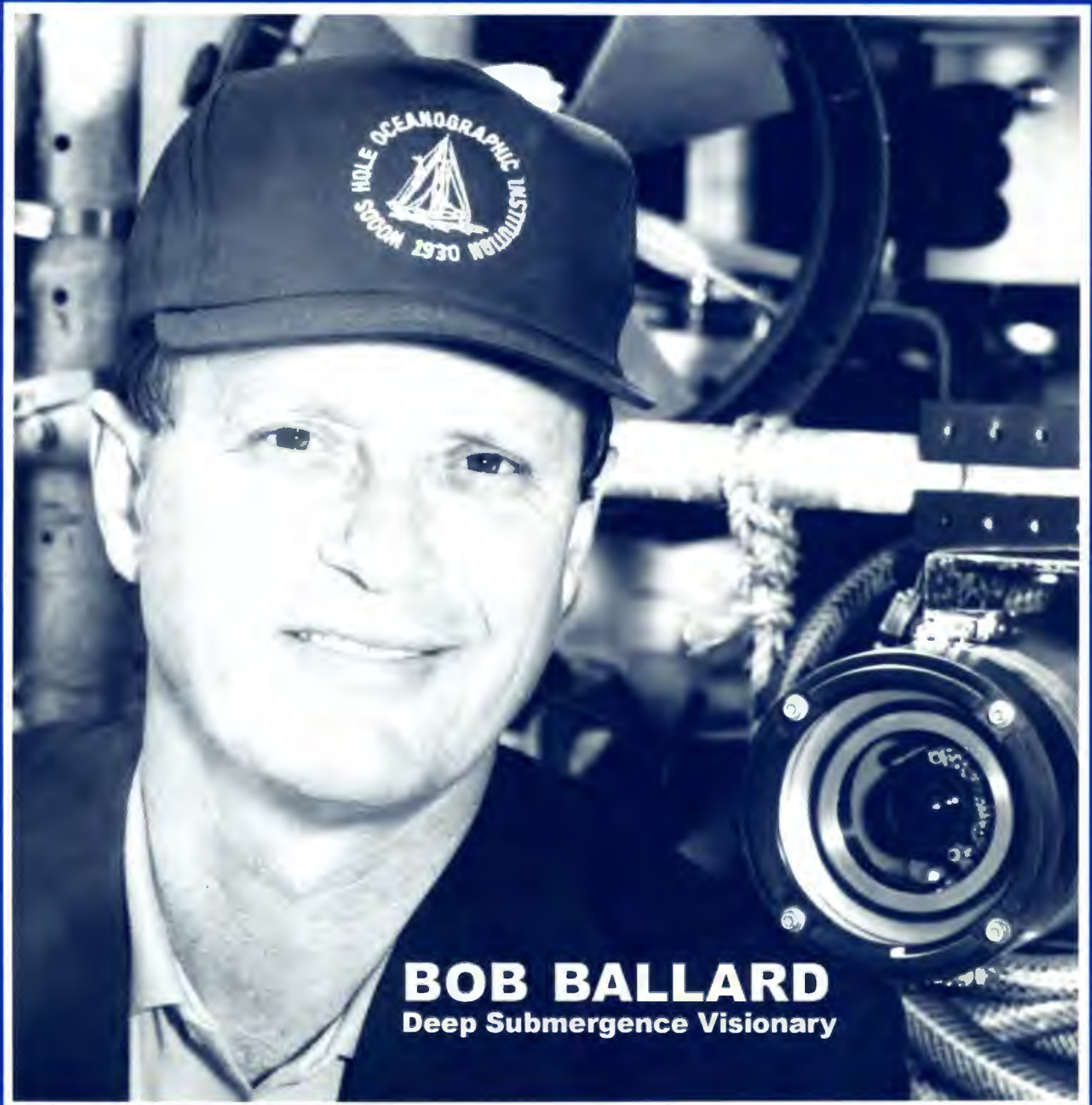


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JOURNAL

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150 Marine Street, City Island, NY 10464  
Voice 718-885-3332 Fax 718-885-9002  
E-Mail - CompuServe 72650,220  
or JDSUBAQUA@AOL.COM

Publisher / Editor  
Joel D. Silverstein

Associate Publisher  
James F. Cleary

Managing Editor  
Jeffrey J. Silverstein

Senior Editors  
Daniel Berg, Bill Bleyer, Hugh Fletcher,  
Capt. Hank Garvin, Capt. Roger Huffman,  
Kirby Kurkomelis, Barb Lander,  
Shannon Sikes, Capt. Eric Takakjian

Writers & Photographers  
Tom Baker, Capt. Stephen Bielenda,  
Dr. Jolie Bookspan, Glenn Butler,  
Ken Farrow, Dr. Jennifer A. Flynn,  
John T. Crea, Rod Farb, Gary Gentile,  
Bret Gilliam, Peter E. Hess, Don Kincaid,  
Jozef Koppelman, Capt. John Lachenmeyer,  
Kourosh Mahboubian, Bob Raimo,  
Bradley Sheard, Brian Skerry, Simon Tapson  
Hillary Vidars, Capt. Joe Weatherby  
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Sub Aqua is published by SAJ Publishing Inc. Subscription rate for 1 year (6 issues) \$39.00. Subscription outside of U.S. add \$30.00 postage. Paid orders U.S. funds only. Send requests to the circulation department. Postage paid at Appleton, WI and other locations. POSTMASTER: send address changes to Sub Aqua, 150 Marine St. City Island, NY 10464. All address changes are to be in writing.

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July/August 1995 Volume 5, Number 4

# INTERNATIONAL WRECKS

**W**e're going to places only courage could have taken us to, and some only imagination could reach. Diving is more than ever an international connection, as people and places are linked through jet travel, and computer networks. Buckminster Fuller's famous Dymaxion Map showed that our planet is "One earth island in one world ocean." All the continents are connected, as are all the oceans. The advent of satellite communications made us a global village. Diving the *Andrea Doria* or *U.S.S. San Diego* is connected to diving in Truk Lagoon or the *Lusitania* or England or Bermuda or even the North Pole. In this issue we celebrate the past, with some of the most significant historical wreck sites around the world, and the future, through the "hyperlinked" ROV-ing eyes of Bob Ballard.



Divers are travelling far, and they're travelling deep. In this issue you'll find both the practical aspects of travelling to exotic locales, and cyberspace virtual diving of very deep sites like the *Titanic*. Since we're in the thick of the summer dive season we hope this copy of **SUB AQUA** finds you returning from a safe and satisfying expedition. We suspect the explorers in this issue will stimulate and challenge both your courage and your imagination.

Joel D. Silverstein, Editor



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## THE HANG LINE

### 600 Pound Propeller Salvaged off Long Island

The *Valerie E.* was a 71 foot clam dredge that was reported overdue at 12:30 PM on January 16, 1992. At the time she had three crew men aboard. The Coast Guard located the sunken wreck the next day, but unfortunately in the frigid winter waters there was little hope for the crew. They were never recovered and presumed dead.

The wreck now sits on her port side in 75 feet of water. When the wreck was first visited in the spring of 1992 she was in near perfect condition. At that time her bronze propeller was still shiny. After a powerful Noreaster in the fall of the same year, the wreck was moved about 200 feet inshore. Apparently the storm was so powerful that the wreck bounced across the bottom because one of the propeller blades bent forward 90 degrees. For the next few seasons various groups attempted to recover the prop. Some tried hack saws while others attempted in vain to loosen her two six inch shaft nuts.

On the morning of May 31, 1995, divers Mike McMeekin, Joe Koppelman, Bob Raimo, Fred Belise, Bob Studen and Dan Berg boarded the *R.V. Wreck Valley*. Led by veteran wreck diver Mike McMeekin the team planned on filming, photographing and raising the *Valerie E's* 600 pound five blade propeller.

Heavy salvage requires not only the proper equipment but meticulous planning. Each diver had a specific task. Fred set the hook and brought down the torches. Mike and Dan filmed and cut the shaft, utilizing underwater torches to cut through the 4.5 in diameter stainless steel shaft. Bob Raimo acted as a safety diver while using a wireless communication system to relate conditions to a topside tender. After the shaft was cut Bob Studen, Fred and cameraman Joe Koppelman rigged the prop and sent her to the surface.

The salvage was completed with the use of three 250 pound Sub Salve lift bags which floated the heavy propeller to the surface. Conditions both topside and underwater were perfect. The sea was flat calm and visibility underwater exceeded 10 feet. The team then hauled the propeller

## INTERNATIONAL WRECKS

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ON THE COVER - Dr. Robert Ballard. Photographed on location at Woods Hole Oceanographic Institution with the Deep Submersible ROV *Jason*. Taken with a Hasselblad 500C, 150 mm Sonar lens at F8 and Norman electronic flash on Kodak Plus-X pan film rated at ISO 100 by Joel Silverstein.





(Left to Right) Fred Belise, Bob Raimo, Bob Studen, Dan Berg and Mike McMeekin.

aboard the R/V *Wreck Valley* with a hydraulic winch.

The *Valerie E's* propeller is now undergoing a lengthy preservation and restoration process, after which she will be put on display. The entire heavy salvage operation was filmed and photographed for use not only in an upcoming book project, but also to air on MSG cable network's ongoing **DIVE WRECK VALLEY** television series. ■

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# Cassandra Louloudis

## Diving the Graveyard of the Atlantic

By Captain Roger Huffman



Some days are tougher than others. Put yourself in Capt. Themis Miliias's boots on the evening of March 17, 1942. It's twilight and darkness is coming on quickly. You are about to round the Diamond Shoal off Cape Hatteras, a favorite spot of German U-Boat commanders to ambush affled ships. You've been dreading this all day, pushing your ship hard, hoping to round the shoal during daylight, hoping if someone gets hit it will be one of the ships behind you. Hoping when you round the shoal nobody will be home. Fog. The cool waters of the Labrador are meeting the warm Gulf-stream, shrouding the shoal in fog. Great. Then the radio lights off. The *Acme*, a tanker in the fog ahead of you just took a hit from a torpedo! It's a bad one, with lots of dead and injured. You dive into the fog and hope it's not your turn. The German should be running now, avoiding retaliation from the Navy escorts.

Should have been, but wasn't. Just as the *Cassandra Louloudis*, Capt. Miliias in command, was leaving the shoal behind, she took a torpedo in her port side. The crew was lucky enough to escape unharmed but had to leave their ship behind.

The *Cassandra* was sunk off the northeastern tip of the Diamond Shoal. This is an area that experiences some rather radical shifts in water conditions due to the influence of the cold waters of the Labrador current and the warm waters of the Gulf Stream. One memorable day when we pulled up to dive the *Cassandra*, the interface between the Gulf and the Lab was actually parked over the wreck. We had a beautiful blue/green color change with calm seas on the blue side and four footers on the green side caused by the Lab pushing against a southwest wind. I'm sure the dive would have been really interesting but the divers elected to move on to a less dynamic piece of ocean. During the winter the water temperatures reach the lower 40's and jump into the 60's overnight when the Stream pushes in. During the summer the water swings between the 60's and 70's depending on which body of water has pushed into the area. Because of these



changes in conditions the *Cassandra* has a lot of growth on it that you would associate with a more northern wreck, yet holds semitropical marine life. The wreck is covered with white coral and queen angels. And sandtigers!

When we have a warm water winter as the last several have been, the bluefish which winter in the area tend to hang out around the shoal and the sandtigers gather to feed on them. As the water heats up and the bluefish move north into the cooler water, some of the sandtigers take up on the nearby wrecks to feed on the amber jacks and rays that the wrecks attract.

By late June or early July the sharks begin to move on. Why? Who knows. Possibly to take advantage of the number of amber jacks that move onto the rocky areas further up the north beach. In the winter time they move back in or move further south if water conditions push the main body of bluefish down off Ocracoke.

As with most freighters, the *Cassandra* is a good "junking" wreck. She doesn't produce what you would term quality artifacts but a diver can usually find something interesting made of brass or some galley items. The wreck is covered with general cargo, coils of wire, lengths of pipe, truck pans; even an axle or two are strewn over the wreck. The ship had a forward bridge and most of the more interesting items we have recovered have come from the area just forward of the boilers where the bridge once stood. The *Cassandra* is a shallow dive, having sunk in only 70 ft. of water.

At the north end of the wreck the ship's propeller can be seen protruding out of the sand. Poking along through the wreckage you reach the prettiest part of the wreck, the engine room. Here the engine and boilers provide the greatest relief and the coral is most abundant. Further ahead the wreck eventually disappears into the sand. The eastern side of the wreck is high and the western side once again disappears into the sand. Fish life varies from cold water species like tautogs and sheeps-heads to warm water tropicals like angelfish and spanish hogfish. Visibility varies with the current. When the current is running around the end of the shoal the wreck is in an underwater sandstorm and the vis can drop down to 10 ft. When the current drops out, visibility increases to 75 ft. on blue water days and 50 ft. on green (Labrador) days. ■



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# INTERNATIONAL WRECK DIVING



By Bill Bleyer

American divers may gripe that their government is trying to regulate all the fun out of wreck diving. But compared to most other countries, the United States is a pushover when it comes to restricting access to shipwrecks and removal of artifacts from them. And divers travelling overseas can be headed for big trouble if they don't know that.

"Depending on where you go, you can basically either do it by the rules or go straight to jail," says Brett Gilliam, president of Technical Diving International. "And there's no passing go. In some countries," he continues, "the presumption is that you have tampered with them and removed items from them unless you're in a position to prove otherwise. It's know before you go. Don't presume that every country allows unrestricted access."

"It's easy to find out," advises Rod Farb, a North Carolina-based underwater photographer. "Just call ahead." In the U.S., the Navy is stepping up its efforts to stop divers from taking artifacts from sunken warships such as the cruiser *San Diego*, which lies off the South Shore of Long Island and is one of the most popular sites for relic junkies in the country. And many states are setting up underwater preserves around historic wrecks so divers can see but not touch important hulks.

But other countries are probably wondering what took us so long. "I don't think there is anyplace legally in the world where you can help yourself to artifacts," says Kevin Foster, the National Park Service's maritime historian. "The U.S. has been rather slow in adopting the same kinds of procedures," adds Farb.

"Generally in Europe the requirements are much more restrictive," Farb says. "In France you're not allowed to remove anything from a historic shipwreck without a permit from the Ministry of Culture," Foster says. "In Great Britain, you need a ruling from admiralty court to remove anything from a wreck." Farb notes that "the Irish government has stepped in and claimed jurisdiction over the *Lusitania* wreck site, much to the chagrin of two people who claim to be owners."

"In the Greek islands in the Mediterranean," Gilliam continues, "you may as well hope to see pigs fly before you ever get a permit to do anything with wrecks. In some cases, visitation is absolutely prohibited regardless of what your intent is, for instance in most of Greece."

Third world countries can also be



especially protective of their underwater history. "Some guys got jailed just a couple of years ago in Malaysia, and not for an insignificant amount of time - for about three months - because they just didn't know what the rules were," Gilliam says. "All they did was dive wrecks and removed some very basic stuff, like seashells." One of the strictest countries is the Philippines.

"The Dominican Republic takes a very, very serious approach to how they handle any type of shipwreck disturbance at all." Indonesia and other countries have outstanding arrest warrants for treasure hunters who took items without government permission and managed to leave the country, Foster says.

"It's surprising which countries take these hardline approaches," Gilliam says. "These are countries that think absolutely nothing of people smuggling ungodly quantities of drugs across their borders, but God forbid you should bring back an iron bolt from an old shipwreck."

Even when a diver takes the time to find out the wreck diving rules overseas, that may not preclude hassles. "You can get an opinion from one official and magically find out that their particular permission to do something actually evaporates when you get on the site and now you have to deal with another agency or someone with their hand out," Gilliam says. "The hand-out syndrome is particularly hard to deal with because you never know quite who you will be dealing with and who will appear around the next bend. This has been a problem in several historical excavations I've been

involved in, when we're going in there as one of the representatives of the government!"

Even some countries that generally protect wrecks from relic hunters have a hands-off attitude about some sites. "The Canadians have their national preserves where it's strictly taboo to take anything," says Andy Driver, head of operations for Mad Dog Expeditions, a New York dive travel agency. "But on the *Empress of Ireland* in the St. Lawrence Seaway in Canada, the second worst maritime disaster in history, it's sort of standard fare that everyone takes whatever they want. It's not protected."

Sometimes the rules are different for different ships in the same location. Driver points out that "in Scapa Flow in the Orkney Islands, the home of the German World War I battle fleet, the Germans have no worries about people taking anything. They don't consider it a war grave. Whereas in the same place there is the *Royal Oak*, the *Vanguard* and the *HMS Hampshire*, which are all British warships and they are strictly off-limits. You can't touch them; you can't even dive on them, because they're war graves."

And in some countries, artifact taking is a gray area with no set rules. Says Driver: "Another wreck we do is the *Bianca C* in Grenada, a 600-foot liner, where we take down enough gear to teach people technical diving and set up a good route around the inside. They've really got no hard and fast rules about what you should and shouldn't take. But the locals would prefer it to be left. They ask you if you do get anything to give it to the local museum."

While most nations take a hard line on artifact removal, others are less concerned about visits by divers who leave the wrecks intact. "In most cases," Foster says, "there are no prohibitions on diving on foreign wrecks. A permit may be required."

"In most foreign destinations, you need to expect to pay marine park fees which support protection of the reefs and wrecks," says Nick Connell, sales manager for Interspace Adventures, a Florida dive travel company.

But there are exceptions to open access. "There are few places that are outright forbidden to dive," Foster adds. In some places divers are banned because the diving would be unsafe, such as the radiation-contaminated wrecks at Bikini Atoll in the South Pacific where nuclear weapons were tested. The Park Service is helping the Department of Energy to determine if the radiation has dissipated enough



for divers to safely visit the wrecks.

"The U.S. Navy has sealed certain wrecks that have explosives or human remains on board," notes Foster. "Sport divers have unfortunately - very quickly, in some cases - gone back into U-boats that had human remains. The German government complained to the U.S. government about divers on one of their subs because a skull was removed and was being used as a candelabra by one of the divers in North Carolina. That's not something that should be happening at a war grave."

Then there are wrecks off-limits because of their sensitive location. "The *Arizona* and the *Utah* are restricted because they are within the Navy base at Pearl Harbor," Foster says. "In the case of *Arizona*, it's also dangerous as hell and it's also a massive war grave."

Often, even when wrecks can be visited, it is only after observing local custom. In Truk Lagoon some of the more remote wrecks are only accessible with permission of the local chief, Gilliam says. "You have to make sure the proper ring is kissed."

Likewise, "in Yap there are different clans," explains Connell. "And different areas of the island are controlled by different clans. You will not be able to dive their dive sites unless you have kowtowed to that clan. There are cultural things you need to know, no question about it." ■

## PRACTICAL CONSIDERATIONS FOR DIVING OVERSEAS

**F**inding out what the local laws and customs involving wreck diving are before going diving overseas is only part of the preparation a smart diver makes. There are insurance and customs issues to consider.

"PADI and DAN both have worldwide insurance coverage for divers. I would certainly advise taking out both of those policies," Farb says. The air evacuation coverage is invaluable when diving far from home, he said.

"We always require people to have insurance and we set up an emergency evacuation plan and a medical system before we go," Driver says. As for getting through customs, Driver says, "I've never known of anybody being stopped at customs for personal dive gear."

Farb adds: "I have only had a moderate amount of trouble. If you're not carrying an

enormous amount of gear, usually you breeze right through. We come through with 20 or 30 cases.

Generally it's best to go to customs in the U.S. to register camera equipment and so forth before you leave the country so you can get the official documents and then you're able to bring them back in. "If you're travelling with a lot of gear it might be worth investing in a carnet," he continues. "That usually expedites the in and out. A carnet is issued by the International Chamber of Commerce. It's a form where you list in a specific manner and way that can't be altered, the equipment, the value, the country manufactured and the weight."

Then you can either post a bond yourself or the International Chamber provides an insurance company which will post that bond for a certain percentage. The carnet was invented by the French it means a little book, but in fact is a large legal-size document. It greases the flow. You're guaranteed that you have to bring everything out otherwise you forfeit a massive amount of money.

A final issue is how much gear to bring with you, "In any country you can rent things," Farb says. "If you go to a Third World country and rent gear there's no telling whether the gear is going to function, whether the air is going to be pure. We just finished doing a film project in Trinidad and rented some gear. Half the cylinders didn't have any O-rings and we were very concerned about carbon monoxide in the air. It can be a pain. You certainly can't travel very conveniently with tanks. Even if you bring your own tanks, you still have to get air. You have to look at the air pumping station to make sure it's not done in a garage where they repair buses, and there are diesel fumes. In Europe you stand a greater chance of getting the kind of service one would be accustomed to in the U.S."

"If you're in an area that has a reasonable source of supply, it's always better to get it locally," Gilliam says. "It greatly bolsters your stock with the local community because you're contributing to the economic benefit. It would be bad manners to schlep a lot of stuff in that would be available locally." — Bill Bleyer

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# BERMUDA WRECK DIVING

By Daniel Berg

The island of Bermuda is one of the nicest vacation spots in the world. The people are friendly and harbor no animosities towards Americans. Bermuda is also only a short hop when flying from the New York area. This little tropical oasis in the middle of the mighty Atlantic has become one of the most popular family vacation destinations, especially when the family enjoys water sports. Bermuda is also home to some of the finest wreck diving in the world. Bermuda is surrounded by a notorious barrier reef. This shallow reef has been the cause of literally hundreds of wrecks, some dating back to the 1500's. Since most of the wrecks around Bermuda ran aground they are in relatively shallow water. In fact most are only 30-60 feet deep. Unlike anywhere else in the world the wrecks around Bermuda are so abundant that at many sites you can swim from one wreck to another. Let's take a look at three of Bermuda's most popular wreck sites.

**BLANCH KING:** The American schooner, *Blanch King*, was built in 1887 by New England S.B. Company, Bath, Maine, for T.T. Anderson. She was 192 feet long, 42 feet wide and displaced 1,156 gross tons and 1021 net tons. According to her Certificate of Registry, she had two decks, four masts, a billet head and an elliptic stern. During her career, she was sold five times. Her last owner was the U.S. Shipping Company.

The *Blanch King* was en route from Norfolk to Bermuda under the command of Captain Pattison. On December 2, 1920, with a cargo of coal, she was stranded on the southwest reefs and sunk. At the time of her loss, she had eight crew men aboard; all got off safely.

This wreck now sits in only 35 feet of water in a sand hole surrounded by shallow reefs. Cable dead eyes and rigging are scattered across the surrounding reefs. Within her main wreckage is the center board box for her retractable keel. Divers will also recognize some machinery and a capstan on the site.



Antique bottles recovered from the *Caesar* by Teddy Tucker.

**CAESAR:** The English brig, *Caesar*, was built at Cumberland, Co., Durham, in 1814. On May 17, 1818, while en route from Shields, England, to Baltimore, she was wrecked on a Bermuda reef. The following is taken from Lloyd's List of July 3, 1818. "The *Caesar*, of and from Newcastle to Baltimore, was lost on a reef of rocks off the West End of Bermuda on 17th May. Part of the cargo saved with damage. Spars, rigging etc. also saved." At the time of her demise, she was under the command of Captain James Richardson, with a crew of seven and a cargo of grindstones, medicine vials, decorated flasks, grandfather clock parts, glassware, white, red and black lead oxide, and a marble cornice for a Baltimore church.

This wreck was salvaged by treasure hunter Teddy Tucker, but even today divers will still find a pile of large grindstones, and assorted glassware and bottles on the site. She rests in a 35 foot deep sand pocket on the southwest side of the island.



**CONSTELLATION:** The four masted schooner, *Constellation*, was built in 1918 by Frye Flinn Company in Harrington, Maine. She was originally named *Sally Persis Noyes* and sailed as part of the Crowell and Thurlow fleet. She was later sold in 1932 to Robert L. Royall and renamed *Constellation*. Mr. Royall's plan was to refit this fine sailing ship and make her into a floating nautical school. She was completely rebuilt and provided with all of the modern comforts, including electricity, refrigeration, plumbing, a modern galley and large staterooms. Unfortunately, Mr. Royall's plans did not work. It seemed that there was little interest in this type of sailing, and within a year the ship was put up for sale. The *Constellation* found her way to New York and after one or two short trips remained there until 1942. When World War II was in full fury, the demand for ships of any kind was enormous. The *Constellation*, now owned by Intercontinental S.S. Company, was converted back into a cargo vessel.

In the late spring of 1942, the *Constellation* set sail on her first voyage since being reconverted. Carrying a 2,000 ton general cargo, including hundreds of bags of cement, 700 cases of Scotch whiskey, and an assortment of drugs, she was en route from New York to La Guira, Venezuela. Not long after clearing New York, her steam pumping gear broke down, and she began to take on water from the increasingly rough weather. The crew used hand pumps for several days but could not keep up with the leaking schooner. Captain Howard Neaves, who was 71 years of age, headed toward Bermuda for repairs. On July 30, 1942, while waiting for a local pilot, during a flat calm sea, she was driven onto a reef by the strong current. The ship was a total loss, but the United States Navy managed to save some of her cargo including the 700 cases of Scotch.



In the mid 1970's, Peter Benchley wrote an adventure story called "The Deep." It was the *Constellation* that was the model for his best selling novel and later the multi-million dollar motion picture. Amongst her general cargo, the *Constellation* carried thousands of drug ampules full of adrenaline, anti-tetanus serum, opium, morphine, and penicillin. There is a second wreck on the site, the *Montana*. Benchley used both of these oddities to enhance his best selling novel and acclaimed film. He also based Robert Shaw's character, Romer Treece, on the famous treasure hunter, Teddy Tucker.

Today, the wreck of the *Constellation*, sits on a sand and coral bottom in 25 to 30 feet of water. She is Bermuda's most popular wreck site, completely broken up and scattered over a large area. Divers will note a huge pile of cement bags, now hardened, into a small mountain in the sand. This was part of her deck cargo, and divers have found every-thing from tennis rackets, coffee cups, nail polish bottles, ceramic tiles, bottles, lead crucifixes, yo-yos and drug ampules in and around this area. Within easy swimming distance of about 50 feet is the wreck of the *Montana*, which went down in 1863. In fact, an untrained eye could easily confuse both wrecks.

Bermuda has it all — good restaurants, beautiful scenery, friendly people and world class wreck diving, give Bermuda a try — you may never return to the real world. ■



Denise and Dan Berg with artifacts from the *Constellation*. Photo by Mike Burke.

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# Expeditionary Diving — Becoming an Explorer

By Kourosh Mahboubian

As children, we have all played games in the woods, climbed trees and explored every nook and cranny we could find, from grandma's attic to the garbage dump. My favorite places were always under water. They still are. Like a child, I continue to look for new places to explore in spots around the world. Even in the age of the global village, there are places that no one has been to and my aim is to find them.

The trend in modern underwater exploration is to use higher technology and go deeper. The technical training agencies are reporting record growth as determined divers spend ever greater sums of money on gear and training to push their vertical boundaries. In the meantime, however, few people are pushing horizontal diving boundaries in the many unknown parts of the world that do not require a technical approach.

Jaded divers are complaining about doing the "same old same old" and often turn to technical diving for something new. This is good, but nobody is showing them how to find the really great stuff that is hiding in shallow water just a stone's throw away. It would be foolish to think that additional training is not necessary for some dives. But training is so much more rewarding when taken to fulfill a purpose rather than for its own sake. When you know what you want to dive, go through the training to make it happen.

I research new potential sites all the time and come up with a handful of undived shipwrecks, caves and unusual natural phenomena every month. A lot of them, like the abandoned mines of upstate New York, are only a short drive from where I live. Others may be easier dives but they're half way around the world. I set an order of priority for new projects according to how feasible they are and how much they interest me. Then I figure out what is involved in getting to the destination, what will be required to make the dives and whom I'm going to dive with. This is usually the hardest part.

Sometimes, the amount of work involved in setting up a dive expedition can be staggering for even the most seasoned traveler. Unfortunately, you can't just go to a travel agent and tell her to book you a dive trip to a frozen lake high in the Chilean Andes. However, you may be able to hitch a ride with a trekking company. Then all you have to do is get a hold of a compressor, tanks, lead and all those other things climbers would never be caught dead lugging up to twelve thousand feet. The key to getting what you want is perseverance and pragmatism.

In the 1980's I got together with a group of friends to dive the most exciting undived spots on earth. Our goal was to dive both Polar



Twin Otter aircraft used for Arctic Travel.

regions, the jungle streams of the Amazon and at least one spot on each continent and in each ocean. Years later the adventure is not yet complete but the voyage is ongoing with no signs of slowing. Along the way, we even formed a business out of it to help pave the path for others.

**Getting to the Arctic:** For each of our expeditions, we seek the advice of the greatest experts we can find. With their help, we figure out what gear we need to take and how to get it and ourselves to the destination. When you travel with two compressors, compressed oxygen and a ton of strange looking stuff, dealing with bureaucracy can be difficult. After making the most careful plans, we establish



Diver in 28° f Arctic water. Unprotected, a person can only survive for 2 minutes.

contact with the local communities and seek out local knowledge. This is the point at which we realize just what can and what cannot be done. Over time one phrase keeps reiterating itself: "Rarely is time wasted in reconnaissance." It has become our motto.

Finding the best location and the right people to work with in the Arctic was no easy task. With a lot of research, a little intuition and great luck, we came up with the town of Resolute Bay and a man named Bezal. Resolute is one of the northernmost outposts of the Canadian High Arctic. It lies just two hundred and fifty miles south of the Magnetic North Pole. Bezal is a mechanical engineer, originally from Madras, India. It would seem odd that a person from his geographical background has set more people on a straight course to the North Pole than any other man alive.

My first trip there was purely a reconnaissance trip. With images of ice, polar bears, seals and whales, I fully expected to be swimming alongside large mammals under fast drifting ice flows. The local Inuit families were quick to inform me that big animals are elusive and scared of hunters. They couldn't offer me much other information about diving but did, nonetheless, solve a tremendous problem for us. They knew how to get through the ice. It seems that seals maintain breathing holes year round. The Inuit hunters knew exactly how to find these holes. They also knew the exact location of every open lead, crack and fissure in the ice, which collectively with the seal holes could be enlarged and exploited for penetration.

Eventually we did encounter large



Diver in glacial pond.

animals, some in the water and some from above. What we were unprepared for though, was the magnificence and power of the ice itself. For an infinity around us in every direction we saw an expanse of white. It wasn't flat. Pressure ridges formed everywhere, giving it a broken-up lunar surface. Beneath this eight foot thick surface, the Arctic climate's raw power had churned a world of ice caves, seventy foot ice walls, ice chandeliers and vaulted ice cathedrals. The water was richly laden with invertebrate life and had visibility well more than three hundred feet.

Though equipment intensive, the dives were not technical in any aspect other than the overhead environment. Any advanced open water diver with drysuit training could undertake them. Getting to the dive sites was another matter. Using Inuit guides, snowmobiles with specially fitted sleds, a global positioning system and lots of pushing, getting to and from our ice holes was half the fun and half the battle of the dive day.

For each of our team members, the first Arctic dive became a symbol of the exploration that lay ahead of us. It was an unforgettable sensation of entering into another world, perhaps akin to that of an astronaut making his first space walk. I still try to go back every year with the company staff.

**The Amazon:** Having accomplished our first polar goal, we felt confident in our ability to cope with the deep jungle reaches Brazil's Rio Negro river. The Rio Negro is the Amazon's main tributary and, itself, the third largest river in the world (tied with the Mississippi). After dealing with Canada's difficult bureaucracy we found the Brazilian federal government surprisingly easy-going. The team flew smoothly into Manaus in the heart of Amazonas. Negotiating with regional governments and communities was a little more difficult. Nevertheless, upon assurances of our good intentions and our desire to hire many local guides, permission was granted for us to travel twelve days and six hundred miles upstream into never travelled parts of the river.

From our spacious river boat converted to liveaboard, we took canoes into the shallow

streams where normally tannic water turns clear. Our scientific advisor for the trip, Dr. Michael Goulding would explain what we were seeing as we dived with and filmed several species of piranha, caimans, snakes, turtles, electric eels, rays and an infinite variety of the strangest and most exotic tropical fish. The discoveries made on the trip were too numerous to discuss here but they continue to grow as more trips unfold. Our next project will be to approach, film and communicate with the river dolphins.



Black Piranha in the Amazon.

**The Future:** We have already launched projects to dive a large number of unexplored shipwrecks and caves around the world. There are also many that have been dived but continue to yield new finds like the caves and wrecks of northern Europe. In the animal kingdom, we still want to dive with the great salt water crocs of Papua New Guinea, the walruses, narwhals and polar bears of the Arctic and the river dolphins and anacondas of the Rio Negro.

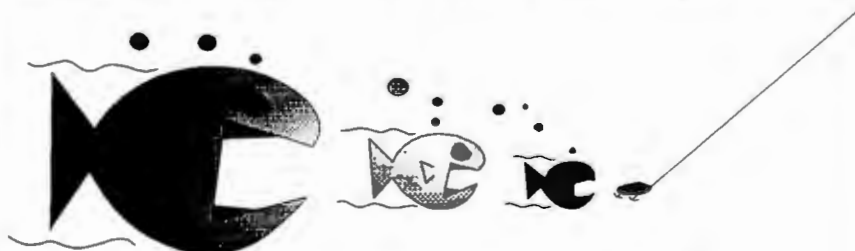
With the number of projects ahead of me I am not likely to run out of places to dive or

interest to dive them soon. Since the beginning, my group of friends has grown with me as has our company. To the reader of this article, we offer one piece of advice. Go out and explore. Turning an idea into reality really isn't as hard as it seems and it's well worth the effort. ■

*Kourosh Mahboubian is a PADI and IANTD instructor with seventeen years of diving experience. He is the president of Mad Dog Expeditions. 1-800-4 MAD DOG.*

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# NAVY INSPECTS USS SAN DIEGO

By Bill Bleyer

The U.S. Navy arrived off the coast of Long Island in early June to inspect the remains of the cruiser *San Diego*. The purpose of the visit was twofold: to determine if the deteriorating wreck poses a hazard to divers and to put an end to what the government contends is 30 years of illegal artifact removal from one of the most popular dive locations in the country.

Dr. Otto Orzech, director of the survey conducted by Navy divers for the Navy Historical Center in Washington, which is the Navy's caretaker for historic ships and aircraft, said the findings of 10 days of diving and his recommendations on what posture the Navy should adopt on the wreck and the artifacts still on it and those already removed by sport divers, should be available to the public by the end of July.

In an interview on the first day of survey dives by divers from the Virginia-based Mobile Diving and Salvage unit Two and an ordinance demolition team from New Jersey on a 74-foot tender, Orzech said, "We want to investigate the unexploded ordinance and determine whether or not it is a hazard. We know that three-inch ordinance has been brought up and also small-caliber ordinance. We don't think it's a hazard on the bottom. We think it's a hazard when it's brought up to the surface and dried out if it isn't treated properly." The divers would also be looking for eight-inch shell powder canisters.

Orzech said samples of live shells would be recovered and taken to a demolition site in Earle, N.J., where they would detonate to determine how unstable and powerful they are. "If the casings haven't been penetrated by sea water, the ordinance is just as effective as it was the day it went in but presumably more unstable than when it went in, so it could be a hazard."

"We're also looking at the collapse of the ship. But no matter what we find, it isn't our policy to close down the ship. It would be to warn the public of the danger. We fully understand that a lot of people on Long Island make their livelihood from the *San Diego* and we're not even slightly interested in stopping that."

Orzech said he had heard rumors that the Navy plans to shut down diving on the wreck or even blow it up. "It's absurd. We're interested in the historical aspects of the ship." The Navy Historical Center's philosophy is that wrecks should remain untouched on the bottom until nature runs its course, he noted. It would also require an incredible amount of bureaucratic red tape and environmental study to get permission to destroy the wreck, if they Navy wanted to do that, and it would inevitably lead to lawsuits.

"I think the *San Diego* is a very interesting ship from a public policy point of



Navy SCUBA divers working from the launch.

view because there are so many ethical, legal and historical and safety issues at stake," he said. And because it is dived on so frequently, it's a good subject for the Navy to deal with the issues and the public.

The one policy the Navy intends to enforce is that the wreck and every item on it is still government property. For three decades, divers have been exploring the wreck seven miles south of Fire Island and coming back with bullets, portholes and other artifacts. The divers say they are saving relics abandoned by the Navy from inevitable destruction and making them accessible to non-divers. The Navy holds a different view: That anyone removing an object from the hulk is breaking the law — looting government property and obliterating history so future divers can't see it.

The question of who owns the deteriorating warship and whether the artifacts belong to the government or are subject to the law of finders-keepers could be answered by a Federal District Court Judge Arthur Spat on Long Island. The same week he was playing host to a Navy advance team, diveboat owner Stephen Bielenda, president of the Eastern Dive Boat Association, filed suit, seeking a ruling that would make him the custodian of the 504-foot cruiser sunk by a German mine in 1918. Bielenda's attorney, Peter Hess of Delaware, has served the Navy, which has not yet responded to the lawsuit.

"We'd like to keep it a free and open dive site like it's been for 30 years," Bielenda says of the destination that attracts more than 5,000 divers a year. "We want to continue removing artifacts that people can restore and display at museums and shows."

Whether divers will be able to continue to take objects from the *San Diego* for show and tell will depend on who the judge says owns the ship. Under international admiralty law,

warships have "sovereign immunity," explains Kevin Foster, the National Park Service's maritime historian. "They continue to be the property of the state that commissioned them forever," unless the government takes legal steps to abandon the ship. This is done by the Navy striking the ship from its rolls, Congress approving the abandonment and the transfer of the title or salvage rights.

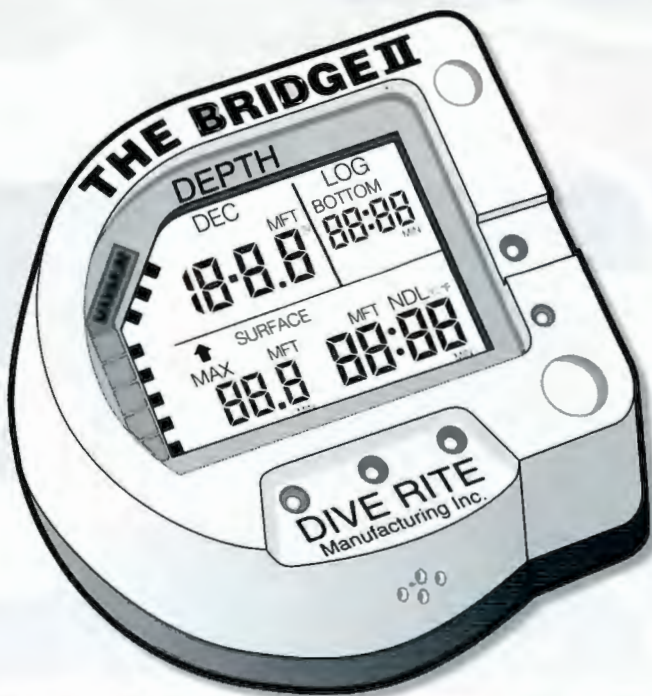
In the case of the *San Diego*, "in August 1918 it was stricken from the naval records," Bielenda says. "In 1957 they sold the rights for \$1,221 to Maxtor Metals of New York to cut it up and scrap it. For whatever reason, Maxtor didn't."

But federal officials say Congress never declared the *San Diego* abandoned, so it remains Navy property. Using this same argument, the government has seized artifacts salvors have recovered from other wrecks and been sustained by the courts.

But attorney Hess adds that the Navy has frequently taken shortcuts. "The Navy has argued that it takes an act of Congress to abandon a wreck, but in reality that's not what has always happened in the past. After the *U.S.S. Texas* was sunk in Chesapeake Bay in an early demonstration of naval air power by Billy Mitchell, several ships collided with the wreck. The Navy never salvaged it. When the ship owners sued for compensation, the Navy claimed the *Texas* had been abandoned and it wasn't liable." Hess argues that the Navy abandoned the *San Diego* the same way.

Foster says that if the Navy no longer owns the *San Diego*, then Maxtor's owners or their heirs still might or, "if it was abandoned by the salvor, it's possible that the salvor's insurance company would become the owner. But it is also possible that if the salvor did not complete the contract that the vessel would return to ownership of the government. The





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court will have to determine what happened. I think it could be a real interesting case."

Despite the Navy's reassurances, "the sport diving community is extremely upset," says Christine Schnell, president of the Long Island Diver's Association. She remains convinced that the government ultimately wants to ban diving on the wreck to keep divers from taking artifacts. "The *San Diego* is probably the most well-known shipwreck on the East Coast if not the entire United States and it would be a shame to lose access to it. I would be extremely upset if I couldn't bring up artifacts." Part of the thrill of diving is retrieving history," adds Schnell, a social studies teacher who uses relics she's recovered in her classes. "it makes it easier to learn when people can see and touch something."

Bielenda says the lawsuit will cost \$25,000 to pursue, and despite promises of financial support from dive groups and captains, no cash had been received at press time.

While the case progresses, the Navy intends to go ahead with curbing artifact removal. To get the word out to divers that they should look but not touch or take artifacts, the Navy Historical Center has printed a brochure spelling out the legality of artifact hunting on sunken Navy vessels and aircraft. "We have the possibility of prosecuting under these laws," Orzech says. "The only way we would do that is if there was something egregious going on like someone selling antiquities on the open market."

The artifact hunting ban would be primarily self-policing, Orzech says. "The commercial dive operators would go along with it without a problem," Bielenda says. "But they'll never be able to enforce it for the private boats because they wouldn't have the funds to put somebody out there."

Orzech says there is a possibility that the Navy might put a buoy over the wreck to alert divers about the rules or that the Coast Guard might do spot-checks of dive boats. "We want to work with the sport diving community." One sign of that was the plan by the dive team leader, Cmdr. Bob Honey, to leave behind a secure mooring for commercial and pleasure boats to share.

"The *San Diego* has been picked over for decade now and it's a little late to do much about it," Orzech admits. "We can't put it back together. Because all of these objects are in somebody's own private collection somewhere and not visible down there, it makes the *U.S.S. San Diego* less interesting for the next generation of divers."

One idea the Navy is considering was suggested by Gary Gentile of Philadelphia, the noted wreck diver who has written a book on the *San Diego*. He suggested the Navy set up a museum display on the ship and ask wreck divers with artifacts to donate them for public display. But some critics say this would further encourage artifact taking. And it would violate a resolution passed by the council of American Maritime Museums against displaying items removed from wrecks by sport divers. ■



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# Bob Ballard, DSV\*

an exclusive interview by Jeffrey J. Silverstein

**O**n a picture perfect Cape Cod morning, Dr. Robert Ballard, perhaps the most publicly recognized oceanographer since Jacques Cousteau, welcomed us into his wonderland of the deep. Senior Scientist at the Woods Hole Oceanographic Institution and Director of the Deep Submergence Laboratory, at 53, Ballard precisely fits his persona as Captain Nemo of the Information Superhighway. One wall of his office is covered with a huge topographic oceanographic map of his playground. Other walls sport more honorary degrees than can be counted, flanked by video trophies of his *Titanic*, *Lusitania*, and *Bismarck* expeditions. He's dived in a sub named *Alvin*, flown a video robot named Jason, and tells time with a watch named Mickey....



© Woods Hole Oceanographic Institution

**What was the thing that first turned you on to exploring the sea?** I grew up in San Diego in the late 40's, a Navy town. I was born in Wichita, Kansas where all oceanographers come from, and my father was a test pilot. San Diego was very different from what it is today. It was a wilderness area. I can remember manta rays jumping in Mission Bay. They called them devil fish because everyone thought they were dangerous creatures. Now we know them to be very harmless and passive, but as a little boy, watching devil fish jump into the air was exciting. I spent my whole childhood within a hundred yards of the water and tidal pools. I started scuba diving very early. My first was a double hose rig.

**This would be in the early 50's?** Yes. Scripps Oceanographic Institution was right near by. As a kid, I spent a lot of time there, trying to sneak out on their pier. But it was off limits, so they'd catch me and throw me off. My favorite book back then was "20,000 Leagues Under the Sea," by

Jules Verne. I wanted to be Captain Nemo. There was just this great mystery about the ocean. We knew virtually nothing about the deep sea, and that was just about the time that *Trieste* came to San Diego in 1960 and made the dive in Challenger Deep to the grand banks. I had gotten a scholarship while I was in high school, to Scripps and spent the summer on oceanographic cruises. It was the early heyday of oceanography in 1960, and during that cruise I met a scientist from UC Santa Barbara. Bob Norris, a Ph.D. at Scripps in geology, invited me to come to Santa Barbara to consider it as a school to go to. I always initially wanted to be a marine biologist, but in 1959 I met a marine biologist and he said, "Don't go into marine biology, there's no jobs for biologists, there's an overpopulation of them." So when I went to the University of California I majored in physics, math, chemistry and geology. I sort of took everything, and that was very useful, because later on in my life, it's allowed me to do a lot of different things.

**\* Deep Submergence Visionary**





**Did you take a scuba class?** NAUI and PADI didn't exist back then. I took a class from the Los Angeles County Fire Department, at a dive shop in Belmont Shores, on Long Beach. I did my open ocean dive over in Catalina at the isthmus. It's spectacular. I remember going down to the bottom of the ocean and crawling around. I've always liked the bottom of the ocean. I've never been terribly interested in the surface. I'm not a sailor. The surface of the ocean is sort of monotonous, but the bottom of the ocean is a mountain range. There's another movie I saw as a kid called "Mr. Peabody and his Mermaid," she lived in a lagoon as a backyard, and it was a labyrinth of caves. At the same time there was the "Creature from the Black Lagoon." So, there was always this mystery of unknown that the ocean floor represented. I never thought of the ocean as having landscape, because you always hear the words ocean floor, and you assume that means flat. I can remember in the movie "20,000 Leagues Under the Sea" when Kirk Douglas first came aboard the *Nautilus* and no one was there because they were burying one of their comrades. It was this whole context of walking on the ocean floor, climbing mountains. The water was something that was in the way. It was just fascinating to wonder what was down there. I never lost that fascination.

**How did you get to Woods Hole?** When I arrived at UC Santa Barbara in 1960, all land grant colleges had military programs for men, and if you were a healthy male, you were in the ROTC. Around 1962 the Vietnam War was really starting to heat up, and it was very clear that my generation was going to Vietnam. So it was going to either be as an officer or as an enlisted man. I decided to become an officer. In 1964 I received a commission in Army Intelligence, and then graduated with my degree

in February of '65 and applied for a delay to call to active duty to go to graduate school, at the University of Hawaii. I was majoring in oceanography, and it became clear that it was sort of crazy for me to get a Ph.D. in oceanography and go into the Army, so I went down to Pearl Harbor and requested a transfer into the Navy. I transferred to U.S.C., back to Los Angeles. I started working on Deep Diving Submarines, and a guy showed up at my door one night with a letter and said, "Congratulations. You're in the Navy. You have six days to report to active duty at Woods Hole." And I said, "Where the heck is Woods Hole?"

**So, you were drafted to Cape Cod.** I was drafted here, March 10, 1967. Assigned to the *Alvin (Deep Submersible)* program as a Navy liaison officer. By the luck of the computer, instead of going to the jungles of Vietnam it sent me here — the *only* place in the world I was most suited and I've been here 28 years.

**Tell us about technology.** We are not technology-limited now. That will last for a little while, and then we'll be technology limited again. We go through what are called paradigm shifts where you go from one technology base to another technology base and there's a period where you are limited, and the new technology kicks in and then you have an opportunity to mine that technology, and then it starts to limit out again. It runs a cycle, and I've historically moved with those cycles from being a strong advocate of manned diving to a complete advocate of robotics, and ultimately robotics from shore and the information highway.

**How do you feel about shipwreck diving?** The whole issue of wreck diving is what's practical, what's the best for the maximum number of people as opposed to being sentimental. There are people who are sentimental about the *Titanic*. They lost loved ones. That puts it in a very special category, but I didn't lose anyone on the *Titanic*. My position was that it was an incredible dive. To go down there to a virgin site and see everything frozen in time. It's like going to the Gettysburg battlefield the day after. It was like going to Pearl Harbor the day after and the excitement and impact that it has on you is massive. To see the shoes where the people died. Their body disintegrated except for their shoes. Or to see a doll's head. It's just very powerful and you want to let everyone else have that feeling. I remember going down the grand staircase with (ROV) *Jason Junior*, somewhat nervous. It's very easy for you to put your soul inside of an ROV and think you're in it and be frightened by things that are thousands of feet away. To see that chandelier hanging in the middle of the ceiling, you're just blown away — how did that chandelier survive?



Deep Submergence Vehicle ALVIN.

**You prefer electronic exploration.** If you go to my house, I've got fax, modem, telecommunications, complete hook-up. There's no reason to come here to my office except to meet people. In the future you will be able to travel electronically. I have a program called the Jason Project which is sort of a precursor of that. I've had children operating ROV's around wrecks like the *Spirit* in Lake Ontario. Right up on the figurehead inches away, having a child operating the robot and closely control it with a mathematical model so they don't hit the ship.

**Like training wheels.** Yeah, training wheels. It's like what's become of African game reserves. As we exploit the ocean and move out and colonize it, we have to say, "What do we want to set aside as a nice place to visit, not only for those that can put on scuba tanks? Cause they're a minority of people, and they also get old and don't put on scuba tanks any more and still have that love of exploration." I'm a fanatic about ship wrecks, but there are a few of them that are biggies. The *Titanic* and the *Bismarck* and the ships of Guadalcanal, the *Lusitania* — they should be there like a park or memorial for people to enjoy and commune with. If a scuba diver jumped in the water in Pearl Harbor on the *Arizona* and started picking up belt buckles, I think they would probably be trashed.

**There's controversy in the dive community about taking artifacts.** It's an evolution. Change occurs. Now people don't like looking at a tiger in a cage walking in a neurotic circle. People live the whole "Free Willy" movement. People don't like to see killer whales with their dorsal fin bent all over because it's atrophied from swimming in a circle. It used to be that was the only way you were going to see them. It isn't that the past was wrong. The past was in

## \* Deep Submergence Visionary





keeping with the times. But times change. All the different movements are a reflection of, I think, a maturity on the part of the human race. You had feelings early on about not disturbing wrecks. Well, I always felt this. I must say I don't have anything from the ocean in my house. It just doesn't belong there. It doesn't look right.

A lot of the wreck divers like to like to come back with artifacts. What is there about that psychologically? It's part of our culture. It's like going out and shooting for trophies and bringing them home. It's a very human instinct to go out on an adventure and come back with something physical, as opposed to the truth. Truth isn't something you put in your pocket. It's a little more abstract, and so people just aren't abstract about that.

You prefer a photographic safari. Exactly, so that there's an animal left for the next person. It's just practical. It's like convincing countries about Eco-Tourism that they can actually make more money having tourists watch the rain forest than sawing it down. You don't have to be emotional about it at all. If someone gets something off of the *Titanic* and puts it in their house, do you realize how few people have access to it now? And it's really out of context. Like those two shoes in the picture in my book "Explorations." Boy, that stops you in your tracks. You know exactly that's where a body was. There's a belt, there's a headband, and there's an attache kit. Are you going to pick up that attache? I'm not going to pick it up.

The *Titanic* did have people getting artifacts after you were there. What happened? A huge controversy. The battle is still engaged. It's interesting about admiralty law. I found the *Titanic*. Had I taken something, I could have

claimed ownership, but instead I put a bronze plaque on it and said - 'Leave it Alone.' That denies me ownership. So some yo-yo who sells used cars went out and took things and now owns the *Titanic's* artifacts. Never dove in his life. Sold used cars, and is now the owner, although that's still being contested by others in the courts.

Does that mean that other people don't have access to survey what's been taken? Right. I don't even know if my plaques are still there. Or if someone sold them. That's why I don't give out wreck sites any more. You won't find the location of the *Bismarck* in my book. You won't find the location of the any of the ships of Guadalcanal in my book. You won't find the Roman ship. If you want to find them, good luck.

The Navy recently surveyed the *San Diego* and appears to be taking an active role in protection. I think you'll go through that phase where you have the controls to protect a site. But using technology we can monitor a site so people can enjoy it. People could go to the *Arizona*, be present with it. What's also nice about robotic systems is that you can program them. You can write software that won't let people take things. It won't let people ram into things, even if they try.

Virtual diving? That guarantees the site is safe. One of the things we're doing this summer is that we're going out to *Titanic's* sister ship, the *Britannic*. She's in 400 feet of water, off the island of Kia, only been visited once by Cousteau. She's intact and nothing has been taken from her. What's wonderful about the *Britannic* is she's four miles from shore, which means that you could easily wire it up. I see it as my in situ museum, a proof of concept, to prove to people that you could explore it and enjoy it and even go inside of it with ROV's. You could even go into some of these rooms and restore them. People could "go" to Truk Lagoon and just be blown away by it, and yet not damage it and guarantee that nothing can be taken.

You could put them in a swimming pool with virtual reality goggles if they wanted to feel wet and buoyant while they were looking at it. Sure, that's where we're headed. Electronic travel. There are more people alive today than have died during the entire history of the human race. And what took us 500,000 years to reach, we're going to double in eight years.

Where are they going to go? They're not going to live on Mars. They're not going to live in orbit looking back, saying I wish I was there. They have no option but to move into the seas. We only live in 28% of the planet, and guess where they're going to move - the first few

hundred feet of the oceans. The most beautiful, most enjoyable part of the ocean is that first few hundred feet where there's sunlight. How are we going to deal with it? Just helter skelter? Do whatever you want? Well, guess what, you're going to destroy that beautiful 200 feet.

You advocate large-scale public access through technology. Well, Hertz and Avis are going to start renting robotics as well as cars. Take the Galapagos Islands. They only allow 30,000 people a year, regardless of the world's population. Democracy means mobility. How can you, on one hand, give people mobility and then not give them access? If you go to the Galapagos Islands, there are only rich people there. You cannot have a society that evolves where all the neat places are only visited by the ultra wealthy. Guess what happens? People get rid of the wealthy. It's not a very good solution. If you want public support, the public is going to have to have access, not just a few scuba divers. I've been to places where no one's been, and how can I expect the public to continue letting me do this, if I'm the only one. They're going to say, "Wait a minute, if you want to do this, pay for it yourself. Don't use government money."

What about preserving artifacts? People say they're trying to protect things. They didn't bring back the wood. They brought back the artifacts that nothing's going to happen to like china. They're finding china on ships off China that are thousands of years old. Nothing's going to happen to it. It's been down there forever. I was on a Roman ship, came in on the kitchen. There were the utensils and the lamp; they had been there for 1800 years. Don't tell me you're bringing it up to protect it. If you're really protecting it, bring up the wood that's being destroyed and take care of it. But they don't do that. They take the pretty stuff that's the most indestructible and then say they're protecting it. That's self-serving and ludicrous. Those plates, you can look at for a thousand years. Mother Nature works over a wreck real quick and within five, ten years it's been worked on. It goes, what we call asymptotic. The decay really slows down, and I would rather leave it there for people to enjoy.

In the case of archeology, that's when I have no heartburn bringing things up. If I'm working with an archeologist and conservationist we're really learning about something by bringing things up. To bring up something from the *Titanic*, you don't learn anything. When we were exploring the *Lusitania*, we had detailed engineering drawings. We were trying to figure whether the magazine exploded or not. We didn't need to bring it up to know that. Maybe we already knew that. In archeology where we

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don't know anything, then I have no problem recovering artifacts as long as it's done in a way that gives us the maximum information and knowledge and truth.

**Your plans for the Mystic Seaport (Connecticut) project are about taking people vicariously to these places. I want to create an electronic aquarium. High definition, 3-D. You'll swear those fish are in front of you. I want to create an *in situ* museum, where you can operate ROV systems. If you go over to Mystic now, we have an ROV that kids can fly, can't hit the glass if they tried. We really need to build a constituency for the oceans. There aren't many scuba divers. They don't have lot of votes. The more public that we can show and give access, the more they will become a constituent of the oceans, a protector.**

**It's clear from your book "Explorations" that you are interested in high visibility projects. I must - who do you think is paying for them? Some coal miner in West Virginia is paying for me sitting here right now. I can't just say, "Read my articles in scientific journals." That's an insult to that person. They want to know. "Explain it to me in words I understand." That's why I do "National Geographic."**

**It's the whole idea that science for the general public is entertaining. There's nothing wrong with the word "entertaining." Science is entertaining, it's wonderful. It's the reason I wear a Mickey Mouse watch; it was given to me by Disney when I worked at Epcot. I was a believer. I grew up in LA with Walt Disney. To educate you have to entertain. Education is competition with last night's NBA game. You can't sit in your little ivory tower and point your finger or lecture anybody anymore. I have to go out and recruit them. You have to be a basketball coach, as much as teacher. To me, oceanography is a contact sport. I like to point out to kids that Larry Bird wrapped it up in his thirties. He's out of the game. I'm 53 and I'm *in* the game, and I'm going to be in the game for many, many more years. I picked the right sport to play.**

**CNN recently interviewed Jacques Cousteau and he said "I'm 85 and I'm looking for money for another project." He's still in the game. That's the beauty of this sport. But the point is that I really love what I'm doing. And I love to share as part of the epic journey. The epic journey is to *dream, prepare yourself, assemble your team, go forth, overcome adversity and the tests of nature Neptune throws at you. To attain a truth and to come back and share it.* Sharing releases you so that you can go on another journey. I feel that I am now paying back society for the honor and the privilege for doing what I do and now I can go**



Ballard in the control room during the Bismarck discovery. © National Geographic Society, J. H. Bailey

on another journey. The older you get there's more and more responsibility upon you to prepare the next generation because every generation stands on the shoulders of the previous generation. I've done 110 expeditions. But I still feel a greater obligation right now to get the next explorers ready.

**There are going to be a lot of kids investigating oceanography from watching "SeaQuest, DSV." It's got to be that so people get excited about it. It is an adventure, and as Joseph Campbell said so well, life is the act of becoming. You never arrive. You're becoming, work, and society is becoming, the earth's becoming, all life is becoming. It never "arrives." It's not supposed to.**

**Steven Spielberg for kids today is what Jules Verne might have been to you. I believe all of that, and so one of the reasons I'm leaving Woods Hole in two years is to be in a better position to do it. Mystic offers me the opportunity. We're going to build a 30,000 square foot exhibition center that includes a simulated dive to 12,000 feet. We're going to build the bow of the *Titanic* to scale. You're going to explore with ROV's and incredibly creative interactive CD ROM's accessing the documentation of these ships.**

**One of Bob Ballard's personal 'myths' is that you search for big things that got lost. That's what got lost that you can find in sea. Iron ships are the only ones that are still there. Wooden ships aren't there, except for the Black Sea. Now about that, I'm excited. I'm getting ready for that one. In '97 when we finish all of**

our homework on our trade routes, the Black Sea has the potential of some staggering discoveries. There's no oxygen below 600 feet and it's 7,000 deep feet deep. That's where Jason and the Argonauts went on their journey in 2,000 B.C. The potential of finding the most preserved ancient pieces of history, the oldest ship wreck's is in the Black Sea.

**You talked about the expanding population moving out into the margins around the continents in the ocean. We've been modeling future condominiums. It turns out that if you take an object that is long and narrow and weight it at the bottom, it will float like that, and if you send a wave at it, the wave can't excite it, it goes right through it. It will actually move one tenth of the wave height, so a 30 foot wave will move it 3 feet because it's so stable. It's basically anchored in water that isn't moving, so it's hard to get it to move, because the surface energy is so narrowly compliant, as long as it's long enough. There's a ship in San Diego called the *Flip* which is developed by Scripps. The rooms are gimbaled, so as it flips, the rooms just stay vertical. That sort of vertical condominium would be the perfect home. I'd like to build one. My wife's not so sure about it but I would like it. What state in the Union had the most US citizens move to last year? Colorado. Why? To get away from that population crunch and the problems that come with it. Eventually, they'll run out of land and they're going to go to sea.**

They'll be migratory much like a lot of mammals are. We've already become bi-modal and migratory and we'll do that, and the nice things about these houses, they can hold all

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thier water, all thier fuel and all thier sewage for probably the six months during the migration, change it out, and winter out down south. Summer out up north and enjoy the ocean and live on the information highway and have communities of them. Schools are all going to be done at home anyway. What's really interesting about the highway - it's reinventing the family. I'll go back home and plug back in and I'll work there all day, work there all day tomorrow. My productivity's doubled and time with my wife and child has tripled.

Arthur C. Clarke said - "Don't commute, communicate." Oh, I believe that, it's more and more the way I'm headed. I have four of these workstations throughout the house, because I find that I like to get up and move, and I've created rooms in the house that have moods to them, and I think humans are moody. And so, I go with the mood. I say - "What do I feel like doing?" I feel like working out maps and figuring out where I'm going to explore this summer.

**What's the actual schedule for Mystic?**  
We should complete the design in the latter part of this summer. We should start construction in the latter part of this year. Our new exhibition is scheduled to be completed in late 1998, early 1999. Right now we're lining up collection expeditions. We're building a hydrothermal vent, collecting all the animals, doing a lot of filming. We have to film the launch simulator and synchronize it to the room so the room won't move as you're lifted off the deck and then dropped in the ocean and roll with the seas. Basically I do an expedition every six months.

Is there anything you don't have the technology to do today? I don't feel technology-limited at all, right now. There may

be more cost effective ways. What ultimately controls things is cost effectiveness. Right now ROV's are extremely cost effective. It's hard to imagine what's going to replace ROV's. AUV's? [autonomous underwater vehicles.] I have to be convinced that they can be controlled.

You mean artificial intelligence? Wind them up and off they go. But I don't want the robot to come back and say - "I had a great trip." I believe in what are called tele-operated systems. And that means that humans are not out of the loop. With the technology, we can separate your spirit from your body. And that's what an ROV is — an out-of-body experience. Having spent many, many years in a submarine, it's not scuba diving. Scuba diving - that's different. You're a free spirit in free space. You don't scuba dive to the *Titanic*. You'll never scuba dive to the *Titanic*. "Sitting" in an ROV now, with multiple screen cinema you say "spin the ROV" and *whrrrr* it spins on its axis and you get this great view. The point is - it's better. It's not equal. When you're physically involved, there's is so much of you having to deal with it as opposed when you're not physically involved and you can just kick back and take it in. You don't come up; you "live" down there.

But there's still work being done with one atmosphere suits and rebreathers. There's always that. It's like people that still ride horses to work. Why? Cause they really enjoy riding a horse. I get into a car, cause I'm more excited about what I'm going to do when I arrive. But I have no problem passing that guy on his horse saying, he's really into being on his horse. Some people are really into the process. I'm interested in what's there, not the trials and tribulations of getting there. I can remember the first time I dove in a submarine. I was so caught up in - "Wow! I'm going to the bottom of the ocean."

Tell us about the *Lusitania*. We had an engineering diagram of the ship, exactly where the magazine was. Well the ship is broken in half and jackknifed. It hasn't separated, but it's severely broken and it's flattened, so it isn't the same ship. We went in and we put in this tracking system and then we put in our robot with digitizing sonar on it. We were doing surgical precision instrument work. We went in and completely digitized the whole ship, three-dimensional. With AutoCAD, took the engineering drawings and superimposed them and skewed them to fit the ship as it is today. Where's the magazine? It's right there. We then took the robot down to the magazine and completely inspected it and actually went in underneath cause the ship was laying on its side. We could actually go around to where the torpedo hit, underneath. *That* no submarine could do and a scuba diver would be very foolish to do this. We completely mapped it, and



knew within a centimeter where we were on that diagram of the ship. Did it all sitting in a room with computers, and explosives experts, and artists. You could never do this with a group of scuba divers, could never do that with a manned submersible. The book's coming out in October.

Do you find that funding for entertainment and educational projects is different or easier than for "hard science?" Different. Not easier. You have to have a different skill set. You have to produce press. I know how to write a scientific paper, I did it for many, many years. That was my product. I also know how to produce entertainment. Most scientists don't. Some don't even respect it. I do. I have a respect for all institutions, whether they're military, academia, industry, government. I can create some rather eclectic mixes of academia, the military, education - the Jason Project, case in point. A grouping of heavy industry, high tech, big American corporations working with the Duvall Public School System in Jacksonville, Florida or the Las Vegas School System, with oceanographers, and TV people that do Saturday morning wrestling or sports. We've brought out and brought together a very eclectic group of people for a common cause, and that is the children.

Quick overview of the Jason Project? The Jason Project was a by-product of discovering the *Titanic*. When I came back my office was inundated with letters from children, basically asking - "Can I go with you?" And so the Jason Project is a telecommunications or electronic field trip so they can go in large numbers. We write back to the kids and say - "You can go, but there's a price. You have to take a science class in school, and you have to bring a teacher. If your teacher and class sign up, you can go."

## \* Deep Submergence Visionary



We have built, around the world, thirty of these telepresence theaters that are basically clones of my control room at sea. When they walk into this room, they're walking aboard ship. They're with me - electronically. I'm there, they're there. We're separated by half a second. ... speed of light. And they have to study. They're not allowed in the room unless they study a 250-page science curriculum. And, you know what? No problem, signing them up. We signed up, this last go around, 500,000 children, and 12,000 teachers.

That's a pilot for some of the things you'll be doing at Mystic? We're building one of those, and it's a pilot for the electronic aquarium, for the electronic museum, under the ocean. It's all related. To accomplish what I want I have to live in a lot of different worlds. My father told me very early "To have 12 masters is to have none, and so don't let anyone own more than a small percentage of you, then no one owns you, and you can lose a master and survive." And by living in all these different worlds, I don't live in any of them. I become an observer of society. By being able to move from the military to academia to private industry to education, I'm sort of a Marco Polo. I'm on a journey travelling from place to place, culture to culture, civilization to civilization.

Okay, they're now interviewing you on CNN and you're Cousteau's age - you're 85. What do you see that's different? I'm home. Wherever I want it to be. With children or my friends and we're exploring from home. From the home dome. I want to explore for the rest of my life until I just turn off.

And a hundred years from now? I don't know about a 100 years from now. Hopefully, we survived the insanity of uncontrolled population growth. I'm scared the next generation may be the last. Good chance. And our tombstone will say - "The human race came and went but it was politically correct." We've got some real tough issues to deal with.

Is there a single place under the sea that you have not been able to reach yet?

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The Woods Hole Oceanographic Institution is a private, non-profit research facility dedicated to the study of all species of marine science and to the education of marine scientists. It is the largest independent oceanographic research institution in the nation. Shore-based laboratories are located in the village of Woods Hole, Mass.

The institution was founded in 1930 following a National Academy of Sciences recommendation that a major facility capable of leading American oceanographic research be established on the U.S. East Coast.

The Institution is organized into five scientific departments: Applied Ocean Physics and Engineering, Biology, Chemistry, Geology and Geophysics, and Physical Oceanography.

More than 350 research projects are underway at the Institution at any given time. The broad range of questions considered includes such diverse topics as geological activity deep within the earth, plant and animal populations and their interactions in the oceans, coastal erosion, ocean circulation, pollution control, and global climate change.

The Institution's research fleet includes the 279-foot *Knorr*, 210-foot *Atlantis II*, 177-foot *Oceanus*, 65-foot *Eagle Mar*, 46-foot coastal vessel *Asterias*, the three-person submersible *Alvin* capable of diving to 13,000 feet, several small boats, and remotely operated deep submergence vehicles such as *Argo*, and *Medea / Jason*.

The Woods Hole Oceanographic Institution has an annual operating budget of approximately \$80 million, and its staff and students number about 1,000. About 74 percent of the operating budget comes from federal contracts and grants, with the remaining 26 percent from endowments, investment income, sub-contracts, work for private entities and gifts. Generally about half of the government income comes from the National Science Foundation and a third from the U.S. Navy.

**Contact: 508-457-2000**



# TRUK LAGOON: Gibraltar of the Pacific

By Tom Baker

**G**ibraltar. To the British, who for centuries have owned this rocky headland at the southern tip of Spain, it's been synonymous with security, something "rock" solid. In World War II, the Germans were afraid to try and take it. Today, it's still run by the English who, together with a resident population of baboons, control this fortress-like bastion.

There was once another "Gibraltar," held in WWII by the Japanese Empire. Like the original, the "Gibraltar of the Pacific" seemed unconquerable. American naval planners feared it, for good reason. Though little was known, this mysterious outpost in the far reaches of the Pacific was the headquarters of Japan's Combined Fleet, perhaps one of the most powerful naval forces ever assembled. Its big battleships, the *Musashi* and *Yamato*, dwarfed even the *Bismarck*. There were also formidable air stations scattered across several islands. In the early days of the war, no one in the Allied High Command wanted to tangle with this oceanic Gibraltar, located on the little-known islands of a place called Truk Lagoon.

But the fortunes of war came out against Japan. As her power steadily weakened, American forces saw their opportunity and in February 1944, a fast-carrier task force launched a series of surprise air attacks that left over 60 Japanese ships on the bottom and Imperial air fields in flames. It was, as historians have observed, a kind of Pearl Harbor in reverse.

Today, Truk Lagoon is a peaceful place, a member of the Federated States of Micronesia. Its name is now the original pre-colonial name Chuuk. The Japanese occupation seems to have left no trace.

Almost. You can walk into the jungle, if you know where to look, and find a Zero fighter sitting upright. On certain hilltops, big guns point to the sky. And out in the lagoon, a mast stands out of the water, marking the spot where 51 years ago the *Fujikawa Maru* went down.

Of the 60-odd ships resting on the sandy sea floor, all are merchantmen except for two destroyers and one submarine. The Combined Fleet sailed out of reach just days before the attack. Wrecks are still being found; in the last year, three new ships have been discovered.

I was anchored over the *San Francisco Maru*, in a small boat operated by Blue Lagoon Dive Shop, on a charter organized by my friend Tom Campbell.

The *San Francisco* is a deep wreck, but generally considered one of Truk's most spectacular. As the ghostly hulk slowly materialized on my descent, I quickly saw why. Visibility was excellent, and from a hundred

feet above the deck, I could see fore and aft for almost the entire length of the ship. Two grey reef sharks glided past, keeping a watchful eye on their property.

I touched down near the forward mast, 185 feet below the surface. Turning aft, toward the bridge, I found myself staring into the barrel of a light tank, upright and apparently ready for off-loading. Two other tanks were piled in a heap nearby.

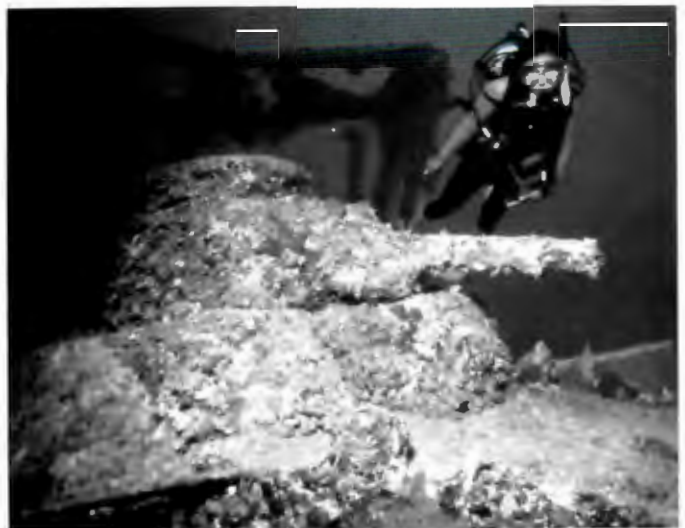
Just in front of the tanks, the remains of several trucks protruded from the forward cargo hold, their headlights bulging alongside the rusting grills of radiators. I swam closer, to find a steering wheel precariously hanging from its column. A spare gasoline drum had rolled into the cab. I moved toward the bow, where stacked in neat rows, were dozens of deadly land mines, waiting to be buried on some forgotten beaches.

Time was running out, so I quickly swam to the port railing to check on one of the rumors surrounding the *San Francisco*. Supposedly, a steam roller had fallen from the decks and was laying on the sand nearby. Immediately the rumor was confirmed -- some 30 feet below, and perhaps 30 feet off the hull, lay a sponge-encrusted steam roller.

Two days later, I visited the steam roller, laying on its side at a depth of 215 fsw. It was nice to see it, but the miserable photographs developed after the trip suggested a bit more narcosis than I remembered.

There are many memorable wrecks to visit. Later, near the edge of the lagoon, we were fortunate enough to dive the recently discovered destroyer *Oite*. U.S. fighters sank the *Oite* shortly after the destroyer had rescued hundreds of civilians from a sinking transport. The wreck lies in two pieces, and in between, on the sand, we found the remains of these unfortunate victims of the war.

Artifacts abound on every wreck. In the sand adjacent to one, my wife found a three-foot high termite's cone of china decorated in exquisite patterns of the Imperial era. Portholes and lanterns are commonplace, as are running lights and cage lamps. In the bridge of the *Shinkoku Maru*, medicine bottles are lined up neatly on an operating table where ship's surgeons once treated crewmen. Nearby is a



room containing books whose print is still legible.

But more than ships' artifacts, the wrecks in Truk are one large museum of a distant war. In the hold of the *Yamagiri Maru* are the largest naval shells ever built, destined for the super battleships *Yamato* and *Musashi*. Zero fighters may be found in the hold of the shallow *Fugikawa Maru*. And ammunition lies strewn across all the wrecks, along with gas masks and small arms.

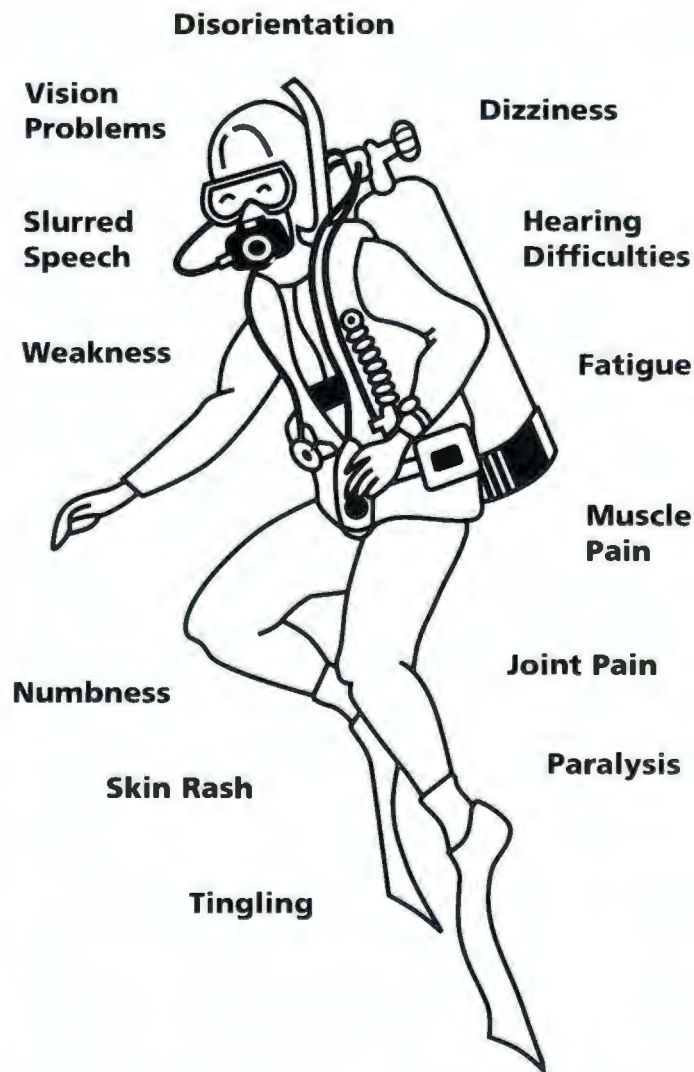
Time has been kind to the wrecks, which are now wreathed in colorful coral gardens. Abundant reef fish add electric hues to these rainbowed, if inadvertent, reefs. One shallow wreck, the *Hanakawa Maru*, is a riot of color. Its beautiful corals and gaudy creatures are a photographer's paradise. The wreck is rarely dived because of its distance from the main island, but is well worth the effort.

Truk itself is a long haul. From the West Coast, divers connect in Honolulu with an eight-hour flight to Guam. Truk is another 90 minutes from Guam. From New York, total flying time is nearly 22 hours. Continental Airlines is the only carrier serving Truk. Though there are two live-boards, the Truk Aggressor and Thorfinn. Serious wreck divers wishing to explore the deep wrecks should consider Blue Lagoon Dive Shop's services, along with a land package at the Truk Continental Hotel.

Truk Lagoon is one of the world's wreck diving meccas, but it is also an unparalleled glimpse of the distant thunder of W.W.II. And it is a strangely emotional experience as well, as one sees the beauty among the destruction, and senses first-hand the waste and sad futility of world war. ■



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# BVI Bareboat Diving

By Joel Silverstein

**B**areboating is where *you* become captain, crew, navigator, divemaster, guide, rescuer, meteorologist, medicine-man, and vacationer all in one adventure-filled week. Basic sailing and seamanship skills and the desire for an alternative to dive boats that don't go where you want to go, hotels that are less than advertised and divers who are doing their check-outs on your vacation are the essentials you need. If you've got them then bare-boat dive/sailing may be just what you need to break out from the traditional vacation.

Our decision of where to go was easy - we wanted great sailing and great diving in less than 150 fsw, since we would be only two people on the boat and primarily solo diving - the British Virgin Islands was the perfect match. Although we had heard of many shipwrecks there, the commercial boats will usually only go to the *RMS Rhone*. She's a world class wreck in 20-90 feet of water but we wanted to find the others. Our own boat would solve this quest.

Picking your charter company is the key to a quality trip. There are dozens of companies that charter sailboats with a variety of prices, equipment, provisions and originating ports. Having spoken with many bareboaters over the years we knew from the start we wanted a fairly new boat, 35 foot or larger with easy access in and out for diving, plus good storage. This design is only available from a choice few charter companies. Most other charter fleets are the boats that *these* companies have taken out of service at the end of their contract time, typically 3 to 5 years. After checking out the Newport Boat Festival last September, we chose to charter from The Moorings. They had, for us, the most complete appointments, provisioning service, a fine hotel for the first night and boats in our size that were two years old or less, plus their record for service was unmatched. We had no desire to be stuck at anchor somewhere in a poorly serviced vessel.

A pick up at the airport, easy check in for all our baggage, an air conditioned suite for the first night with boat orientation in the morning made the getting-there easy. A quick cab ride to *Baskin in the Sun* where we rented half a dozen tanks and weights, and a hop to the oxygen supply house for a big bottle of O<sub>2</sub>, and by 2 P.M. we were off the dock. You really can't imagine the freedom until you pass the last channel marker and raise the mainsail. This is the way it should be on vacation.

Our boat was a fully rigged 35-foot Beneteau Oceanus. Under the deck there was a full galley for meal preparation, two large staterooms, a navigation station, 200 gallons of fresh water, refrigerator, a full sized



Inside the wreck of the *Fearless*.

head/shower plus fresh water shower on deck. In addition it had VHF radios, cellular telephone (never called the office once), CD/tape player, and a big diesel engine for motoring around, plus a dinghy with motor for going ashore for dinner, cocktails, shopping and air fills.

The local charts of the BVI list all the best anchorages and mooring areas. Still doing the shakedown we opted not to dive the first day but sail over to Norman Island, anchor up, and plan our week (which changes each day as the wind blows). Norman Island is a protected cove on the south side of Sir Francis Drake channel. This is the island that Robert Louis Stevenson described in "Treasure Island."

The BVI Dive Operators Association in cooperation with the Parks Department has mooring balls on all of the diveable sites throughout the BVI plus a map showing where the most popular ones are. Through some contacts we were able to get the locations of three wrecks *not* on the charts, the *Fearless*, *Mariel*, and *Margaux*. Of course we would spend some time on the *Rhone* since it is such a cool wreck. Our diving would be primarily to photograph the wrecks. All of the wrecks were in 90 foot or shallower water, which made no-decompression computer diving easy. We did however do all of our "safety stops" at 15 feet on surface supplied oxygen.

We had heard about a wreck named the *Fearless* that sank off the mouth of Great Harbor in front of Peter Island back in 1986. It rests just east of the *Rhone* anchor about 75 feet off a beautiful wall on a white sand bottom in 90 feet of water. One look at the mooring line and you can tell few dive here.

The *Fearless* was a fishing trawler which apparently sank due to disrepair. Amazingly she sits upright as if placed there. When you first approach her it is like seeing a ship draped in cobwebs; years of the wood deteriorating, cables, ropes and lines dangling and life growing on her gives the illusion of a Hollywood movie set. Penetration into this ship should be made with extreme caution if at all. Due to the currents that run along this reef area the *Fearless* actually protects a small portion of the wall by taking the battering itself; consequently this ship takes a beating every time the tide changes. Pieces of wreckage are always falling, yet she remains incredibly stable on the lower portions. A good swim around her reveals the large winches on the bow and stern, portholes, and the large bronze coral-encrusted propeller and rudder.

Much of the superstructure has collapsed downward leaving only the walls and cables. Most if not all of the fixtures, the helm and bell are gone now; a few portholes remain (we left them too). Deeper in the wreck you have access to the engine room and the small workshop, but penetration is hairy due to the large amount of silt inside.

All around the wreck you can find fish and coral growth. Large rainbow parrot fish, queen angels, big barracuda and spotted rays can be seen on every dive. The top deck of the *Fearless* makes a great studio for the macro photographer, providing an endless supply of subjects.

On the southwest corner of Cooper Island just before the bottom drops out to 4,000 feet, rests a pair of wrecks just off the reef. When we



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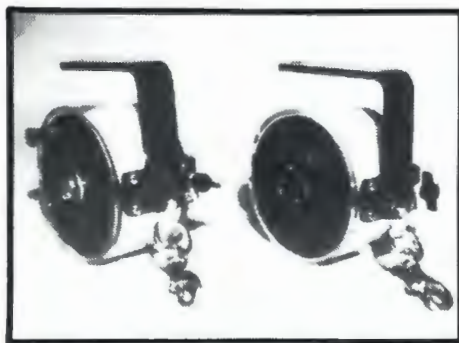
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Wheelhouse and windlass on the *Fearless*.

dove here a year ago there was only one wreck named *Marief*. This time when we came back to the same site we were amazed to find a second one snuggled right up against her. With no name on it other than Tortola # 348 in white paint, we renamed her *Margaux*. Ernest Hemingway was said to have found his way through many of the British Isles. It seemed fitting to name these wrecks for his granddaughters.

Getting to the wrecks is a little tricky. There is a mooring ball about 300 yards away, during slack tide (the incoming current can run 3-4 knots), drop down and swim on a 210° compass course, drop off the reef wall over the white sand, and there they sit in 80 fsw. Both ships were small tug boats. The *Marief* appears to have been sunk about three years ago, evidenced by the nice amount of coral growth. She is about 85 feet in length, leaning to her port side with the bow facing south east. The wheelhouse has been stripped bare of most artifacts with the exception of a few portholes. The lower deck is easily accessible although silt can be a problem. The *Margaux* was sunk recently by one of the local dive operators, none of whom would officially take responsibility since it is illegal to make a reef without a permit. The *Margaux* has had her superstructure and decks cut open with torches, hatches and portholes wired open, and upon investigation of the engine room and lower bilge area the sea cocks were opened. Whoever sank her was either very good at positioning a sinking ship or very lucky. *Margaux* is facing northwest and is snuggled right up against *Marief*.

With these wrecks resting less than a ½ mile in from the deep drop-off there is an interesting population of large fish and sting rays that surround them. Large grouper — 50-plus pounds, 4 foot barracuda, large 3 foot rainbow parrot fish and stingrays spanning 4 to 5 feet are common. One interesting fish you may find swimming along with you is the remora, better known as the sharksucker. These harmless fish will swim along with you until they realize you are not a shark and then swim off. On occasion you will find a nurse shark resting by the keel or under the reef when you swim back to the mooring.



In addition to these three wrecks which provide great photo opportunities and great places to explore there's the *RMS Rhone*. This mail steamer was sunk off Salt Island in October 1867 during a fierce hurricane. She is probably the most popular shipwreck in the Caribbean, and was used for the famous dive scenes in the Nick Nolte/Jacqueline Bisset movie "The Deep." Resting in three sections, she can be reached in 20 to 90 feet of water.

Since none of the charter companies permit night sailing we missed out on the night dives but opted instead for pulling into quaint anchorages with breathtaking sunsets and the night sky filled with stars.

As each day progressed we revisited some of the same wrecks at different times of the day and even explored some reefs planning in our minds the next bareboat dive trip. Bareboating seemed to be our answer to doing the kind of diving we wanted to do while in the Caribbean. It does take a little more time, patience and responsibility than a land-based dive vacation or even a liveaboard, but there is nothing like the freedom of choice. As we filled out the post charter questionnaire the only thing that would have made this trip more perfect was another jar of bigger pickles. ■



The *Maribel* and the *Margaux*.

"The Cruising Guide to the Virgin Islands"  
by Nancy and Simon Scott  
Cruising Guide Publications, Inc.  
1-800-330-9542

"Tropical Shipwrecks"  
by Daniel & Denise Berg  
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# American Wrecks in the UK

By Simon Tapson

Great Britain has historically been a maritime nation, separated from all its trading partners by sea. Over the years her long coastline has become littered with shipwrecks, the vast majority of which have been produced this century by the two World Wars. This aspect of our underwater environment, coupled with the fact that our visibility is often reduced to a matter of two or three feet (although at times it can also be 60 to 100 feet), has meant that the UK diving culture has developed as much around wreck diving as around marine viewing.

Most British novice divers cut their teeth on wrecks in the 50 to 100 foot range, and one of the most popular is the wreck of a US Liberty Ship - the *James Egan Layne*.

Although the majority of our wrecks are of European origin, a number of them are American due to the US participation on both World Wars and the contribution of German Kaiserliche and Kriegsmarine. Surface raiders and U-Boats, in an attempt to blockade Britain led to the creation of thousands of wrecks in both deep and shallow waters throughout the English Channel, the North Sea Coast and the West Coast of Britain. We dive primarily in the English Channel and the wrecks I describe are sited in this area.

The *James Egan Layne* was a classic 7,176 ton US Liberty Ship, built in 1944 in New Orleans and captained by William Sleek. She was torpedoed at 13.40 hrs on 21 March 1945 when in convoy. She was carrying a US Army military cargo plus a deck cargo of motorboats and timber. The convoy was in two lanes, and the *James Egan Layne* was the lead vessel of the second column. The torpedo struck between numbers 4 and 5 holds on the starboard side causing a crack to appear in her hull; at the same time her propshaft was broken, the shaft flooded, and her steering gear put out of action. Numbers 4 and 5 holds flooded as did the engine room. She sank by the stern until the sea was between her mainmast and accommodation, when she steadied. She was abandoned ten minutes after the attack, *HMS Flaunt* and a minesweeper taking her in tow. Her Captain, Chief Engineer, and a Seaman reboarded, staying with her until she beached. She lies one mile out in Plymouth Sound and now nothing shows of her above the surface.

The wreck is broken in two but upright

with the bow section the most dived. Hitting her at 15 feet, divers can descend past the hull and swimming forward come to the bow still sticking like a knife edge through the sand. No novice is ever unimpressed when led to this point, and kneeling in the sand at 75 feet they look up at the bow towering overhead. The forward part of the wreck offers an excellent view of triple expansion engines with all the walkways in place. The diver swims around these grills followed by schools of pollack. The propeller and a great deal of non-ferrous parts have been removed and this is now a "tourist" area, excellent for viewing but not really of interest to artifact hunters.

By swimming down the port side away from the bow to the first great tear in the hull and then turning at right angles and swimming away from the wreck over the sandy bottom, a diver can lose sight of the wreck behind him just before the stern section appears a good 100 feet away from the main body. This section is much damaged but is open like a skeleton with the stern standing up, and is a very well occupied natural reef.

As the sport of diving in the UK has grown, the inshore wrecks have become well dived and for those interested in finding new or less dived sites there are two choices: to move further offshore and therefore deeper, or to go to the other side of the Channel and dive the wrecks off the French coast.

The *Susan B. Anthony* was an American steamship originally launched in 1930 as the *Santa Clara*. On June 7, 1944 she belonged to the Grace Line and was taking part in the Allied invasion of Europe,



Helm from the US tanker *Illinois* raised and restored by Dave Wilkins.

being used by the US Army as a troop carrier during the Normandy landings. She struck a mine and sank in 130 feet. The loss of life was slight, most of the troops on board being taken off by landing craft.

8,101 tons, she was 483 feet long with a beam of 64 feet and lies on a shingle bottom, leaning slightly to the port side. The gunwales and hull have collapsed inwards. She is covered with enormous portholes - much larger than on most liners, and approximately 3 feet in diameter, with four locking dogs on them. The bridge has collapsed forward onto the foredeck and contains a number of large square windows with intact glass.

The bow is the highest part of the wreck and also the most intact. The decks have all collapsed into the hull and there is nowhere left to penetrate, while most of the portholes are still attached and have fallen on plates into the hull.

The visibility of the wreck can be exceptional; sometimes at least 80 feet. She stands 30 feet high, but as she is a big ship



she needs good visibility to allow a diver to navigate around with any ease. The long anchor chains run from the bow out to the sea bed and so far all that has been removed are the auxiliary helm and one porthole.

The other alternative when searching for new dive sites in British waters is to go deeper, and there are a small number of diving clubs and groups who specialize in deep air diving in the 165 to 220 foot range. One of the more recently found wrecks lies near the Channel Islands, 40 miles from the Dorset Coast of England and our most-used port of Weymouth.

Originally just called "The Tanker" she has now been identified as an American wreck of First World War vintage - the *Illinois*. She was 5,225 tons and therefore another substantial wreck. First dived in August 1989, she showed herself to be of WWI vintage due to the riveted hull.

She is a stunning wreck and often found to have exceptionally clear visibility; an excellent aid to avoiding the worst effects of nitrogen narcosis. Descending the shot line (in the UK dive boat captains drop a weighted line called the shot line onto a wreck and tie the top of the line off to a large series of buoys rather than a boat) the wreck appears at 165 feet. She lies upright and has lost the wooden parts of her superstructure that originally covered the bridge. The iron deck is still there and it is still possible to descend down the various

decks under the bridge. Portholes lie around this area but the telegraph, helm and telemeter have been so far been removed. A diver working hard at this depth soon finds himself or herself stupefied by narcosis so it is a matter of photography or lifting the chance loose find. The sea bed around the wreck is 223 feet and she has a fair amount of net and monofilament line on her, so in spite of the good visibility this is a serious, advanced dive. During my visits to her I have only examined the bridge area, freeing one porthole after a 20-minute struggle with a reluctant girder.

She was a three-island vessel with the accommodation on the stern. Pipes run past open hatchways. Swimming along the starboard side towards the stern you pass an enormous hole in the deck and side left by the torpedo, where visible within is all the engine machinery. Beyond the hole is the accommodation area where divers have found ship's china.

Through visiting the wrecks of U.S. ships such as these, and others (*HMS Delight* - a U.S. lend/lease destroyer; and *USS Meredith* - an American destroyer) the American naval participation in WWI and WWII is easily brought to life for the UK diving fraternity. Our waters are similar to those around the U.S. East Coast, when any of you visit us to dive you will immediately find that there are, in Europe, a number of corners that will remain forever American. ■

## SIDE SCAN SHIPWRECK SURVEY

Aqua Explorers Inc., announced a joint project with Marine Sonic Technology of Virginia to side scan survey the shipwrecks off New York and New Jersey. Known as Wreck Valley this area has literally hundreds of shipwrecks hidden beneath the sometimes harsh Atlantic surface. Vessels sunk here range in age, material, construction as well as depth. The research project will be jointly funded by both companies and will use a new state-of-the-art sonar developed by Marine Sonic.

According to Dan Berg, President of Aqua Explorers and author of ten shipwreck related books: "The new affordable technology of this sonar will enable sport divers to accurately find, survey, measure, map and even identify many wreck sites. The main advantage of Marine Sonic's side scan unit is that it does not merely print out a hard black and white paper recording but rather incorporates a personal computer to store live color images of each site. These images can be enhanced, enlarged, and even measured giving us more information than ever before without even putting a diver into the water. Of course if a paper record is needed a color print can be generated on any color printer."

"We have already had great success scanning the waters off Long Islands South Shore. I was amazed at how well the Sea Scan functioned even on small low lying wrecks. We can scan upwards of a football field to either side of the boat while generating images that are as clear and detailed as a photograph," says Berg.

The system also incorporates a plotter built into the Sea Scan software. The PC is interfaced with either a GPS or Loran for location and speed information. The wrecks can then be marked on the screen and with the plotter navigate directly to the site. "In the past it would sometimes take upwards of six months to develop an underwater sketch of a shipwreck site. Now we can do it in a day with greater accuracy and much greater detail," Berg added.

Aqua Explorers Inc. which produces the ongoing monthly television series "Dive Wreck Valley" plans to utilize and feature the dynamic Marine Sonic shipwreck images on future shows as well as in Dan Berg's upcoming book "Wreck Valley III." The images will be used to illustrate the present condition and layout of most popular wreck sites. A 30 minute video featuring the Marine Sonic Technology Sea Scan PC Side Scan Sonar is now available. Contact: Aqua Explorers Inc., (516) 868-2658. ■

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## SUB AQUA MOVES

After almost two years on historic City Island SUB AQUA moves its offices to the Telegraph House.

Built in 1872 this City Island landmark housed the telegraph office for many New York shipping companies. The operator, Aaron Bell, stood in the cupola and was afforded the very first sight of billowing sails and smokestacks as vessels glided in from Long Island Sound towards the East River. Telegraph wires ran up to his vantage point, and he tapped out the message to the downtown Manhattan offices that ships were on their way.

While the original telegraph wires still cling to the wall of the historic cupola the rest of the house is being wired for the next century. Modern telephone systems, including voicemail, satellite paging systems, Internet communication and computer networks will turn this 19th century site into an office that even Samuel Morse couldn't have envisioned. ■

## TECH DIVE WORKSHOP

A special event for technical diving enthusiasts is set for September 22-24 in Pompano Beach, Florida. Sponsored by Technical Diving International (TDI), the workshop will be the first to focus on practical diving on several superb deep wrecks as well as opportunities to participate in programs for trimix, nitrox, rebreathers, and preparation of specialty breathing gases.

"There always seems to be another seminar or local dive show, but I've yet to see a conference put together with the main emphasis on actually going diving," says TDI President Bret Gilliam who came up with the idea. "We wanted a chance to bring top professionals in technical diving together for hands-on interaction with divers on some of the best wreck sites in the U.S."

The workshop will have a core program available on Friday, Saturday and Sunday that features a different deep wreck each day with seminars in the morning and evening following the mid day dives. Divers will have a chance to dive the *Hydro Atlantic*, and the *Lowrance* both which are less than 30 minutes from the dock. Both wrecks are reachable from between 110 and 180 fsw.

The three day program includes hotel accommodations, breakfasts, diving, all boat fees, a cocktail party, fish fry and all seminars. The cost is \$495. Divers must supply all their own gear and cover the cost of gas. Seminars will include discussions on equipment selection and rigging, risk management, decompression, software, contingency and dive planning.

Staff includes, Bret Gilliam, Joe Odom, Jim Mims, Rob Palmer, Chris Parret, Dr. Bill Hamilton, and Bill Turbeville. Space will be limited. Divers should be certified technical divers or instructors. This is not an event for the inexperienced. Contact: TDI 207-442-8391 ■

## REBREATHER WORKSHOP HELD IN BAHAMAS

Dräger/Uwatec recently hosted their first formal rebreather training program for instructors in the western hemisphere. The one week intensive dive clinic was held at Stuart Cove's South Ocean Resort in Nassau, Bahama. Twenty diving professionals from the U.S., Australia, England, Egypt, Germany and the Pacific Rim were invited to critique the new Atlantis I Nitrox rebreather and to become the nucleolus of international instructor trainers.

The training curriculum was developed for Dräger by Technical Diving International. Rob Palmer, internationally respected cave explorer and Director of TDI Europe, headed up the staff which included Christian Schult (Dräger marketing manager), Sean Griffin (CEO Uwatec USA) and Bret Gilliam (President TDI). A complete teaching manual in both metric and U.S. units and an accompanying slide series is available.

A dozen of the Atlantis units were used during the week with great success. Unlike other rebreathers that have been offered in limited editions, Dräger intends to release two hundred Atlantis I units to the U.S. market in October. These will be handled through a joint marketing venture with Uwatec USA.

These units are designed in semi-closed circuit models using a variable nitrox mixture of 60%, 50%, 40% or 32%. The supply gas is contained in a small cylinder of "pre-mix" allowing great flexibility for divers in the field. The units are extremely compact and easily fit women as well as larger framed men. Overall weight of the complete system is about 30 pounds and can provide up to two hour of life support from a single 20 cubic foot cylinder.

Maintenance is simple and easy and requires less than 20 minutes to service at the end of the diving day. This model can be used to approximately 150 feet, but is most efficient between 50 to 100 feet where a typical diver can optimize no-decompression profiles with extraordinary bottom times. One dive was made with a profile averaging 60 fsw for nearly 50 minutes and only consumed 5 cubic feet of gas! As expected, the rebreathers proved especially valuable in marine life interactions where the tiny bubble output enabled the divers to swim



Photo by Bret Gilliam.

with a variety of sharks and other skittish pelagics without spooking them.

A series of regional hands-on sessions with the rebreathers for divers is being coordinated through a network of Uwatec/TDI dealers. Full certification is required with purchase and training is expected to take three days. Watch for the Atlantis I to debut at a pro dive facility near you this fall. ■

## PADI GOES NITROX

Responding to continued interest from PADI members around the world, PADI International has announced it will unveil a complete enriched air (Nitrox) program later this year. The program will be fully supported with videotapes, student manuals, instructor guides and other materials.

"Enriched air diving has been a focus of discussion throughout the dive industry for many years. PADI has maintained a neutral stance about its use and with the growing acceptance by the recreational dive community and increased interest its time for a PADI specialty program that addresses enriched air diving," says Drew Richardson, Vice President of Training, Education and Memberships.

The program which is still in development, will be offered exclusively through PADI instructors and training facilities. ■



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Key West, FL

### Little Fantasy

Capt. Bob Sheridan  
High Tech Diving  
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## Massachusetts

### Grey Eagle

Capt. Eric & Lori Takakjian  
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Buzzards Bay  
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## Maryland

### Scubapro

Capt. Ted Green  
(800) 637-2102  
Tidewater Aquatics  
Ocean City, MD

## New Jersey

### Blue Fathoms

Capt. Tony Donetz  
(908) 369-2260  
Daily, Weekends &  
Night Dives  
Manasquan Inlet

### Sea Lion

Capt. George Hoffman  
Wreck Diving Guide  
Daily & Weekends  
Artifacts, Year Round  
(908) 528-6298  
Brielle, NJ

## New York

### Eagle's Nest

Capt. Howard Klein  
(516) 735-2254  
Wreck Diving May-October  
Call for Departure Times  
Point Lookout, LI

## Sept

- 2 USS San Diego
- 4 USS San Diego
- 6 Ayurouca

- 9 G & D
- 10 Lizzie D
- 10 Valerie E / Iberia
- 16 Pipe Barge
- 16 Lizzie D
- 17 USS San Diego
- 23 Asfalto / Bald Eagle
- 24 Iberia
- 24 Lizzie D / 3 Sisters
- 30 Clay Barge
- 30 Pipe Barge / Iberia

## October

- 1 RC Mohawk
- 7 Oregon
- 8 Iberia
- 8 Lizzie D / Valerie E
- 9 USS San Diego
- 14 USS San Diego
- 15 Lizzie D
- 21 RC Mohawk
- 22 Capt. Birthday

## Jeanne II

Capt. Bill Reddan  
(718) 332-9574  
Afternoon & Night Dives  
Sheepshead Bay, Brooklyn

## August

- 5 Harvey's Woody
- 6 New Mystery Wreck
- 7 USN Algol
- 12 Lizzie D / Valerie E
- 13 Martin's Misery
- 19 Pinta / Macedonia
- 20 Mystery / Bald Eagle
- 26 Cindy
- 27 Black Warrior
- 28 Arundo / Asfalto

## September

- 2 Fran S / Pipe Barge
- 3 Mystery / Black Warrior
- 3 Labor Day Cruise
- 4 USN Algol / Pinta
- 9 Immaculata / Asfalto
- 10 Liberty / Macedonia
- 16 Lizzie D / Pipe Barge
- 17 Pilot Ship NJ
- 23 Iberia
- 24 Cindy / Bald Eagle
- 30 Lizzie D / Fran S

## October

- 1 RC Mohawk
- 7 Pinta / Mystery
- 8 Steel Wreck / Iberia
- 9 Cindy / Martin's Misery
- 14 Lizzie D
- 15 Bald Eagle
- 21 Asfalto
- 22 Harvey's Woody
- 28 Valerie E
- 29 Capt's Choice

## John Jack

Capt. Zero  
(718) 788-2803  
Fast, Deep / Technical  
Overnights w/ Compressor  
Staten Island, NY

## August

- 2 Night Dive
- 5 Capt's Choice
- 6 Capt's Choice
- 9 Night Dive
- 12 Overnight
- 16 Night Dive
- 19 USS San Diego/Oregon
- 20 Overnighter
- 24 Night Dive
- 26 Virginia
- 31 Night Dive

## September

- 2 Mystery Wreck
- 3 Capt's Choice
- 6 Night Dive
- 10 Jacob's Return
- 14 Night Dive
- 22 Night Dive BUGS
- 28 Night Dive
- 30 Mystery Wreck

## October

- 1 Immaculata
- 5 Night Dive
- 7 Oil Wreck

## Sea Hawk

Capt. Frank Persico  
(718) 278-1345  
Capt. John Lachenmeyer  
(516) 499-9107  
Weekends & Wednesday  
Night Dives  
Mon, Tue, Wed, & Friday  
Vidas Marina, Freeport, NY

## Southern Cross

Capt. Phil Galletta  
(516) 587-3625  
Weekday & Weekends  
Babylon Village Dock, LI

## August

- 3 Oregon / San Diego
- 5 Reggie
- 6 Kenosha
- 10 Oregon / San Diego
- 12 Kenosha
- 13 Oregon
- 17 Oregon / San Diego
- 19 Tarantula
- 20 Oregon
- 24 Oregon / San Diego
- 26 Oregon
- 27 Kenosha
- 31 Oregon / San Diego

## September

- 2 Tarantula
- 3 Oregon
- 9 Reggie
- 10 Oregon
- 16 Kenosha
- 17 Oregon
- 23 Valerie E
- 24 Oregon
- 30 Tarantula

## October

- 1 Oregon
- 7 USS San Diego

- 8 Kenosha
- 14 USS San Diego
- 15 Tarantula
- 21 USS San Diego
- 28 USS San Diego
- 29 USS San Diego

## Wahoo

Capt. Steve Bielenda  
Capt. Janet Bieser  
(516) 928-3849  
Captree Boat Basin, LI

## August

- 2 USS San Diego
- 5 USS San Diego
- 6 Aqua Woman Dive
- 9 San Diego
- 11 Big Wreck 185'
- 12 USS San Diego
- 13 USS San Diego
- 16 USS San Diego
- 17 Oregon Overnighter
- 19 USS San Diego
- 20 USS San Diego
- 23 USS San Diego
- 25 Texas Tower
- 26 USS San Diego
- 27 Oregon
- 31 Block Island

## September

- 2 Block Island U-853
- 6 USS San Diego
- 9 USS San Diego
- 10 USS San Diego
- 13 USS San Diego
- 16 USS San Diego
- 19 Oregon
- 20 USS San Diego
- 23 USS San Diego
- 24 USS San Diego
- 25 Oregon
- 27 USS San Diego
- 30 USS San Diego

## North Carolina

### The "Mac"

Capt. John Pieno  
(804) 425-1426  
(919) 986-1056  
Large 6 Pac  
Hatteras, NC

### Margie II

Capt. Art Kirchner  
(201) 361-3018  
Hatteras, NC

### Rapture of the Deep

Capt. Roger Huffman  
(919) 441-2393  
Deep & Technical  
Plenty of Room  
Hatteras, NC



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