

# SUB AQUA JOURNAL

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*The Forum For Atlantic Diving*

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## ***USS SAN DIEGO***

### ***75 Years Underwater***

*Andrea Doria Gets Arrested*

*New England's Best Wrecks*

*John Crea on Nitrox*

*Captain Bill Palmer*

*Product Reviews*

*Boat Schedules*

*Dive Nutrition*

*Local Heroes*

*Lobsters*



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# SUB AQUA JOURNAL

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# SUMMER

We've just passed the longest day of the year. Our air conditioners are working double-time and our homes are strewn with tanks, valves, computers, scooters, suits, and books open to maps and drawings. On the porch sits a bucket of some foul-smelling bath in which artifacts are soaking. We're diving a lot. Perhaps later we'll go out for a lobster dinner.

July marks the 75th anniversary of the sinking of the *San Diego*. If you were to poll divers about their favorite wrecks in the north east, this grand beauty usually tops the list. She's often one of the first major wrecks a novice diver tries, and her challenges continue to draw the most experienced.

There's no doubt that Captain Hank Garvin has a love affair with the *San Diego*. Over the past twelve years Hank has logged well over a thousand dives on her, and shows no signs of waning interest. Find out why, and learn about her changing personality, in this issue.

Dan Berg keeps you apprised of the history and lore of the *San Diego*, as he focuses his Wreck Valley column on the most frequently dived wreck in the northeast.

Mixed gas expert John Crea walks us through the basics of Nitrox and mixed gas diving as he answers questions on-line on our nation's largest electronic bulletin board.

We also give you the inside track on this seasons hottest story — the arrest of the *Andrea Doria*. Long time *Doria* diver John Moyer is working on something so secret he needed the Federal Courts to help him stake his claim.

The dynamic duo from Boston, Dave Morton and Captain Eric Takakjian, go out on a limb and pick the hottest wrecks New England has to offer.

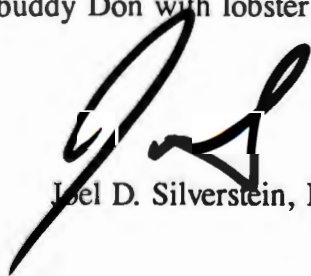
The initial soreness has subsided from our Doc Lombardo workouts. Just when you thought it was safe to go into the water, it's time to sink those french fries, Choco Tacos, and everything pizzas. Doc gives you the lowdown on keeping your fat intake low down.

Barb Lander chats with Captain Billy Palmer, one of Rhode Island's busiest and most knowledgeable skippers. Equipment reviews, Events Calendar, and the Boat Schedule round out the issue.

When you get through this issue and wonder what happened to the Question Locker this month, here's your answer. About a year ago Bob and his wife Patty decided to expand their family. Bob being as meticulous as ever, placed his order with the stork. Like clockwork nine months later they had their first child — Kyle Thomas. Congratulations to Patty and Bob for bringing a new life to the world.

Kirby? Oh yes. Professor Kurkomelis of the College of Crustacean Knowledge regales his dive buddy Don with lobster facts.

Bib anyone?



Joel D. Silverstein, Editor

by Daniel Berg

# U.S.S. SAN DIEGO

# 75 YEARS



In early July of 1918 the German U-Boat 156 slid quietly through the cold dark Atlantic only a few miles off the south shore of Long Island. Her presence undetected by the almost non-existent US coastal defenses, the U-Boat commander had his crew lay a mine field off Fire Island. Civilians on shore and the sun bathers on the nearby beach had no idea how close the war actually was to their beloved homeland.

On July 19, 1918, 75 years ago, the US Armored Cruiser *San Diego* was zig-zagging as per war instructions on course to New York. At 11:23 A.M., an ear-shattering explosion tore a huge hole in her port side amidships. Captain Christy immediately sounded submarine defense quarters, which involves a general alarm and the closing of all water-tight doors. Soon after, two more explosions ripped through her hull. These secondary explosions were later determined to be caused by the rupturing of one of her boilers and ignition of her magazine. The ship immediately started to list to port. Officers and crew quickly went to their stations. Guns were fired from all sides of the war ship at anything that was taken for a possible periscope. Her port guns

fired until they were awash. Her starboard guns fired until the list of the ship pointed them into the sky. Under the impression that a submarine was surely in the area, the men stayed at their posts until Captain Christy shouted the order "All hands abandon ship." In a last ditch effort to save his ship, Captain Christy steamed toward Fire Island Beach, but never made it. At 11:51 A.M. the *San Diego* sank, only 28 minutes after the initial explosion.

Since she went down 75 years ago, the *Diego* has been transformed from the once magnificent flagship of our fleet to one of the most popular and dynamic shipwrecks off the east coast. She lies upside down in 110 feet of water off Fire Island, New York, and is visited by thousands of divers each season. Conditions on this site vary as they do on most North Atlantic wrecks but divers have learned that 30 foot visibility with a mild current is normal for the area. The top of the wreck can be reached at about 70 feet, while the deepest portion of the wreck in her stern wash-out is approximately 119 feet deep.

Besides supporting a huge array of fish life, she is one of Long Island's

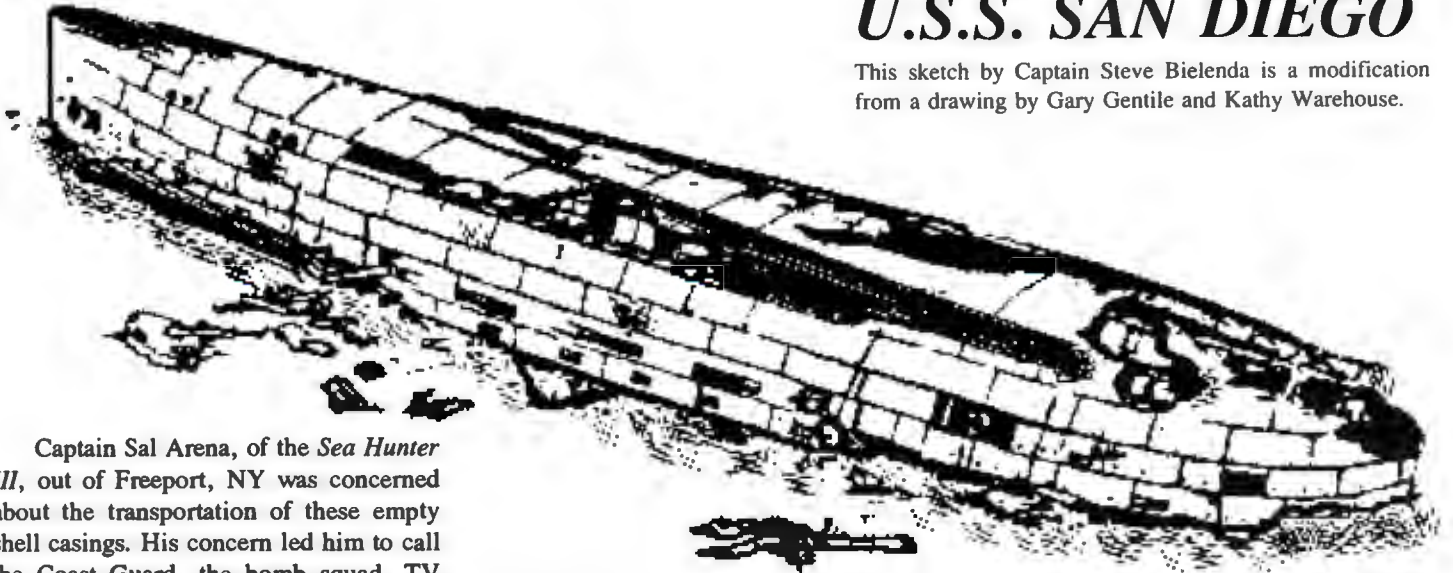
scuba diving hot spots. Divers can find artifacts such as portholes, cage lamps, china, glassware, personal effects and brass valves. The portholes found on this wreck are unique. They are made up of three parts, each of which is serial numbered: the backing plate, which is bolted into her armor plating, a swing plate window and a brass storm cover. What makes these portholes so desirable to sport divers is the fact that the backing plates are almost impossible to unbolt while underwater. This means that while many divers have swing plates or storm covers, very few have a complete set and even fewer have a set with matching serial numbers.

Over the years the *Diego* has been the subject for numerous magazine and newspaper articles. Most of this attention happens when a diver perishes on the site or when divers recover unique artifacts from the wreck. The latest media attention happened only last fall when a group of divers aboard the *R/V Wahoo* located and recovered a few dozen 50 caliber ammunition shells. Divers brought the empty brass shell casings back to shore as mementos of their dive.

continued on next page

# U.S.S. SAN DIEGO

This sketch by Captain Steve Bielenda is a modification from a drawing by Gary Gentile and Kathy Warehouse.



Captain Sal Arena, of the *Sea Hunter III*, out of Freeport, NY was concerned about the transportation of these empty shell casings. His concern led him to call the Coast Guard, the bomb squad, TV news teams and the local newspapers reporting that over 400 "live" bombs had been brought back into the population.

During its costly investigation the Coast Guard put a security zone around the *San Diego* and had its cutter *Bainbridge Island* on station for many days to keep any divers or fisherman from returning to the wreck.

In an effort to get the wreck reopened to sport divers, Captain Steve Bielenda lead Coast Guard and Navy divers on an

examination of the wreck. Once the examination was completed and it was explained that only empty shell casings and not live bombs were brought back to shore, the Coast Guard reopened the wreck. The result of their investigation however led the Coast Guard to impose regulations prohibiting any munitions to be salvage from any wreck off our coast.

As a result of these events divers can no longer legally collect prized artifacts like ammo clips, bronze canisters or shell

casings, even if they are empty. Yet even with this restriction there are still many other artifacts to find.

During the week of July 19, 1993 several Long Island and New Jersey dive boats plan to run special anniversary charters to the *San Diego*. Join them as they celebrate the 75th Anniversary of the sinking of the *San Diego* in an area known as Wreck Valley.

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# The Hot Wrecks

New England

by Dave Morton and Eric Takakjian

*Picking the best wreck dives in New England is a difficult, if not impossible task. Many of New England's shipwrecks are outstanding dives. We selected three wrecks which typify the diversity of New England diving; a German U-boat, an offshore fishing vessel, and an untouched freighter.*

## U-853

The crown jewel of any list of New England wreck dives has to be the German submarine, *U-853*, which is arguably the premier wreck dive in New England. Sunk in combat on May 5, 1945 as the last kill in American waters, this type IX-C U-Boat sits perfectly upright and mostly intact in 130 fsw. The wreck site is located 7 miles east of Block Island, in waters usually hosting diving conditions that are excellent most of the time. The water temperature can exceed 50°F on the bottom in the summer, and the surface temperature can get reach 65°. Visibility averages 20-30 feet if there haven't been any storms, and can exceed 50 feet on some occasions, when the waters take on a shade of crystal blue. The top of the conning tower is reached at 95-100 feet where you can still see part of a stainless steel periscope, and the deck sits at 110 fsw. All of the hatches on the sub are open, and it is possible to view the interior of the sub from any of these. In addition to the hatches, there are also three depth charge holes in the pressure hull which can permit viewing or access to those so inclined. Due to the U-boat's length of 265', and the myriad of interesting points to observe, it takes several dives to see and appreciate the entire outside of the wreck. Many external features are easily recognized, and include the conning tower, the gun mount, the diving planes, and the open outer torpedo tube doors.

For divers wishing to penetrate the *U-853*, there are many access and exit points along the hull. These access points include the depth charge holes and some of the hatches. The interior of the sub contains a considerable amount of silt, and any penetration dive should plan on a zero visibility exit, as even exhaust bubbles can significantly reduce the



visibility. Good buoyancy and anti-silting techniques are critical for safer diving in this wreck. Due to the confining nature of a WWII submarine, a penetration line can actually increase the odds of a difficult entanglement, and a cautious and prudent use of progressive penetration is recommended for this wreck.

Many of the interior features are also

easily recognized. In the forward torpedo room, it is possible to see a full torpedo laying on a rack, and the top two inner torpedo tube doors, complete with the painted names of unknown women, still lie above the heavy silt. Cruising aft through the officers and crews quarters, divers will be struck with the reality of

continued on next page

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the wreck site as they pass over bones from some of the crew members, all of whom died in the sinking. Penetrating a submarine sunk violently during a war in 130' of cold northeast waters is a sure way to get the adrenaline pumping, and when a white bone is seen, or even more sobering, a skull, the adrenaline pumps can go on full alert. Amidships in the control room, the diving plane control wheels are still recognizable on the starboard side, and further aft through the engine room, a tight fit will get you past the two diesel engines.

Numerous prized artifacts still are surfacing from this wreck even after the hard diving throughout the years, and recent work by airlift equipped divers. In 1992 alone, a wallet was found with an iron cross, and several rolls of navigational charts were also recovered by various divers. A pair of navigator's dividers and a gyrocompass repeater were also recovered. The *U-853* is an exciting dive, and a diver will never forget his or her first dive to this unique, and tangible, piece of world history. It is an addicting dive for many, and some local divers have logged over 100 dives on this wreck, and they still can't get enough.

## F/V *Idene*

The offshore fishing vessel *Idene* does not have much in the way of an interesting history, and is not a mecca for local artifact hunters, but it is a fun dive that can be enjoyed by divers of all skill levels. Her 120 foot steel hull rests on a white sand bottom in 90 fsw, with her wheelhouse coming to within 50 feet of the surface. Due to the offshore location, visibility is usually always good, and can often exceed 50'. At first glance the *Idene* looks like a Florida artificial reef, sitting upright on the bottom, with all of her hatches open. The inside was gutted, and anything of value was removed prior to her being purposely scuttled in the late 1980's. A diver can easily swim around the entire 120' hull in one dive. The three level wheelhouse and crews quarters on the stern have lots of places to explore. There is virtually no silt inside the wreck, and the interior rooms, passageways, and stairwells are for the most part unobstructed. Divers can swim into the top level, down a passageway, into the bridge, around the chart table, down a ladder way into the second level, and then down and around another corner to get to the engine room, which appears as a deep dark hole. After swimming around a bulkhead in the engine room, you will be surprised to see that the entire front of the wreck is open, and you can exit right into the main deck area, 20 feet below the bridge. The silt in the engine room is heavy and thick, while the passageways above are covered with small sea mussels, keeping silt to a minimum.

More and more marine life is beginning to inhabit the *Idene*. Large blackfish are frequently seen, along with fluke and hake. The *Idene's* an ideal site to work on wreck diving skills and techniques.

## *Seaconnet*

The freighter *Seaconnet* is southern New England's diamond in the rough, and is an untapped resource on the edge of Boogeyman Land. Due to her location at the entrance to Vineyard Sound, the outside of the wreck is covered with a layer of fine silt, and the bottom is composed of a dark grey sand. Strong currents sweep across the wreck at the height of the incoming and outgoing

tides. Visibility can be as good as 25', and as poor as 5'. The *Seaconnet* is an infrequently dived wreck, mostly due to the formidable conditions at the site.

The *Seaconnet* was only five years old when she sank on April 30, 1923. Her 318' long hull lies fully intact though upside down in 110 fsw. The cargo of coal she was carrying on her final voyage is strewn across the bottom alongside the wreck. The best time to dive the *Seaconnet* is near the slack high tide, which will provide the best chance at good visibility.

There are several ways to gain access to the interior of the ship. Riveted hull plates have fallen away in some places, providing large holes in the side of the hull. In some areas it is possible to crawl under the hull and go up through the openings in the deck. The interior of the ship can be very disorienting due to the inverted hull and sometimes heavy silt. Divers penetrating the wreck should be experienced in low visibility penetration dives, and use extreme caution. Some of the heavy hull plates have reportedly loosened over the winter, and could pose a hazard to careless divers.

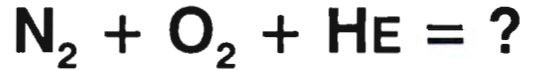
The *Seaconnet* is loaded with artifacts, and numerous large portholes still remain on this wreck. To our knowledge, none of the bridge equipment, or ship's bell, has ever been recovered.

A challenging dive, the potential rewards of the *Seaconnet* are great! ■

## NEW ENGLAND WRECKS

Alba	55
Blackpoint	110
Cape Fear	170
Chelsea	85
Chester Poling, Stern	98
Chester Poling, Bow	180
City of Salisbury	85
Col. W. B. Cowin	75
Coyote	170
Empire Knight	40-110
GKB	75
Grecian L-8	110
Henry Endicott	90
Horatio Hall	40
John Dwight	85
June K/Colebrook	180
Katherine Marie	75
Larchmont	140
Mars	130
Pinthis	110
Plane Wreck	40
Port Hunter	30-85
Pottsdown	70
Romance	80
Seaconnet	100
Target Ship	35
U-853	130
USS Bass	180
USS Yankee	50

# NITROX & MIXED GAS — DIVING BASICS



by John T. Crea

**Editor's Note:** We were browsing through the Scuba Forum on CompuServe recently and came across some questions often asked by recently certified divers. We found lucid answers by John Crea, a leading decompression specialist in mixed gas diving. For some of you this is old stuff, though review is a good habit. For many it may be your first introduction to viable mixed gas alternatives to air diving.

**What is nitrox?** Nitrox (also called EANx, Enriched Air, SafeAir, etc.) is any mixture of nitrogen and oxygen (other than air) used for diving either at depth or while performing decompression stops. In the saturation habitat (underwater research facilities) community, Nitrox usually refers to mixtures in which the oxygen concentration is less than that of air (AIR IS 20.95% O<sub>2</sub>), to prevent long term exposure to elevated oxygen partial pressures that can result in one form of oxygen toxicity. In the recreational/scientific/technical diving community, Nitrox usually refers to mixtures with higher oxygen concentrations than those found in air to increase no-decompression times and/or make for more efficient decompression.

**Why use Nitrox for scuba diving?** By using oxygen enriched mixtures (in appropriate safe depth ranges), the diver is exposed to lower inert gas concentrations at the same depth as compared to an air dive (see box). These lower inert gas concentrations result in lower inspired inert gas partial pressures at the same measured depths. As a result the diver absorbs less nitrogen on any given dive than on an equivalent air dive resulting in longer no-decompression limits (as compared to air), and shorter decompression requirements on comparable decompression dives.

**Is it true that Nitrox lowers the potential for nitrogen narcosis?** Some people in the past have claimed a decrease in nitrogen narcosis when using oxygen enriched mixtures, but research has indicated that (as expected from the lipid solubilities of both nitrogen and oxygen) when using only nitrogen and oxygen in the breathing mixture, that there was no measurable decrease in narcosis at a given depth when the mixture was varied.

**When using Nitrox will I have a lower gas consumption than when diving with air?** Some marketing/certifying agencies have claimed decreased gas consumption when using Nitrox, but research of thousands of manned dives shows that this is not the case. These statements are made by those who do not understand respiratory physiology. The amount of gas moved into and out of the lungs is strictly a function of carbon dioxide levels and the body's response at attempting to maintain normal levels of carbon dioxide.

**Are there any downsides to using Nitrox?** Oxygen toxicity and depth limits. Oxygen at high partial pressures can become toxic in two different ways. The first is long term toxicity (often referred to as Pulmonary Oxygen Toxicity), this is first seen in the lungs, and begins to develop anytime the body is exposed to partial pressures of oxygen greater than 0.5 ATA. Actual exposure limits (determined by measurements of reversible and tolerable changes in the lungs) are based on Oxygen Tolerance Units, and the rate at which a diver accumulates these OTU's will vary depending on the partial pressure. A higher partial pressure causes the diver to accumulate

OTU's much more rapidly than when exposed to lower partial pressures. This type of oxygen toxicity is of no concern to the average recreational diver using Nitrox. The second type of oxygen toxicity is of major concern. This is Central Nervous System oxygen toxicity. This can result in an epileptic type seizure when divers are exposed to high partial pressures of oxygen (most operational limits usually limit the maximum exposure to 1.4 ATA while at work, and 1.5-1.6 ATA while at rest.) Obviously, we can reach these partial pressures when breathing air, but they happen at depths well beyond the recreational limits (ie, 1.4 ATA on air occurs at 187 fsw), however the Nitrox diver has much less leeway (or margin of error) before attaining partial pressures that can be riskier or dangerous.

**What are the depth limits for standard Nitrox mixtures?** When breathing Nitrox (common nitrox mixtures include Nitrox I - 32% oxygen, and Nitrox II, 36% oxygen) the depth limits fall within the sport diving range. With Nitrox I, the depth limit to 1.4 ATA is 111 fsw, and with Nitrox II this limit is at 95

continued on next page

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fsw. When diving in areas that have a specific bottom depth that prevents the diver from accidentally going deeper than these limits, observing these limits is easy.

**What happens if I go a little deeper with these mixes?** There is much concern about divers who can inadvertently go deeper than the maximum depth limit (sometimes referred to as Maximum Operating Depth, MOD) of their breathing mixture. As a diver exceeds the depth limits, he is exposed to oxygen partial pressures at an increasingly hazardous rate. I am not saying that going a foot or so deeper for a minute or so will guarantee a seizure. However, your risk of having oxygen toxicity problems increases with every extra foot of depth, and with every minute spent at oxygen partial pressures greater than your safe limit. The major problem is that CNS oxygen toxicity can develop (and quite often does) without any appreciable warning signs that would allow the diver to correct his hazardous exposure (and seizure activity has been known to occur up to several minutes after the diver is removed from the high oxygen partial pressure exposure).

Because of the potential for hazard, divers using Nitrox must be trained and fully aware of the operational limitations of the mixture they are using. They must be absolutely sure of the oxygen concentration of the mixture they are using to be able to set safe dive depth limits. In addition they must have the control

### MAXIMUM OPERATING DEPTHS % of Oxygen and Limiting PO<sub>2</sub>'s

% of Oxygen	1.4 ATA	1.5 ATA	1.6 ATA
17	238.76	258.18	277.59
19	210.16	227.53	244.89
21 Air	187.00	214.50	231.00
25	151.80	165.00	178.20
28	132.00	143.79	155.57
30	121.00	132.00	143.00
32 NTX I	111.37	121.69	132.00
36 NTX II	95.33	104.50	113.67
50	59.40	66.00	72.60
75	28.71	33.00	37.2
100	13.20	16.50	19.80

to prevent going deeper than their safe limits.

It is important in the planning process of the dive to have an good indication of the deepest part of the dive. If you know you are going to be diving in an area that has a bottom depth deeper than 111 fsw you might want to use a custom mixture that does not produce a partial pressure of oxygen higher than 1.4 at your potential maximum depth.

The resulting mix will have an oxygen percentage lower than 32%, and will not have as great an advantage over compressed air, but will allow the diver to go deeper than he could when using Nitrox I or Nitrox II.

**Is Nitrox in wide use at this time?** The scientific diving community has been using nitrox safely for over 20 years, the commercial diving industry has been using nitrox since the early 60's. The cave diving community has been working with nitrox since the early 70's, and technical wreck divers began using it since the late 80's.

**What agencies certify divers for nitrox use?** Currently there are two certifying agencies for Nitrox - ANDI, American Nitrox Divers Inc. based in Freeport, NY and IANTD, International Association of Nitrox and Technical Divers in Miami Shores, Fla. Both offer courses that teach the uses of nitrox.

**Are there other mixed gases that divers use?** While technically the use of any mixture other than air qualifies as "mixed gas diving", common usage refers the term mixed-gas to the use of mixtures other than those composed of only oxygen and nitrogen. Most common mixed gas dives involve the use of "trimix" (helium-nitrogen-oxygen mixtures) or "heliox" (helium-oxygen mixtures). The major rationale here is to reduce the nitrogen concentration to reduce narcosis, and to reduce oxygen concentrations to prevent oxygen toxicity at greater depths (many people start to consider using mixed gas at depths greater than 180 - 200 fsw.) Although mixed gas diving has many significant advantages for deep diving, it does require significantly more equipment and training than air or nitrox diving. These operational differences include possibly carrying multiple (3-5) tanks, the use of multiple gas switches both during descent and ascent, as well as strict adherence to custom generated decompression schedules.

There has been much discussion of the use of alternative breathing media for recreational divers over the past few years, most of it positive, some of it negative. And we are beginning to see an increase in dive accidents with divers using breathing mixtures other than air. As with all technology, alternative breathing mixtures are appropriate in certain strictly defined areas. This technology requires advanced training, and should be used by divers who are willing to be extremely controlled in their diving practices.

However, if longer no-decompression times or reduced narcosis on deep dives is what you need to accomplish your dives, and you are willing to undertake the appropriate training and acquire the necessary equipment, then alternate breathing mixtures should be considered. Nitrox and mixed gas diving are welcome alternatives to air. ■

# HEALTHY RESPECT

Whether you're minutes or many hours from the surface, attitude is every bit as important as the equipment you're carrying. The fact is, your safety, and the safety of your team depend on it.

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by Barb Lander

His voice swelled with a gravelly timbre; he had the attention of all in the room. The words were enunciated slowly, dramatically, and with a full richness characteristic of British nobility. "I would say to the House, as I said to those who have joined this government: I have nothing to offer but blood, toil, tears, and sweat."

The British accent was gone as Captain Billy Palmer attributed his performance to Winston Churchill. It's hard to say if the Rhode Islander's interest in history started underwater or vice versa, but the submerged history off the East Coast has drawn Billy to the ocean bottom for more than 25 years. "Did you know," Billy asked me, "that Rhode Island is the only state with four divable subs?" (The G-1, the L-8, the Bass, and the U-853.)

A \$240 bonus for military service in Vietnam paid for Billy's first scuba gear. The tank, he found later, was a converted fire extinguisher painted yellow. "I used it for years," he said. His first regulator, a double-hosed monstrosity, he describes as "terrible hard breathing." Diving skills, he learned from a \$1 textbook. Not for years would Billy have a certification card.

Later, he began running dive charters, so he could afford electronics for his boat. He was the first in his area with Loran A. He confesses that "you have to be sort of a magician" to use Loran A, matching the moving humps to achieve the desired location. Those electronics caused trouble at home too. His wife would complain that his boat had electronics and she didn't even have a washing machine.

Today, Captain Billy's pride and joy electronics have been supplanted by a pair of Loran C's and side scan sonar. He traded in a boat that was so slow the fishermen used it to take ranges, for the speedier and more comfortable *Thunderfish*. But perhaps the best thing about diving with Captain Palmer is having him tell you about the wrecks.



"I have no interest in diving anything but shipwrecks," he says. "But," he continues, "if you don't know the history, you might not like it." Billy sees that as one of the biggest problems of divers today; they don't know what they're diving on.

Captain Billy Palmer's favorite wreck is no secret. He has developed an excellent program about the U-853 and presents it at symposia and meetings up and down the East Coast. The type IX-C U-boat lies 12 miles off Rhode Island in 130 feet of water. The 853 has the distinction of being the last U-boat to be sunk in American waters, just hours before Germany's surrender. She was lost with all hands including her 6' 10" captain, Frömsdorf.

That kind of detail is typical of Billy. He will patiently explain, if you don't know, that because of the cramped quarters in a U-boat, tall men were rare.

One of Billy's finds from the U-853 is a small leather wallet found among the tatters of a jacket. The wallet contained a silver Iron Cross. He is able to deduce that the award belonged to one of the enlisted crew. An officer's medal would have been gold.

More difficult to recover was the torpedo tube now gracing Billy's home. It makes quite a conversation piece. "You never know when the Iranians are coming," says Billy. ■

# SHERWOOD

So simple it's ingenious.

# MY SAN DIEGO

by Captain Hank Garvin

## Reflections on 1,000 Dives

Another cold April morning. Only forty minutes away when I start dressing. Hopping around on the deck, putting on my gear, trying to stay warm. Mates Tom Bernstein and Gary Kohler do their best to help. My mind drifts back to September of 1982 when I first encountered the *San Diego*. I had gotten tired of diving on broken old wooden ships looking for lobster. "Hank, why don't you come out and try the *San Diego*?" said Sally Wharman and Mary Artale who ran the High Seas Dive Club. — That was the start of my next lifetime of diving. Only fifteen feet of visibility was about as much of her as I first saw. Yet, even with this limited tour I realized the potential of this magnificent shipwreck.

In the dives that followed, I gradually learned many *San Diego* secrets. For my patience in exploring her, the *San Diego* has given up many personal belongings that went down with her on that fateful day seventy-five years ago.

My first artifacts were a cache of jelly jar glasses. I had found these in a room that many people had been in before — but no one had bothered looking up in the corners. After that the artifacts became a blur. We brought up more and more treasures from each dive. I am still amazed by the survival of the glassware and dishes. Finding a delicate dish such as a square cake plate in such perfect condition continues to strike me as quite incredible. You never know what can be found on the *San Diego*.

Captain Janet Bieser places the *Wahoo*. Tom brings me the line and drags me back to the present — I jump in. After more than 1,000 dives at this site I still get the same charge everytime she looms up from her resting place in 115 feet of green Atlantic sea.

According to plan, the anchor is lying on the top of the wreck — I move it to a



Officers effects recovered by the author.

high spot that will be easy for the passengers to find. Signaling to the surface that we are tied in, I wait for Tom and Gary to tighten up on the line. Three minutes have passed since I left the surface — the line tightens and I am off to explore the *San Diego* again.

I am most often asked, "What could possibly be so interesting to keep you going back week after week for the past twelve years?" It's the beauty and the magnitude of this enormous ship. It's the artifacts — those tiny pieces of time. It's the challenge.

The first dive of the season gives me another reason to return — she changes every year. This past winter's storms have been significant. Externally, steel plates have fallen off, extending the original damage hole from about 100 feet wide to now almost 300 feet. There is also a section near the old ammunition hatch that extends all the way to the starboard side bilge keel that has collapsed in. Many other holes that have just popped up all around her as well.

The interior is another situation entirely. Sections of decks have collapsed, making some once passable areas passable no more. In Gary Gentile's book, *U.S.S. San Diego the Last Armored Cruiser*, he takes you on a touring circuit inside. This was an accurate guide when written. Nature, however, has taken its toll and made parts of this tour impossible to follow today.

Responding to the battering of the sea, the *San Diego's* contents have shifted making some areas quite dangerous. Recently, Dennis Singleton, a mate on the *Southern Cross*, was inside the stern section when a case of 50-caliber shells fell from two decks above — missing him by only a few feet.

Some circuits that could be followed before now have no exits, or today exit to another deck. Pieces of the wreck fall as you are inside working in a section. This makes for a dangerous situation. These changes make penetrations appear to be easier now than in the past. In some



Rare dinnerware from the USS *San Diego*, recovered by the author.

spots this may be true but in others the exact opposite is the case. I cannot over-emphasize the importance of extreme caution and the use of redundant equipment when attempting to penetrate the *San Diego* today. Penetrations demand that divers both familiar with the wreck and those new to her, explore slowly using the progressive penetration technique of exploration. This technique requires the dependency on knowledge, understanding and physical familiarity with a small area before proceeding into the next.

I feel that it is important that we recover and document what we can now before any further changes occur. There is a section that I worked for a couple of years that gave up some magnificent dishes, which now has been obliterated by a fallen upper deck. How many more precious finds will never be found as the mighty *San Diego* crumbles with age?

...as my hands become numb in the icy water I know I must leave the bottom. But she will still be there. Mysterious, changing, always calling me. Another dive, another artifact, another adventure on the *San Diego*. ■

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# COAST GUARD LAYS DOWN THE LAW

**SPECIAL  
REPORT**

In the wake of the October 92 *San Diego* Shell Recovery Expedition, there's been much agitation about the legality of removing ordnance from wrecks. In the interest of safety we went directly to the Coast Guard to get their bottom line. We spoke with Lt. Commander Cordell Viehweig, of the US Coast Guard Marine Inspection Office, located at Battery Park, NY.

For years divers have been bringing up small ammo clips, powder canisters, and 50mm shell casings from the *San Diego*. It was generally assumed that because the propellant within the shells was wet, they would not cause any hazard. We have been informed that the Coast Guard regulations prohibit their recovery in any case.

According to Lt. Cmdr. Viehweig, the removal of any Class I explosives is expressly prohibited from any shipwreck within Coast Guard jurisdiction where those explosives can be brought back to American ports.

Department of Transportation Research and Special Programs Administration code 176.156 regarding defective packages indicates: "(a) No leaking, broken, or otherwise defective package containing Class I (explosive) materials, including packages which have been adversely affected by moisture, may be accepted for shipment. (b) No Class I (explosive) material, which for any reason has deteriorated or undergone a change of condition that increases the hazard attendant upon its conveyance or handling, may be moved in the port area."

According to Lt. Cmdr. J. H. Candee, sanctions for violations could include the master of the vessel being brought to a hearing before an Administrative law Judge, where his license to operate could be revoked. Violation of each section of the code carries a penalty of \$25,000.

Although the Coast Guard has removed the Security Zone from the *USS San Diego*, and are no longer maintaining

a watch vessel at the site, they have indicated that they will make random inspection of any and all dive boats, commercial and private, that visit this wreck.

Commander Viehweig said that if you are in possession of any potentially live munitions, with heads and propellant intact, you should contact your local Bomb Squad for removal and appropriate disposal. ■



## This Month's Cover

Divers Will Campbell and Jennifer Flynn with one of the last empty and unarmed shell casings recovered from the *San Diego* in October 1992. This shell was recovered before the Coast Guard inspection and subsequent enforcement of the code. Lt. Cmdr. Viehweig was informed that this image would appear on our cover and approved its use.

We used a Hasselblad 500 C with a 150 mm Sonar lens. Exposure on Tri-X pan film was f11 at 1/250 sec. Lighting was a blend of hard daylight and a Norman 200B portable strobe to lighten the shadows.

Photo by Joel Silverstein



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# DORIA UNDER ARREST

by Jeffrey J. Silverstein

The phone calls here at the **Journal** were flying as anxious divers wanted to know the hot news. "They say we can't dive the *Doria* anymore...somebody staked a legal salvage claim...say it ain't so." Well, part of that's true — John Moyer has filed an admiralty arrest on the *Andrea Doria* in the United States District Court for the District of New Jersey. The good news is that there is no intention to restrict diving.

The **Sub Aqua Journal** caught up with John Moyer on the *Research Vessel Wahoo* on his first *Doria* dives this season as he and dive partner Captain Bill Deans set a mooring and placed the arrest papers in a canister on the wreck.

Moyer has been diving the *Andrea Doria* since 1982. He owns one of the original shipbuilders models. In 1985 he was a member of the team that located and recovered her bell. Why file admiralty papers? Within the past year, John uncovered an area that he believes holds particularly prized artifacts and has begun salvage operations there. Because of his financial and time investments, and single-minded love of this wreck, John decided to legally stake his claim to insure the ownership of these artifacts.

We spoke with Moyer's attorney, Peter E. Hess, who sent a letter to those dive boat captains with scheduled *Doria* trips, from which we quote:

"John Moyer merely intends to protect the integrity of his ongoing project and has sought judicial protection against any divers who attempt to wrongfully appropriate the fruit of his labors...The Court has ordered this protection and will assert jurisdiction over any party or parties who interfere with Moyer's recovery efforts..."

Moyer's project area is in the bow of the *Doria*, forward of Gimbel's hole.

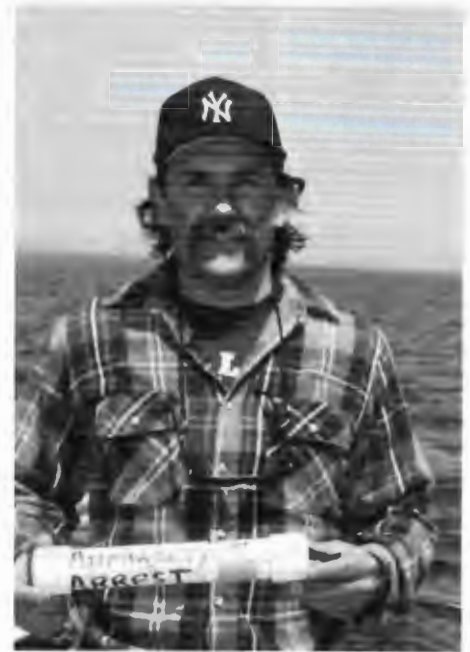
"There is no prohibition against anchoring in or near Gimbel's hole [an area which was cut open by commercial divers] or anywhere aft on the *Doria*: these are the areas which, in the past, have traditionally yielded the vast

majority of the artifacts salvaged from the wreck.....As soon as the project has been successfully completed, Moyer intends to have the District Court confirm title in the artifacts which he and his colleagues have recovered this summer. No claim of title and/or right of possession will be made on artifacts recovered by other divers from outside of the project area....When Moyer has completed his scheduled operations, the *Andrea Doria* will once again be open to unrestricted artifact recovery from all parts of the wreck."

[In the interests of safety and the success of John's project it would be prudent for captains not to anchor near the salvage vessel while the project is underway.]

How does John feel about all this? "We're confident that we will conduct a successful operation. We've gone to great expense to insure that the dive ops run smoothly and we hope to find what we're looking for."

Good luck, John Moyer. **Sub Aqua Journal** will be there to report on your progress. ■



John Moyer with sealed ADMIRALTY ARREST papers that were placed on the *Andrea Doria* June 25.

If you have legal questions about diving this wreck, please contact: Peter E. Hess, Esq., 300 Delaware Avenue, Wilmington, Delaware 19801. Phone (302) 656-1203, Fax (302) 656-9836

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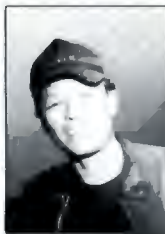


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## EVENTS CALENDAR

JULY

10 **Second Annual Undersea Hyperbaric Medical Society Recreational Diving Symposium.** The focus this year: "Physiology of Diving Injuries." Featured speakers are: Surgeon Commander Francis of the British Royal Navy, Dr. Carl Edmonds, Australia, and others. The specially selected faculty will present the latest medical information about deco-sickness, neurophysiology, lung injuries, etc.  
Halifax, Nova Scotia, Canada.  
Contact: Dennis Graver  
(206) 387-8043  
fax (206) 387-6683

15 **Andrea Doria Expedition Sets Sail**  
See your friends off as they set sail for the wreck of the *Andrea Doria* aboard the R/V Wahoo 7:00 P.M.  
Captree Boat Basin.

18 **75th Anniversary of the Sinking of the USS San Diego**  
This will be a week long event, contact your favorite boat for reservations and information.

20 **Andrea Doria Expedition Sets Sail**  
See your friends off as they set sail for the wreck of the *Andrea Doria* aboard the M/V Eagle's Nest  
contact: (516) 735-2254

21 **Staten Island Sport Divers S.S. Republic — Glen Butler**  
Project manager of the 1985 commercial salvage operation will narrate a multimedia presentation on the history of this magnificent shipwreck. 7:00 PM Contact: SISD (718) 720-4994

26 **SS Republic Expedition Sets Sail**  
See your friends off as they set sail for the first ever sport diver expedition to the *SS Republic* aboard the R/V Wahoo 7:00 P.M.  
Captree Boat Basin.

AUGUST

1 **Aqua Woman Dive**  
Eagles' Nest  
Contact: Karen Gurian  
(516) 798-1726 (7-9 P.M.)

List your events in the *Sub Aqua Journal*. Mail, Fax, or E-Mail on CompuServe by the first of the month prior to the event. You must include a contact person, address, and phone number.

### Attention Divers!

Please notify the *Sub Aqua Journal* if you have ever recovered a starboard hole.

# Fit To Dive: Healthy Eating

by Stephen J. Lombardo, M.D.

Our previous two fitness articles concentrated on how to build up the diver's cardiovascular fitness and increase muscle strength. Now we are ready to examine the various approaches towards fueling those muscles while minimizing the amount of bulky fat which can accumulate. An understanding of what exactly happens to various types of food is essential for us to be able to choose what to eat and when to eat it.

**Rule # 1: Eat Less Fat.** The Surgeon General's Report on Food and Nutrition in 1988 stated that reducing the amount of fat in our diet should be the prime goal of any dietary recommendations. The average American gets 40 to 50 percent of his calories from fat, which is one of the main reasons why heart disease is the prime cause of death in this country.

A dramatic reduction in dietary fat can be accomplished through a few simple changes: switching from whole milk to skim milk, from ice cream to frozen yogurt, trimming visible fat off meat and taking the skin off chicken. Other desirable changes include broiling rather than frying, avoiding egg yolks and "cheezy" foods, reading food labels to find hidden fats, and learning to deal with social pressures to eat higher fat foods. In this way we can approach the 30% or less total dietary fat recommendation by the American Heart Association.

**Rule # 2: Eat more Complex Carbohydrates.** Carbohydrate is the main aerobic exercise energy source. The body converts carbs into glycogen and stores it in the muscles and liver, the whole process taking about 24 hours. Gorging on complex carbs (eg. pasta) for a few days—"carbo loading" is done by marathon runners in order to expand the body's glycogen storing capacity. However, a better way to do this is simply by eating balanced regular meals on a long term basis. It can also help divers in the same way, especially for "marathon-type" dive weekends.

How much glycogen can you store this way? For workouts shorter than 90 minutes, your muscles can hold all the fuel they need. But since an out-of-shape

body will burn its own muscle preferentially to fat, supplement with simple carbohydrates provides an excellent way of avoiding this pitfall. This doesn't mean that you should eat an apple underwater, but immediately after a dive is fine. Watermelon is also an excellent choice. Knowing that the critical window for restocking glycogen occurs after the first 30 minutes and then somewhat less for the next 2 hours can save you from chasing your tail when attempting to build muscle strength during any kind of workout, at the surface or deep below. And as our muscles become stronger, they increase their inherent capacity to burn fat.

Although carbs are needed to get you started in that important first 15 minutes of aerobic activity, fat then becomes burned preferentially provided you don't work so hard that you become "anaerobic." A regular aerobic exercise routine will prevent the body from going into its hard-working anaerobic phase. In this way we can burn fat and become "lean, keen, diving machines."

It makes sense during the first half hour of an aerobic workout to supplement the muscle glycogen stores with something like Gatorade, full strength for maximum effectiveness. The simple carbohydrates contained in sports drinks like Gatorade are easily digested and turned into glucose, a fuel immediately ready for aerobic activity. Glycogen, on the other hand, takes 24 hours to make, and is the result of a well planned diet rich in predominantly complex carbohydrates. Sources of complex carbohydrates are potatoes, rice, yams, vegetables, legumes and whole grains. Always remember that fruit is a simple, tasty, and convenient source of simple carbs for quick energy.

**Rule #3: Eat more protein of high biologic quality.** Where does protein fit into this scheme? As the primary non-water constituent of muscle tissue, dietary protein is broken down into amino acids to build and repair muscle tissue. Unlike some nutrients, protein cannot be stored in your body, so it must be consumed in

adequate amounts throughout the day in order to satisfy the tissue-building needs produced by your new workout schedule.

When a protein contains all nine essential amino acids (called "essential" because they can't be manufactured in the body), that protein is said to have high biologic quality. This is good news since it means that a maximum amount of it can therefore be utilized by the body. In general, protein from animal sources such as a fish, poultry, beef, eggs, and milk products, is of significantly higher biologic quality than protein from vegetable sources. Protein drinks can be an excellent dietary supplement, but make sure that the protein is of high biologic quality or not much of it will be able to be used to build or repair muscle.

**Rule #4: Drink more water.** Like the surface of the Earth, we are composed of approximately 70% water. Water functions as a lubricant, solvent, toxin transport vehicle, filler, and nutritional supply system. Insufficient amounts lead to fatigue and weakness, so be sure to get the minimum recommended amount of 8-10 large glasses per day. Sport drinks (e.g. Gatorade) are fine in their undiluted strength, but may be cut with water if you prefer a less sweet taste.

By simply following our four basic rules you will see and feel the difference in your health. So, throw away the fried food and soda, the pizza and the beer, and eat your way to dive fitness. Next month, stretching. Keep on pumpin'. ■



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## PRODUCT REVIEWS

by Joel Silverstein

### WARM WIND Dry Suit Liner

Divers do a lot of things that other folks think are just plain uncomfortable. I don't tell them, but sometimes it is uncomfortable. We humans get cranky when we're wet, a habit developed in infancy, and most of us don't have enough blubber to stay warm for prolonged periods of time in chilly waters [If we do have said personal insulation, Doc Lombardo is quick to tell us to jettison it].

While using drysuits for my last 600 or so dives, my quest has always been to find comfortable underwear that not only keeps



me warm in cold water but which also does not keep me *too warm* when I'm diving in moderate temperature water. I have finally found it. The **Warm Wind Dry Suit Liner**. It's made of Polartec® interwoven with Lycra®, a remarkable material, in a jumpsuit style garment. This material pulls the water away from your body so that you are *both warm and dry*. The Liner is form-fitting which helps eliminate dry suit squeeze. It has a full length front zipper, thumb loops and mesh foot stirrups to keep the Liner snug when it slides into your

me warm in cold water but which also does not keep me *too warm* when I'm diving in moderate temperature water. I have finally found it. The **Warm Wind Dry Suit Liner**. It's made of Polartec® interwoven

drysuit. Significantly, the Liner is neutrally buoyant which enabled me to take an additional four pounds off my weight belt. We tested the Polartec Series 200, a 13 oz. model. Also available is the Polartec Series 300, an 18 oz. model.

We used the liner and the optional layering vest for the past four months in water ranging from 36° in New York to 72° in Cape Hatteras, North Carolina. We really like this stuff. User-friendly, flexible, comfortable, breathable, and light without sacrificing thermal qualities. Plus, nice colors, and, I'll admit it, a cuddly feel that reminds me of a well broken-in teddy bear. Which is probably why the folks at **Warm Wind** say it also "serves as a comfortable lounging outfit." ■

Contact: **Warm Wind**, 5701 West Slauson Avenue, Suite 200, Culver City, California 90230. (800) 288-WARM.

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Contact: **Murray Dive Inc.**,  
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# A Few Tails

by Kirby Kurkomelis

The sky erupted with thunder, lightning, and heavy rain. Seconds before, I had just finished snapping the last snap on the boat cover closed. A few minutes earlier Don Finck and I pulled our boat into a nearby bar and grill on the water to sit out the storm before our dive. Don had brought along cold cooked lobsters - the kind you get when you order your lobster appetizer in your favorite restaurant.

While discussing our dive plan I looked into my dive bag, making sure that my lobster permit from the New York State Department of Environmental Conservation was up to date. It entitles me to take up to six lobsters per day. [Check regulations in the state you are diving — there are sometimes variations in limits and measurements.] Don had already checked his permit. Great. 12 juicy crunchy lobsters. I got so excited, Don passed the tartar sauce for my second lobster to calm me down.

I turned over my lobster to examine the shell or carapace, composed of chitin impregnated with calcium salts. A calcium shell. Both antennae were especially long — for this lobster they serve as tactile and chemical senses — an alarm bell when danger is close. I guess that the antennae were not long enough to save this lobster

from my plate.

The wind picked up, the boat was bouncing on the dock. My nostrils flared — I could smell the french fries coming from the restaurant. I sipped my soda with anticipation.

Like other crustaceans, crabs, crayfish, and lobsters, molting is a common event. The lobster molts seven times during the first summer. A soft flexible cuticle-shell is formed, allowing for growth. The old shell is then dissolved or discarded. At this point the lobster is most vulnerable to attack or disease. Don looked at me and said "Did you stay up all night and study this?" It's my marine science background creeping up.

Lobstering is one of my favorite activities. Many other divers agree. Lobsters can be found hiding under rocks, coral, inside wrecks, and walking in the sand. The best time for lobster hunting is at night. Using a bright light, all you have to do is seek out those beautiful reddish antennae and shine your light into the den. The lobster will usually take a look to see who's there. Reach in quickly, deep into the hole. If he bites your fingers it may seem like he got you — but you got him! Just remember to carry your lobster gauge; make sure your lobster is over 3 3/16 inches in length from the eye socket to the

end of the body shell. Those that don't measure up, what lobstermen call "shorts," are illegal to take. Don't forget to check for eggs under the tail. "Berried" females are to be left.

But the best part of lobstering is knowing the size of the lobster to be taken. I always look for the size of the claws. Usually the bigger the mitts, the bigger the lobster. The lobster has two claws, a round claw called the crusher, and the other called the scissor. The crusher is much stronger, and is designed for crushing clams and other snacks. The scissor is sharper, less powerful than the crusher, and much faster. It's designed for grabbing things that swim by. It's the crusher most people worry about...lobsters take their sweet time to let go once they've their vise-grip on you.

It looks like the day is going to be a washout. Leaning back in his chair, rubbing his belly, Don thanked me for my lecture, asking when I was going to speak next. My answer was next month... ■

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- July**
- 1 Suffolk
  - 2 USS Bass
  - 3 U-853
  - 4 U-853
  - 5 U-853
  - 9 G.K.B. & Paltstown
  - 10 John D. Dwight
  - 11 Port Hunter
  - 17 G.K.B. & Plane Wreck
  - 18 Cath M. & Scorton LG.
  - 23 Y.S.D. (shallow wreck)
  - 24 Seaconnet
  - 25 Trojan
  - 30 Endicott
  - 31 Mars
- Aug**
- 1 Plane & Target wrecks
  - 6 G.K.B. & Scorton LG.
  - 7 Mars
  - 8 Plane & Target wrecks
  - 13 Lightship
  - 14 Seaconnet
  - 15 Trojan
  - 20 Coyote
  - 21 Port Hunter
  - 22 Plane & Target wrecks
  - 27 U-853
  - 28 Idene
  - 29 U-853

## NEW JERSEY

### Blue Fathoms\*

Capt. Tony Donetz  
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Point Pleasant

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- July**
- 3 RP Resor
  - 4 Captain's Choice
  - 10 Mohawk & Emerald
  - 11 Lillian
  - 16 Night Dive
  - 17 Captain's Choice
  - 18 Captain's Choice
  - 24 Benson & Pinto
  - 25 Tollen
  - 31 Captain's Choice
- Aug**
- 1 Vizcaya & Hargraves
  - 15 Arundo
  - 21 Gulftrade
  - 22 Great Isaac
  - 28 Captain's Choice
  - 29 Texas Tower

### Sea Lion\*

Capt. George Hoffman  
Capt. Kevin Brennan  
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Weekday Nite & Weekend  
Brielle

### Venture III\*

Capt. Paul Hepler  
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Shark River Inlet

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Capt. Gregg Fishman  
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City Island

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- July**
- 3 Stolt Dagali
  - 4 Lizzie D
  - 4 NY Harbor Cruise
  - 5 USS San Diego
  - 7 Texas Tower
  - 10 Oregon

- 11 Iberia
- 11 Lizzie D/Valerie E
- 13-15 Block Island U-853
- USS Bass/ Grecian
- 17 USS San Diego
- 18 Lizzie D
- 18 Valerie E / Pipe Barge
- 20-22 Andrea Doria
- 24 Yankee/Tarantula
- 25 Steel Wreck
- 25 Fran S / Iberia
- 27-28 Coimbra
- 31 USS San Diego

- Aug**
- 1 AQUA WOMAN '93
  - 4 Texas Tower
  - 7 Arundo
  - 8 Stolt Dagali & Lizzie D
  - 11 Bidevind
  - 14 Linda & Kenosha
  - 15 Pipe Barge & Iberia
  - 17 & 18 U-Who overnighter
  - 21 Captain's Choice
  - 22 Steel Wreck
  - 22 Valerie E & Iberia
  - 25 Oregon
  - 28 USS San Diego
  - 29 Lizzie D
  - 29 Valerie E

### Jeanne II\*

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- July**
- 3 Valerie E
  - 4 USN Algol
  - 4 NY Harbor Cruise
  - 5 Asfalto
  - 7 Mystery Wreck
  - 10 Pinta / Bald Eagle
  - 11 Ed East
  - 11 Local Lobster
  - 12 Lizzie D
  - 13-14 Pinta, Harvey's, Immaculata, Mystery
  - 17 British Corvette
  - 17 Moonlight Cruise
  - 18 Cindy
  - 21 Ambrose Lightship
  - 24 Pinta
  - 25 Big "G"
  - 27-28 USN Algol, Stolt Dagali, Pinta
  - 31 R.C. Mohawk
  - 31 Asfalto

- Aug**
- 1 Petland Firth
  - 4 Mystery Wreck
  - 7 Harvey's Woody
  - 8 Captain's Choice
  - 9 USN Algol
  - 11 RC Mohawk
  - 14 Lizzie D
  - 15 Martin's Misery
  - 18 Cindy

- 21 Pinta
- 22 Bald Eagle
- 25 RC Mohawk
- 28 Cindy
- 29 Masodonia
- 30 Iberia

### Sea Hawk\*

Capt. Frank Persico  
(718) 279-1345  
Capt. John Lachenmeyer  
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Fishing & Diving Charters  
Captree Boat Basin

### Southern Cross\*

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Babylon Village Dock

- July**
- 2 USS San Diego
  - 3 Jones Reef
  - 4 Linda
  - 9 Lizzie D
  - 10 Reggie
  - 11 Oregon
  - 16 USS San Diego
  - 17 Tarantula
  - 18 USS San Diego
  - 19 USS San Diego
  - 23 Tarantula
  - 24 USS San Diego
  - 25 Oregon
  - 30 Yankee
  - 31 Linda

- Aug**
- 1 USS San Diego
  - 6 Linda
  - 7 Jones Reef
  - 8 Reggie
  - 13 Oregon
  - 14 USS San Diego
  - 15 Kenosha
  - 21 USS San Diego
  - 22 Oregon
  - 28 Jones Reef
  - 29 USS San Diego

### Wahoo\*

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

- July**
- 3 Oregon
  - 4 USS San Diego
  - 5 USS San Diego
  - 10 USS San Diego

- 11 Oregon
- 15-18 Andrea Doria
- 19-22 75th Anniversary  
USS San Diego Week
- 24 Texas Tower 80-180'
- 26-29 Republic Expedition  
220' (516) 889-1208
- 31 USS San Diego

- Aug**
- 1 USS San Diego
  - 3 & 4 Dudas Annual Oregon  
& USS San Diego dives
  - 6 Coimbra
  - 7 USS San Diego
  - 8 Oregon
  - 14 USS San Diego
  - 19 & 20 Oregon Super  
Overnighter
  - 21 USS San Diego
  - 22 USS San Diego
  - 28 USS San Diego
  - 29 USS San Diego

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