

**CALIFORNIA PROFESSIONAL
DIVERS ASSOCIATION...BMP COMMITTEE**



**DIVERS HULL CLEANING
BEST MANAGEMENT PRACTICES
CERTIFICATION MANUAL**

HAND HULL CLEANING

OBJECTIVES

1. Be familiar with the California Professional Divers Association Mission
2. Be familiar with Hand Hull Cleaning Procedures
3. Understand the Tools / Equipment used in Hand Hull Cleaning
4. Be Familiar with the Physical Factors of Hull Cleaning/Diving

***California Professional Divers Association is a non-profit organization
registered with the State of California, est. July 1999***

HOW DID WE GET HERE?

1. Concerns with the Federal EPA's recommendation to disallow in-water hull cleaning
2. Environmental concerns, including NPS pollution issues and Clean Water Act
3. Relationship and responsibility to our clients (boat owners)
4. Looking at future environmental concerns

CONCERNS

1. Small group of divers working to develop a solution to reduce the NPS copper loads in the bay
2. Copper loads may not show a measurable decrease due to the large external influences beyond our control
3. EPA may implement stricter or possibly unworkable guidelines for in-water hull cleaning
4. Could force many small companies out of business statewide

MISSION STATEMENT

- To provide a standard to the professional diving community in which all services performed under water are unified in the same practices
- To address current NPS pollution issues, the Clean Water Act, and future environmental concerns
- To provide a single focal point of contact for government agencies, organizations, the community and other stakeholders with professional diving services in our region

GOALS AND OBJECTIVES

1. Reduce the NPS copper loading in surface waters caused by underwater hull cleaning
2. Educate Boat owners and Divers of NPS pollution
3. Provide a centralized Point of Contact for all government agencies
4. Develop a Partnership with the community for a healthier bay

OUR STRATEGY

- Underwater Hull Cleaners Best Management Practices (BMP) Manual
- Professional Divers Certification Program for NPS pollution
- Professional Divers Training Program & Training topics

WHERE WE ARE TODAY

- Numerous diving companies statewide involved the CPDA and growing BMP's are in use within the CPDA member divers
- California Coastal Commission and State Regional Water Quality Control Board are working closely with the CPDA
- Rollout of BMP certification program

HULL CLEANING PROCEDURES

1. Use the least abrasive method available
2. Refrain from using abrasive cleaning practices that visibly release bottom paint into the water
3. Refrain from cleaning any paint system with wet sand paper
4. Do not sand or strip hull paint underwater
5. Suspend cleaning practices on new painted bottoms for at least 60 days
6. ****Report all paint problems to supervisor or proper company personnel (chips, flaking, cracks, etc.)

HAND CLEANING OF MARINE VESSELS

- Tidal Beaching
- Copper sheeting
- 50 year history
- Routine monthly yacht maintenance
- Currently over 200,000 boats subscribe to monthly services performed in the state

BALLAST WATER

- Introduction of Marine Pests
- Non-Native Marine Species
- Marine Organisms and their ability to proliferate
- Ports around the globe
- Pest and Fouling control
- Endangered Native Flora and Fauna

TOOLS

- Pads
- Scrapers
- Steel ribbon pads, wire brushes
- Miscellaneous

PHYSICAL FACTORS / EQUIPMENT

- Wet suit / dry suit should fit properly
- Basic Dive Gear
- Health and Diet
- Dehydration
- Equipment and Personal Maintenance

EQUIPMENT / TECHNIQUES

- Tank / Backpack
- Hookah
- Compressor
- Correct pad usage as to paint conditions
- Carpet and white pads (soft)
- Purple and green pads (medium)
- Brown pads (coarse)
- Black and steel pads (abrasive)

COMPONENTS FOR SUCCESS

- Reliable transportation
- Reliable tools and equipment
- Control over negative outside influences
- Time management
- Desire to work and improve technique

ESSAY ON THE MARINE DIVER

Hull cleaning has been practiced for over forty years in California waters. The primary method of which this task has been achieved is by hand. In addition to removing the fouling from boat hulls, the marine diver must also be prepared to handle the many general repair needs on a variety of vessels. To accomplish these tasks, the marine diver must be familiar with a compliment of tools, equipment, and the technique required to provide his or her clients with a professional service.

Some form of air delivery is essential for completing the majority of exercises carried out in under hull maintenance operations. The preferred method is the use of surface supplied air, or a "hooka" system. This system implements a compressor, length of hose, and a second stage-breathing regulator. A second hooka option utilizes stationary air tanks and a length of hose positioned between the first and second stages of any suitable diving regulator. This method allows the diver the freedom of movement without being encumbered by a tank attached to his or her body. When choosing a hooka system, it is very important to only select an approved "air safe" breathing hose.

A second method suitable for marine diving is the backpack or B.C. method in which a diver is attached to the air supply much like an ordinary scuba diver. When using the backpack method, the diver should always be aware of the relationship between the tank valve position and the hull of a boat, a sudden shift in body position could result in a collision between the two and possibly damage the anti-fouling paint or scratch the gel coat. Another factor to be aware of in utilizing this method is the lack of visibility. The boat owner cannot always see a diver under a boat without the presence of a compressor or work cart at the dock head.

Using a compressor eliminates the need to fill air tanks and allows the diver to remain underwater for any desired length of time; however, the maintenance for these machines can be costly. Air filters must be changed frequently to ensure no contaminants are being introduced into the breathing hose.

The marine diver should always be equipped with a compliment of tools at each job site: including screw drivers, scrapers, wrenches, a socket set, knife or saw, and some form of measuring device. It is important to understand how each tool relates to the hull cleaning practice. Ask a supervisor or other more experienced divers questions concerning specific tooling applications. It is crucial for the safety of the diver to understand fully the scope of the operations he or she is asked to perform.

The most important objective for marine diver is to properly service each and every vessel properly with minimal impact on the environment. Having a variety of cleaning pads is essential. Knowing which paint system requires what degree

of cleaning measure will ensure a proper cleaning and eliminate abrasive cleaning on painted surfaces.

There are many techniques used to accomplish under hull cleaning. Some divers prefer to save on air and use a snorkel on the waterline of the vessel, then proceed underneath to work on the hull and running gear. Others prefer to use their air supply for the duration of the service. A diver may use a side to- side wiping motion, or a top to bottom wiping motion, either is fine. Physical technique is an individual decision. However, it is important for a diver to minimize the passes made on the painted areas of the hull. This will lesson the impact on the environment and be less taxing physically for the diver. The marine divers environment is a potentially hostile one, and every diver should pay close attention to his or her equipment and physical well being. A good wet suit or dry suit depending on water temperature is very important. A cold diver is unproductive and prone to making mistakes. Good thermal protection allows the diver time, thus greatly shortening the learning curve of this vocation. The marine diver is only as good as his or her equipment allows. Maintain all of your gear and replace tools as needed.

Maintaining your body is equally important. Be sure to replace your fluids often and feed yourself throughout the day. Dehydration is the leading cause of fatigue in all people, and a major factor in the daily routine of the marine diver. A lack of energy will greatly reduce the productivity of any individual engaged in a physically demanding activity. Listen to your body and take the necessary precautions in making sure it does not fail you. A clear head, fit body, and a little motivation is all one needs to embark on a career as a professional diver, but always remember our environment comes first, if we abuse it, our industry might soon be a forgotten one.

HAND HULL CLEANING QUESTIONS

- 1. What was the primary reason for the formation of the California Professional Divers Association?**
- 2. Name 5 things that can affect a diving hull cleaners' ability to perform his job properly.**
- 3. What is considered to be a non-abrasive "soft pad" in hand hull cleaning?**
- 4. Name three (3) Physical factors that effect divers performance.**
- 5. What are three (3) methods to provide the working diver with air while hull cleaning?**