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Technical Domain / Task Number 2 Risk management Task 1.2.1

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Use of the Simplified IALA Risk Assessment tool (G1138)

# Summary

The 65th session of the IALA Council approved the Simplified IALA Risk Assessment (SIRA) tool (IALA Guideline G1138) in December 2017. Primarily designed for use by developing countries, SIRA provides a structured process for conducting a qualitative risk assessment for relatively small areas or regions, prompting the user with opportunities to implement risk control options. The Australian Maritime Safety Authorities (AMSA) experience in using this tool, and sharing results with other competent AtoN authorities (within Australia) has proven that it is an effective means of analysing and assessing a situation, considering appropriate risk controls, and recording the justifications for decisions. The importance of documenting the process and steps that the competent AtoN authority took to justify a change or alteration to risk controls cannot be underestimated.

For scenarios where an in-depth analysis using IWRAP or PAWSA may not be necessary or appropriate, the simple process established in G1138 offers many benefits. Through experience gained with the use of the tool, Australia proposes improvements to the SIRA guideline.

## Purpose of the document

The purpose of this paper is to provide a simple example of the SIRA process in use, and to offer some improvements to the guideline, based on experience gained from its use.

# Background

Regulation 13 of Chapter V of the 1974 SOLAS Convention (as amended) states that “each Contracting Government undertakes to provide, as it deems practical and necessary either individually or in co‐operation with other Contracting Governments, such aids to navigation as the volume of traffic justifies and the degree of risk requires.”

In fulfilling the above responsibilities, it is necessary to assess the risks specific to a particular situation, and ensure the results and any decisions are recorded. It is widely acknowledged that the PAWSA and IWRAP tools provide a comprehensive means of assessing the risks associated with a specific area, waterway, or complex situation. However, in situations where comprehensive assessment may not be necessary, SIRA provides a means of conducting a risk assessment and ensuring the results are appropriately considered and recorded for future reference. The use of internationally-accepted risk assessments tools (e.g. SIRA, PAWSA and IWRAP) means that the same tools can be used for risk assessment globally, promoting the sharing of results and opportunity to build capacity with regional partners.

Whilst intended for use by developing countries, SIRA has a place of use by all competent AtoN authorities in the everyday assessment of risks associated with safe navigation.

AMSA has used the SIRA process on a number of occasions for situations where a qualitative assessment was necessary, but PAWSA was deemed too resource intensive. Based on the risk assessment process from IALA Guideline G1138, AMSA’s approach has been to adapt the process to suit the specific challenges presented on each occasion.

# Discussion

The risk assessment process in G1138 is as follows:

1. Select the waterway to be analysed.
2. Define the assessment zones and describe each area.
3. Identify the hazards within each zone and develop scenarios.
4. Assess the probability and impact of each scenario.
5. Produce a comprehensive report of the risk assessment.
6. Communicate result to decision makers.

The above process has been the basis of risk assessments conducted by AMSA, however the general structure of a risk assessment has been amended to include the following:

1. An executive summary, covering the main points and recommendations of the assessment,
2. Area of interest – a description of the area of interest, hydrographic data, environmental and meteorological conditions.
3. Identification of Hazards – an analysis and identification of hazards to navigation.
4. Summary of existing risk controls – an assessment of the systems that support safe navigation. This assessment can include aids and services to navigation, routeing measures, vessel traffic services, shipborne systems, navigation resources and pilotage.
5. Assessment of the probability and impact for specific situations – AMSA uses the risk assessment matrix and risk value matrix in G1138 for recording of the risk assessment. Due to the organisations risk management policy, and in line with international risk assessment standards, AMSA uses the terminology ‘likelihood and consequence’.
6. Residual Risk – AMSA considers that it is important for decision makers to be provided with an assessment of what the risk would be once a risk control measure has been implemented. This is known as the ‘Residual Risk’. AMSA includes a residual risk assessment, based on the implementation of the proposed risk controls, in the risk assessment table. Residual risks of high or above are usually considered unacceptable and further steps are necessary to reduce the risk.
7. Conclusion – Based on the tabled assessment, a set of recommendations. An executive summary may also be of benefit.

The template used by AMSA is based on the information provided in IALA Guideline G1138, but includes amendments to suit the specific circumstances and improve the resultant assessment. The template is included at Annex 1.

# References

# IALA Guidelines G1138 – The use of the Simplified IALA Risk Assessment Method (SIRA).

# annexes

# Annex 1 – Simplified Risk Assessment Template used by Australia.

# Action requested of the Committee

The Committee is requested to:

1. Note the information provided, and
2. consider the merits of amending G1138 based on the information provided.
3. Annex – Simplified Risk Assessment Template used by Australia

# Risk Assessment – [name of the risk assessment]

# Executive Summary [1 page summary]

[high level summary of the main points and findings of the assessment]

## Recommendations

[list of recommendations from the risk assessment]

# Introduction

[an introduction to the reasons behind the assessment, including the potential safety concerns etc]

[reference to SIRA - The Simplified IALA Risk Assessment (SIRA) has been used as a guide for completing this assessment.]

## Area of Interest

[Description of the area of interest and insertion of a graphic/ image to illustrate the area.]

*[Insert image(s) as required]*

*Figure 1 - Area of Interest*

## Description of area and environmental conditions

[A summary of the area including information:

* Cat ZOC for area
* Nearby hazards, shoals, dangers
* Tide and current information
* Routeing measures
* Prevailing winds
* Visibility
* Radar propagation
* Magnetic anomaly
* Other traffic
* And any additional information that may be necessary]

# Established preventative measures

[Include a summary of existing preventative measures that may assist in preventing incidents]

## Existing aids to navigation (AtoN)

[Provide a summary of existing AtoNs, including a history for their establishment, images, and consideration of their effectiveness]

## Routeing systems and additional protective measures

[does the area of interest include routeing measures such as designated shipping areas, two way routes, additional protective measures, traffic separation schemes, etc]

## Navigation services

[does the area include vessel traffic services, Differential Global Navigation Satellite system, VHF data exchange services]

## Briefing and other Safety Messages

[Have any additional provisions been made to ensure that the Master and bridge team are aware of dangers such as AIS safety related messaging, post pilotage briefings and additional information resources such as passage planning guides]

## Expected Navigation Route and sequence of events

[it may be necessary to include a summary of the expected navigation route, including chartlets illustrating courses, dangers, wheel over points and hazards.

This section can also be used to illustrate what would normal be expected when following responsible navigation practices.]

## Identification of hazards to grounding

[a brief summary of the hazards to navigation within the area of interest]

## Systems Support

[Depending on the situation, it may be beneficial to provide a summary of the expected support from the systems onboard an average ship when approaching the area of interest. An example is as follows:

* For an ECDIS fitted ship, if the ship fails to make the 164°T course alteration, the following should occur, providing the ship’s fitted ECDIS is configured properly:
* ECDIS will alert the OOW that they are exiting the TWR (audible and visual alarm).
* After approximately another 3-5 NM, depending on their course, the ship will exit the DSA and ECDIS will ‘alert’ the OOW.
* An anti-grounding warning will activate (visual and audible) based on parameters set by the navigation officer.
* An anti-grounding alarm will activate (visual and audible) based on parameters set by the navigation officer.
* The ECDIS will alert and then alarm (audible and visual) that the ship is approaching and then navigating outside of the cross-track limits of the planned navigation track.
* ECDIS should also alarm when the ship is approaching the safety depth or contour as set in the system.]

# Assessment of traffic and datA

[insert an assessment of the traffic in the area. Examples of what the assessment may include are as follows:

* Type of AIS Data (Class A and B)
* Types of Vessels (SOLAS, Domestic, Tanker, Bulk, Container, Fishing, pleasure, passenger etc)
* Navigation data such as course, speed, length, tonnage, draught
* Any potential errors identified through data analysis
* Assessment of incident rates.]

# Conclusion and Recommendations

[Include any conclusions as a result of the risk assessment process and propose any recommendations.]

## Annex 1 - Risk assessment – [title of assessment]

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Risk Assessment for [insert name or area or assessment] | | | | | | | | Residual Assessment  Remaining risk once controls are implemented | | |
| Scenario | Description | Description of Consequence | Existing mitigations | Likelihood | Consequence | Overall Score | Additional mitigations | Likelihood | Consequence | Resultant Score |
| [Create scenarios for assessment.  This could be SOLAS vessels, or a specific type of vessel] | [describe the situation. For example  SOLAS vessel exits the two way route and grounds on XXXX shoal] | [Consider the consequence. Possible consequences may include:   * Collision * Grounding * Pollution * Loss of life * Environmental damage * Reputational damage * Financial implications * Etc.] | [include a summary of the existing mitigations as explained above | (1-5)  [Number based on ready reckoning guide at annex 5 of this template] | (1-5)  [Number based on ready reckoning guide at annex 5 of this template] | **(1-5)**  [Colour and number based on ready reckoning guide at annex 5 of this template] | [Include any possible risk controls] | (1-5)  [Number based on ready reckoning guide at annex 5 of this template] | (1-5)  [Number based on ready reckoning guide at annex 5 of this template] | **(1-5)**  [Colour and number based on ready reckoning guide at annex 5 of this template] |
| [insert as many scenarios as necessary] |  |  |  |  |  |  |  |  |  |  |

## Annex 2 - Exploration of proposed risk controls (Optional inclusion)

|  |  |  |
| --- | --- | --- |
| Additional risk control | Description and implications | Practical and reasonable? (Y/N) |
|  |  |  |
|  |  |  |
|  |  |  |
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|  |  |  |

## Annex 3 – Traffic Plots

[Any traffic plots should be included with the risk assessment. Traffic plots should be backed-up with relevant information about the dataset used] Annex 4 – Additional information

[add in any additional information that may be necessary for inclusion in the risk assessment]

Annex 5 – Risk Assessment Ready Reckoner

[AMSA uses the following tables as a guide to assessing the likelihood, consequence and risk. The below tables are based off AMSA’s internal policy for risk management. AMSA’s risk management policy is aligned to the International Standard for Risk Management ISO31000:2009. It is recommended that competent AtoN authorities either use the descriptors and tables provided in the SIRA guideline, or alternately define their own descriptors aligned to organisations acceptability of risk. ]

# Descriptors for Likelihood and Consequence

[It is recommended that the competent AtoN authority using the risk assessment process defines its own appropriate descriptors or uses those defined within the SIRA process]

## Examples of ‘Descriptors for Likelihood’ (or align to G1138)

|  |  |  |
| --- | --- | --- |
|  | Descriptor | Percentage chance of occurrence |
| Almost Certain  5 | A common event | 95% |
| Likely  4 | Known to occur | 60% |
| Possible  3 | Could occur, heard of it happening | 40% |
| Unlikely  2 | Not likely to occur | 20% |
| Rare  1 | Practically impossible | 5% |

## Examples of Descriptors for Consequence

|  |  |
| --- | --- |
|  | Descriptor |
| Catastrophic  5 | *[align to G1138 or define as appropriate based on organisations appetite for risk]* |
| High  4 | *[align to G1138 or define as appropriate based on organisations appetite for risk]* |
| Medium  3 | *[align to G1138 or define as appropriate based on organisations appetite for risk]* |
| Minor  2 | *[align to G1138 or define as appropriate based on organisations appetite for risk]* |
| Negligible  1 | *[align to G1138 or define as appropriate based on organisations appetite for risk]* |

## Risk assessment table

[AMSA uses five different risk categories to address risks based on risk appetite]

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Negligible  1 | Minor  2 | Medium  3 | High  4 | Catastrophic  5 |
| Almost Certain  5 | Moderate | Moderate | High | Extreme | Extreme |
| Likely  4 | Low | Moderate | High | High | Extreme |
| Possible  3 | Low | Low | Moderate | High | High |
| Unlikely  2 | Very Low | Low | Moderate | Moderate | High |
| Rare  1 | Very Low | Very Low | Low | Moderate | Moderate |

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