**Safe Diving Protocol for scientific activities on CEPF-funded projects**

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**1. Introduction**

1.1 ***GRANTEE ORGANIZATION*** has legal responsibilities for the health and safety of registered members (academic staff, students, employees and volunteers) who participate in diving activities. Such legal liability is not open and depends on all participants who dive to do so safely and responsibly.

# 1.2 These rules are not intended to be restrictive and are written largely for the benefit of all divers. It is expected that, if divers feel constrained by these rules, they will discuss this with the ***ADMINISTRATIVE OFFICER OR WHOEVER IS DESIGNATED***, so that exceptions can be agreed in specific cases and the rules will be updated where appropriate.

1.3 As the experience grows, the Dive Safety Protocols will continue to evolve and change in response to the needs of the Program, providing staff with ongoing education to consider them part of our safety team.

1.4 The person responsible for dive safety at ***GRANTEE ORGANIZATION*** also provides information about 'Safe diving' on its website. APPENDIX II.

**2. Diving under the Auspices of *GRANTEE ORGANIZATION***

2.1 What is and is not a sponsored dive? Who is responsible for ensuring safe diving? Any dive involving ANY ***GRANTEE ORGANIZATION* resource** is potentially a sponsored dive unless otherwise confirmed by the ***ADMINISTRATIVE OFFICER OR WHOEVER IS DESIGATED***. For example, including, but not limited to:

-Official participation of any member of ***GRANTEE ORGANIZATION*.**

-Use of any equipment owned by ***GRANTEE ORGANIZATION*** (diving equipment, training or safety equipment).

-Use of the financial resources of ***GRANTEE ORGANIZATION*** (payment of utilities, rent, etc.)

-Any dive and/or diving trip that makes use of the resources of ***GRANTEE ORGANIZATION*** can be defined by the description of the auspices of ***GRANTEE ORGANIZATION*** that is provided in APPENDIX I.

2.1.1 If the dive/trip is made with the approval of the ***ADMINISTRATIVE OFFICER OR WHOEVER IS DESIGATED***, then it is expected that all the 'Safe Diving' Guidelines of ***GRANTEE ORGANIZATION*** (APPENDIX II) will be met. This mainly includes observation of the Dive Plan (including time and depth limits as well as repetitive dives), emergency plan and the availability of a Lead Diver to manage and supervise the dives. If the field trip or training site is approved and meets all diving safety requirements of ***GRANTEE ORGANIZATION*,** then it is considered a "Sponsored Diving Activity".

2.1.2 Any dives outside of the 'Safe Diving' Practices of ***GRANTEE ORGANIZATION*** is completely at the risk of the participant or, at least, outside the scope of this document. If you have any doubts as to whether the activity is considered a "Sponsored Activity", this should be clarified with the ***ADMINISTRATIVE OFFICER OR WHOEVER IS DESIGATED***.

2.2 Any member registered as a diver may plan a dive; please speak to the ***ADMINISTRATIVE OFFICER OR WHOEVER IS DESIGATED*** for advice on the relevant organization.

2.4 All dives under the auspices of ***GRANTEE ORGANIZATION*** must be agreed with the ***ADMINISTRATIVE OFFICER OR WHOEVER IS DESIGATED*,** who wants to know:

-Lead Diver.

-Names, qualifications and experience of all the people who are going to dive.

-Dive site.

-Type of dive involved (shore, boat, etc.) and the maximum planned depths.

-Security/emergency plan.

**3. Responsibilities of the Lead Diver**

The Lead Diver is responsible for the safe conduct of dives. The Lead Diver's responsibilities include:

-Agree on the details of the dive with the ***ADMINISTRATIVE OFFICER OR WHOEVER IS DESIGATED*** before departure.

-Ensure that all divers’ information, certifications and medical questionnaires are up to date (see APPENDIX VI).

-Assign partners and approve diving plans.

-Ensure that the dive has a surface safety/emergency plan in place.

-Maintain complete records of dives.

-Coordinate actions in the event of an incident.

-Ensure that all diving is done within safe diving practices.

3.1 The Lead Diver must be qualified as an Advanced Diver/Rescue or higher, unless otherwise agreed with the ***ADMINISTRATIVE OFFICER OR WHOEVER IS DESIGATED*.**

3.2 The Lead Diver must appoint a substitute, who will assume his/her responsibilities if absent.

3.3 The Lead Diver must assess the risks present at the dive site and manage diving activities to minimize risks to all team members. Where necessary, advice should be sought from local sources (e.g., divers, dive shops, harbor master, fishermen, etc.). Several factors must be considered:

-Weather conditions and sea conditions

-Tidal conditions during and after dives.

-Adverse diving conditions; Visibility, depth, water temperature.

-Entry and exit points.

-Diver qualifications and skill level.

3.4 The Lead Diver must be familiar with the diving qualifications and experience of the group members and will normally assign pairs for less experienced divers to dive with more experienced divers. At any dive site, the safest procedure is for one person in the couple to have previously dived at the site.

3.5 The Lead Diver must ensure that emergency oxygen is available at the dive site. A suitably qualified oxygen manager will need to be present on the trip.

3.6 The Lead Diver may choose to suspend diving activities if he or she considers that the conditions present an unacceptable level of risk, given the qualifications and experience of the group.

3.7 The Lead Diver has the right and responsibility to suspend the dive of any member of the group whose conduct is deemed reckless or dangerous.

**4. Safety/Emergency Plan**

4.1 All dives will have a safety plan. In most cases, it is acceptable for a NON-diver to act as a safety person. If surface support is not available, the safety plan will generally be adapted in one of two ways:

4.1.1 If there is more than one pair of divers, one pair will provide cover while the other is diving.

4.1.2 If only a couple of divers are involved, a third person must be alert on the surface.

4.2 For dives from a boat, there will be someone responsible and competent to provide assistance to divers in trouble and to request assistance. On the ground, information must be left about the destination, estimated time of return and what measures to take if this is not complied with.

4.3 In all cases, surface personnel must be properly informed and must be able to carry out emergency procedures.

**5. Personal Records**

5.1 Qualification record (APPENDIX VII) in ***GRANTEE ORGANIZATION*:**

All divers must have up-to-date certifications on their record. Evidence of your certification must be provided for all dives under the auspices of ***GRANTEE ORGANIZATION*.**

5.2 Dive log:

Divers should keep a log of their dives.

This is a reference document, showing the different aspects and pertinent information from past dives. (APPENDIX III)

5.2.1 The information you need to include (but not limited to) is:

-Date and place.

-Name of companion.

-Equipment used.

-Information on depth, time, decompression, and safety stop.

-Type of dive (boat, coast, night, freshwater, low visibility, etc.).

-A description of the dive.

**6. Maximum Depths and Decompression Stops**

6.1 The attention of all divers is drawn to the limits established in their certification and their relationship with the maximum depths authorized by ***GRANTEE ORGANIZATION*.** Divers are restricted to specified limits. That is, in no non-emergency circumstance shall any diver exceed the maximum authorized depth.

**APPENDICES**

**APPENDIX I**

**[GRANTEE ORGANIZATION] [YEAR]**

**SPONSORSHIPS BY *GRANTEE ORGANIZATION***

**Purpose**

The purpose of this document is to ensure that all diving-related activities are carried out in a manner that provides protection to divers in the event of accidents or failures. In addition to establishing authorization guidelines to improve logistics and security processes. ***GRANTEE ORGANIZATION*** may adopt additional standards in accordance with local operating procedures.

This protocol was developed and written according to the diving policies and programs of several universities and research centers.

**Ambit**

This document covers diving activities for scientific research or educational purposes that are carried out using: snorkel, compressed air, or enriched air (nitrox). This manual does not apply to:

* Recreational diving.
* Diving below 30 meters.
* Commercial diving.
* Diving supplied from the surface.
* Saturation dives, gas mixture, diving bells and submersible vehicles.

**APPENDIX II**

**[GRANTEE ORGANIZATION] [YEAR]**

***GRANTEE ORGANIZATION***

**SAFE DIVING GUIDELINES**

Like any physical activity, diving requires knowledge and training prior to its practice.

A requirement to dive safely is to take a training course with certified instructors, usually these courses include a medical examination.

It is recommended that, before diving, to have followed physical training that will help reduce the risk of muscle fatigue, cramps and strengthen muscles. Aerobic activities, such as running, walking, swimming or cycling, help improve lung and aerobic capacity. Train in a pool or confined water to refine the fin-swimming technique.

Some countries have specific laws and regulations for diving activities, if they exist, any diving activity must be aligned with these regulations.

**Diving in pairs**

You should never do any diving activity individually, always at least together with another diver. Communication between diving buddies is essential to confirm that the activity is going well or to warn of any physical, environmental or equipment problems.

**Equipment Maintenance**

Complete equipment in optimal condition is the minimum to perform a safe dive. Before diving, check that all the parts are functional:

- Wetsuit: Appropriate size. Its thickness must be adapted to the temperature of the water.

- Diving mask: That fits well to the face.

- Diving fins: They vary depending on the use and physical shape of the diver. Ask your instructor about the best options.

- Buoyancy compensator: Allows the diver to achieve neutral buoyancy underwater and provides assistance in ascents and descents.

- Weight system: It serves to reduce buoyancy from diving equipment, they must be chosen according to the buoyancy of the equipment and that of the diver. Some buoyancy compensators have integrated weight systems, others are by means of a belt.

-Diving tanks: Make sure that the breathing gas is adequate, and that the hydrostatic and visual inspection dates of the tank are updated.

- Regulator: Allows air to exit the scuba tank in a controlled manner. In the event that the regulator fails, the air outlet will increase. You will be able to breathe but try to rise to the surface as soon and safely as possible.

- Dive watch: Analog or digital, to monitor the time during the dive. Analog watches have a bezel to align with the minute hand. The digital ones have a stopwatch function.

- Dive computer: A device-based microprocessor that calculates the theoretical process of decompression in real time, by using pressure (depth) and time as an indicator of a decompression model, or set of decompression tables, programmed within the device.

**Have information about diving sites**

- Sea conditions.

- Communications (radio and cell phone coverage).

- Nearest medical facilities.

Prepare body and mind just before diving, to increase agility and dexterity in movements, perform a series of stretches.

In addition to physically, mental preparation is important. One of the most important conditions for safe diving is knowing how to stay calm. If a problem arises during a dive, fear and insecurity can turn a minor incident into an unfortunate accident, an uncontrolled maneuver could seriously harm integrity and health.

Be properly hydrated, eat a couple of hours before giving time for digestion, avoid foods that cause heartburn or poor digestion.

Not having enough rest, drinking alcohol or a large meal can cause tiredness and decrease the ability to react to a problem.

**Recovery after Diving**

Rest and hydration. Food to replace physical wear and tear. Nuts will provide energy, and bananas will help recover muscle wasting.

**Visit a doctor if there is discomfort after the dive**

If after diving there is discomfort, dizziness, tingling, reddish spots on the skin, headaches, muscle, joint, stomach or ear pain, or nosebleeds, see a doctor. Symptoms of decompression sickness or ear injuries may appear minutes after the dive or after a few hours.

**Avoid flying for up to 24 hours after diving**

- After non-decompression dives, divers will not be allowed to fly until they have completed a minimum surface interval of 12 hours.

-For multiple dives per day or multiple days of diving, divers must adhere to a minimum surface interval of 18 hours before flying.

-For divers who perform dives that require decompression stops, they must comply with a minimum surface interval of 24 hours before flying.

-For land trips that require ascending to heights greater than 300 meters (1,000 ft). Pre-flight surface interval procedures shall be followed, unless decompression procedures are used to account for increased elevation.

**APPENDIX III**

**[GRANTEE ORGANIZATION] [YEAR]**

**DIVING PROCEDURES**

**PRE-DIVE PROCEDURES**

Dives should be planned according to the level of training of the least experienced diver. Before conducting any diving operation under the auspices of ***GRANTEE ORGANIZATION***, the supervisor must develop the plan to be followed, and it must have the following:

- Qualifications of the divers and type of certification of each one.

- Emergency Plan with the following information:

- Name and telephone number of the person to contact in case of emergency.

- Nearest hyperbaric chamber.

- Nearest accessible hospital.

- Means of transport available.

- Approximate number of dives proposed.

- Proposed dive site(s).

- Advance estimation of depth and bottom time.

- If required, decompression plan and repetitive diving.

- Proposed work, equipment and boats or vehicles to be used.

- Anticipated unfavorable conditions.

**PRE-DIVE SAFETY REVIEW**

- Diver Responsibility:

- Each diver should check the proper functioning of his or her own equipment in the presence of a buddy.

- It is the duty and responsibility of each diver to refuse to dive if in their judgment the conditions are not favorable, or the precepts of their training or the Diving Protocol of ***GRANTEE ORGANIZATION***.

- No member of the team should dive in any condition that puts their safety or that of any other member of the team at risk.

- Team Evaluation.

- Each member of the group must ensure that their equipment works properly and that it responds to the needs of the operation to be carried out.

- Each team member must have the ability to achieve and maintain positive buoyancy.

- Evaluation of the place.

- Assess environmental and site conditions.

**APPENDIX IV**

**[GRANTEE ORGANIZATION] [YEAR]**

**DIVE PLAN**

|  |  |
| --- | --- |
| Responsible: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Head of Department: **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

|  |  |
| --- | --- |
| Date of the dive: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Dive Site: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. **Participating Divers**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Authorized Depth | Certification | Email |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. **Emergency Information**:

|  |  |  |  |
| --- | --- | --- | --- |
| Diver Name | Emergency Phone | Contact Name | Relation |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. **Emergency Plan**:

Nearest Hyperbaric Chamber:

Nearest Medical Facility:

Method of Transportation:

Local: 123456. Harbor: 123456. DAN: (919) 684-8111

1. Approximate number of dives:
2. Depths and expected times:
3. Repetitive diving: Yes/No
4. Proposed tasks, equipment and transport to be used:
5. Anticipated hazardous conditions:

Approval: Signature: Date:

**APPENDIX V**

**[GRANTEE ORGANIZATION] [YEAR]**

**DIVE LOG**

The Diving Protocol of ***GRANTEE ORGANIZATION*** requires that all divers under its auspices complete this form with the information of the dives carried out in each activity and it is sent to the ***ADMINISTRATIVE OFFICER OR WHOEVER IS DESIGATED*.**

**Diver\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Unit \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Date** | **Dive Buddies** | **Locality** | **Max. Prof.** | **Bottom Time** | **Surface Interval** | **Feedback** |
| **1** |  |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |
| **9** |  |  |  |  |  |  |  |
| **10** |  |  |  |  |  |  |  |
| **11** |  |  |  |  |  |  |  |
| **12** |  |  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Total Dives:** | **Total Time in Minutes:** | **Dive Computers or Tables Used** |

**APPENDIX VI**

**[GRANTEE ORGANIZATION] [YEAR]**

**DIVING MEDICAL SCREENING**

As posted on the Undersea & Hyperbaric Medical Society website <https://www.uhms.org/>

**System Goals/Purposes**

1. Reflect current medical thinking, and evidence-based screening criteria.
2. Allow as many individuals to dive as reasonably possible.
3. Be user-friendly for diving participants, supervising diving professionals and physicians.
4. Identify and inform potential participants who may be at significant risk if they dive, that they need to secure medical evaluation of that risk.
5. Assist Doctors of Medicine evaluating diving candidates as to whether or not they can appropriately take part in the anticipated activity with medical decision support and references provided, where a physician’s involvement is indicated.
6. Development and endorsement.

Beyond the endorsement by its developers, the DMSC, the new screening system reflects input from the Undersea & Hyperbaric Medical Society Diving Committee (James Chimiak, Co-chair, Charlotte Sadler, Co-chair, and Nicholas Bird, UHMS President), the Divers Alert Network and the Hyperbaric Medicine Division, University of California, San Diego. It is endorsed by the UHMS.

The UHMS provides global access to the Diving Medical Guidance document via the UHMS website. The guidance document also includes references to medical journals and additional sources of related information to help medical professionals make informed decisions about a candidate’s medical suitability for recreational diving.

**History**

After almost 30 years, there was sufficient evidence to support a revision, and an independent international group of diving medical experts, the Diver Medical Screening Committee (DMSC), was brought together in 2017 to initiate an evidence-based review. The DMSC is independent from any specific organization, but the new medical screening system includes significant input from the UHMS, DAN, and other experts. The updated diver screening questionnaire underwent field testing for efficacy and screening sensitivity and was published in June 2020.

**Ongoing Development**

User questions and comments regarding the medical screening system are monitored by a subgroup of the DMSC. Clarifications will be provided, and the medical guidance document and the screening form revised, as appropriate.

Diver Medical Participant Questionnaire / Diver Medical Physician’s Evaluation Form

<https://uhms.org/images/Recreational-Diving-Medical-Screening-System/forms/Diver_Medical_Participant_Questionnaire_10346_EN_English_2022-02-01.pdf>

Diving Medical Guidance

<https://uhms.org/images/Recreational-Diving-Medical-Screening-System/forms/Diving_Medical_Guidance_EN_English_2023-05-31.pdf>

**APPENDIX VII**

**[GRANTEE ORGANIZATION] [YEAR]**

**DATE\_\_\_\_\_\_\_\_\_\_\_\_\_**

**DIVER REGISTRATION**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Address\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Phone: Home \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Work \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mobile \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Email\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date of Birth \_\_\_\_\_\_ Gender \_\_\_\_

**Emergency Information**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Relationship\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Phone: Home \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Work \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mobile \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Diving Certifications**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Specialized Certifications**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Attach copies.**

**Emergency Care Certifications:**

CPR\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Oxygen administration \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

First aid\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Diving Activity**

Total Number of Dives \_\_\_\_\_ Total Number of Hours \_\_\_\_\_ Maximum Depth \_\_\_\_\_

Date of last dive: \_\_\_\_\_\_\_