



IALA TRAINING SEMINAR ON RISK MANAGEMENT: PAWSA, IWRAP Mk2 & SIMULATION

15-19 November 2010

St Germain en Laye, France

Final Report

Executive Summary

The seminar was held at IALA and was attended by thirtyfour delegates from sixteen countries.

The seminar began with a series of presentations, including an introduction to the IALA Risk Management Toolbox, which includes Ports and Waterways Safety Assessment (PAWSA), IWRAP Mk2 and simulation. Five sessions were devoted to the PAWSA process, during which not only the method of conducting the workshops was explained but also the detailed planning required to prepare for and then support it. Following this, the delegates began to gain 'hands on experience' with the revised IWRAP Mk2 program. Presentations were made as the seminar developed, introducing additional topics and addressing aspects of the theory of IWRAP Mk2 in greater depth and there was an opportunity to compare the recently released commercial version of IWRAP Mk2 with the version generally available to IALA members. Subsequently, delegates developed their own models with a reasonable degree of correlation between their individual results.

Delegates were also given the opportunity to explore a more detailed and complete pre-processed model of either the Malacca Strait or the Dover Strait, both using automatic input of AIS data via the commercial version of IWRAP Mk2. The use of the software by the delegates identified a number of potential improvements.

Two sessions were devoted to simulation, which included case studies, current practice and the potential for future development.

In the final discussion, the complementarity of the three components in the toolbox (PAWSA, IWRAP Mk2 & simulation) was reviewed and a way in which each could play its part in a combined approach to risk management of a waterway was reviewed.

The seminar provided an excellent opportunity for delegates to get to know and discuss the theory and practice of the IALA Risk Management toolbox, drawing on the expertise of the instructors and the other delegates, whilst developing their own skills.

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1 INTRODUCTION

The IALA Training Seminar on Risk Management, featuring the Ports and Waterways Safety Assessment (PAWSA), IALA Waterways Risk Management Program (IWRAP) Mk2 and simulation, was held from 15-19 November 2010 at IALA. It was attended by thirty four delegates from sixteen countries.

The objective of the seminar was to introduce the delegates to the IALA Risk Management Toolbox and instruct them in its use, as well as to familiarise them with the strengths and weaknesses of the constituent parts. Considerable emphasis was placed on case studies.

Day One – Opening of the Workshop and Introduction

2 SESSION 1 OPENING OF THE SEMINAR

The opening was chaired by Jean-Charles Leclair, IALA.

2.1 Welcome by IALA

Jean-Charles Leclair, IALA's IMO Representative and Dean of the IALA World-Wide Academy, welcomed everyone to the seminar, especially those visiting IALA for the first time. He apologised for the absence of the Secretary-General, who was absent on IALA business, before advising about IALA's move of premises in early 2011. He said that the legal aspects of selling the current premises and buying the new premises were now complete and that the work on conversion of the new premises to meet IALA's requirements was already underway.

It was explained that IALA had previously organised seminars on either PAWSA or IWRAP Mk2 and that this time the aim was to cover the three constituent parts of the Risk Management Toolbox, as described in IALA Recommendation O-134 on the IALA Risk Management Tool for Ports and Restricted Waterways.

With regard to PAWSA, it was made clear that the seminar was not aimed at producing a trained facilitator, the key person when organising a PAWSA workshop, but to learn how to organise one. For IWRAP Mk2 the new factor would be a chance to see the benefits of the recently released commercial version of the program and be able to compare it with the publicly available version. Simulation would also be covered, to complete the coverage of the tools available to assess the risk of collision and groundings, as recognised by SOLAS Chapter V (Regulation 13 on Aids to Navigation).

Jean-Charles Leclair then highlighted the fact that this seminar was the first hosted within the IALA World-Wide Academy, which was officially launched during the IALA Conference in March 2010, and has the aim of grouping together all IALA's training activities. Thus, at the end of the week the delegates were advised that they would receive a Level 1 certificate, in accordance with IALA Recommendation E-141 on Standards for Training and Certification of AtoN Personnel.

He then wished everyone a successful seminar, under the leadership of Omar Frits Eriksson and the assistance of a strong team of presenters.

2.2 Health and Safety and Administration Brief

Mike Hadley, IALA Technical Co-ordination Manager, provided information on health and safety matters and made various administrative announcements. He advised that a USB memory stick, containing all the seminar material, including presentations, would be provided to delegates on Friday 19 November. The information would also be posted on the IALA Workshop ftp server.

2.3 Introductions

The Chairman asked that delegates to introduce themselves.

3 SESSION 2 - PRESENTATIONS

This session was chaired by Jean-Charles Leclair, IALA.

3.1 Introduction to the IALA Risk Management Toolbox

This session was introduced by Ómar Frits Eriksson, DaMSA.

Ómar Frits Eriksson began with a brief overview of IALA and its activities. He then provided a short introduction to the constituent parts of the IALA Risk Management Toolbox and the reasons why IALA is involved in risk management. He then briefly introduced IWRAP Mk2, which is a quantitative approach to risk management, the Ports and Waterways Safety Assessment (PAWSA), which is a qualitative approach, and then said that the two tools complement one another and can also benefit from the use of simulation. He then went on to speculate where simulation may develop and concluded with the current organisation of the Risk Management Steering Group.

4 SESSIONS 3 - 7 – PAWSA

These sessions were chaired by Burt Lahn, USCG. Presentations and topic introductions were supported by Bob Hennessy (ATSC).

4.1 General overview

Burt Lahn and Bob Hennessy jointly spoke to a presentation that gave an introduction to the PAWSA process and the topics to be covered in the succeeding PAWSA sessions.

In response to a question about repeat workshops, it was stated that a round of repeat workshops was just beginning but it was advised that trying to compare the outcome of the workshops for the same port was problematic, due to the time separation (typically 10 years) and the large number of variables, including the stakeholders involved.

4.2 Seminar goals and objectives

The goals for conducting a PAWSA workshop were covered during the general overview.

4.3 Pre-workshop logistical planning

The importance of the preparations for the workshop and the time required for adequate preparation were presented.

4.4 Roles and responsibilities of the seminar sponsor, lead facilitator and support staff

The roles and interplay between those who organise a PAWSA workshop were covered. This included the role of the PAWSA program manager and the sponsor for the workshop, who is the local (USCG) Captain of the Port. Others involved and described in some depth were:

- 1 Lead facilitator;
- 2 Workshop / Venue Co-ordinator;
- 3 Port Data Display Specialist;
- 4 Workshop Note Taker;
- 5 Workshop Data Co-ordinator / Venue Co-ordinator;
- 6 ECS Display Specialist / Note taker.

The presentation was based on the PAWSA workshop being a turnkey event but it was explained that the ability for locally organised workshops is provided for in the PAWSA Implementation Guide.

When asked if a PAWSA had ever resulted in increased insurance premiums it was said that no such situation was known. However, it was emphasised that the PAWSA report deliberately sanitises commercially sensitive information, to ensure full stakeholder participation, and that this might explain why.

It was made clear that getting the right balance between the stakeholders is essential, to avoid bias, but with that caution in mind the useful input provided by pilots was noted.

4.5 Identifying data sources and compiling port statistical information for presentation during the facilitation process

The importance of the data gathering process was emphasised and the capability now being provided by the use of an electronic charting system was introduced. How the data is presented during a PAWSA workshop was then covered.

The ability to drill down into the data gathered for a PAWSA workshop and the educational role that this enables emerged from a question. A further query about the use of ship speed, led to discussion about how PAWSA might develop, which highlighted the potential for the inclusion of AIS data.

4.6 Facilitation techniques specific to each PAWSA risk factor

This was a session illustrated by the experience gained during PAWSA workshops. In questioning, it was said that although difficult to put together, the 15 teams required for a PAWSA workshop comprise like-minded people and so conflicts, leading to avoidance of 50% voting on issues. The intricacies of the scoring system and the need for the lead facilitator to master it was brought out. This led to discussion on mitigating factors.

The flexibility of applying PAWSA to rivers, ports waterways, depends on the availability of suitable stakeholders.

In response to a query about the status of a PAWSA, it was confirmed that the recommendations it contains are not mandatory; it being a non-regulatory process. However, the reports do feed into harbour safety committees and this can lead to changes, as evidenced by previous experience. It was asserted that PAWSA recommendations are significant, as once made they can be quoted in the event of an incident. They also offer the potential for negotiations with insurers, providing that identified risks have been mitigated.

END OF DAY

Day Two – PAWSA & IWRAP MK2

4.7 Methods of communicating port statistical information via ECS systems

An overview of the equipment capability required, the basic functions available from the use of an ECS in PAWSA, what data is used and how it is then used to capture comments of workshop participants, was followed by a practical example.

4.8 Preparation and content of the assessment seminar report

The process of compiling and analysing the information required for a PAWSA report was covered in some detail, as was the preparation of the report. The establishment of baseline risk levels and the participant / team expertise cross-assessment were mentioned, as well as the effectiveness of existing risk mitigating factors. Additional interventions were identified, followed by a breakdown of finalised risk factors and the actions to mitigate them.

The composition of the various appendices to the report were covered, ending with the participant recommendations arising from the workshop. The topic ended with a review of the process for reviewing and then presenting the report, together with its dissemination.

There then followed an overall question and answer session, after which Omar Frits Eriksson provided a brief overview of space based AIS.

5 SESSIONS 8 - 16 – IWRAP MK2

These sessions were chaired by Ómar Frits Eriksson, DaMSA. Support was provided by Erik Sonne Ravn, DaMSA, and from 17 November by Per Christian Engberg, Gatehouse.

5.1 Introduction to IWRAP Mk2

The introduction began with the background to the development of the IALA Waterway Risk Assessment Program (IWRAP), which could be traced back to at least 1974, with significant steps forward being made in the mid to late 1990s, leading to the introduction of IWRAP Mk1 in 2006. The design rules and probabilistic approach taken were described. Brief mention was made of the selection of AtoN, the derivation of the effects of wind and current, the basis for the assessment of minimum safe channel width and the desirability of the channel width ratio being greater than 1.0. The development of probabilistic models was then described. It was explained that at a verification workshop in Copenhagen the Steering Group realized that the results obtained with IWRAP Mk1 were too pessimistic. The Steering Group then decided to start from scratch with the probabilistic modelling part. This had resulted in IWRAP Mk2 which has now been evaluated by the Steering Group, and found to be working well. Ómar Frits Eriksson stressed that IWRAP Mk2 only addresses the probabilistic part of the “Risk = Probability x Consequences” equation, and that proper training of analysts is essential for the successful application of IWRAP Mk2.

It was stated that the basic version of IWRAP Mk2 is freely available to IALA members

5.2 Programme Installation & Licensing scheme

Ómar Frits Eriksson ran through the installation process, the creation of a new project and then the definition of the model to be used. This included the creation of legs, the input of the traffic distribution, the entry of ship data and causation factors. Delegates were able to undertake these tasks, simultaneously, on their own laptops, using programs downloaded from the ftp server.

With regard to licensing, Ómar Frits Eriksson said that the basic version is freely available to IALA members on a one year license, renewable with continuing membership of IALA.

5.3 Demonstrate the IWRAP Mk2 Software (basic)

The basic version of IWRAP Mk2 was demonstrated.

5.4 Running your first IWRAP Test Case

All delegates were then guided through an initial, low complexity test case.

5.5 The theoretical foundation behind IWRAP Mk2 (Part 1)

The session was run as a joint theory explanation and practical exercise. Erik Sonne Ravn began with an introduction to the background to the current development, the test cases to be used and the IWRAP Wiki site (www.ialathree.org/iwrap). The site was further explained by Ómar Frits Eriksson, who asked the delegates to feel free with suggestions to contribute, saying that this would require them to be registered as contributors. However, anyone can open a discussion page. Erik Sonne Ravn then continued to describe the theoretical background to IWRAP Mk2 and the process to be followed for the current session, beginning with test case A.

END OF DAY

Day Three – Theory, Test cases and Case Studies

5.6 IWRAP Test Cases A, B & C (Collisions)

Erik Sonne Ravn ran through test case A, the simplest case.

The seminar then moved on to test case B, which was introduced jointly with Ómar Frits Eriksson. This brought out the need for proper analysis of what the traffic is actually doing and the need for appropriate choices of nodes between legs in the model.

Erik Sonne Ravn then ran through a practical example of test case B, including the use of the share and copy function. The point was made that where default values are changed this should be recorded to avoid inadvertent use in the future and misinterpretation by other users.

The theory flowed naturally into a practical demonstration of test case C, following which it was said that application of the theory, so far, should enable the modelling of any scenario for collision risk assessment.

5.7 The theoretical foundation behind IWRAP Mk2 (Part 2)

This session also comprised joint theory explanation and practical exercise. It began with an introduction to the theory of the powered and drifting grounding components of IWRAP Mk2 and outlined the associated test cases.

5.8 IWRAP Test Cases D & E (Groundings)

Erik Sonne Ravn then ran through test case D. This led to discussion of Causation Factors and the values assigned to them and the need to keep track of changes made to default values. Just how drifting grounding is modelled provoked considerable discussion and Ómar Frits Eriksson drew attention to the chapter on this topic on the IWRAP Wiki site. He also admitted that the model does not yet handle drifting in confined waters and strong currents sufficiently well and that this is an area identified for further development. There was also a reminder that the model is not a ship simulator.

Erik Sonne Ravn then ran through test case E.

5.9 Introduction of the differences between the free and commercial versions of IWRAP Mk2

The differences between the free and commercial versions, the main one of which is the automated importation of AIS data, were explained and temporary commercial licenses provided to the delegates. The full details are contained in the IWRAP Mk2 help file, under 'extended version'.

5.10 Overview of an IWRAP Analysis (using the Commercial version)

The session was chaired by Ómar Frits Eriksson (DaMSA) and moderated jointly with Erik Sonne Ravn (DaMSA) and Per Christian Engberg (Gatehouse).

The session covered the following topics:

- Defining area to be analysed
- Gather information (charts, traffic volume, casualty data)
- Using Sea Chart Overlays
- Polygon Generation
- Defining route legs
- Allocating traffic to route legs
- Performing baseline analysis
- Performing What-If analysis

Erik Sonne Ravn illustrated the process for introducing and overlaying charts into the IWRAP Mk2 model. It was explained that the basic model does not cater for electronic charts as there are licence issues involved. However, it is expected that electronic charts will be able to be incorporated in a commercial version of the model, although there are significant challenges to be overcome first.

Ómar Frits Eriksson concluded by saying that “IWRAP Mk2 is a flexible tool but please use it wisely”.

With regard to the next exercise, it was explained that a density map, sea chart and information about traffic would be provided.

For those who like programming, Erik Sonne Ravn then showed how changes can be made by modifying an .xml file, rather than using the graphical user interface. It was then observed that this would be one way of incorporating AIS information into the model.

5.11 Delegate presentations (Part 1)

5.11.1 SAMSON

Anke Cotteleer, Marin, provided information about the work on risk analysis in the Netherlands. This was based on the development of the Safety Assessment Model for Shipping and Offshore on the North Sea (SANSOM). The model was presented in diagrammatic form and the associated risk indices and resulting casualty models explained; the system uses AIS data and information from the Lloyd’s casualty database. The presentation showed the relationships between types of casualty and ship characteristics were illustrated. The transition for SAMSON to risk indices was explained and it was noted that this work had been used in the EU sponsored project MarNIS. The incorporation of preventive and remedial measures was covered, as were the consequences for loss of life, pollution and structural damage.

The presentation concluded with some thoughts on further development of the model.

There was considerable interest in the numerical values assigned to the Risk Indices and the reaction of stakeholders to the constituent inputs that are used to create them.

5.11.2 Modelling nautical safety in the Netherlands

Ernst Bolt, the Netherlands Ministry of Transport, explained the responsibility of the Ministry of Transport for various waterways and the safe and efficient movement of ships along them. To assist waterway design, waterways have been modelled to allow evaluation of remedial measures. Similar tools have been used to model waterway utilisation and it was explained that SAMSON has been used. Other tools were mentioned but some gaps in quantifying the safety level have been identified and are being worked on. These include improving SAMSON, evaluating potentially risky elementary traffic situations, analysis of AIS data to study vessel behaviour and the drawing up of a handbook for ship traffic studies. This requires the drawing up of a research plan and data gathering.

END OF DAY

Day Four – IWRAP Mk2 (continued) & Simulation

The Chairman began the day by introducing the IALA IWRAP Wiki site (www.ialathree.org/iwrap). Ómar Frits Eriksson explained its contents and urged delegates to use it, including any user comments on the recently released commercial version. He then briefly mentioned the IALA Dictionary and other IALA Associated Wiki sites.

Ómar Frits Eriksson then gave a short presentation on Causation Factors and the use of Bayesian Networks. He explained that the work is very much in the developmental stage but that the expectation is that when finalised the process would be automated for each IWRAP leg.

Erik Sonne Ravn then gave a summary of the work on the Hatterbarn data undertaken the previous day and then briefed the next task. It was explained that there are two sets of AIS data available and that delegates could choose whether they wished to model the Malacca or Dover Strait.

5.12 Malacca Strait / Dover Strait Exercise

The exercise was an opportunity for the delegates to establish a route, based on charted data and extend their knowledge of the use of the various components of the IWRAP Mk2 tool. It naturally generated much discussion and need for advice from the experts.

Ómar Frits Eriksson introduced the exercise, files involved.

Erik Sonne Ravn talked the delegates through how to get started

The sequence of events followed during the exercise was to:

- Import charted data;
- Define coastline with polygons with depth = 0;
- Define route legs;
- Define lateral distributions on legs;
- Enter traffic volume into legs;
- Define relevant grounding [polygons];
- Run model;
- Assess results – modify model etc.

The development of the model for the Malacca / Dover Strait continued for the remainder of the session, with several issues being raised with the session supervising team.

The session ended with a survey of results from the delegate's construction and running the models they had developed.

6 SESSION 16 – PRESENTATIONS FROM PARTICIPANTS

6.1 Delegate presentations (Part 2)

6.1.1 Dymitri

Jennifer Yue, BMT, began with a brief overview of the company's activities, before introducing the BMT risk assessment tool Dymitri, which was created following a request from the Hong Kong Marine department in 2003. It was explained that the model focuses on collisions; it does not provide for groundings. The approach taken in developing the software was covered, starting with the key inputs. The tables used for calculation were explained and the display mode stated before the use of fuzzy logic in the simulation model was introduced.

Identifying a possible omission from IWRAP Mk2, Dymitri uses meteorological modelling and weather forecasting.

6.1.2 Aalto University research activities

Kaarle Stahlberg, Traffic Safety Research department of Aalto University, gave an outline of current work on causation factors, which should result in a paper before the end of 2010. The complicated nature of the work was demonstrated as was the sectional approach being taken to try and keep the work within bounds. When presenting some preliminary results, it was explained that the fact that the Gulf of Finland is covered by VTS has a detectable impact.

Other work involves minimum distance to collision, which has determined a point of no return, traffic simulation, a paper on which is about to be published. This work takes a time domain approach, which is well suited for the heavy passenger vessel traffic encountered in the Gulf of Finland.

Current work on deformation energy in ship-ship collisions was introduced, where the importance of the collision angle was emphasised in a brief overview of the results of earlier work. This led to comparison of impact scenarios for oil spill probability. It was explained that manoeuvring and traffic scheme design can use the evasive manoeuvring model and the issues involved in this were also covered.

6.1.3 Thames approaches – windfarms

Roger Barker, Trinity House, focussed on the increasing use of offshore sites for renewable energy installations and the part that AIS can play in assessing impact. However, it was pointed out that the variable nature of AIS coverage needed to be recognised, including the possible need to create a cut-off in areas where the data becomes sparse. Nonetheless, the clear indication of existing routes, from AIS data, shows the issues arising from proposed new sites and IWRAP Mk2 can be used to quantify the increased risk and to investigate proposed remedial measures. It was accepted that using IWRAP Mk2 for modelling revised routes would involve making assumptions.

The presentation then expanded to show how AIS data is being used for Aids to Navigation (AtoN) planning.

7 SESSION 17 INTRODUCTION TO SIMULATION TECHNIQUES

The session was chaired by Ómar Frits Eriksson.

7.1 Introduction to various simulation tools and to IALA Guideline 1058

Peter Sørensen, Force Technology, began with a brief overview of Force Technology before introducing IALA Guideline 1058 on the use of simulation as a tool for waterway design and AtoN planning, which it was emphasised is at a reasonably high level. A broad definition of simulation was given, from which it was concluded that IWRAP Mk2 can be considered to be a simulation tool.

The various types of simulation and their uses were described, together with their advantages and disadvantages, as was the need to ensure that those participating in simulation need to be suitably briefed. The importance of visualisation and the key role of projector technology were highlighted.

7.2 Norwegian Case. Use of simulation for planning a fairway

Edgar Ådnes, Kystverket, used a presentation to describe a case study of a channel design project, using simulation and involving provision for high speed craft, at Måløysundet. He set the scene and then outlined the process used to gather the required data, leading to an evaluation report. The observations arising from the simulation were shown, followed by the conclusions.

7.3 Discussion.

A panel was formed by Roger Barker, Peter Sørensen and Edgar Ådnes.

Ómar Frits Eriksson began by asking who was using simulation and the majority of delegates indicated that they were. There was a question about recreational vessels and the simulation of synchronised lights, which were likely to be at the side of the channel. It was said that this did not necessarily apply only to recreational vessels and the discussion then expanded to cover additional issues associated with synchronised lights.

END OF DAY

Day Five – Simulation (continued), Discussion & Closing

8 SESSION18 SIMULATION TECHNIQUES (CONTINUED)

This session was chaired by Ómar Frits Eriksson, with support from Peter Sørensen.

Before the session began Per Christian Engberg made some remarks about his observations of delegates' use of IWRAP Mk2, especially issues that would make the software more user friendly or required modification of the program. He said that he would send an e-mail giving further detail and invited delegates to make additional comments in response. In discussion, further potential changes were proposed. A new release of the software will be available in the week commencing 22 November; there should be no additional licensing issues.

It was stated that Microsoft have been asked to check the software, with a view to providing a statement of Microsoft compatibility. However, it is not currently practicable to try and achieve compatibility for Mac users.

8.1 Danish case. Use of simulation for the redesign of a fairway

Ómar Frits Eriksson began with setting the geographic scene and providing information on local conditions. It was explained that the project was set in the context of effectively extending the width of the waterway actually in use, bearing in mind a significant isolated lighthouse. This was thought possible due to analysis of the traffic and assessment of its draught, using AIS information. During initial development AtoN were used but had to be withdrawn, as some vessels were clearly unable to see them. This sparked a debate about the ability of vessels to see AIS as well as virtual AtoN via message 21.

Simulation was commissioned, in accordance with IALA Guideline 1058, using two full mission simulators. The simulation predicted a successful outcome to the plan and work is now in hand to implement the changes but a decision is awaited about the removal of the lighthouse, which hinders the approach to the southern end of the main channel.

In this instance, qualitative simulation was used to support a proposed development plan.

8.2 Use of simulators for AtoN design and planning in the future

Peter Sørensen, drawing on the previous presentation, asked "when commissioning simulation, can the simulator provide the required visualisation". From which it emerged that a further, more detailed Guideline may be required, so that commissioners of simulation for AtoN design can understand what a simulator may be able to do for them. The work involved will require consideration of projection technology, taking into account conspicuity and other features that were itemised. This initiated several practical comments about conditions that a simulator now needs to be able to represent and practical functionality that it will need to provide. However, there needs to be a recognition of what is technically feasible.

It was reported that work on the new Guideline is getting underway and that delegates could be expected to receive a questionnaire associated with its development.

8.3 Discussion

This topic was subsumed into the following session.

9 SESSION 19 IALA RISK TOOLBOX 'IN THE ROUND' AND CLOSING OF THE SEMINAR

This session was chaired by Jean-Charles Leclair.

9.1 The components of the IALA Risk Management toolbox and how they interact:

Ómar Frits Eriksson set the scene, using a presentation prepared jointly with Burt Lahn.

A comparison was made between PAWSA and IWRAP Mk2.

9.1.1 IWRAP Mk2 (Ómar Frits Eriksson)

It was accepted that IWRAP Mk2 can be considered as a simulation tool and that the current IALA Recommendation O-134 now needs to be updated. IWRAP Mk2 is still being developed but delegates would have seen that it is producing reasonable results.

It was suggested that use of IWRAP before a PAWSA would make its data available to the PAWSA workshop and would, therefore, inform the stakeholders. It was also indicated that the USCG may find additional applications (i.e. Port Access Routes studies) for the software.

9.1.2 PAWSA (Burt Lahn)

Despite the obvious differences in timespan and resources required there are similarities between PAWSA and IWRAP Mk2 and the two processes do complement one another. Again it was asked, 'do you do an IWRAP analysis before or after a PAWSA workshop?' As a result of the subsequent discussion, an additional slide was created for the presentation and the answer to the question is 'possibly both'. The revised presentation is on the IALA ftp workshop server.

9.1.3 Simulation (Peter Sørensen)

Simulation can be used both before and after a PAWSA workshop and IWRAP assessment, as a feasibility and then validity mechanism. This found favour with the seminar. It was reported that MARIN is already combining simulations with risk analysis. This gave rise to a discussion about whether the simulation and risk assessment are conducted separately or together and the advantages and disadvantages of each approach.

There was an unresolved query about the relative costs of running a simulation and organising a PAWSA workshop, although some of the factors affecting the cost of simulation were raised and it was pointed out that a PAWSA workshop is scalable and that a preceding IWRAP analysis would be considered as an internal and not a workshop cost.

9.1.4 Conclusion

It was agreed that work needed to proceed with the update of the IALA Recommendation O-134 and that the ideas emanating from the seminar should be considered by the IALA Risk Management Steering Group.

9.2 Seminar debrief

Ómar Frits Eriksson said that it was not his intention to run through the draft report; the current version of which was on a USB stick prepared for each of the delegates. He showed the content of the USB stick, briefly. It was intended that the draft report would be e-mailed to all delegates and also be posted on the IALA Workshop FTP server by 23 November and would be available for comment for seven days; until 30 November. The finalised report would be forwarded to the Council meeting to be held on 6 December 2010, for noting.

9.3 Closing of the seminar

At the session end a USB memory stick, containing electronic copies of all input programs, photographs and presentations, was provided to each delegate. Mike Hadley said that all the material was also posted on the ftp workshop site and would remain there until the end of the year.

Each delegate then received an Aids to Navigation, Level 1 certificate from the World-Wide Academy, indicating successful participation in the seminar.

9.3.1 Remarks by IALA

Jean-Charles Leclair said that the idea of combining PAWSA, IWRAP and simulation was a good one and would enable national authorities to better meet their obligations under SOLAS. As the majority of delegates were technical specialists he said that it is important that the word about the seminar is spread to colleagues, some of whom will have regulatory responsibilities.

The input from IALA members to the development of the Risk Management Toolbox was acknowledged but the need to consider the funding for future development needs to be borne in mind. This is best done by using the toolbox.

He mentioned the first use of WWA certificates and then gave thanks to all the presenters, with special thanks for the input from Ómar Frits Eriksson.

He then made a small presentation to each of the presenters.

9.3.2 Closure

Jean-Charles Leclair concluded proceedings by thanking everyone for their participation and hard work, saying that he hoped that they had all benefited from the week. He then wished everyone a safe journey home and expressed his hopes that he would soon see the results of their endeavours in the increased use of the IALA Risk Management toolbox. Then the seminar was declared closed.

ANNEX A LIST OF PROGRAMS DOCUMENTS & PRESENTATIONS PROVIDED TO DELEGATES

PAWSA

- 1 PAWSA Workshop Guide

IWRAP Program

- 1 iwrap_mk2_setup_v3_1_0.exe
- 2 iwrapmk2.pdf
- 3 Dover Strait (provided during seminar)
- 4 Hatter DK (provided during seminar)
- 5 Malacca (provided during seminar)

Test Cases

- 1 Test Case A.xml
- 2 Test Case B.xml
- 3 Test Case C.xml
- 4 Test Case D.xml
- 5 Test Case E.xml

Presentations

- 1 IALA Introduction.pptx
- 2 IALA Risk Management Toolbox Introduction.ppt
- 3 USCG-PAWSA General overview.ppt
- 4 Logistical planning.ppt
- 5 Goals & objectives.ppt
- 6 Roles & responsibilities.ppt
- 7 Data sources
- 8 Facilitation techniques
- 9 Use of ECS.ppt
- 10 PAWSA Workshop report.ppt
- 11 IWRAP theoretical background.ppt
- 12 IWRAP creating a model.ppt
- 13 Omar on Hatter Barn Case Study.pptx
- 14 SAMSON MarNIS_Risk index.pptx
- 15 Modelling nautical safety.ppt
- 16 Omar on Bayesian Networks.pptx
- 17 Dymitri.ppt
- 18 Aalto University research activities
- 19 Renewables around UK

- 20 Present status and guideline presentation.ppt
- 21 Norwegian use case - Måløysundet.ppt
- 22 Future guideline presentation.pptx
- 23 Danish use case - Redesign of Drogden Channel
- 24 PAWSA-IWAP-Simulation - Discussion

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ANNEX C PROGRAMME

**IALA TRAINING SEMINAR ON RISK MANAGEMENT:
PAWSA, IWRAP MK2 & SIMULATION**



15 - 19 November 2010

IALA
20ter rue Schnapper
78100 St Germain en Laye
France

DAY 1 - MONDAY 15 NOVEMBER 2010

<i>Time</i>	<i>Activity</i>	
0900 - 1000	Registration / Welcome tea or coffee	
1000 - 1015	Session 1 - Opening of the Seminar	Chair: Jean-Charles Leclair
	Welcome from IALA Administration (Health & Safety Brief)	Jean-Charles Leclair – IMO Representative IALA Mike Hadley - Technical Co-ordination Manager IALA
1015-1100	Session 2 - Presentations	Chair: Jean-Charles Leclair
	Introduction to the IALA Risk Management Toolbox	Ómar Frits Eriksson (DaMSA) Burt Lahn (USCG)
1100 - 1130	Break	
1130 - 1300	Session 3 – PAWSA	Chair: Burt Lahn
	General overview Pre-PAWSA logistical planning PAWSA goals and objectives	Burt Lahn Burt Lahn & Bob Hennessey (ATSC) Bob Hennessey (ATSC)
1300 - 1400	Lunch	
1400 - 1530	Session 4 – PAWSA (continued)	Chair: Burt Lahn
	Roles and responsibilities of the seminar sponsor, lead facilitator and support staff	Burt Lahn / Bob Hennessey (ATSC)
	Identifying data sources and compiling port statistical information for presentation during the facilitation process	Burt Lahn / Bob Hennessey (ATSC)
1530 - 1600	Break	
1600 - 1730	Session 5 – PAWSA (continued)	Chair: Burt Lahn
	Facilitation techniques specific to each PAWSA risk factor	Bob Hennessey

1800 – 1900 Welcome reception at IALA (Drinks and Finger Buffet will be served) Free evening

DAY 2 - TUESDAY 16 NOVEMBER 2010

<i>Time</i>	<i>Activity</i>	
0900 - 1030	Session 6 – PAWSA (continued)	Chair: Burt Lahn
	Administrative Details (as required)	Mike Hadley
	Methods of communicating port statistical information via ECS systems	Burt Lahn & Bob Hennessey
1030 - 1100	Break	
1100 - 1230	Session 7 – PAWSA (continued)	
	Preparation and content of the assessment seminar report	Chair: Burt Lahn
1230 - 1400	Lunch	
1400 - 1530	Session 8 – IWRAP Mk2	Chair: Ómar Frits Eriksson
	Introduction to IWRAP Mk2 Programme Installation & Licensing Scheme	Ómar Frits Eriksson
1530 - 1600	Break	
1600 - 1730	Session 9 – IWRAP Mk2 (continued)	Chair: Ómar Frits Eriksson
	Demonstrate the IWRAP Mk2 Software (basic) Running your first IWRAP Test Case	Ómar Frits Eriksson

Free evening

DAY 3 - WEDNESDAY 17 NOVEMBER 2010

<i>Time</i>	<i>Activity</i>	
0900 - 1030	Session 10 – Running IWRAP Mk2	Chair: Ómar Frits Eriksson
	Administrative Details (as required)	Mike Hadley
	The theoretical foundation behind IWRAP Mk2 (Part 1) IWRAP Test Cases A – B – C (Collisions)	Ómar Frits Eriksson & Erik Sonne Ravn (DaMSA)
1030 - 1100	Break	
1100 - 1230	Session 11 – Running IWRAP Mk2 (Continued)	Chair: Ómar Frits Eriksson
	The theoretical foundation behind IWRAP Mk2 (Part 2) IWRAP Test Cases D-E (Groundings)	Ómar Frits Eriksson & Erik Sonne Ravn (DaMSA)
1230 - 1400	Lunch	
1400 - 1530	Session 12 – Overview of an IWRAP Analysis (using commercial version)	Chair: Ómar Frits Eriksson
	Introduction of the differences between the free and commercial versions of IWRAP Mk2. Overview of an IWRAP Analysis using Hatter Barn Case: <ul style="list-style-type: none"> - Defining area to be analysed - Gather information (charts, traffic volume, casualty data) - Using Sea Chart Overlays - Polygon Generation - Defining route legs - Allocating traffic to route legs - Performing baseline analysis - Performing What-If analysis 	Ómar Frits Eriksson & Erik Sonne Ravn (DaMSA)
1530 - 1600	Break	
1600 - 1730	Session 13 – Overview of an IWRAP Analysis (using commercial version) (Continued)	Chair: Ómar Frits Eriksson
	SAMSON Nautical Traffic Model (NVM)	Anke Cotteleer (MARIN) Ernest Bolt (NL, Ministry of Transport)

Seminar Dinner – Chateau du Val

Transport provided from / to hotels – initial pickup (Hotel du Coq) 1900

Dress Code: Smart Casual

DAY 4 - THURSDAY 18 NOVEMBER 2010

<i>Time</i>	<i>Activity</i>	
0900 -1025	Session 14 – More Complex Cases (using commercial version)	Chair: Ómar Frits Eriksson
	Administrative Details (as required) MALACCA and / or Dover Strait Exercises	Mike Hadley Ómar Frits Eriksson & Erik Sonne Ravn
1025 – 1100	Break & Seminar Group Photograph	
1100 – 1230	Session 15 – More Complex Cases (continued)	Ómar Frits Eriksson
	MALACCA and / or Dover Strait Exercises	Ómar Frits Eriksson & Erik Sonne Ravn
1300 – 1400	Lunch	
1400 – 1530	Session 16 – Presentations from participants	Ómar Frits Eriksson
	Dymitri Aalto University research activities Thames approaches – windfarms	Jennifer Yue (BMT) Kaarle Stahlberg (Aalto University) Roger Barker (THLS)
1530 – 1600	Break	
1600 – 1630	Session 17 – Introduction to simulation techniques	Ómar Frits Eriksson
1600 – 1630	Introduction to various simulation tools and to IALAs Guideline 1058 on the use of simulators for design of waterways and planning of AtoN	Peter Sørensen (Force Technology)
1630 – 1700	Norwegian Case. Use of simulation for planning a fairway	Edgar Ádnanes, Kystverket
1700 – 1730	Discussion	Roger Barker, Peter Sorensen, Edgar Ádnanes

Free evening

DAY 5 - FRIDAY 19 NOVEMBER 2010

<i>Time</i>	<i>Activity</i>	
0900 – 1030	Session 18 – Simulation techniques (continued)	Chair: Ómar Frits Eriksson
0900 - 0930	Administrative Details (as required) Danish case. Use of simulation for the redesign of a fairway	Mike Hadley Omar Frits Eriksson
0930 - 1000	Use of simulators for Aton design and planning in the future	Peter Sørensen
1000 – 1030	Discussion and participants input to features important and relevant to include in future development of simulation tools used for AtoN planning and design	Roger Barker, Peter Sørensen, Edgar Ådnes
1030 – 1100	Break	
1100 – 1230	Session 19 – IALA Risk toolbox ‘in the round’ & Closing of the Seminar	Chair: Jean-Charles Leclair
	The components of the IALA Risk Management toolbox and how they interact: <ul style="list-style-type: none"> IWRAP Mk2 PAWSA Simulation Seminar Debrief Closing of the seminar	Ómar Frits Eriksson & Erik Sonne Ravn Burt Lahn Roger Barker Ómar Frits Eriksson & Burt Lahn Jean-Charles Leclair
1230 – 1400	Lunch	

ANNEX D SOCIAL EVENTS

- 1 On Tuesday, 16 November 2010, an evening reception was held at IALA.
- 2 On Wednesday, 17 November 2010, a dinner was held at Chateau du Val, St Germain en Laye.