Passenger Ship Safety Guidelines

This brochure is provided to assist parties involved in preparing for and responding to a passenger vessel emergency or casualty. For this purpose, an overview of existing legal instruments and guidelines, as well as tools, resources and insights are given. The underlying causes leading to the ship’s distress situation are not considered. What is of primary concern is what must take place once the ship is in distress and the ability of passenger vessel personnel and SAR responders to deal with the potential scale of the emergency. It is imperative that coastal authorities and passenger vessel operators maintain an open dialogue to identify response resources in the areas where an individual passenger vessel is operating and to harmonize contingency planning and response.
Stakeholders in a Passenger Vessel Emergency

This chart identifies many of the groups who may hold a stake in any passenger vessel emergency. It should be noted that the agenda of some of the groups may conflict with that of others.

On Scene

- Seafaring Crew (Trained for Emergencies)
- Hotel & Service Staff
- Passengers
- Media
- Pleasure Craft
- Fishing Vessels

Remote

- SAR Services
- Shipping Company
- Families of those Aboard
- Flag State(s)
- Coastal State(s)
- Media
- Environmental Groups
- Class Society
- Salvage
- Emergency Services
- Customs/Immigration
- Investigation Boards
- Military

Other Possibilities

- IMO, EU and other legislative bodies
- ILF, ITF
- Home governments of passengers and crew
Existing Regulations and Guidance

The following provide the primary international regulations and guidance concerning passenger vessel safety:

• The International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended. This international instrument includes regulations in the following areas:
  • Construction (structure, sub-division and stability, machinery and electrical installations, fire protection, fire detection, fire extinction);
  • Radio communications, safety of navigation;
  • Life saving appliances and arrangements, safety of navigation;
  • Special measures to enhance maritime safety and security (including implementation of the International Safety Management (ISM) Code and the International Ship and Port Facility Security (ISPS) Code).
• International Aeronautical and Maritime Search and Rescue Manual (IAMSAR) in three volumes.
The International Maritime Organization Maritime Safety Committee (MSC) approved the following circulars relevant to passenger vessel safety during MSC 81 (10-19 May 2006):

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<tr>
<th>MSC.1/Circ.1181 Amendments to the IAMSAR Manual:</th>
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<tr>
<td>Dealing with additional external SAR resources and ship habitability during an emergency.</td>
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<th>MSC.1/Circ.1182 Guide to recovery techniques:</th>
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<td>The guide's principal aims are to help the master or crew to ASSESS, TRAIN and PREPARE to recover people from survival craft or from the water.</td>
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<tr>
<th>MSC.1/Circ.1183 Guidelines on the provision of external support as an aid to incident containment for SAR Authorities and others concerned.</th>
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<th>MSC.1/Circ.1184 Enhanced contingency planning guidance for passenger ships operating in areas remote from SAR facilities.</th>
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<th>MSC.1/Circ.1185 Guide for cold water survival.</th>
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<th>MSC.1/Circ.1186 Guidelines on training of SAR service personnel working in major incidents.</th>
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<th>MSC.1/Circ.1187 Operational recommendations for passenger ships with cabin balconies:</th>
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<tr>
<td>Recommendations arising from the very serious cabin balcony fire on-board the passenger ship Star Princess.</td>
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Evaluating and Responding to an Emergency

Any shipboard emergency can be broken down into three primary elements:

*Recognition, Response, and Report.*

Recognition that there is an emergency situation is the key to adequately dealing with a shipboard emergency.

Recognition includes:
- The nature of the emergency (fire, flood, etc);
- The extent of the emergency (fire in a waste bin or something larger);
- The timing of the emergency (how much time before the emergency will cause human or property damage).

Failure to recognize that an emergency exists is one of the prime causes of maritime disasters. The *Herald of Free Enterprise* and *Estonia* capsizing both occurred because the extent of a developing emergency was not recognized in a timely manner.

Response to an Emergency:
- In a timely manner;
- With adequate and appropriate resources;
- Taking action to mitigate or reduce the threat that the emergency will spread to other areas;
- Taking action to protect passengers and others not involved in the response.

Reporting or communicating is another key factor in combating an emergency:
- Timely and accurate communication of the situation from the scene to the command to permit an accurate response;
- Timely and accurate communication from the command to the emergency teams;
- Timely communication as appropriate to external resources and contacts (e.g. SAR Authorities, Other Vessels, Company).
The core components of recognition, response and reporting can be viewed as the corners of a triangle:

While recognition of an emergency is a key first element, the sequence of triangle elements is dynamic. The next step may be an immediate scene response, or response with a simultaneous report or communication to an external resource. Subsequently, recognition of a developing or changing situation may require a change in response or reporting. This triangle concept can be used to evaluate past emergencies as well as be used as an aid in an ongoing emergency.

Almost all passenger vessel disasters can be traced to a failure in one of the elements of this triangle. At the very least, disasters have been exacerbated by a failure in one of these elements. This can be from failing to link the elements properly or it can be from a lack of adequate resources available in one of the elements. A classic example of this is the *Titanic*. After the ship had struck the iceberg, the recognition of the situation was fairly well accomplished and internal communication was also sufficient. Problems came in the response (lack of lifeboats), and the report (limited ways to communicate the distress to others).
Recent and Relevant Lessons Learned

The elements and process of Recognize, Respond and Report apply equally to the distressed vessel, any vessels attempting to aid the stricken vessel and responding SAR authorities. In the first five months of 2006, four major passenger vessel emergencies arose that have provided some excellent lessons in the area of responding to a passenger vessel emergency:

Fire and subsequent sinking of the passenger ferry *Al Salam Boccacio 98* in the Red Sea on 2 February 2006

The investigation into this disaster, which claimed over 1,000 lives, is still ongoing. However, initial indications from surviving crew and passengers indicate that the sinking may have in part been caused by water build-up on the car deck as a result of fire-fighting efforts. It has also been reported that the fire and subsequent build-up may have taken several hours, providing ample time for distress communications to be issued from the ship. In addition, the ship was outfitted with ample lifesaving appliances for all aboard, yet it appears a timely and organized evacuation was not, or could not be, conducted. While details of the shipboard recognition and response are still unclear, it is clear that there was a severe breakdown in reporting/communication, especially with regard to timely notification of SAR authorities or other ships in the area. The first solid notification of
the ship’s distress appears to have come from the ship’s EPIRB after the ship had sunk. There have been charges brought against the ship's owners indicating that they may have been contacted by the vessel during the initial phases of the distress (a typical practice usually promulgated by the ship's Safety Management Policy-SMS) but failed to notify any other SAR authorities. A lesson learned from this case is that communication is of utmost importance for successful SAR operations.

**Sinking of the Canadian Ferry Queen of the North off British Columbia 22 March 2006**

The Queen of the North sank in the predawn darkness after hitting Gil Island about 75 miles south of Prince Rupert. This is a recent and rare example in which the response of prompt and efficient evacuation by lifeboat appears to have been the key in saving all but two lives from the vessel, carrying 101 passengers and crew. In this case, the concept of a vessel being remote from SAR facilities (ref. MSC.1/Circ.1184) is also a factor as the passengers were conducted to the isolated aboriginal village of Hartley Bay which provided the initial response the emergency with local boats. Another consideration of this emergency is that the ship was carrying only fraction of passenger capacity because it occurred during a relatively low season.
Balcony fire aboard the cruise ship *Star Princess* in the Caribbean on 23 March 2006

According to the MAIB (Safety Bulletin 1/2006) the cause of the fire has yet to be determined. However, the seat of the fire was on an external stateroom balcony on deck 10 of the vessel’s port side. The fire spread rapidly along adjacent balconies, and within 10 minutes had spread up to decks 11 & 12 and onto stateroom balconies in two adjacent fire zones. It also spread internally as the heat of the fire shattered the glass in stateroom balcony doors, but was contained by the fixed fire-smothering system fitted in each of the staterooms. As the fire progressed, large amounts of dense black smoke were generated from the combustible materials on the balconies, and the polycarbonate balcony partitions. This smoke entered the adjacent staterooms and alleyways, and hampered the evacuation of the passengers. One passenger died as a result of smoke inhalation, and 13 others were treated for the effects of the smoke. The fire was extinguished about 1.5 hours after it had started. The crew fought the fire with water hoses from adjacent external areas, and from internal alleyways. Difficulty was experienced in reaching the fire due to the construction and partitioning of the balcony areas. A total of 79 cabins were condemned after the fire, and a further 204 were either water or smoke damaged.
This incident demonstrated excellent initial response from the vessel and subsequent response and communication to assisting SAR authorities. In addition, the value of properly maintained fixed fire-fighting systems was demonstrated. A previously overlooked flaw in material and construction regulations pertaining to exterior balconies was identified as a major contributor to the severity of the fire and has subsequently generated industry action to correct this, including the issue of MSC 1./Circ.1187 noted earlier.

**Engine room fire aboard the cruise ship Calypso 6 May 2006 off the coast of Southeast England:**

Although investigations into the causes of this fire are still ongoing, the response to the incident by all involved appears to be a model example. The engineroom fire broke out at 0347. The crew took immediate and positive action to begin combating the blaze and to insure passenger safety. In addition, prompt communication was made to the local SAR authorities. In this case, a newly developed external SAR resource in the UK called a Maritime Incident Response Group (MIRG) was deployed for the first time to the ship via helicopter. The MIRG consists of a specialized fire service response to fires, chemical hazards and on-board rescue at sea, made up of fire fighters from several local authority fire and rescue services as well as paramedics. The primary aim of the MIRG is to remove the
need to evacuate the ship. In this case, the fire was extinguished and the ship was towed to Southampton where arrangements were made to transport and house the passengers and crew. The concept of SAR authorities providing assist teams is not necessarily new. Traditionally, the United States Coast Guard and other similar entities have provided teams to assist made up of crewmembers from the responding rescue vessels. However, the employment of a team trained and assembled for the specific purpose of deploying to and combating an emergency, possibly from different civil districts, onboard a merchant vessel is relatively new. Such things as common training references and framework as well as knowledge of a diverse number of ship types and systems were employed in the development of the MIRG. This is beyond the scope of traditional teams who were basically training to combat emergencies on their own ships first or in their own regions, and then to use that knowledge in the assistance of others.
Lest We Forget

One outcome of past passenger vessel disasters, such as the Estonia and Herald of Free Enterprise, was the introduction of new regulations and inspection criteria. Many of these past disasters also still contain lessons and warnings that are worthy of consideration by today’s industry. One such incident involved the ferry *Moby Prince* which was sailing from Livorno to Sardinia when it collided with the anchored oil tanker *Agip Abruzzo* on the evening of April 10, 1991. The collision ripped a hole in the side of the tanker, pouring oil on to the ferry which then ignited. 140 out of 141 passengers and crew aboard the ferry were burned to death. One lesson from this incident which is very important today is identifying safety issues related to short sea shipping across existing busy traffic lanes. In the case of the *Moby Prince*, a number of factors played a role in the disaster including excessive speed by the ferry in areas of patchy fog and sailing with her radar turned off. The tanker was cited for not turning additional lighting on during the time of reduced visibility. Finally, with regard to the response itself, the tanker, other ships in the area, and the port failed to provide timely assistance to the stricken ferry. The extent of this disaster might have been greatly reduced had the tanker and other ships in the area had their crews prepared and trained in recovery techniques such as those just published in MSC.1/Circ.1182.
While many lessons learned focus mainly on the cause(s) of accidents, it is worth noting that procedures for co-operation in emergency response efforts have to be effective as well. There is not much information given in accident reports on the effectiveness of the response measures. Taking in mind the complex network of parties involved in emergency response services (as shown in the beginning of this brochure) regular communication and testing of the arrangements in case of an emergency is important, too. This refers to joint SAR exercises that should include shore-based responders in order to facilitate joint efforts in a real accident. The tourism industry, driven by customer demands, started to explore remote places. This will create new challenges for coastal communities that have not experienced large amounts of tourists and passenger ships in their waters yet. An early consideration of the issues mentioned in the brochure is recommended to these communities.
Further Information

For additional information regarding the information provided in this guide, please see the following websites:

International Maritime Organization:  
www.imo.org for details of information discussed in the first section of this guide.

UK MAIB:  
www.maib.gov.uk/home/index.cfm for copies of safety studies and other relevant accident investigative information.

International Maritime Rescue Federation:  
www.international-maritime-rescue.org for further information on co-operation issues between SAR services in different countries.

UK Maritime and Coastguard Agency:  
www.mcga.gov.uk/c4mca/mcga-home a wealth of information including maritime safety notices, lessons learned and details of ongoing passenger vessel safety forums.

US National Transportation Safety Board:  
www.ntsb.gov/surface/marine/marine.htm includes summaries of marine accident investigation reports.

Transport Canada:  

European Maritime Safety Agency:  
www.emsa.eu.int for relevant information on regulatory maritime issues in EU waters.
Co-operating to create, maintain and implement a safer maritime environment