

UC Santa Barbara Diving Safety Program Project ID #
Research Dive Plan Proposal

Date Submitted: 6/15/05

Submitted By: Andrew Rassweiler

Dates Proposed: 6/15/05-6/15/06

Dept: EEMB

Principal Investigator: Reed

Project Dive Manager: Rassweiler

General Dive Site Location: Orizaba, santa cruz island

Proposed # of Dives per day/week: 3 /3

Max. and Average Dive Depths: 45/25 **Min. Surface Interval Time:** 30:00

Estimated # of Research Divers: 3 **Use of Undergraduates:** Yes No Maybe

Mode:

Open Circuit (SCUBA) Closed Circuit Hookah Surface-Supplied

Environment:

Coastal Island Blue water Oil Platform Seeps Ice/Polar Altitude

Dive Entry:

Shore UCSB Boat other R/V: Other:

Breathing Gas:

Air Nitrox (%O2) Other:

Air Compressor: Is the compressor being used owned by the university.

Yes No If No, then list owner:

SCUBA Cylinders: Hydrostatically tested within the past 5 yrs and visually inspected within 1 yr.

Yes No

Air Tools: Will air tools (lift bag, vacuum, drill etc) be used for this project.

Yes No

Joint Diving Operations (*Diving conducted jointly with other agencies/institutions*)

Yes No If Yes, list agencies/institutions:

Oxygen at Site:

Yes No

First Aid at Site:

Yes No

Dive Flag at Site:

Yes No

Nearest Medical Treatment Facility to Dive Site:

- Location: cottage Hospital
- Telephone: 805 569-7210
- Transportation Method & Distance: boat (21miles), car (5 miles)

Nearest Recompression Treatment Facility to Dive Site:

- Location: camarillo medical center
- Telephone: (805) 389-5944
- Transportation Method & Distance: boat (21 miles), car (47 miles)

Emergency Contact Numbers:

- Local EMS telephone number - 911
- United States Coast Guard – Channel 16 on Marine VHF Radio
- **Diver's Alert Network (DAN): 1-919-684-8111 or 1-800-326-3822**
- **UCSB's Diving Safety Cell Phone: (805) 451-5099**

Detailed Dive Plan:

(Describe sub-tidal techniques: add separate pages, diagrams and/or a copy of the proposal if necessary)

Over the next year I have 2 experiments I will be working on at Orizaba.

The first is a set of clearings I made last summer. These are 5m*5m plots, between 20 and 30 feet in depth. I will continue to monitor these occasionally, sampling using point contact and cameras. I will also maintain them by using nylon brushes to push sea cucumbers within .5m of the edge of the plot back out. I will also occasionally deploy slide trays holding frosted slides in each plot to compare settlement of algae in the cleared and control plots.

The second experiment involves small scale manipulation of *Laurencia* and *Pachythyone* density. I intend to set this experiment up in a slightly shallower zone of the reef between 15 and 25 feet. These manipulations will be done by hand using metal scrapers and wire brushes where necessary. It is possible that I will have to put some bolts in, though I want to avoid that if possible. The drilling I did last year to mark the plots in experiment one was slow going. Sampling of these small plots will also be by point contact and by hand

I will be working all summer with Katie Arkema, and diving with Alia in the first half of the summer and Ben Doctor in the second half. I may get other research divers to help from time to time if they are available. The experiments I am working on are all at less than 30 feet of depth and there is no need to go below 35 feet except when I check the anchor, which often lies between 40 and 50 feet.

List of sampling equipment and other tools not listed in dive plan:

(sampling equipment, compressor, air tools: drills, vacuum, lift bags, scooters, etc)

I hope not to use anything more complicated than a brush or scraper this summer. As I mentioned, in my plan, I may use the hammer drill to mark plots. I will not let any other diver use this drill except under direct supervision.

Hazardous Conditions Anticipated: *(cold water, currents, deep depths, low visibility, etc)*

Over the past year conditions for diving at Orizaba have been excellent. There is some current and occasional surge that may be more intense at the shallower areas I will be working this summer, but neither has posed any problem so far. The site is shallow, visibility has been uniformly excellent and the water is no colder than elsewhere in the channel.

The substrate at the site is in places much steeper than at most mainland sites. Because of this, I am careful to remind divers who are new to the site that moving between plots and between the top and bottom of plots can involve depth changes of several meters. They must be aware of when they are ascending and take care to restrict their speed.

Safety Precautions/Training:

All divers who are new to the UCSB boats must sign a waiver. I also make sure they know where the O2, first aid kit and cell phone are. I also show them the basics of operating the boat and the VHF radio. If conditions are fair, I have them drive the boat so that they would be confident using it in case of an emergency.

I use a hand drawn map of the site to orient divers new to Orizaba, and emphasize that the site has ridges and walls that they may not be used to, and therefore requires special attention to depth.

I often dive with undergraduates who have been recently certified for research diving. Before the first dive I emphasize that they need to keep close track of their air, to inform me when they get to 700 psi and that there is no reason to stretch their air supply, all of the research we do can be pushed back a dive, or a day so there is no need to cut things close.

On the first few days with a diver I have not worked with before I make sure that they are working very closely with me or with another diver in whose ability and judgment I am confident. I also ensure that on their return to the boat they are accompanied by me or another diver familiar with the site. Except in case of emergency I require that all divers inform me before ascending so I can be sure that every one is accounted for.

Because the area where we can safely anchor is in 45+ feet of water and we dive in 30 feet or less, we do not usually return to the anchor to make ascents. I attempt to anchor so that the boat hangs above plot "h" and ascents are usually made from my plots to the anchor line at ~15 feet where a safety stop is made before continuing to the boat. Because there can sometimes be moderate winds and/or current on the surface I have ordered several whistles and will make sure all divers are equipped with one in case they get swept away from the boat. I will also discuss the use of their dive slate as a signaling device with them, and am looking into acquiring scuba tubas or other inflatable signaling devices.

Because I can only visit this site when conditions for crossing the channel are acceptable, I have not been at this site when conditions for diving were less than fair. In such a case however diving would obviously have to be canceled.

Expected Dive Team Members *(if known)*

UCSB Research Diver:

Name	Depth Certification
1. Diver in Charge: Andrew Rassweiler	60ft
2. Katie Arkema	30ft
3. Alia Al-Humaidhi	30ft
4. Ben Doctor	30ft
5.	Select Depth
6.	Select Depth
7.	Select Depth
8.	Select Depth

Visiting Research Diver: *(AAUS Reciprocity Form also required from Agency/Institution's DSO)*

Name	Agency/Institution	Depth Certification
1.		
2.		
3.		
4.		
5.		

General Dive Plan Considerations

- Any diver has the right to refuse to dive without fear of penalty if s/he feels the conditions are unsafe or unfavorable **OR** the dive violates the precepts of their training **OR** the regulations of the UCSB Diving Safety Program. UCSB Dive Manual: <http://ehs.ucsb.edu/units/diving/dsp/html/dsm.html>
- All Dive plans **MUST** be based on the competency of the least experienced diver.
- An ascent rate of **30ft/min** and a precautionary stop at **15-20ft for 3-5min** should be made for each dive.
- Depth certification levels may be extended only to the next deepest certification level and only if the diver with the limiting depth certification level is buddied with a diver certified to the deeper depth level.
- For all diving conducted under hazardous conditions a plan must be formulated to deal with such conditions.
- All divers using dive computers to plan dives and indicate or determine decompression status will follow the AAUS recommended dive computer guidelines noted in the Dive Manual.
- Plan dives conservatively and maximize surface intervals.
- A diver should wait at least **24hrs** before flying or traveling to altitude (1000+ft) after any dive.
- An Emergency Plan should be reviewed for each project including the following: emergency contact information (including name, relation and telephone number may be available on Webdiver) for each diver, nearest recompression chamber, nearest accessible hospital and anticipated means of transportation.

Diving Accident Emergency Management Plan

A diving accident victim is any person who has been breathing air underwater regardless of depth. It is essential that emergency procedures are pre-planned and that medical treatment is initiated as soon as possible. It is the responsibility of the "Diver-In-Charge" to develop procedures for such emergencies including evacuation and medical treatment for each dive location.

General Procedures:

Depending on and according to the nature of the diving accident, stabilize the patient, administer 100% oxygen, and initiate the local Emergency Medical System (EMS) for transport to nearest medical facility. Explain the circumstances of the dive incident to the evacuation team, medics and physicians. Do NOT assume that they understand why 100% Oxygen may be required for the diving accident victim or that recompression treatment may be necessary.

- 1. Rescue victim and/or position so the proper procedures may be initiated.**
- 2. Establish (A)irway, (B)reathing and (C)irculation as required.**
- 3. Administer 100% oxygen, if appropriate (in cases of Decompression Illness or Near Drowning).**
- 4. Activate the local EMS for transport to the nearest appropriate medical facility. (the local EMS will vary from site to site – it must be stated in dive plan)**
- 5. Contact the Diver's Alert Network as deemed necessary.**
- 6. Contact Diving Safety Officer (DSO) and Emergency Contact Person, as deemed necessary.**
- 7. Complete and submit Incident Report Form (in manual) to DSO.**

Diver's Alert Network (DAN): 1-919-684-8111 or 1-800-326-3822

- 24 hour medical advise—if necessary call collect and state "I have a Medical Emergency"—Use to locate closest recompression chamber or physician consultations. The emergency procedures for all dive sites in the Santa Barbara area are in the Oxygen Kits.

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