Edited by
Millis Keegan
& Peter Symes

POINT & CLICK ON BOLD LINKS

Equipment

Got mojo

Texting underwater

Who needs an u/w phone, who can talk under water anyway!? Never heard of texting? Imagine seeing a whale shark while diving or snorkeling. Whip up your phone, snap a pix of the whale shark and send an MMS to your friends. But don't get too excited. So far, this gadget only makes it to about 1foot / 3 meters and is only available in the East. But you can safely listen to music while snorkeling and make calls in the pool without worries with the FOMA F704i from Fujitsu.
www.akihabaranews.com

A classic revisted

Oldtimers know all about the pedigree of the new Digital 330m dive timer from Scubapro. This updated version will display depth to 330m, calculate the average depth during the dive and displays the ascent rate in metres per minute. Those features might attract any diver with control issues, as well as the technical diver. The design is simple, made to be visible while diving, and the log book will record the latest 19 dives.

www.scubapro.co.uk

Velocity XP

Compared to conventional fins, says Aeris, the XP is up to 30 percent faster and more efficient. Semi-rigid battens and rubber flex channels within the blade precisely control the shape of the blade during the fin stroke to optimize power and reduce drag. Oversized side rails add rigidity to the oversized blades for increased lift power and efficiency.
www.diveaeris.com

Mares also to "split up"

(VIA DIVENEWSWIRE)

Mares is adding the spit to their fin family. Raptor is the name of their new innovation and true to themselves, the split fin is designed with performance in mind, and a combination of materials. Thrust and efficiency are the key words. RAPTOR will be availible in four colors and three sizes.
www.mares.com

Draco Drysuit

The Scandinavians know the importance of a proper drysuit for safe and enjoyable diving. Waterproof has 20 years experience in providing suits for cold water divers, and their designers put a great effort into comfort. Their latest suit, the Draco drysuit, is made with 3.5mm Special Hi-Dense neoprene with SD Toughtex lining.
The cuff system is zippered for flexibility and abiility to use dry-glove ring system. The Waterproof adjustable warm neck design is improved with a drain valve. The separated hood fits nicely under the neck collar, and has a venting system to avoid that annoying gas buildup in the hood. Another comfort feature of the Draco: there are no seams in the under arm area or in the crotch area, where wrinkling can otherwise cause wearing. **www.waterproof.se**

Deep Inspection

Documenting and inspecting the deep Deep requires a tad more technology than your average u/w camera equipment. Remote Ocean Systems subsea cameras have just that little extra. The new INSPECTOR HD Video Camera is a high-definition color video camera with the ability to do still images. Standard depth rates at 3000 meters with the help of a titanium house with a 6000 meter option. Lightweight and small in size, the body is about 8 inches/20 cm long and 4 inches/10 cm wide. It comes with a stabilized 18:1 optical zoom, with a digital 12x digital perfect for up-close inspection.
rosys.com

Bored during deco?

Waterproof UNO might be something for the tech diver performing their long and sometimes tideous stops while heading to the surface. The cards come from Mattels, and if you can't find them in a store near you, check your local Amazon shop on-line. Look for Uno H20 Waterproof Clear Cards.

3-in-1

The OMS 3 in 1 Oxygen regulator is so revolutionary that it can be taken almost anywhere. With multiple gas inlets to choose from and multiple gas outlets to supply Demand or non-rebreather masks you can administer to a diver in distress at almost any place or anytime. It provides divers with the necessary equipment to safely perform accelerated "off gassing" or oxygen therapy and resuscitation on the boat or on land. **www.omsdive.com**

Warm, warmer, warmest

An insulating underwear system based on 100 percent Merino wool is what Poseidon offers drysuit divers with their Flexi Base underwear. Insulation is key for comfort while diving in cold water, wool has the capacity to keep you warm even when wet, so it is a good choice, but it is still important to transport the excess moisture away from the skin. They suggest that you use multiple layers when needed, a well known strategy to conserve heat. With this line of underwear, it is easier to do that. The material is flexible and can vent your body moisture, and it is machine washable.
poseidon.se

Compact and bright

Ikelites new sub strobe DS-125 works with both the newest digital cameras, as well as TTL film cameras for those who have not yet converted to digital. This is possible thanks to special electronic circuitry, and the strobe will also work with the Nikonos system, and with normal or pre-flash camera systems. The DS-125 operates TTL when connected with a sync cord or Ikelites wireless TTL Slave Sensor. The strobe's compact size and weight of less than three pounds makes traveling easier. The interchangeable NiMH battery pack allows 250 flashes on one charge. **ikelite.com**

mini **Review** by Millis Keegan

Hanging Air

Is this a must for the avid diver? The product promises to reduce the drying time up to 70 percent, and that the days of smelly old wetsuits are gone. Living in Florida, I mostly dive with a skin, which dries fine without any extra help, but then comes winter with water temperatures that require a wetsuit, and my problem begins. It is humid in Florida, and yes, it takes forever to dry the wetsuits. And yes, it does smell. The Hangair is a big help, plus I can keep it hanging and drying in the garage instead of using the air conditioned living area. Without the Hangair, that would mean that the suit would have smelled like a rotten, forgotten towel in no time. Now, the inside of the apartment looks a lot tidier. A win-win, on all accounts.

How it works:

A high powered fan mounted in the hanger pushes air into the suit, forcing the water out of the suit through arms and legs while drying the material. Even though the drying time was a bit longer than the results Hangair's own test panel presents, it was acceptable. We do live in Florida after all, where humidity easily reaches 80 percent.

Then we tested the Hangair on our drysuits. That did not work out as well. e have membrane style nylon drysuits with rubber boots, and we were not as lucky as Hangair's test panel who managed to dry a chrushed neoprene drysuit in two steps. All the water was collected in the boots, and for a completely dry suit, we had to take the suit off the hanger and empty the water out a couple of times, an annoying process. But on the other hand, a membrane drysuit rarely gets that wet inside, and the material dries quickly. In fact, during the test, the suit that dried without the Hangair, dried faster— possibly because the water was not pushed down and collected in the boots.

In conclusion:

Yes, this is an *Okay* product. A bit on the pricy side maybe, but overall we give the Hangair a thumbs up.
hangairs.com ■

Text and photos by Don Tipton

The boat's four occupants were spear fishing for Yellowtail. As Mark began to ask the skipper questions, one of the spear fisherman suddenly appeared to be walking on the water shouting "White, White! Get me out of the water now!"

Mark nonchalantly looked at us and said, "Well, we have found them boys. Let's go diving!!"

Text and photos by Tony White

captions

In search of the Great White Shark

Struis Bay Harbour

Great White

It was a beautiful clear blue day as we approached the ski boat, 4km off Cape Agulhas in South Africa.

Two of *Carcharodon Carcharias*, more commonly known as the Great White Shark, are found around the globe. But undoubtedly, the global capital for this magnificent apex predator is the Western Cape, South Africa.

Traditionally during the winter months of May to October, thousands of tourists flock to the local cage diving operators in both Gansbaai and False Bay. From the relative safety of a cage, the tourists watch these marine giants as they feed on one of their favourite dishes, the seals of Dyer and Seal Islands.

During the summer months, the numbers of sharks around these two areas drops significantly. Although the Great White is a migratory animal, up until now, nobody has really known where they disappeared to. When asked, people in the know became very vague and said, "They have gone hunting fish somewhere nearer the coast" or they joke that "It is tourist hunting season".

It wasn't just tourists who flocked to these two areas but also cameramen and photographers from around the world. Not deterred by the bad visibility or weather conditions they waited patiently for their time to come. Many had long waits as the conditions were rarely right, and they went away empty handed. Over the years, the professionals found other areas of the world to photograph the Great White for the endless articles and programs that are produced about this fascinating creature.

Almost a year ago, in an effort to attract the reducing number of cameramen back to South Africa, a couple of visionary people decided that somewhere around their beautiful coast there must be better and more predictable conditions to dive with Great Whites

After completing a trip with a group of photographers to Aliwal Shoals and Sodwana Bay in February 2007, I received an early morning call from Mark Addison of Blue Wilderness Diving. Excitedly, he told me he had just had a phone call from one of his contacts in the Western Cape. The Agulhas current had taken up its summer position, moving closer to the coast, bringing with it warm and more importantly, clear blue water with 20 to 30 metres visibility. They had also noticed high concentrations of sharks, particularly the Great White and, if I was up for it, we should get down there pronto!

And so it was at 4 o'clock the next morning, with the wagon loaded with cameras, dive gear and a bait stem, that we (Mark, me and videographer Pete Whielden) started the 1600 kilometre drive from Durban to Arniston in the Western Cape.

The journey was long and hot, with Mark and me taking turns to drive and stopping only three times to eat and top up on gas. En route, it became obvious that we would not be able to launch the RIB from Arniston as the launch conditions were too dangerous, and we re-directed to a small fishing village. Struis Bay is some 10 kilometres away from Cape Agulhas, the southern most tip of Africa

We arrived exhausted at 10 o'clock that evening, and we still had to prepare all the equipment and load the boat, as time was of the essence. Weather conditions were perfect but predictions only gave us two working days before the weather was predicted to break, with a strong south westerly stopping us dead in our tracks.

The next morning, we were up at the break of day. Adrenaline was pumping. and the weariness of the previous day was forgotten as we anticipated the day and the strong possibility of getting into the water with this awesome marine animal.

We launched the RIB easily from the slip way in the small harbour and headed out into the clear blue sea. Our re-direction from Arniston now meant that we had a 40 kilometre sea journey before us. Our local contacts were sending us to a shallow reef called Skip-Skop, some 4 kilometres from the coast.

The long sea journey gave us time to observe the beautiful rugged coastline and plenty of time to reflect on what was to come. It took us 1½ hours to make the journey with a following swell. Happily, we didn't know what we were in for on our return journey!

As we approached the marks in the distance, we could see a small ski boat. Mark decided that we would talk to the people on the boat

Preparing the bait

to see what they had seen and take it from there. On approaching the boat, we could see two men fishing with lines and another two neoprene-clad spear fishermen in the water. We had just started to talk to them when one of the men nearly took off vertically from the water, weight belt and all, shouting "White! White! Get me out of the water!" This prompted Mark Addison's now famous comment, "Well, we have found them boys. Let's go diving!"

By now, all I could see was two men almost walking on the surface of the water trying to get out of it and into their boat… and we were starting to kit up to get into the water! My mind told me that this was not the way it should be. I had figured on sitting around in the sun while Mark baited the water and after a couple of hours to get used to the idea, I thought we would gently join the sharks as they lazily swam around us.

Not so! Kitted within minutes, Pete and I slid into the sea to find visibility of at least 25 metres. Nervously, we edged towards where the last reported position of the White Shark had been.

Cages?

Oh, I forgot to mention that there were no cages involved in this!

Suddenly, out of the blue, approximately two metres below the surface, appeared a four metre Great White Shark. We have dived with Tiger Sharks many times in the past, so we were used to being in the water with big sharks without cages, but this shark was enormous! I definitely thought that it was eyeing us up with a view to assessing our meal potential. Luckily, Pete and I are pretty crunchy and to be fair, human beings in any form are not on any sharks' normal menu.

I have been asked many times since that moment if I was afraid and very honestly, I have to say that for a brief time, yes, I was. My fear turned to apprehension and soon I was completely at ease with the creature that was nervously circling us. It

Cape Agulhas Coastline

Well, we have found them boys. Let's go diving!"

continued to circle us for some two hours, never coming any closer than 4-5 metres from us.

All this time, Mark took up position above us on snorkel and with an empty spear gun. If the shark approached us too closely, he planned to dive down and push it off, but this was never necessary.

Eventually, the spear fishermen who had exited the water so dramatically came back into the water with us, and without their spear guns. One of them was heard to say that with these lunatics in the water, it reduced his chances of being eaten.

The ease with which we had found the White Shark and the whole encounter, was the ultimate experience in my underwater career. For two hours, we enjoyed this

Here she comes

"We have dived with Tiger Sharks many times in the past, so we were used to being in the water with big sharks without cages, but this shark was enormous! I definitely thought that it was eyeing us up with a view to assessing our meal potential."

majestic creature's company until we finally we ran out of air and had to return to the RIB. We then realised the enormity of the task ahead as without the following sea, it took us nearly two and a half hours to pound our way, teeth rattling, back to base at Struis Bay.

It had taken Mark Addison over a year of never ending searching, up and down the coast to experience this day. In the past, it had been either bad weather and poor visibility or no sharks. Today, all his hard work and the relentless pursuit of his dream had come together.

Day 2

The following day we launched again at dawn. We made our way to the same reef, with the intention of dropping a bait stem to the seabed to see if we could attract the shark to the bottom, and capture rare images of White Shark against the reef instead of the predictable White-Shark-biting-cage-bars shot.

We anchored in the middle of Skip Skop with a depth varying from 12 to 16 metres and dropped the bait stem over the side. The wait seemed endless, but after an hour or so, Mark yelled, "White approaching!" We could see the dark shape of a huge shark some 100 metres from the boat. After falling over each other to get kitted, we dropped into the water. Pete was in front and heading for the bottom, followed by the shark and last of all, me. As we got in, Mark had said that today's shark was not as big as yesterday's!! Following that shark, I could swear it was twice the size of yesterday's and a female to boot.

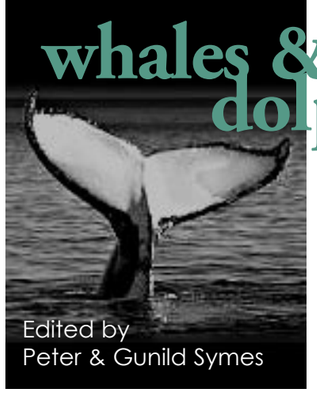
Pete and I took up position back to back (obviously), by the bait stem and waited. This time, the shark only came back once and buzzed us from some 10 metres away. That was the last we saw of her before our computers told us it was time to leave the bottom. Again our return to base was exhilarating as we tried not to lose our teeth, and talked about our experiences of the last two days.

True to predictions, the weather broke the following day, and we were unable to go out again. So, we reluctantly packed up our kit and made our way home. These two days had proved that it was possible to dive safely with Great White Sharks, without cages in warm (24C) clear water in South Africa.

This experience was a real privilege for me, and I can't wait for next season to arrive. I know that when it arrives and the conditions are right, I will not be waiting at home for a phone call. I will already be in Struis Bay, diving with Great White Sharks.

During the summer months, when the Agulhas current moves closer to shore, large numbers of White Sharks can be found feeding on the huge shoals of Yellowtail that frequent this part of the coast. We have a very real opportunity and the expertise for underwater photographers/ videographers to come to South Africa to capture footage of the Great White Shark without the restraints and limitations of the cages in Gansbaai and False Bay. ■

Tony White is a full time professional underwater photographer now based in Cape Town, South Africa. He frequently runs specialised tours in South Africa and across the world. More information can be found at ***www.seaofdreams.co.uk***



And about time, too!

US Naval sonar silenced by whale fears

The arguments of campaigners who claim that the use of mid-frequency sonar equipment harmed mammals off the coast of California were accepted by a federal judge. The US Navy has been ordered not to use such equipment during training exercises until the end of 2009.

It was claimed that whales were disoriented by sonar, causing them to become stranded on beaches. In fact, the Inter-Agency Committee on Marine Science and Technology identified 13 cases of cetacean strandings on beaches that appeared to be linked to noise. Most of these involved naval vessels.

A senior lawyer for the National Resources Defence Council said that the court's order confirms that during sonar testing and training, the navy can and must protect whales and other marine life in the rich waters off the southern Californian coast. ■

No more sonar tests!

Software recognises different dolphin species by their whistles

Scientists at the Scripps Institution of Oceanography in San Diego, California, have developed a new software that identifies different dolphin species by their whistles.

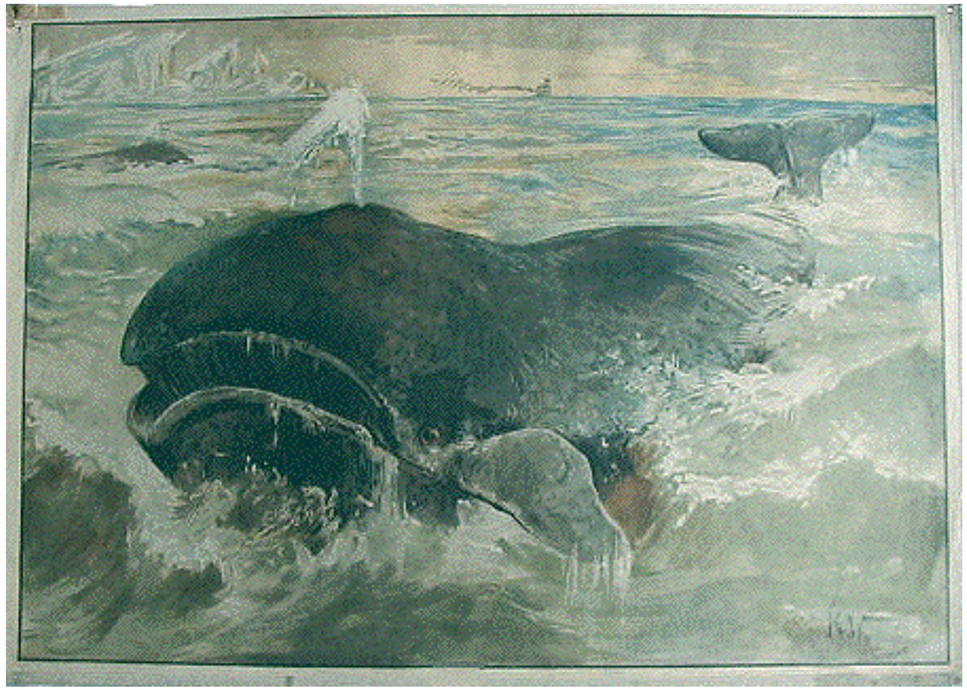
According to a new study by the Acoustical Society of America (ASA), identifying different species of dolphins by their whistles could help improve the accuracy of surveys. These are normally done by observing the animals from boats. However, as many dolphins spend a lot of time underwater, this does not always provide a clear perspective. And to make matters worse, some species are shy of boats.

The ASA said it has turned to acoustics in the hope of providing more accurate data on dolphin activity in heavily fished areas where the mammals are at greater risk of being harmed.

The marine-life research group trailed a microphone from a survey boat and then fed the sound they picked up from dolphins to an on-board computer. Here, specially developed software was then able to identify eight types of dolphin with up to 80 percent accuracy. It found in tests that dolphins make a variety of sounds that include species-specific whistles made up of frequencies between two and 30 kilohertz.

Dolphins make a range of sound, including different types of clicks and species-specific whistles, mostly of frequencies between 2 and 30 kilohertz, with each species combining the frequencies in their own way. ■

SOURCE: JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA



Bowhead. K.W. For Meinhalds Wandbilder for use in schools. Ca. 1900

Weapon fragment from 1800s found in 117-year old whale

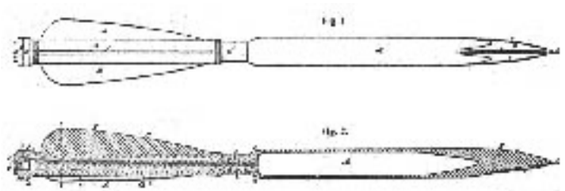
Biologists, long stumped at figuring out how old whales are, were presented with an uncontrovertible piece of evidence from a 50-ton bowhead caught off Alaska. Fragments of a 19th century harpoon—a lance bomb—were found lodged in a shoulder bone.

The weapon was used more than a century ago by whalers from New Bedford, Massachusetts, USA, enabling researchers to estimate that the whale was at least 115 years old and providing more evidence for their long-held belief that the bowhead whale is one of the longest-living mammals on earth, surviving for up to 200 years.

"It's pretty rare that you get the chance to date the age of a whale," said John Bockstoce, the whaling historian at the New Bedford Whaling Museum who analyzed the fragments.

Anthropologists have analyzed hunting devices found in whales before. It was often difficult, however, to narrow down when the weapon was fired. But because the bomb lance was patented and stocks were used up quickly, Bockstoce and his colleagues identified a narrow window in which they believe the whale was shot, sometime between 1885 and 1895. ■

Lance bombs



Study helps maintain balance between bowhead whales and Eskimos

At a recent meeting in International Whaling Commission, 76 member nations voted to renew the subsistence hunt quota for the next five years.

The bowhead whale, devastated in the 19th and early 20th centuries by commercial whaling fleets, has been a food staple for Eskimos and other indigenous Arctic peoples dating to prehistoric times.

Research by Purdue University on the bowhead whale has helped in maintaining an ecological balance between the marine mammals and the Eskimos, who hunt the animals for food. To prevent their extinction, the International Whaling Commission had allowed Eskimos to harvest 56 whales per year. The quota had expired, and now after the study, the commission has allowed the same quota.

"Eskimos have been whaling for more than 2,000 years and have never endangered the bowhead whale," said Purdue University professor John Bickham, who conducted the study. He said the bowhead's population increased by three percent a year, even while being harvested by subsistence hunters. ■

SOURCE: MOLECULAR ECOLOGY.

Warming Oceans Put More Stress on Whales

Climate change is making life more difficult for whales, dolphins and porpoises that must adapt to shrinking sea ice and decline in their prey species. Climate change impacts are greatest in the Arctic and the Antarctic, and cetaceans such as belugas, narwhals and bowhead whales that rely on icy polar waters for habitat and food are likely to suffer most from the reduction in sea ice. ■

Why Russian Whales are Stinky

Since the early 1990's, aboriginal whale hunters in Russia's northeastern Chukotka province have reported that about one-tenth of the whales they killed for food smelled so putrid that they were inedible.

People who ate the stinky meat reported numbness, a rash or stomach ache. The origin of the odor—which has also affected seals, walruses and cod—has baffled scientists, and in 2003, U.S. and Russian toxicologists began testing tissue samples of stinky whales.

They looked for traces of heavy metals and other harmful compounds, such as organochlorines and polyaromatic hydrocarbons, which are products of industrial processes. They detected more than a hundred volatile compounds, including hydrocarbons, sulfur and nitrogen compounds and various odorants.

But it's not clear whether these come from human pollution. As hunters have noted that the stomachs of stinky whales are packed with seaweed. Some researchers have suggested that the whales, faced with climate-related food shortages, have resorted to eating seaweed that causes a pollutant-producing biochemical reaction inside them. Others suggest that the whales are feeding in areas rich in toxin-emitting fungi and bacteria.

But the report adds that the stink could also be caused by an unidentified biotoxin. ■

GREENPEACE

Yangtze river dolphin now considered extinct

An extensive six-week survey of the Yangtze River dolphins' habitat has failed to find any sign of the baiji as they are called locally. The freshwater dolphin found only in China is now "likely to be extinct", the team of scientists concluded. If confirmed, it would be the first extinction of a large vertebrate for over 50 years.

Sam Turvey of the Zoological Society of London (ZSL), one of the paper's co-authors, described the findings as a "shocking tragedy". The Yangtze River dolphin was a remarkable mammal that separated from all other species over 20 million years ago," Dr Turvey explained to BBC News.

"This extinction represents the disappearance of a complete branch of the evolutionary tree of life and emphasizes that we have yet to take full responsibility in our role as guardians of the planet.

The species (*Lipotes vexillifer*) was the only remaining member of the Lipotidae, an ancient mammal family that is understood to have separated from other marine mammals, including whales, dolphins and porpoises, about 40-20 million years ago.

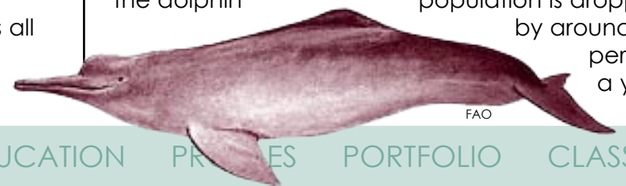
"While it is conceivable that a couple of surviving individuals were missed by the survey teams," the team wrote, "our inability to detect any baiji despite this intensive search effort indicates that the prospect of finding and translocating them to a reserve has all but vanished." ■

SOURCE: BBC

Extinction also looms for Amazonian pink dolphin

Fears for the future of the Amazonian pink river dolphin are rising after a surge in their indiscriminate killing and the launch of a government plan to build several hydro-electric dams in the region. Until recently, the freshwater dolphin—known in Brazil as the *boto*—was not considered at risk, but environmentalists in the Amazon now believe the dolphin could face the same fate as the Yangtze River dolphin. The boto is still widespread compared to other river dolphins. Since 2000, however, Brazilian scientists have registered a sharp drop in their number.

In the Mamiraua ecological reserve 330 miles from Manaus, which has one of the highest concentrations of botos, researchers believe the population is dropping by around 10 percent a year. ■



FAO

Text and photos by
Petty Officer 1st Class NyxoLyno Cangemi
Eighth Coast Guard District External Affairs

Students meet challenges to become military scuba divers

US Coast Guard Diver

The surface of the 12-foot pool bubbles like a hot tub while instructors below signal to a group of dive students using a series of hand signals on how to inflate their vest. One by one, each student slowly starts floating to the surface. The instructor signals the students to deflate the vest and again, one by one, they return to the bottom. Lined up along the bottom of the pool each student takes his turn floating up, then sinking down. The entire exercise from start to finish looks more like a wave at a football game set at super slow motion than a dive class.

ABOVE: Students prepare to dive in a 12-foot pool for scuba training
RIGHT: Two scuba students swim to the surface of a 12-foot dive pool after performing an emergency-preparedness exercise

Six students at the Naval Diving and Salvage Training Center in Panama City, Florida, surface after participating in a training exercise in the center's 12-foot pool. Personnel at the training center offer several underwater diving courses to all branches of the military, with the exception of the Navy Seals and the Green Berets

Instructors at the Naval Diving and Salvage Center in Panama City, Florida, maintain a serious attitude about the training they conduct in turning military men and women, into certified scuba divers. Physical dive exercises can be physically demanding, and classroom instruction often mirrors that of a college-level chemistry course.

"Coming here is like getting your masters degree in diving," said Coast Guard Lt. Alan Fitzgerald, a student enrolled in the Marine Engineering Dive Officer Course at the dive center. "The academics alone are pretty tough, because you get into all aspects of diving including physics and medicine. As far as physical fitness, they train you to be strong, so you can handle yourself under the surface."

With courses ranging from the scuba certification course to the BDO course, members from all of the United States military branches (with the exception of the Navy Seals and the Green Berets) come here to see if they have what it takes to become a military certified scuba diver.

Prior to 9-11, Coast Guard divers took to the water to perform such functions as hull-integrity inspections, buoy repair and ice research. With the formation of the Maritime Safety and Security Teams located throughout the country, the Coast Guard has increased its efforts to train and certify more of its own members to perform homeland security missions.

"Today, the Coast Guard has 112 billets as certified divers, and we train 40-50 Coast Guard members each year to sustain that number," said Chief Petty Officer Philip Roy of the Coast Guard Liaison Office at the training center.

The right stuff

As a volunteer program for the Coast Guard, any member who meets the center's eligibility requirements can enroll; however, attendance is not a guarantee of success. Enrollment into the dive program can be a physically and mentally challenging endeavor, requiring a large commitment from the students.

"On average, about a third of the people who enroll in the course don't make it through," Roy said. "We lose students primarily because of academics and inability to perform. We purposely take people out of their comfort zone while they're here and push them to their limit, so when they're in the field, if something was to happen, they won't quit."

The training is tough, and everyone is held to the same standard. Enlisted, officer, male, female, Navy, Coast

A bath of cleaning solution is used to sterilize scuba regulators used by diving students at the Naval Diving and Salvage Training Center here. The regulators are cleaned after each diving exercise at the center

U.S. Coast Guard Ensign Thomas Brittingham does a push-up during a physical fitness exercise at the Naval Diving and Salvage Training Center here. Brittingham is one of seven Coast Guard members enrolled in the center's joint-service, scuba-certification course

RIGHT: Coast Guard Ensign Mark Unpingco adjusts a strap on an oxygen tank while Petty Officer 3rd Class Shawn Price assists

Two instructors at the Naval Diving and Salvage Training Center here test a student's ability to stay calm during a confidence training exercise Wednesday, Dec. 6, 2006. The exercise is designed to better prepare scuba students at the training center for real-world emergencies

Guard—it doesn't matter. Everyone here is an equal and is expected to live up to the same physical fitness standards set forth by the training center.

Prior to the start of class, candidates must be able to successfully complete the minimum fitness standards, including a timed fitness course.

All aspects of training are taken very seriously. When underwater, if an emergency occurs, a diver must go through the proper decompression before reaching the surface or he could suffer grave consequences, yet despite the inherent dangers associated with underwater diving, the atmosphere remains positive.

"Being a volunteer program, the students who are here, want to be here," said Roy. "They want to get through this program, and being surrounded by that level of energy is inspiring."

As with any type of military training, the US Coast Guard trains its divers from ground zero. Regardless if students arrive at the school with a recreational dive certification, they must still complete the course. Previous dive experience is not a requirement for school, nor will it ensure a student's success.

"The level of training the students receive is comparable to what a recreational diver would," said Roy. "But because our student's are training to become military divers, they have much more dive time and exposure to the water than one would receive recreationally. You really

USCG Diver

U.S. Coast Guard Chief Petty Officer Philip Roy leads a class of 25 scuba students on a run Thursday, Dec. 7, 2006, near the Naval Diving and Salvage Training Center here. Roy is a certified, military scuba diver and works at the training center to assist students in obtaining their scuba certification. U.S.

can't draw too many parallels between civilian and military training."

Lt. j.g. Rachel Beckmann recently completed the basic scuba course and is now enrolled in the Marine Engineering Dive Officer Course. "The goal of the five-week scuba course is to basically take someone with no diving experience and train them to be a certified diver. The whole course was really intense, but it felt very rewarding to complete it," she said.

U.S. Navy Petty Officer 3rd Class Clifton Dillehay awaits instruction to begin a diving execise in a 12-foot dive pool at the Naval Diving and Salvage Training center. Dillehay is one of 25 students at the training center enrolled in the scuba course

On the job

Upon completion of the course, students move on to perform certain job functions most people only read about—diving under polar ice in the Arctic, sweeping for explosives in the nation's ports and locating sunken buoys in a field of coral off the coast of Hawaii.

Assignments to dive units are rate specific, and a certified diver can be assigned to any of the US Coast Guard's MSSTs, any of the service's polar-class icebreakers and fourteenth district buoy tenders.

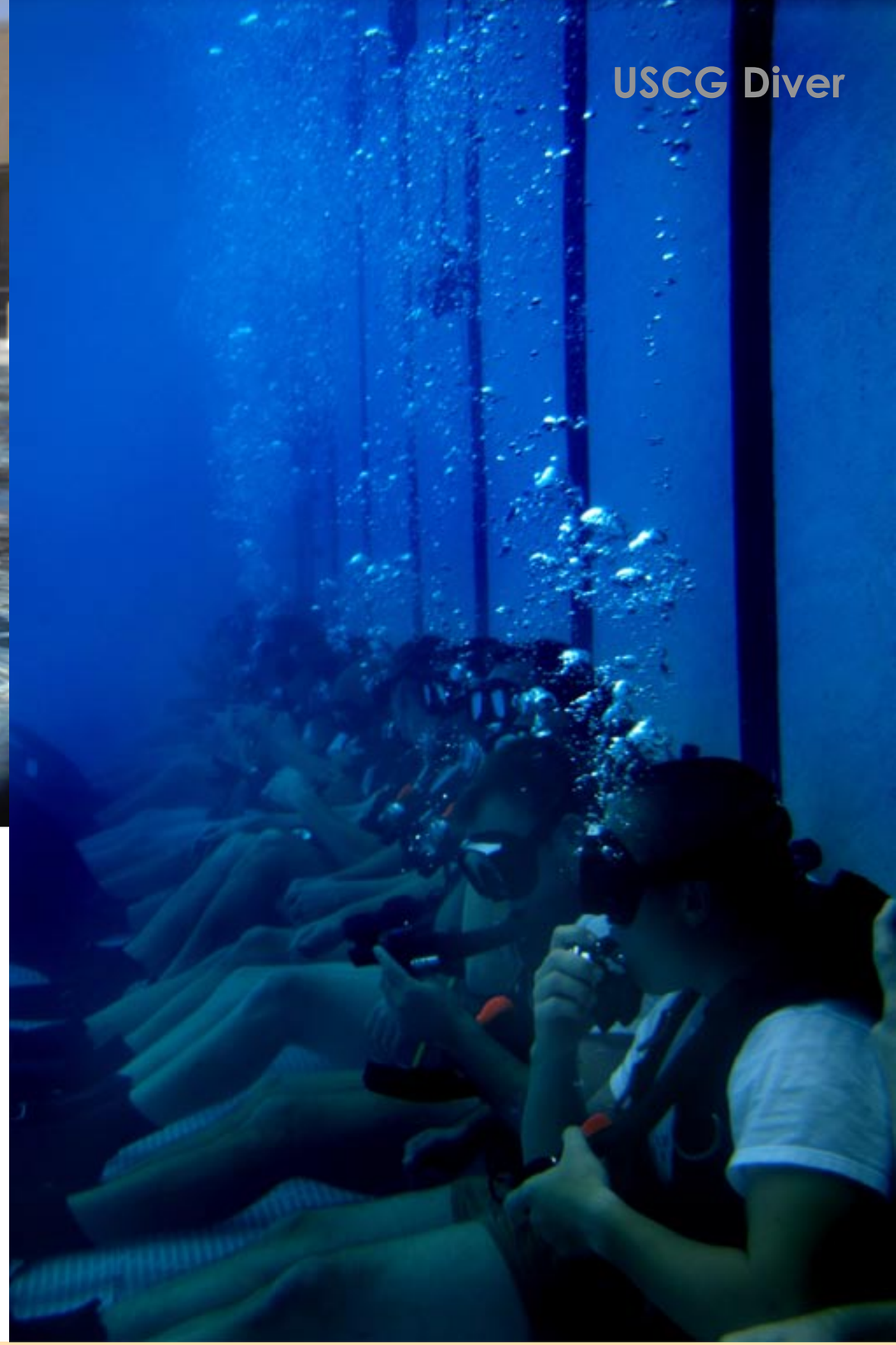
While stationed aboard buoy tenders, dive teams can work independently from the ship, reducing response time and cost, Roy said. The teams can perform all of the same functions as the tender crew can and are often flown to remote Pacific island locations to repair and replace navigational aids damaged by typhoons or listed in discrepancy reports.

Compensation

Certification as a Coast Guard scuba diver also carries with it the added benefit of a pay increase. Because of the nature of the job, divers receive an incentive pay ranging anywhere from US$150 to $240 each month while stationed at an operational dive unit.

The challenge for anyone wishing to become a military certified scuba diver is great, but with successful completion, a career as a US Coast Guard diver can be a rewarding one.

Those strong enough to complete the course walk away with a sense of pride and accomplishment and will forever be known as a member of the elite corps of US Coast Guard divers. ■



Scuba Students await instructions on how to inflate their vest at the bottom of a 12-foot pool

Students at the Naval Diving and Salvage Training Center here gather and wait for a briefing on their next dive exercise. Twenty-five students are enrolled in the training center's scuba course, and if they successfully complete the course, they will re-enter the fleet as military-certified scuba divers

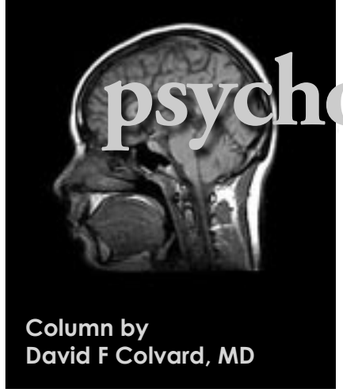
Do you have what it takes to be a US Coast Guard Diver?

To enroll in the Coast Guard dive program, you must:

- Be an active-duty member and volunteer to participate in the program
- Be under 35 years old
- Have an ASVAB score of AR+WK=104 and MC=50
- Have no marks less than four within the last six months
- Be in any rate other than aviation
- Be able to complete a physical fitness course as outlined:

500 yard swim (side or breast stroke) within 14 minutes
10 minute rest
42 push-ups
2 minute rest
50 sit-ups
2 minute rest
6 pull-ups
10 minute rest
1.5 mile run within 12 minutes, 45 seconds

Eligible candidates undergo an interview process, medical exam, physical screening and pressure tolerance test. Lastly, a command endorsement completes your application package. For more information on the program, please contact the US Coast Guard Liaison Office at (850) 235-5244.



psychology

Column by
David F Colvard, MD

Nitrogen Narcosis

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If you want to kiss a jellyfish, you are narced for sure

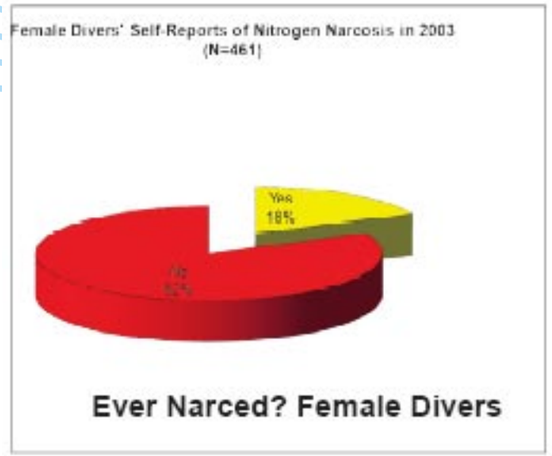
Nitrogen narcosis, or "rapture of the deep," is one of those things that some divers like to joke about but really is no laughing matter. (Pun intended) While a recreational diver is far more likely to experience nitrogen narcosis than decompression illness, we know much less about the exact physiological mechanism of nitrogen narcosis than that of DCI. Unfortunately, both can result in a diver fatality, the first from being bubbly drunk and foolish and the second from being bubbled up.

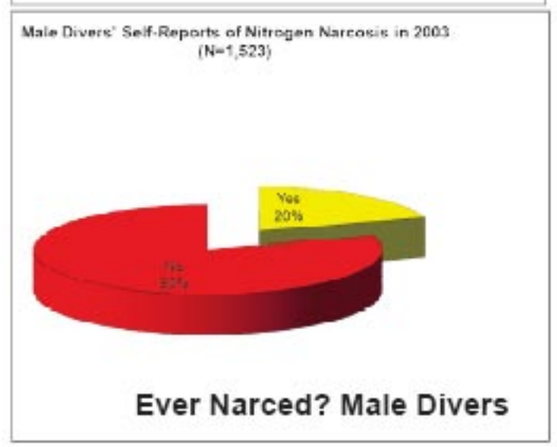
So, when we were on Bonaire a few years ago on Father's Day and my daughter, Stacy, gave me a T-shirt that read, "I've got nitrogen narcosis. What's your excuse?" I was not quite sure how to take the message. I assumed it might have been a critique of my fanatical diving. Surely, she could not have been referring to my charming personality. That is one of the big problems with nitrogen narcosis. You probably don't even know you have it at the time.

In 1935, Behnke et al found that even at just 66 feet (3 ATM), breathing compressed air produced "euphoria, retardation of the higher mental processes and impaired neuromuscular coordination." At 100 feet (4 ATM) he found even more impairment in divers. What is especially scary is that it occurred from the very beginning of exposure to compressed air and did not change with time at depth. In other words, breathing compressed air at depth makes you stupid and slow and clumsy, not exactly worthy goals.

In the winter of 2004, I conducted a poll of 1,984 divers and asked, "In 2003, did you experience nitrogen narcosis on any dive? (light-headedness, euphoria, elation, laughter, poor coordination, slowed thinking, poor judgment, or reckless behavior)" and at what depth they began to experience it. Only 20% of males (n=1,523) and 18% of females (n=461) admitted to having any signs or symptoms of nitrogen narcosis while diving in 2003 and most of those reported that it began when they were deeper than 90 feet.

Is it possible that all the other divers stayed above 60 feet on all their dives in 2003? Not likely. It is far more likely that they under-reported their symptoms, either because they either failed to recognize them or to remember them. There can be wide individual susceptibility to nitrogen narcosis. That is another good reason to dive with a reliable buddy so you can check on each other. Just make sure he/she is less susceptible than you. Fortunately, the impairment from nitrogen narcosis resolves rapidly with decompression. Of course, this assumes you have not already gotten yourself into trouble thinking you are invincible.





Recognizing the signs

According to my poll in 2004, over 80% of scuba divers fail to recognize or remember having any signs or symptoms of nitrogen narcosis. So, what can you do? Well, you can risk diving stupidly and slowly and clumsily at more than 60 feet (3 ATM). Or, you can dive relatively safely at less than 60 feet all the time. And last but not least, you can dive with a dive buddy who will check on you. Whoa, I knew there had to be a reason for the buddy system. This assumes your dive buddy is less susceptible to nitrogen narcosis or "stupidity of the deep" than you.

For starters, remember the "Martini Rule" that states that the symptoms of nitrogen narcosis are similar to being inebriated and that every 50 feet of depth is like having one martini. Therefore, the first thing you want to avoid is a dive buddy who starts out the dive day with a couple of 50 foot alcoholic drinks or who is still hung over from a night of heavy drinking. Just like there is no such thing as having "one for the road' when driving, there is no such thing as having "one for the dive."

Antihistamines, antiseasickness drugs and patches, sleeping pills and some other medications can multiply the sedative-hypnotic-like effect of nitrogen narcosis, so watch out for those, too. Marijuana also emphasizes the anesthetic-like action of high pressure nitrogen at depth. It is best to avoid it and divers who use it if you want to dive safely.

Back in 2000, when I started doing research in scuba diving, a retired internationally renowned diving scientist told me he stopped diving on the West Coast because he no longer felt safe in the water with so many "high" divers. I hope he was exaggerating the extent of the problem.

Professional tech diver Bret Gilliam, who made a record dive to 452 feet on air in 1989, developed a simple low tech test for nitrogen narcosis: Every few minutes, hold up a number of fingers to your buddy (say, three fingers). He has to respond with the same number plus one (four fingers). "If you really wanted to screw a guy up," writes Gilliam in his book *Deep Diving*, "you gave him all five fingers and then he had to use both hands to come up with a six-finger response." So, if you want to check on your dive buddy's state of nitrogen narcosis, then ask him or her to give you more than one finger.

David F. Colvard, M.D., is a private psychiatrist and clinical investigator in Raleigh NC, and a divemaster. He hosts ***www.DivePsych.com*** *which provides evidence-based information for divers on psychological and stress factors in scuba divers.* ■