

DIVING GUIDELINES AND EMERGENCY EVACUATION PLAN

Armada De Mexico "Quetzalcoatl"
Caleta de Campos, Michoacán Dec 20-21st, 2008
Expedition Dive –Map/Survey Dive
Oceanos Dive Center - Alberto Ruiz Gaytán

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Dive Plan: Expedition Dive –Map/Survey Dive

The Quetzalcoatl is a fairly unexplored wreck, as of November 24th, 2008 it has been resting on the bottom of the Mexican Pacific for two years.

Introduction

It is understood that Caleta de Campos, Michoacán, and the ship the “Quetzalcoatl” specifically, provides SCUBA conditions and diving opportunities that are ideal for wreck exploration. The “E-10 Quetzalcoatl” is military vessel that the Secretary of the Navy – Armada de Mexico donated to the government of the State of Michoacán for the purpose of scuttling her and creating a protective environment, an artificial reef, for fish species to increase commercial fishing stocks, as well as for SCUBA exploration and tourism.

The ship was built in the United States and was made a standard bearer in the Mexican fleet February 24, 1982. The ship of 110 meters of length and 12 meters wide, and served during its useful life in the battle of illegal fishing, environmental protection, gun-running and the drug trafficking. It was the center of instruction for the training group of the Pacific, and carried out operations of military transportation and rescue, and was considered flagship of the Naval Force of the Pacific. Honorable mention was granted to its crew in recognition to its successful participation during the rescue of the Mexican Petroleum tank ship "Bacab" that was set on fire 10 nautical miles off the tip of Maldonado Oaxaca, June 13, 1995. The Quetzalcoatl is at a maximum depth of 95fsw. The ship located at 18 36.5'N 094 25.1' W. It is unmarked. Most of the year the top of the conning tower (broken) is at a depth of 12 msw/40 fsw during slack tide.

As with all diving exploration, diving at the site can be difficult and dangerous, divers who choose to dive on the site do so at their own risk and should keep in mind to promote safety considerations at the site. Diving is a demanding and exciting activity and when performed properly, applying correct techniques it is a safe sport. When established safety procedures are not followed, however there can be dangers. Despite modern equipment and up to date training programs sport diving, when conducted improperly, can be considered hazardous and like any other active sport, accidents can occur. Statistics show that the majority of diving accidents can be prevented if safe diving standards are followed. Diving accident reports reveal that many diving fatalities can also be prevented if proper rescue and resuscitation techniques are followed.

Therefore the following safety procedures manual is a summary of accepted safe diving practices and guidelines as well as emergency management procedures. It is intended as a reference; for suggestions or recommendations only. To minimize the potential for mishap, possible accident scenarios, and how to prevent them, are outlined in the emergency management section. If an accident does occur, following the emergency

procedures guide could possibly prevent a more serious situation. Each dive and the conditions encountered are specific unto themselves, particularly on the E-10 Quetzalcoatl site. The decision to dive this site and the technique(s), used to conduct the dive should be made by each diver based on his/her level of experience, training, physical ability, and proper equipment. The weather and sea conditions should also be taken into consideration and constantly monitored as wind and waves at the site can change very rapidly.

The diving conditions at E-10 Quetzalcoatl site can be dangerous and diving should only be undertaken by advanced divers experienced in low visibility environments, deep depths, strong currents and wreck diving environments. All divers should understand that any diving conducted at the E-10 Quetzalcoatl site is done at your own risk.

Diving in Mexican Pacific you can enjoy the diverse abundance of sea life and environments.

Keep an eye open for:

- | | |
|----------------------------------|-------------------------|
| ✓ Manta Ray's, | ✓ Octopus, |
| ✓ Spotted Eagle Ray's, | ✓ Arrow Crab, |
| ✓ Hawksbill Turtle's, | ✓ Lobster, |
| ✓ Indo-pacific Sargeant's, | ✓ Christmas Tree Worms, |
| ✓ Moorish Idol's, | ✓ Cones Angelfish, |
| ✓ Black-Blotched Porcupine fish, | ✓ Nurse Shark, |
| ✓ Bumphead Parrotfish, | ✓ Whitetip Reef Shark. |

As always it will be important to respect the environment and the sea life around us. ALL OF THESE ANIMALS ARE BETTER ADAPTED FOR THE OCEAN THAN WE ARE. For safety do not bother the sea life.

Of the animals mentioned be especially respectful of the Hawksbill Turtle, Nurse Shark and Whitetip Reef Shark. If provoked these animals will protect themselves and may cause injury to you. Very often, in fact, inexperienced skin-divers amuse themselves by tugging at the tail, which may protrude out from a gap where a Nurse Shark is concealed. Do not do this, the results have been disastrous.

A reference is located in at the back of this emergency evacuation plan regarding the sea life behaviour and FIRST AID.

EMERGENCY ADDRESSES & PHONE NUMBERS:

Emergency Services: 060

Dive Alert Network: +1-919-684-9111 (Latin America Hotline)

Hyperbaric chamber: Call DAN – none located in the area

Air ambulance: Aeromedevac

001-800-832-5087 Toll Free in Mexico

DAN c-card, waivers, emergency phone numbers, allergies and medical personal information located at back.

EVACUATION PLAN

1. Caleta De Campos, Quetzalcoatl:

Since the distance to a medical facility is substantial it is recommended in the event of a serious dive accident to call in air evacuation:

Call 060 by cell phone, call the Coast Guard Station by marine VHF radio channel 16. Start the radio call with "MAYDAY, MAYDAY, MAYDAY."

Report the nature of the emergency, and request the appropriate response. Request the responders to contact the Divers Alert Network (DAN) at 1-919-684-8111. If you are moored at the site itself, report your position. Latitude, Longitude (site specific). If you are not moored at a site, report your position using GPS coordinates or with reference to visible landmarks on shore. If you leave the site before assistance arrives, be sure to keep the Coast Guard and other emergency responders informed of your location and your movements.

Checklist for a smooth and successful AIR Evacuation:

Identification: Patient and passengers name, date of birth, address, social security and passport # if possible.

Insurance information: Have the patients DAN information.

Name of insurance

Policy and group #

If you are not the primary subscriber, we will need their information as well: name, date of birth and identification #.

Customer service toll-free #, all cards will have a benefits and customer service number located on the back of the identification card.

If the accident is not immediately life threatening

Take patient to the main harbor this is the area NNW of the site, if possible have emergency services meet the team there. Move the patient to the best possible evacuation point, again, if possible. If emergency services are not available within a reasonable time move the victim via route MEXICO 200 southwest (map right) to the city Lazaro Cardenas (travel time: 1 hour) and alert the hospital or medical facility.

EDIT: Map deleted - go to Google earth.

I. GENERALLY ACCEPTED SAFE DIVING PROCEDURES

When diving, you will be expected to abide by current standard diving practices. These practices have been compiled to reinforce what you have learned, and are intended to increase your comfort and safety in diving. As a certified diver, you should:

- A. Maintain good mental and physical fitness for diving. Avoid being under the influence of alcohol or dangerous drugs when diving. Keep proficient in diving skills, striving to increase them through continuing education and reviewing them in controlled conditions after inactivity.
- B. Be familiar with your dive sites. If unfamiliar, obtain a thorough diving orientation from a knowledgeable, local source. If diving conditions are worse than those in which you are experienced, postpone diving or select an alternate site with better conditions. Engage only in those diving activities which are consistent with your training and experience.
- C. Use complete, well maintained, reliable equipment with which you are familiar; and inspect it for correct fit and function prior to each dive. Deny the use of your equipment to uncertified divers. Always have a buoyancy control device and submersible pressure gauge when scuba diving. Recognize the desirability of an alternate source of air and a low pressure buoyancy-control inflation system.
- D. Listen carefully to dive briefings and directions, and respect the advice of those supervising your diving activities.
- E. Adhere to the buddy system throughout every dive. Plan all your dives, including communications, procedures for reuniting in case of separation, and emergency procedures, with your buddy.
- F. Be proficient in dive table usage. Only make decompression dives if trained to do so, and allow a margin of safety. Have a means to monitor your depth and time under water. Limit maximum depth to your level of training and experience. Ascend at a rate of 30 feet per minute or slower.
- G. Maintain proper buoyancy. Adjust weighting at the surface for neutral buoyancy with no air in the buoyancy control device. Maintain neutral buoyancy while under water. Be buoyant for surface swimming and resting. Have weights clear for easy removal, and establish buoyancy when in distress while diving.
- H. Breathe properly for diving. Never breath hold or "skip breathe" when breathing compressed air. Avoid overexertion in and under the water, and dive within your limitations.
- I. Know and obey local diving laws and regulations. If in doubt check first with the appropriate agencies.

II. SPECIFIC CONDITIONS AND PROCEDURES

A. Site Conditions

Caleta de Campos, Quetzalcoatl
Mexico Pacific

Current: Slight
Bottom temperature: 75 +/- 24 °C
Hull and structural condition: Excellent, 1/2" metal rusted through, 4-12" coral fans, some large barnacle growth,

B. Safety Guidelines for diving the E-10 Quetzalcoatl site

1. Normal safe diving rules.
2. Current is not expected to be an issue. Visibility and Temperature see below, site characteristics C-2.
 1. If there is boat traffic in the area of the site, safe diving practices recommend the dive vessel displays a sport diver flag (red with white diagonal).
 2. Better practices are to deploy a long floating safety line ("tag line") to assist divers who may surface away from the dive vessel. The line should be at least 50 feet long, with a highly visible buoy or dive flag at the end. Boat captains and/or dive masters have a prearranged plan for recovering divers who surface too far from the dive vessel. Since anchoring is not allowed at the location the boat will come to us. The plan for this contingency should be discussed and understood by all divers.
 3. A lookout (Captain) will be posted on the boat to watch bubbles, buoy markers and to spot divers surfacing away from the site. Once a surfaced diver is spotted the lookout should confirm that the diver is OK and should maintain visual contact with the diver until recovery is completed.
 4. A dive plan is especially important. Be sure to plan for contingencies and stick to your dive plan.
 5. Divers can descend and ascend on a small buoy line, if present, but the small buoy line is not as strong as an anchor line. Use the line as a reference.
 6. For emergencies the dive vessel maintains a marine VHF radio, first aid kit, and medical oxygen on board.

C. Site characteristics

1. Depths:

anchor: 95 feet

main deck and base of conning tower: 65 feet

top of conning tower: 45 feet

2. Visibility and Temperature:

Caleta de Campos Water Conditions :

Visibilty is between 2-3m or 8-12ft

3. Current: slight

III. SITE PRESERVATION GUIDELINES

The Armada de Mexico "E-10 Quetzalcoat!" is a valuable resource. The vessel has been stripped bare before scuttling the purpose to created an environment to protect the vessel and to ensure divers access to enjoy this site. It is possible that you see something of significance to the site. DO NOT REMOVE ANYTHING. Bouyancy control is an important skill that allows you to stay off the bottom while diving and avoid incidental contact with the vessel and sensitive aquatic life. Strealine yourself to avoid dragging equipment and damaging the environment (as well as your gear). Use clips, cords and holders to keep all accessories, gauges, and alternate air sources close to your body.

Use environmentally friendly propulsion and avoid pulling yourself along by grasping sensitive parts of the environment. Watch your fin tips while kicking or hovering.

Protect the environment from anchor damage.

Recognize you are visiting the underwater world. Do not engage in intrusive or consumptive activities of any kind (hunting, fish feeding, or molesting aquatic life.)

Above all, leave the environment the way you found it (or a little better.)

If possible it is recommended that divers take an specialty environmental awareness course such as PADI's "Project AWARE".

IV. EMERGENCY MANAGEMENT

A. General Emergency Procedures

In any emergency on site, call 060 by cell phone, call the Coast Guard Station by marine VHF radio channel 16. If the situation may be life-threatening start the radio call with "MAYDAY, MAYDAY, MAYDAY."

Report the nature of the emergency, and request the appropriate response. If a diving emergency is involved, request the responders to contact the Divers Alert Network (DAN) at 1-919-684-8111. If you are moored at the site itself,

report your position. Latitude, Longitude (site specific). If you are not moored at a site, report your position using GPS coordinates or with reference to visible landmarks on shore. If you leave the site before assistance arrives, be sure to keep the Coast Guard and other emergency responders informed of your location and your movements.

B. Specific Risks

The Mexican Pacific can pose specific risks, in addition to the more general risks of diving. Techniques for reducing those risks are offered below for consideration.

1. Lost Diver. A diver can become disoriented in the low visibility, and lose contact with the wreck itself or his buddy. The diver may ascend slowly and surface safely down current, away from the site, but might not be able to return to the dive vessel because of strong current. If the surfacing diver is not seen or heard by a lookout aboard the dive vessel, the diver will continue to drift farther away, and by the time he is discovered as missing he might not be visible to those on board the dive boat.

PREVENTION- Pre-dive plans should familiarize divers with the site
Post a lookout to watch for bubbles and surfacing divers
Deploy a long, floating tag line from the dive vessel
Have a plan for recovery of divers drifting down current
Make sure all divers know and understand the plan.

2. Air Embolism A lost or disoriented diver may panic and may surface too rapidly, causing an air embolism injury. This problem could be compounded if the injured diver surfaces too far down current to be easily seen or reached by those on board the dive vessel.

PREVENTION Pre-dive plans should familiarize divers with the site
Post a lookout to watch for bubbles and surfacing divers
Deploy a long floating tag line from the dive vessel
Have a plan for recovery of divers drifting down current
Post a stand-by surface rescue diver (if possible)
Have a prearranged plan for the treatment of air embolisms
Have medical oxygen on board the dive vessel
Have a prearranged plan for evacuation if necessary.

3. Exhaustion / Heat Stroke / Heart Attack Strenuous conditions for the technical diving require that divers be in good physical shape. It is possible that divers may overestimate their physical abilities and return from the dive exhausted and unable to properly exit from the water. While this is not in itself a serious problem it could become more complicated in the strong currents at the waters surface or manifest itself once the diver is aboard the dive vessel.

PREVENTION Screen divers before they enter the water

Deploy a long floating tag line from the dive vessel

Post stand-by divers or swimmers to assist tired divers

Be prepared to administer CPR

Be aware of signs of heat stroke and heart attack.

4. Decompression Sickness Technical diving is often deep diving and it presents a potential for decompression sickness. In addition to strong currents, the water temperatures can be cold in spring and fall. A deep dive involving cold water and strenuous exertion on the part of the diver can result in decompression sickness even if the diver stays within the dive tables.

PREVENTION Adjust dive plans to allow for cold, deep, strenuous dives

Have medical oxygen on board the dive vessel

Have a prearranged plan for treatment of decompression sickness

Have a prearranged plan for evacuation if necessary.

C. Accident Management

In the absence of other, qualified medical advice, follow the accident management procedures recommended by DAN or emergency responders.

1. Hospitals:

CLÍNICA ROSAURA Phone (753) 532-0068

La Villita

Col. Fidelcomiso 1a

CP 60950, Ciudad Larzaro Cardenas, Michoacan

2. Recompression chamber:

No recompression chamber has been located in the area.

In an emergency, call DAN.

V. DIVERS ALERT NETWORK (DAN) INFORMATION +1 919 684-8111

The Divers Alert Network (DAN) was formed in 1981 to assist in the treatment of underwater diving accidents by providing a 24-hour telephone emergency number. This number may be called collect in emergencies.

Calls are received at DAN headquarters at Duke University Medical Center, Durham NC.

For medical problems the caller is connected with a physician experienced in diving medicine. These physicians assist with diagnosis and initial treatment of the accident, and supervise referral to an appropriate recompression chambers while working with regional coordinators throughout the nation.

DAN does not maintain any treatment facility and does not directly provide any form of treatment, but provides service to complement existing medical systems. The most important function of DAN is to facilitate the entry of the

injured diver into the hyperbaric trauma care system by coordinating the efforts of everyone involved in the victim's care.

The nation is divided into regions, each headed by a regional coordinator who is a physician experienced in diving medicine. Each regional coordinator maintains up-to-date information on chamber status, transportation facilities, and other diving medical services within his area. The DAN physician and the regional coordinator work together in transferring the patient to an appropriate and available chamber.

Another important function of the Network is collecting and analyzing data on diving accidents to improve the understanding of the causes of diving accidents and to develop better treatment methods.

In the event of a diving emergency, call DAN (Divers Alert Network) at +1-919-684-8111.

Call collect if necessary in an emergency. Ask for a diving physician.

Decompression Sickness

In the event of an DCI emergency:

1. Calm and reassure the patient
2. Maintain open airway – prevent aspiration of vomitus
3. Place a breathing patient level on the left side, head supported. To do this place patient on a solid, yet movable surface. Consider the patients general comfort. A non-breathing pulseless patient must be placed on his back for rescue breathing and CPR. Advise patient not to sit up
4. Administer Oxygen
5. If convulsions occur, do not forcefully restrain. Turn head to one side, maintain airway, sweep away any vomitus. Resume Oxygen.
6. Protect from Heat and Cold, wetness and noxious fumes.
7. Administer nonalcoholic, non-caffeine fluids like fruit juices, orally.
8. Contact the emergency reference source by phone or radio for direction and instructions.
9. Arrange immediate evacuation to the appropriate medical facility. Immediate transportation to this facility is essential, first aid should be administered reroute. Send all diving equipment with the patient. Forward Accident Management Workslate and DAN c-card, emergency phone numbers, allergies and medical personal information.

NOTE: Recompression of individuals with the bends should not be attempted in the water. This can actually worsen the situation, delay medical care and jeopardize the safety of the other divers.

IANTD recommends Navy water recompression guidelines for deep divers in where recompression chambers are unavailable.

Should a diver realize that they have exceeded the no-decompression limits prior to reaching the surface, and they do not have access to USN decompression tables to determine required in-**water** deco time, they should:

- Stop at 10 – 15 fsw for a minimum of 15 minutes or until they reach 300 psi in their cylinder, which ever comes first
- Once on the surface they should be placed on oxygen for a minimum of 30 minutes, observed, and restricted from diving for 12 hours
- If symptoms occur during or after breathing oxygen for 30 minutes, they should be transported (on oxygen) to the nearest medical facility for treatment

Omitted Decompression-2

- Should a diver not realize that they have exceeded the no-decompression limits prior to reaching the surface, or they have insufficient gas to perform in-**water** decompression, they should:
 - Proceed to the surface at a normal rate of ascent
 - Once on the surface they should notify the divemaster of their omitted decompression
 - If asymptomatic, and the diver can be returned safely to the **water** within 5

minutes after surfacing, they should dive to the depth of the missed decompression stops and remain for 1½ times the required decompression stop time

- If the diver cannot be returned to the **water** within 5 minutes, they should be placed on oxygen for a minimum of 60 minutes
- If asymptomatic after breathing oxygen for 60 minutes, they should be observed for a minimum of 12 hours for signs and symptoms of DCS and restricted from diving during this observational period
- If symptoms occur during or after breathing oxygen for 60 minutes, they should be transported (on oxygen) to the nearest medical facility for treatment

Note: If a diver is asymptomatic and unable to return to the **water** to complete omitted decompression, and a **recompression** chamber is available within 1 hour travel, the diver should be transported to the chamber for possible treatment using USN TT5 or 6