKSHOP PROGRAMME

IALA WORKSHOP ON SHORT RANGE AtoN IN THE e-NAVIGATION ERA

8 - 12 October, 2012

Venue
Le Quartz
Square Beethoven
60 rue du Château
BP 91039
29210 Brest, Cedex 1, France

DAY 1 - MONDAY 8 OCTOBER 2012

Time	Activity	
1300 - 1400	**Registration**	
1400 - 1430	**Session 1 - Opening of the Workshop**	**Chair: Gary Prosser, Secretary-General IALA**
	Welcome from CETMEF	Jean-Jacques Quinquis, CETMEF Technical Director
	Welcome from IALA	Gary Prosser, IALA Secretary-General
	Administration & Safety Brief	Mike Hadley – Technical Co-ordination Manager, IALA
	Workshop aim & objectives	Ómar Frits Eriksson – DMA (Denmark) & Workshop Chairman
1430 – 1600	**Session 2 – Daymark conspicuity and applications**	**Chair: Richard Moore**
1430 – 1500	Draft IALA Guideline on daymarks, including the fundamentals	Frank Hermann (Germany)
1500 – 1515	IALA guidance on daymarks, including daymarks for leading lines – A little history, and the content of existing Guidance	Christian Lagerwall (Sweden)
1515 – 1535	The need for / navigation value of daymarks from a navigator's perspective	Kevin Whitney (Ireland)
1535 – 1550	Use of astronomical clocks for switching of AtoN	Enrique Bernabeu, LMV (Spain)
1550 – 1600	Discussion	
1600 – 1630	**Coffee Break at the IALA IM Exhibition Area**	
1630 – 1845	**Session 3 – Daymark conspicuity and applications (continued)**	**Chair: Simon Millyard (UK)**
1630 – 1650	Practical experience with daymarks on sea buoys	Philippe Renaudin, CETMEF (France)
1650 – 1710	The concept, purpose, and value of a suite of IALA guidance documents on visual signalling	Malcolm Nicholson (UK)
1710 – 1730	Application of European standard EN 12966 on low range visual signaling	Frank Hermann (Germany)

1740 – 1800	Experience with plastic buoys	Marco Krings (Germany)
1800 – 1820	Optimizing your AIS AtoN and e-Navigation service	Magnus Nyberg, Automatic Power Group / Pharos Marine
1820 – 1845	Discussion	

Free evening

Other events

1730 – 1930 IMC mid-term meeting
Le Quartz Room 1 (Level 2, next to Plenary room)

DAY 2 – TUESDAY 9 OCTOBER 2012

Time	Activity	
0900 – 0905	Administrative Details (as required)	Mike Hadley
0900 - 0945	**Opening of Exhibition & Opening of SeaTechWeek2012 – Coffee available**	
0945 - 1115	**Session 4 – AIS installation on Buoys & Beacons**	**Chair: Aivar Usk**
0945 - 1005	Background - Overview of IALA guidance and ITU and IEC standards for AIS AtoN	Seamus Doyle
1005 - 1025	Practical examples of fitting AIS on buoys	Chris Proctor, Sealite (Australia)
1025 - 1045	Practical AIS AtoN experience to date – a summary of experience at Hidrovia since IALA Cape Town	Mariano Luis Marpegan, Hidrovia (Argentina)
1045 - 1115	Discussion	
1115 - 1245	**Session 5 – AIS installation on Buoys & Beacons (continued)**	**Chair: Seamus Doyle**
1115 – 1135	Practical aspects and experience of AIS AtoN installations on buoys	Pierre-Yves Martin, CETMEF (France)
1135 - 1155	AIS Remote control and monitoring of AtoN, Data acquisition, power consumption and availability	Isabelle Saget, OROLIA SAS (ex-Kannad) (France)
1155 – 1210	The draft new IALA Guideline on AIS AtoN installation – progress made and work remaining	Simon Millyard (UK)
1215 - 1225	AIS (T1 and T3) installation on new buoys and existing buoys	Samir Benouda, Mobilis (France)
1225 - 1245	Discussion	
1245 - 1400	**Lunch & Workshop Group Photograph, Level 0 (Flexible time for photograph)**	
1400 - 1530	**Session 6 – Cost engineering of Short Range AtoN and asset management**	**Chair: Jonas Lindberg**

Time	Activity	
1400 - 1420	Battery life, lantern life, and maintenance policy for self-contained marine lanterns	Peter Dobson (UK)
1420 - 1440	Too Many Fixed Aids - Not Enough Money How to Set Priorities?	Richard Moore (Canada)
1440 - 1500	Life of plastic buoys, purchasing policy, and cost management	Sipke Hoekstra (Netherlands)
1500 - 1520	Key Performance Indicators for AtoN provision and management	Seamus Doyle (Ireland)
1520 - 1530	Discussion	
1530 - 1600	**Coffee Break at the IALA IM Exhibition Area**	
1620 - 17300	**Session 7 – Buoys and buoy stability**	**Chair: Adrian Wilkins**
1600 - 1620	Structure durability and the benefits of modular design	Greg Hansen (Australia)
1620 – 1640	Plastic buoys colour retention, impact absorption, abrasion resistance etc. and testing methodologies	Alfredo Dominguez, Tideland Signal (USA)
1640 - 1700	Presentation of "CALMAR" a new Catenary mooring calculation software for AtoN	David Henry, Mobilis (France)
1700 - 1720	Monitoring of platform stability	Aivar Usk, Cybernetica (Estonia)
1720 - 1730	Discussion	

18h00-18h15: Bus service from "Le Quartz" to Oceanopolis

18h30-20h00: Private and guided visit of the tropical and polar aquariums

20h00-21h00: Drinks (in front of the aquariums)

Bus Services from Oceanopolis to the Quartz from 20H30

Then a free evening

DAY 3 - WEDNESDAY 10 OCTOBER 2012

0845 Bus from le Quartz to the Phares & Balises

Time	Activity	
0900 - 1030	**Session 8 – Technical visit to Phares & Balises, Brest**	Buoy inclining test demonstration. • Part 1 – Address, What can we learn from an inclining test of a buoy? • Part 2 – Practical test, establishing freeboard and stability. • Part 3 – Results of the test and conclusions
1030 - 1100	**Coffee Break**	
1100 - 1230	**Session 9 – Technical visit (continued)**	**1200 Bus from the P&B to le Quartz**
1230 - 1400	**Lunch at Le Quartz**	
1400-1530	**Session 10 – Working Groups (WG)**	**Co-ordinator: Ómar Frits Eriksson**
	WG1 – Daymark conspicuity and applications • Aim to develop the draft IALA Guideline to near-complete • Consider and recommend on the merit of a suite of conspicuity documents	**Leader: Aivar Usk**
	WG2 – AIS installation on Buoys & Beacons • Concentrate on guidance for practical installation, commissioning, and maintenance, not the details of AIS technology • Consider overall reliability, Experiences of failed components, Wiring, cable specs, cable fixing, terminations, plugs and sockets, junction boxes, encapsulation etc. Power supplies. Battery boxes, venting, draining, gas safety. Aerial mounting etc. • Aim to develop the draft IALA Guideline to near-complete	**Leader: Simon Millyard**

Time	Activity	
	WG3 – Cost engineering of Short Range AtoN and asset management • Use the feedback from the recent IALA plastic buoy questionnaire as part of the input data • Aim to create a first draft of an IALA Guideline on AtoN cost engineering and asset management	**Leader: Seamus Doyle**
	WG4 – Hydrostatic design of buoys • Aim to develop the new draft IALA Guideline to good draft status	**Leader: Adrian Wilkins**
1530 - 1600	**Coffee Break at the IM Exhibition Area**	
1600 - 1730	**Session 11 – Working Groups**	**Co-ordinator: Ómar Frits Eriksson**

SeaTechWeek Reception

Wine and cheese party (near the Circus), followed by a visit to a circus (Zingaro)

A daily ticket for the Tramway and the circus will be distributed on Wednesday afternoon during the afternoon coffee break.

1815: Tramway service from "Le Quartz" to Plateau des Capucins

1830-2030: Wine and cheese

2030-2215: Circus Zingaro

Tramways service for the return

Other events

IALA WWA 3rd Board Meeting
1000-1600
Oceania Hotel

DAY 4 - THURSDAY 11 OCTOBER 20112

Time	Activity	
0900 -1030	**Session 12 – Working Groups**	**Co-ordinator: Ómar Frits Eriksson**
	Administrative Details (as required)	Mike Hadley
1030 – 1100	**Coffee Break at the IALA IM Exhibition Area**	
1100 – 1230	**Session 13 – Working Groups**	**Co-ordinator: Ómar Frits Eriksson**
1300 – 1400	**Lunch at Level O**	
1400 - 1530	**Session 14 – Working Groups**	**Co-ordinator: Ómar Frits Eriksson**
1530 - 1600	**Coffee Break at the IALA Exhibition Area**	
1600 - 1730	**Session 15 – Working Groups**	**Co-ordinator: Ómar Frits Eriksson**

Free evening

Other events

2030 Public conference – free entry- Retrospective on Marine Renewable Energies

DAY 5 - FRIDAY 12 OCTOBER 20112

Time	Activity	
0900 -1030	**Session 16 – Plenary – Reports of Working Groups**	**Chair: Ómar Frits Eriksson**
	Administrative Details (as required)	Mike Hadley
	Review draft documentation	
1030 – 1100	**Coffee Break at IALA IM Exhibition Area**	
1100 – 1300	**Session 17 – Plenary – Reports of Working Groups (Continued)**	**Chair: Ómar Frits Eriksson**
1100 – 1215	Review of draft documentation	Ómar Frits Eriksson / TCM
1300 – 1400	**Lunch at Level O**	
1400 – 1500	**Session 18 – Plenary – Conclusions & Closing**	**Chair: Ómar Frits Eriksson**
1400 – 1445	Discussion & Workshop Debrief	Ómar Frits Eriksson
1445 – 1500	Closing of the workshop	Mike Card

ANNEX D WORKSHOP INPUT AND OUTPUT PAPERS

Together with the presentations made during sessions 2 – 7, the following papers were input to the workshop.

1 INPUT PAPERS

1 Liaison note to ANM on Simulation in the Design of AtoN

2 Draft Guideline on Daymarks for AtoN

3 Draft Guideline on the Application of AIS on Buoys

4 Draft Guideline on Hydrostatic Design of Buoys

5 Plastic Buoy Questionnaire Summary

2 OUTPUT PAPERS

The following papers were produced by the Working Groups; all were agreed to be sent to EEP19 for finalisation, with a view to sending the documents from WGs 1, 2 and 3 to the December 2012 Council meeting. It was anticipated that the Draft Guideline on the Hydrostatic Design of Buoys (WG4) might take two more sessions before being ready for consideration for sending to the IALA Council.

Working Group 1 Draft Guideline on Daymarks

Working Group 2 Draft Guideline on the Application of AIS on Buoys

Working Group 3 Draft Guideline on Cost Engineering of Short Range AtoN and Asset Management

Working Group 4 Draft Guideline on the Hydrostatic Design of Buoys

Seamus Doyle also provided a summary of the review of AIS documentation.

ANNEX E WORKSHOP CONCLUSIONS & RECOMMENDATIONS

	Conclusion	Recommendation
1	There is a large volume of IALA documentation on AIS, which needs to be rationalised, to avoid duplication and confusion, and updated as AIS develops.	IALA should rationalise its AIS documentation.
2	There is a need to develop methods to determine the visible range of daymarks.	IALA should develop methods to determine the visible range of daymarks.
3	There is a need to collate IALA documentation on daymarks.	IALA should create a suite of documents relating to daymarks.
4	Daymarks continue to provide a valuable contribution to safe navigation and should be retained.	IALA should continue to develop guidance on daymarks reiterating their importance for navigation.
5	AIS VDL slot reservations, slot collisions, spoofing and garbled slots result in reduced capacity of the VDL. This could compromise the prime functionality of the AIS VDL as a ship-ship safety service. It may also limit VDL capacity that will be required by future e-Navigation applications. IALA members are deploying AIS AtoN in increasing numbers, which impacts on the capacity of the AIS VDL.	IALA should recommend to its members to monitor the VDL load in their area of responsibility and take appropriate action to ensure efficient utilisation of the VDL.
6	There is a need to update IALA Recommendation O-139 to include information on AIS.	IALA Recommendation O-139 should be updated to include information on AIS.
7	The performance and use of plastic buoys continues to expand, although colour retention in polyethylene buoys remains a concern.	IALA should continue to monitor the development and use of plastic buoys and provide appropriate guidance including the revision of older guidelines. This should include minimum quality standards and testing methods for the polyethylene.
8	Organic LED (OLED) technology is advancing very quickly and is expected to have a significant effect on AtoN lighting technology.	IALA should continue to monitor the development of OLED technology and its impact on AtoN lights.

9	Mobilis have developed a mooring analysis software package, which is being made available to IALA members free of charge.	IALA should add the Calmar mooring design software package to the IALA software suite, once it has been verified.
10	Information on Variable Message Signs needs to be included in the IALA Recommendation E-111 on Port Traffic Signals (May 1998).	IALA should consider reviewing and updating Recommendation E-111 on Port Traffic Signals (May 1998) to include Information on Variable Message Signs.
11	There is a need to review the keywords during the preparation or updating of a document and to propose definitions for adding the missing ones to the IALA Dictionary.	When writing and revising IALA documents, committees should endeavour to review keywords, and definitions to ensure conformance to IALA Dictionary terms as well as the updating of the IALA Dictionary.
12	New methods of illumination of AtoN with LED panels should be included in the IALA Guideline 1061 on Illumination of structures that is due for review within the current EEP work period.	IALA should consider reviewing and updating Guideline 1061 with a view of including new methods of illumination of AtoN with LED panels.

ANNEX F OPTICAL EXPERIMENT PRESENTATION

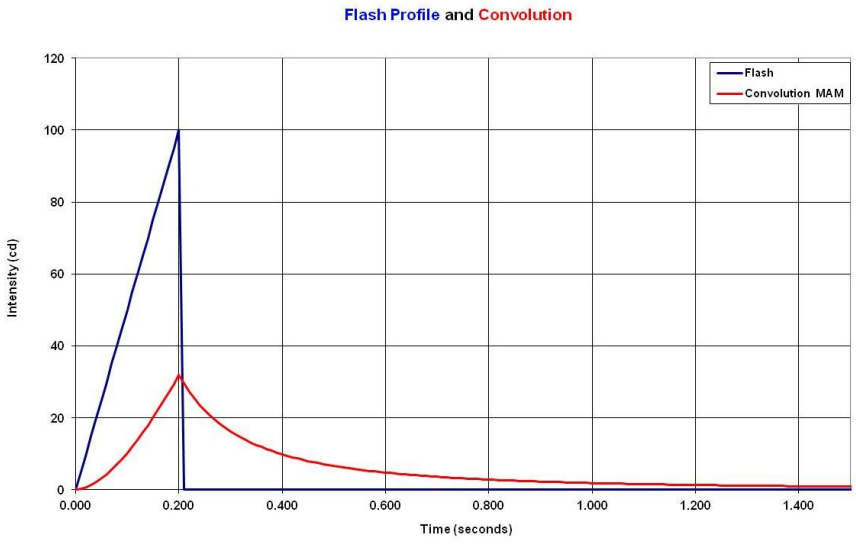
Flashing Red Lights at Brest

By Malcolm Nicholson

Date 11th October 2012

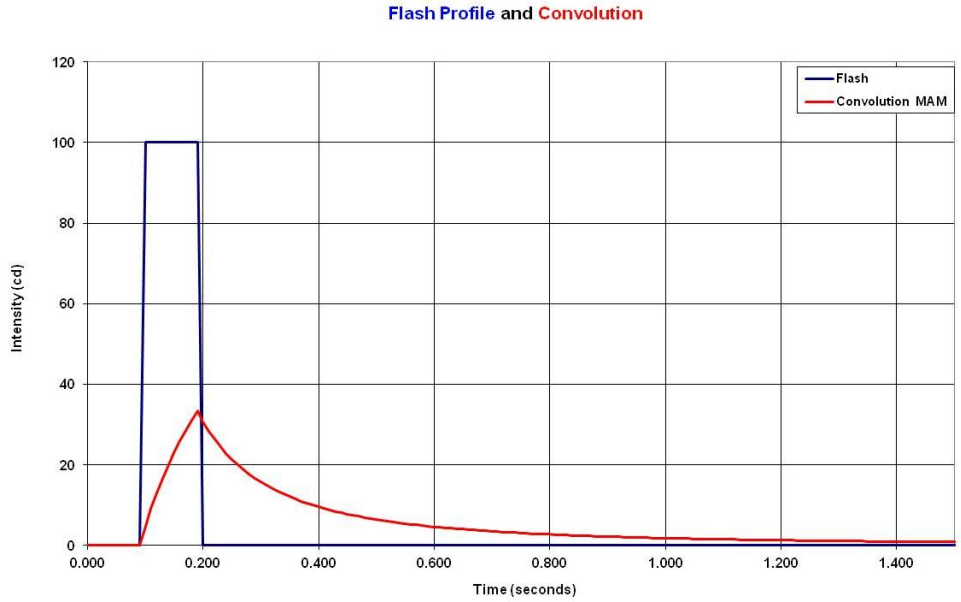
Slide 1

First Flash



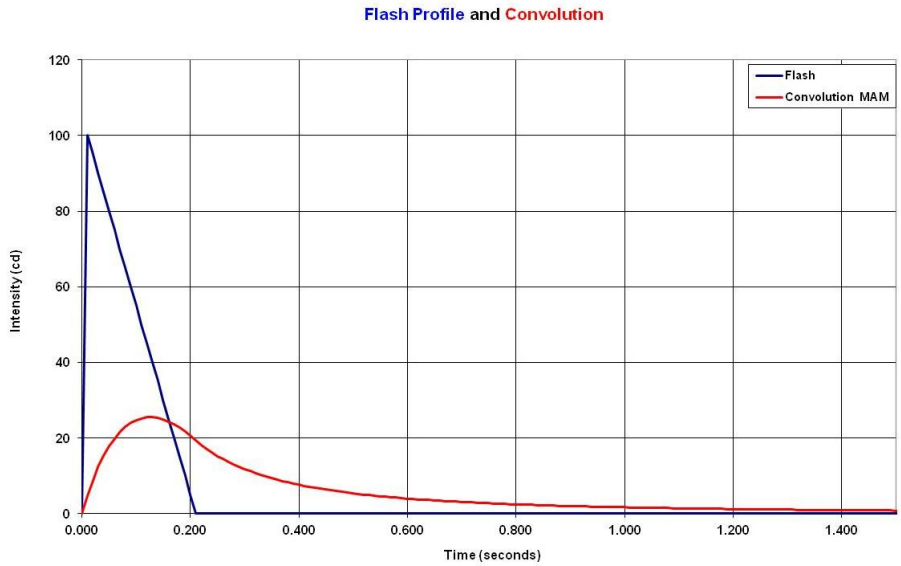
Slide 2

Second Flash



Slide 3

Third Flash



Slide 4

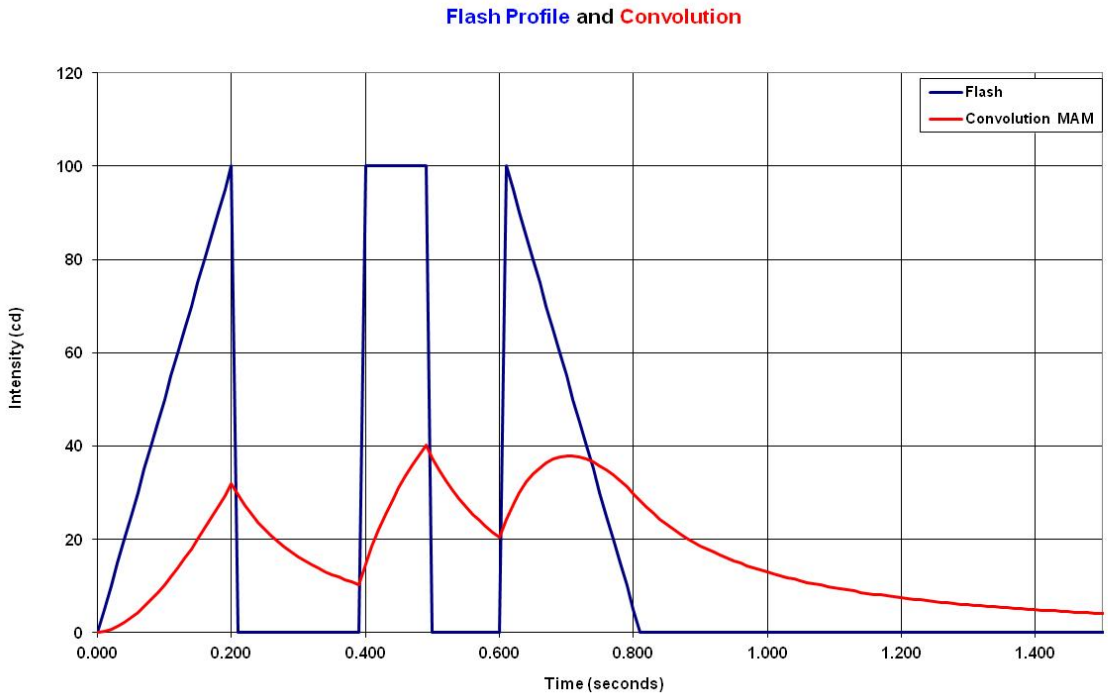
Analysis

Io (cd)	MAM Ie (cd)	SC Ie (cd)	MAM t2 -t1 (s)	t50% (s)
100	31.9	34.4	0.09	0.09

Io (cd)	MAM Ie (cd)	SC Ie (cd)	MAM t2 -t1 (s)	t50% (s)
100	33.3	33.3	0.09	0.09

Io (cd)	MAM Ie (cd)	SC Ie (cd)	MAM t2 -t1 (s)	t50% (s)
100	25.4	34.42	0.09	0.09

Slide 5



Slide 6

RESEARCH & RADIONAVIGATION
GENERAL LIGHTHOUSE AUTHORITIES
United Kingdom and Ireland

We don't know all the answers !!!

malcolm.nicholson@gla-rrnav.org

Slide 7