

The sea is inherently a dangerous environment. Injuries resulting from being in or on the sea are the most likely, but not the only, emergency incidents in an MPA. Prevention is always better than cure. There is NO cure for lost life. This sheet provides an outline of some of the key issues to bear in mind when planning safety and emergency procedures.

EMERGENCY RESPONSE PROCEDURE

MPAs should have a contingency plan or Emergency Response Procedure (ERP) that lays out measures to be taken in an accident. The objectives of this should be to safeguard life, minimise the impact of the accident on personnel, the environment and property, and speed up mitigation. The plan or ERP should be developed with the participation of MPA staff and other stakeholders who will take responsibility for the logistics, communications and actions in case involved. Other MPA staff should also be aware of the procedures as their equipment and skills may be called upon. The ERP should detail:

- Agreed strategies and lines of communication;
- Actions to be taken in order of priority;
- Individuals involved and resources required.

Insurance for staff, equipment and infrastructure should be included within the MPA budget and should ideally include emergency or disaster cover. The inclusion of third party liability helps protect the MPA from litigation.

Incidents that require the activation of an ERP include fire, flood, storms and cyclones, oil and other chemical spills (see sheet K3) and medical evacuation, as described below:

Fire - The best protection is prevention. Smoking must be banned near all fuel stores. The MPA should have sufficient fire extinguishers (both type and number), including carbon dioxide (for oil and electrical fires), and dry powder and water (for other fires); sand is effective on small fires. Fire extinguishers must be serviced (recharged). Staff must have basic training in their use and fully understand evacuation procedures.

Flood - Keep a supply of sandbags or plastic shopping bags that can be filled with sand or soil, and placed along the bottom of doorways to prevent damage to property. Plan for the aftermath of flooding, which may include damage by mud and debris, and pollution of drinking water sources.

Storms and cyclones - A system of colour-coded alerts is often used by the construction industry and could be adapted for an MPA.

- **Green alert** - A tropical low or cyclone within 500 n.mi; MPA staff should continue work but the manager will maintain a constant watch and consider the amount of time required to stop work and leave the site if necessary.
- **Yellow alert** - Forecasts show the site to be in the predicted path or dangerous influence of a cyclone within the next 24 hours; all equipment must be checked and made secure, with additional sea-

fastenings installed as required; work in progress should be reviewed and no work initiated that does not allow safe abandonment within 12 hours.

- **Red alert** - The MPA is within 120 n.mi of a cyclone, or forecasts place it in the likely path or re-curvature area within the next 12 hours; all vessels must abandon their work and transfer crews to safe locations.

Medical Evacuation (medivac) - Required in cases of severe injury or sickness; air transport to a medical treatment centre is usually required and the MPA should have all the information at hand to arrange this.

DANGERS AT SEA

Weather - Changes in weather should be monitored and, where possible, forecasts should be obtained before going to sea. If the MPA has access to internet or radio weather forecasts, storm alerts should be communicated to the local communities.

Vessel seaworthiness - Unfavourable sea conditions and poor seamanship often result in the swamping and sinking of small boats. An MPA can help local boat users to improve the seaworthiness of their craft, and must ensure the safety of their own. All vessels should be carefully maintained and checked periodically by qualified technical personnel or boat builders. For small boats, safety and seaworthiness are normally the responsibility of the vessel operator and/or owner.

Safety equipment - Vessels should not go to sea without adequate safety equipment. Life jackets, life rings and first aid kits should be encouraged on boats operating in the MPA and should be mandatory on MPA boats. Flares, radios, and survival supplies (including water) are recommended.

Search and rescue man-over-board - The MPA should have procedures for dealing with a missing vessel, fishing or tourist dive boat, or person on foot. Procedures depend on the equipment, skill and experience available, and may include other stakeholders such as SCUBA diver operations and air charter companies. Searches should begin from the last known location and sweep the proposed route, and search teams should include individuals familiar with the area. Man-over-board procedures should be well practised.

Swimming - Fishers and MPA personnel often cannot swim, and most deaths at sea are caused by drowning. An MPA can organise swimming lessons for all those who regularly use the MPA. In the case of local communities, it is good to start with children. As well as saving lives, this will help to forge good relations.

KEY POINTS FOR THE MPA

- ❑ Good communications are essential (see sheet F7) and should cover the entire MPA.
- ❑ Daily time and travel plans, with check-in times by radio, helps to keep track of field staff and detect safety issues.
- ❑ A communication flow chart should be clearly posted and should include the names, all phone numbers and e-mail addresses, radio frequencies or channels, of the following:
 - Police, Navy and Coast Guard
 - Airports
 - Airline and charter companies
 - Weather station
 - Air ambulance
 - Re-compression facilities
 - Doctor
 - Hospital
 - Fire brigade
 - Pollution specialists
 - MPA Warden
- ❑ Maps and charts should be detailed enough to identify the location of an incident and any wider geographical implications.
- ❑ A co-ordinator should be appointed and made responsible for all initial off-scene tasks, classifying the incident level, activating the ERP, and/or the Oil Spill Task Force (if necessary), providing proper document control, auditing trails and preparing a full post-incident report, including a review of plans and lessons learned.
- ❑ All MPA staff should take part in regular boat and other drills, and be trained to use the emergency equipment and other essential procedures. They should be fully aware of their particular duties so that no time is lost in an incident.
- ❑ A full first aid kit should be maintained and its contents kept in date. All MPA staff should learn first aid. Oxygen is often needed in diving accidents and may be available from SCUBA diving operators. A stretcher should be included among emergency equipment.



M. Richmond

Life jackets are essential for activities involving children as seen here on snorkelling trips to Chumbe Island Coral Park.

CASE STUDY

Contingency planning and emergency preparedness in MPAs in Seychelles

In Seychelles, some MPAs have taken contingency planning and emergency preparedness seriously. In addition to the recommendations listed above, they are addressing the following:

Emergency-mindedness - In contingency planning it is important to think ahead and try to 'disaster-proof' the MPA. In Seychelles, this includes keeping boats and engines in top condition, with multiple replacements; removing potential hazards such as old/obsolete materials; removing overhanging branches near trails and infrastructure; fire-proofing fuel stores with bunding, and setting back buildings from the foreshore. On Cousin Island, the use of kerosene cookers by personnel was seen to be a potential hazard and was phased out.

Insurance - MPAs in Seychelles have various forms of insurance cover including third party liability (including guest personal effects), staff disability or death, damage to buildings and boat hulls, and cover on engines and mooring buoys. The insurance also protects the MPA management from litigation in cases where public or staff liability is in question.

Emergency landing/meeting points - If an area for emergency/medivac helicopter landing is necessary, it should be constructed in collaboration with the civil aviation authorities and regularly maintained. In Seychelles, at least three MPAs have helicopter landing pads, as well as special tools and equipment in case of a helicopter accident. Emergency meeting points have also been designated and clearly posted.

Disaster Fund - In 2002, a freak storm damaged protected areas on Praslin Island and surrounding islands. Cousin was the only MPA severely affected, and was closed for three weeks leading to loss of revenue. Substantial expenses were incurred in clearing hundreds of fallen trees, repairing infrastructure and rehabilitating ecosystems. A small emergency fund was used to cover these costs and thus intervention was swift. It would be wise for other MPAs to set up such a fund.

Sources of further information

Corfield, T. 1993. *The Wilderness Guardian: A Practical Handbook*. African Wildlife Foundation/The David Sheldrick Wildlife Trust. Longman, Kenya. 701pp.

Eagles, P.F.J., McColl, S.F. & Haynes, D.A. 2002. *Sustainable Tourism in Protected Areas: Guidelines for Planning and Management*. IUCN, Gland, Switzerland and Cambridge. 183pp.

Petursdottir, G., Hannibalsson, O. & Turner, J.M.M. 2001. Safety at sea as an integral part of fisheries management. *FAO Fisheries Circular*. 966: 39pp.

www.safetyatsea.com - major supplier of maritime safety equipment.

www.sailinks.co.uk/safety - short booklet on 'Safety at Sea' produced by the UK's Royal National Lifeboat Institution (RNLI).