

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

Date Submitted: 1/20/06 **Submitted By:** Valentine
Dates Proposed: 2006-2007 **Dept:** Earth Science
Principal Investigator: Valentine **Project Dive Manager:** Valentine/Kinnaman
General Dive Site Location: Seeps (Intake Pipes, Shane Seep, Jackpot Seep, Possibly others)

Proposed # of Dives per day/week: 1 /4

Max. and Average Dive Depths: 80/30 **Min. Surface Interval Time:** 1 hour

Estimated # of Research Divers: 6 **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: Woods Hole and USC

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: Goleta Valley Hospital
- Telephone: corner of Patterson and Hollister
- Transportation Method & Distance: Car, 3 mi.

Nearest Recompression Treatment Facility to Dive Site:

- Location: Camarillo Medical Center chamber (805) 389-5944, Operator (weekends/nights): (805) 389-5800
- Telephone: (805) 389-5944
- Transportation Method & Distance: 101S to Las Posas Road. L on Antonio Avenue, L on Mar Vista
- Eric, Please confirm: 2309 Antonia Ave

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)

Intake Pipes (aka Brian Seep) Dive Plan: The majority of our diving will be performed at the small seep area known as Brian Seep, located at 25-29 ft depth along the Sewater intake pipes at Campus Point. All of our divers will be involved in sampling this location. The primary goals are two fold: to generate a detailed flux map for gas seepage, and follow the variations in gas flux rate over time for selected gas vents.

The majority of dives we conduct will take place at Brian Seep, and will involve shore entry from the Beach at Campus point. Divers will prepare their gear in the boat yard and perform a surface entry and swim to a spar buoy which marks the seep field. A dive flag can be attached to the buoy, or secured at depth. We are hoping to design a clasp allowing the dive flag to snap on the top of spar buoy. The primary tasks to be performed are to measure gas flux at predetermined vents using a funnel/bottle/stopwatch approach, and to map the seep field with transect tapes, using the sea water intake pipe as a reference point. Divers will typically descend down the buoy line to the center of the study area, and will either ascend the buoy line or follow the intake pipes back to shore. Divers will take a 3 min safety stop at 15 feet. Dives will typically be dedicated to either mapping or gas flux, but not both.

Additional sampling will be performed at this site as needed, and may include deployment and collection of temperature probes, and the testing of new sampling gear, and the collection of sediment and gas samples.

We anticipate four dives per week to this site during the summer and 1-2 dives per week on average during the school year - depending on weather and visibility. Undergraduates will participate in this investigation.

Coal Oil Point Seep Field (Shane Seep, Tonya Seep and Jackpot Seep) Dive Plan: We plan to make occasional dive trips to the Coal Oil Point Seep Field for the purpose of collecting oil and gas samples, making in-situ measurements, and testing out new sampling procedures. Dives will be typically performed from one of the UC-owned vessels (Fish1, 2 or 3), and one of the biological collectors will typically accompany us as captain and possibly as a diver. Dive entry is from the side of the boat and the anchor line is typically used for ascent and descent. Tasks typically include collection of gas/sediment/water, deployment and recovery of in-situ sensors, and videography. We anticipate that undergraduates divers will not be involved with investigations at these deeper sites.

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

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

For work on the intake pipes: Funnels, Sample Bottles, Stakes, Temperature probes, Plastic Syringes, Camera, Shovels.

For deeper sites: Funnels, Sample Bottles, Stakes, Temperature probes, Plastic Syringes, Camera, Shovels, Pneumatic vibrocorer (tank or surface supplied).

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

Standard coastal conditions including occasional limited visibility as well as strong currents and winds.

Safety Precautions/Training:

All divers are certified as research divers and trained by more experienced lab members.

Divers will leave the bottom with sufficient air to reach the surface with 500psi, and also monitoring their own air supply frequently.

For Dives off Coal Oil Point, several additional precautions will be taken:

Currents: Given the potential for strong currents at these dive sites a whistle and/or some sort of signaling device (scuba-tuba) will be required for all divers. Also, holding a dive slate in the air works really well as a surface signal to a boat if needed.

Ascent/Descent: Given the possibility for strong currents, each ascent and descent should be planned along the anchor/down line. Divers will typically connect a transect tape to the end of the anchor and use that to guide them to and from the dive site.

For dives greater than 60ft (Shane Seep and Tonya Seep) divers will add 1-2 minute mid-water stop (~40 ft) along with the standard 3-5 minute safety stop at 20 ft.

Expected Dive Team Members *(if known)*

UCSB Research Diver:

Name	Depth Certification
1. Diver in Charge: Valentine, David *	60ft
2. Kinnaman, Frank - DM	60ft
3. Wardlaw, George	30ft
4. Campbell, Brian	30ft
5. Busso, Luis	30ft
6. Kimball, Justine	30ft
7. Kendra Swain	30ft
8.	Select Depth

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

Name	Agency/Institution	Depth Certification
1. Wiebke Ziebis	USC	100ft
2. Tina Treude	USC	
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.

UCSB's Diving Safety Cell Phone # (805) 451-5099