

Chapter 5

Health and Safety

5.1 Safety Plan

The Incident Commander is responsible for completing the Site Safety Plan (SSP), which is part of the Incident Action Plan (IAP). This plan must consider personal needs, physical condition of personnel, adequacy of transportation, and potential dangers of response activities. The incorporation of diving into the investigations increases the safety concerns significantly. Boat use has its own set of regulations and requirements for safety, also. The processing of samples requires chemicals, which will need to be addressed in the SSP. The final concern is that of coral and human health when disease agents may be present.

5.2 NOAA Boat Safety Regulatory Requirements

<http://www.ndc.noaa.gov/gi.html>

- The Operator in Charge (OIC), Vessel Operator, or Crewmember must conduct a thorough safety briefing with all embarked personnel prior to getting underway. The briefing shall include general vessel familiarity and the locations of all safety systems and equipment carried aboard (fire extinguishers, life rafts, life rings, personal floatation devices, immersion suits, Emergency Position Indicating Radio Beacon (EPIRB), etc.). The embarked personnel shall be apprised of the procedures to follow during fire, abandon ship, man overboard, and other emergencies. The use of a formal, written checklist detailing all of the topics to be covered during each safety briefing is strongly encouraged.
- NOAA's National Ocean Service VESSEL POLICY FOR SMALL BOATS can be used for further guidance, references, directives, and details in applicable Program Operational Risk Assessments, a boat's Vessel Operations Manual (VOM), Original Equipment Manuals (OEM), or applicable United States Coast Guard (USCG) and federal regulations.
- Personal Floatation Devices (PFD's), signaling devices, and standard survival equipment and rescue devices must be available and in serviceable condition on the boat. In addition, the Safety Plan must include emergency communications procedures, man overboard rescue and in-water survival techniques, and fire fighting procedures.
- Ideally, all Operators in Charge, Vessel Operators, and Crewmembers will have current Red Cross or equivalent certification in cardiopulmonary resuscitation (CPR), including the use of Automated External Defibrillators (AED), Oxygen

Administration, and First Aid. Inspection records for the vessel should be copied and examined for any deficiencies.

- The OIC is responsible for reviewing and being familiar with both prevailing and anticipated weather conditions for the area in which the mission is planned. The OIC shall obtain a briefing by a qualified meteorological forecast service (i.e. NOAA weather radio, National Weather Service website, calling local Coast Guard for conditions, etc.). The briefing information shall consist of, at a minimum, current weather, sea state, trends, and forecasts for the departure location, proposed route, destination, and any alternate working areas.
- Based on weather and sea state forecasts, the OIC will determine if conditions are suitable for operations. The OIC has the authority to cancel operations if he/she determines that personnel safety or the safety of the vessel will be subject to unnecessary risk. A float plan must be submitted and will include contact information for all members of the response.

5.3 Dive Safety

An Emergency Dive Plan should be written to include the following:

- Name, phone number and relationship of person to be contacted for each diver
- Name, phone number, and transport plans to the nearest operational recompression chamber
- Nearest accessible hospital
- Available means of transport
- Number, depth, and duration of proposed dives
- Location of proposed dives
- Estimated depth and bottom times anticipated
- Decompression status and repetitive dive plans
- Any hazardous conditions anticipated

Divers must have appropriate dive certifications and letters of reciprocity determined by the organization in charge of the response in order to participate in a response dive. A dive master will plan and supervise dives according to the rules of the organizing institution and capabilities of the participating divers. Participating divers will adhere to all aspects of the plan, (provided it does not violate the rules of the divers' institution). The buddy system that requires at least two divers in constant communication on a simultaneous dive is a requirement of all response divers.

5.4 Precautions in the Field

Coral Health & Safety Recommendations from the CDHC

In recognition of the increased prevalence of coral disease occurring worldwide, the Coral Disease and Health Consortium (CDHC) has proposed guidelines for scientists and researchers going into the field to collect specimens where infectious agents may be present. Medical and veterinary containment measures may be easily applied to potentially infectious disease outbreaks in the aquatic environment and should be included in each response activity. The guidelines, listed below, were developed by veterinary pathologists who specialize in disease investigation and epizootics to outline preventative measures and limit the possible spread of infectious agents.

A first general response to an epizootic and epidemic is to *quarantine*. Limited access to an area can help prevent potential spread of disease agents to unaffected areas.

1. When multiple sites are to be visited, **ALWAYS** visit the healthy (or apparently healthy) sites before entering an area with known disease to prevent potential spread of infectious agents. Do not visit the reference site (a site with no signs of disease) after diving a diseased site without first decontaminating dive gear.

Remember: Movement should always be from "clean" to "dirty"

2. Sterilize equipment/instruments between sampling (or use separate equipment/instruments for each sample collected). Change gloves between samplings. Sanitization may be achieved by using a simple bleach solution soak (5% solution for 5-10 minutes) followed by a freshwater rinse.
3. When collecting samples, take care to prevent small pieces from falling or floating away from the sample site. Each sample should be placed into a separate clearly labeled container. Never open a sample container from one site in another area. Be sure to document the specifics of the collection site. Information should include location, morphology of the change observed (e.g. severity, area of involvement, color change, texture, patten of change, skeletal damage). Identify the specific area of tissue collected (i.e. along the margin between affected and unaffected tissue; apparently healthy tissue).
4. The responders (divers) should consider themselves and their equipment as potential vectors of disease to other locations. To minimize this risk, ALL equipment should undergo a simple sterilization process subsequent to entering an infected area or before moving to a new location. As with any disease agent, the responder should also take care to thoroughly shower with disinfectant soap prior to moving to a new location.

5. Biocontainment procedures are to be used for handling any live material taken from affected areas

5.5 Materials Hazards Information

A Material Safety Data Sheet (MSDS) shall be available for all hazardous materials carried aboard. Each vessel that is proposed to carry hazardous material must first meet all storage requirements, must have spill response kits on board, and must adhere to all NOAA hazardous material regulations prior to leaving the pier.

Chemicals used during an investigation will be documented and accompanied by appropriate MSDS forms. The crew will be properly trained in handling practices for hazardous materials (i.e. z-fix, gluteraldehyde, liquid nitrogen, dry ice). The OIC should be informed of potential hazards in order to plan effectively for any emergencies.