



GLOBAL EDITION
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Holiday Issue
Gifts for Divers

Italy
Polluce Wreck

Baltic Wreck
von Steuben

Ecology
Dolphins

**South
Africa**

**Sardine Run
White Sharks
Tiger Sharks
Safaris &
Photography**

Profile
Andre Hartmann

Portfolio
Thomas Peschak

COVER PHOTO BY ANDREW WOODBURN

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COVER PHOTO

Divers meet the Great White Shark, South Africa
Photo by Andrew Woodburn



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Say cheese! A Tiger Shark poses for a mug shot, South Africa
Photo by Andrew Woodburn



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*Projected figure for year-end 2005.

Wishful thinking around the holidays

If we put our mind to it we can do it, right?

We phased out the CFCs in refrigerators and freezers a decade ago because they were breaking down the ozone layer. The Mexicans just deployed their armed forces to put a stop to the illegal poaching of endangered turtles eggs. And we have pulled several whale species and the rhinos back from the brink of extinction.

It is all about making priorities and decisions. The global ecosystem is in peril. That's glaringly obvious to anyone exposed to the daily news stream. Global warming, the oceans being depleted, the slashing and burning of the rainforests... the list just goes on and on. It seems depressingly endless.

The delegates to the United

The problem with being a conservationist is that we have all become like Cassandra, the doom and gloom prophetess princess of Troy.

Paul Watson co-founder of Greenpeace, founder and President of the Sea Shepherd Conservation Society.

Nations climate change conference in Montreal, Canada, have started deliberating on how to push forward the battle against global warming, how to meet the targets in the Kyoto treaty and what measures should be followed when the Kyoto treaty expires in 2012.

What, if anything, can take its place? As most Kyoto signatories have already fallen short of the targets set forth in the 1997 protocol and as many developing states that have since become significant contributors to global warming are exempt from meeting targets, something far more substantial is needed this time.

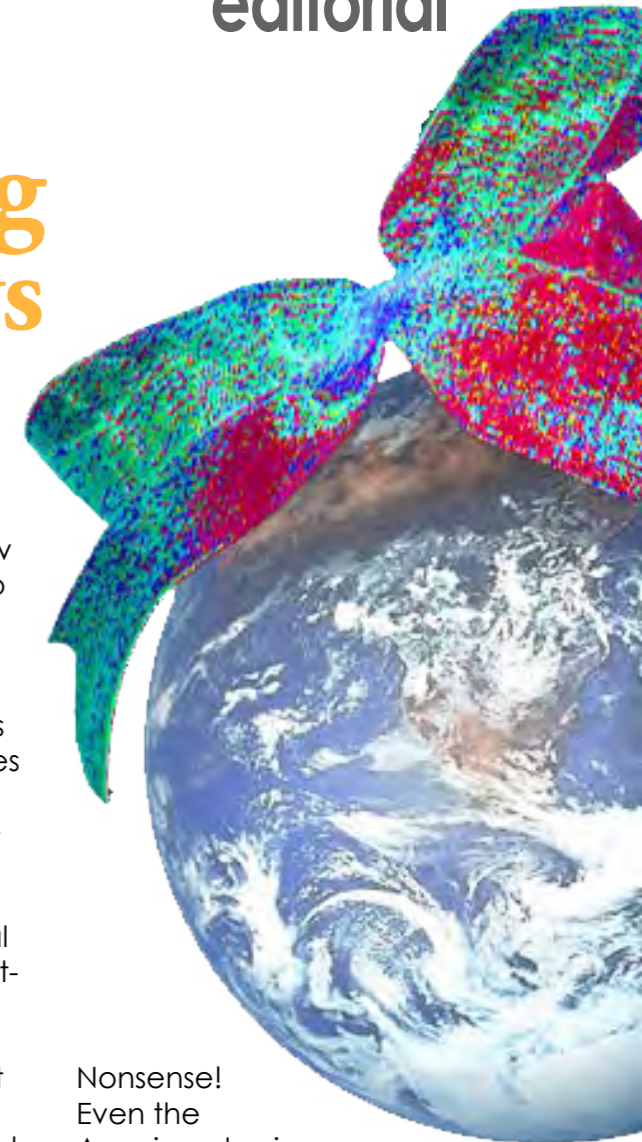
First of all, the most prominent dissenter, the US administration must come to its senses and start to leading the way by putting all its industrial might behind the effort. The US is the primary contributor of greenhouse gasses. Other big emitters of CO2 like India and China may be happy to reduce emissions if they can do it without hampering their rapid development.

The current administration, the same people who pulled the US out of the Kyoto agreement, a agreement which took three years to negotiate, maintain that they are serious about climate change. But the administration is nonetheless still resisting targets and reiterating claims that meeting Kyoto targets would put American businesses at a disadvantage.

Nonsense! Even the American businesses beg to differ on that point.

Earlier this year, a number of US cities, states and enterprises announced that they would comply with standards set forth in the Kyoto protocol thereby defying the Bush administration. As concerned parents and members of the global community, mayors, senators and captians of industry also know that conservation and reaching emission targets also makes good economic sense.

Clean technology is clearly going to become steadily important in the global economy and many American corporations are concerned that they will lose out to their overseas competitors if they



do not pursue alternatives now.

It is not all that complicated. Economy rests on ecology. Nature still forms the basis of the economic food chain. We fish, harvest, hunt and log. Once we deplete these resources, everything else dries up too. Needless to say, we need to protect those resources and exploit them in a sustainable way.

Europe has already become 1° C warmer in the past century and it is going to get worse. There will be unpredictable consequences upon environment and economy. Taking the necessary precautions now, aiming at meeting the set targets, the estimated price is €45 per year per inhabitant in Europe. Wait a little longer, and the price may rise to €1500 according to analysts.

In the US, it has been speculated that the recent hurricanes, Katrina and Wilma—which caused damage into the billions of dollars and ruined many lives and businesses—were also artefacts of global warming. How much more money and suffering could have been spared if we had just invested earlier in greener technologies and implemented them already.

Greener technologies and their application is not just a fanciful dream. They can become reality. But someone at the top needs to make the decision, and make

a bold one, to set things in motion on the grander scale that is necessary to make the difference. And a lot of concerned people at the grass roots need to vote a strong leader like that into office. When the late US president JF Kennedy in 1960 declared that the US would put a man on the moon before the end of the decade, it pulled an entire nation together behind an almost impossible mission.

Can't we do the same when it comes to the global environment? Isn't there a greater sense of urgency now?

What we want for Christmas this year is that another bold statesperson like Kennedy to come forward onto the world stage, finally placing petty politics and special interests aside, and formulate a strong and resounding vision about saving this planet, putting the whole of humankind's amazing ingenuity and industrial might behind it.

We just want the world to go on and Nature, as we know it, to prevail. It holds so many wonders and beautiful creatures many of which still await discovery by perhaps someone like you or me.

Safe diving - and happy holidays



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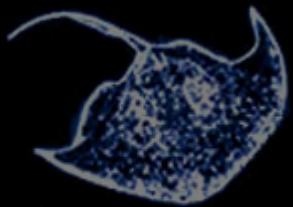
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News edited by
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NEWS *in the wind*



ALL PHOTOS COURTESY OF MATT OF PROTEC DIVING IN PLAYA DEL CARMEN, MEXICO

Hard-hitting Wilma ravages Caribbean

This year's hurricane season has already seen the devastation of the category four storm Hurricane Katrina upon the Gulf coast of the U.S. October's category three storm Hurricane Wilma followed leaving a swath of destruction in Mexico and the Florida Keys. Reports of widespread damage to resort communities and devastation of reefs and beaches flooded in after the storm raged through the area. Despite dramatic losses, communities and governments are racing to repair the ravaged regions in time for the winter tourist season.

MEXICO

Hurricane Wilma hit Mexico's economy hard by leaving much of its tourism industry in shambles. In addition, looters left shopping centres empty. According to President Vicente Fox, the Caribbean coastal resorts, which pull in 11 billion yearly, will not fully recover for at least two months, but the Mexican government has placed a high priority on getting tourists back for the high season this winter. It has plans to have 80 percent of the resort in Cancun up and running by the 15th of December.

Local reports state that the reefs and beaches as well as 110 hotels sustained damages, six people were known dead and a dive boat with several people aboard disappeared. Belize police

reported finding three of the divers alive and body of a fourth from the missing boat later in the week.

In addition, 1 million acres of trees on the Yucatán Peninsula have been damaged causing higher fire risk in the upcoming dry season. Up to 30,000 tourists were stranded in the area and took shelter in less than optimal conditions at roach infested schools. Tensions between soldiers and tourists ran high as curfews were enforced to prevent looting.

Although the U.S. Embassy pledged an extra \$300,000 and a U.S. cruise ship with aid was sent to Cozumel Island to pick up Americans, complaints were expressed about the little the U.S. government had done to alleviate problems. Thousands of residents in Isla Mujeres had little or no drinking water or shelter from high winds, waves and flooding.

Meanwhile, the Mexican government dispatched military ships, planes, trucks and workers to hand out rice, beans and sugar. Sailors shovelled large piles of white sand that had been dragged from public beaches across streets and inside homes and businesses in an effort to help restore the famous white sandy beaches that attract so many tourists each year.

While many island residents are receiving supplies and bottled water, complaints were reported that stored supplies in some locations are not being distrib-



uted to residents.

Locals report that fish are scarce after Wilma ripped through the area. Fishermen and dive operators stand idle as docks and beaches are repaired and restored.

Local dive operators are reporting continued reparations as well as restoration of electricity and Internet to their centres and resorts. While gasoline is still in



short supply, security forces are growing in presence and restaurants and stores are already reopening.

Local reports

Scuba Club Cozumel planned to reopen November 15th after surviving Hurricane Wilma. Scuba Club Cozumel suffered

minimal damages after Hurricane Wilma passed through the region. The hotel had water damage and broken windows and the restaurant needed repairs but six of the operator's seven dive boats made it through the storm unscathed. Guest rode out the storm at the resort and returned home safely after the airport reopened.

ProTec Team reported that Hurricane Wilma caused damage to Riviera Maya mostly from flooding as the eye of the storm passed through Cozumel and Playa del Carmen. In Cozumel, the storm interrupted ferry transport and electricity as well as damaged three cruise ship piers and the caletta marina. In Puerto Aventura, there was power loss, downed



Edited by
Peter Symes &
Gunild Symes

Wilma Blows

trees and damage to houses and buildings. Ten smaller boats sank in the marina. Flooding affected Playa del Carmen with both water and two feet of sand covering streets. Foundations and beach roads were damaged and two planes at the airport were turned over. Some buildings were damaged beyond repair. However, power was restored quickly and security forces were out in number to aid residence and prevent looting.

In Puerto Morelos, roads were closed from flooding and a few large power towers were broken, however restaurants reopened quickly. In Cancun, the airport closed but was reopened soon after the storm passed. Martial law was declared and curfews enforced due to riots and looting. Several hotels and town areas were damaged and flooded. Local reports predict that the situation will improve rapidly as intense efforts to restore buildings, beaches and resorts accelerate. For more information, visit: www.protecdiving.com

Riviera Maya Toursim Board reported that 60% of hotel inventory was operational and forecasted that another 12% of the hotels would be up and running by November 7th. They said that Riviera May should have over



according to Mayor Morgan McPherson, it could become one soon as the pre-storm supply was used up.

While some businesses reopened with the help of generators, city managers said that most local businesses would suffer losses as a result of lost revenue from the storm. While the government had \$14 million in hurricane reserves to pay for clean up and repair costs, many residents who lived month to

month were not be able to make ends meet. Landlords were asked to be lenient on tenants while residents recuperated after the storm.

While major ports in the area reopened, financial losses were being felt from the lack of cruise ships that

92% room capacity ready for tourists by December 1st. Over 85% of restaurants were up and running and 72% of related tourist services were also functioning.

FLORIDA

Following the aftermath of Hurricane Wilma, experts reported estimates of \$100 million in economic damages to the island of Key West in Florida. A serious blow to the area's tourism and construction industry, recovery was being stalled further by widespread damages to vehicles by flooding. Although fuel was not an issue in the immediate future,



normally passed through the harbours three times per week carrying around 2,500 passengers each. To avoid further losses, clean up of major tourist areas were being made a priority by the local government. Dive centres continued to clean up their facilities but predicted a significant wait before scuba divers returned to town. ■



Major hurricane could make islands out of Florida's Pinella County

A category four hurricane hitting the peninsula of Florida could flood the area and leave behind two separate islands according to university experts. In such a case, the only way to bring relief to the residents of the area would be by sea or air. Computer models revealing this outcome as well as a possible 20-foot (6 meter) storm surge, were devised by researchers at the University of South Florida College of Marine Science. While local government emergency management plans do not specifically address the downing of bridges, officials said they are aware that the possibility exists.

Experts say that it is the relentless waves atop the storm surge that will do the most damage. Concrete bridges are not designed to take the horizontal pounding of these waves and would crumble under the pressure. Roads would also be impassable if the bay met up with the Gulf of Mexico. According to authorities, it is too expensive to construct bridges that can withstand a category four storm. Government officials said they would rely on alternative roads and means to aid residents in case a major storm hit and planned to focus on repairing damaged bridges as quickly as possible rather than on replacing them. ■

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MARATHON SHARKS?

Great White Shark travels over 19,000 km

A great white shark named Nicole journeyed across the Indian Ocean from South Africa to Australia and back in less than nine months researchers say. Tagged in a conservation effort by South African and American scientists, the shark named after shark-loving Australian actor, Nicole Kidman, was tracked travelling a straight line through the vast expanse.

Experts speculate that the shark made the journey in search for a mate rather than for feeding purposes since there is plenty of food in South Africa.

It is thought that the behaviour of the shark is common. Researchers express concern that such migrations put the sharks in

danger of getting caught or injured in long-line fishing nets. Lesser sharks are captured and killed in this way. Scientists say that the Great White population cannot afford to lose members in this way. Australia and South Africa are home to the widely separated and important populations of great white sharks in the

world.

Shark Nicole logged more than 19,000 kilometres on her journey marking the first time a shark has been known to travel this far over open sea. She was tagged with a radio transmitter, which communicated with a satellite when the shark surfaced. Researchers say the data collected from the tagging of



Group of Sharks, by Jean Lamy, oil on wood, 80 x 55cm

www.jean-lamy.com

32 sharks including Nicole suggest that a minority of sharks may have wanderlust. Similar indications of long distance travel appear in salmon sharks that migrate from summer waters near Alaska to warmer winter regions off of Hawaii and Baja California.

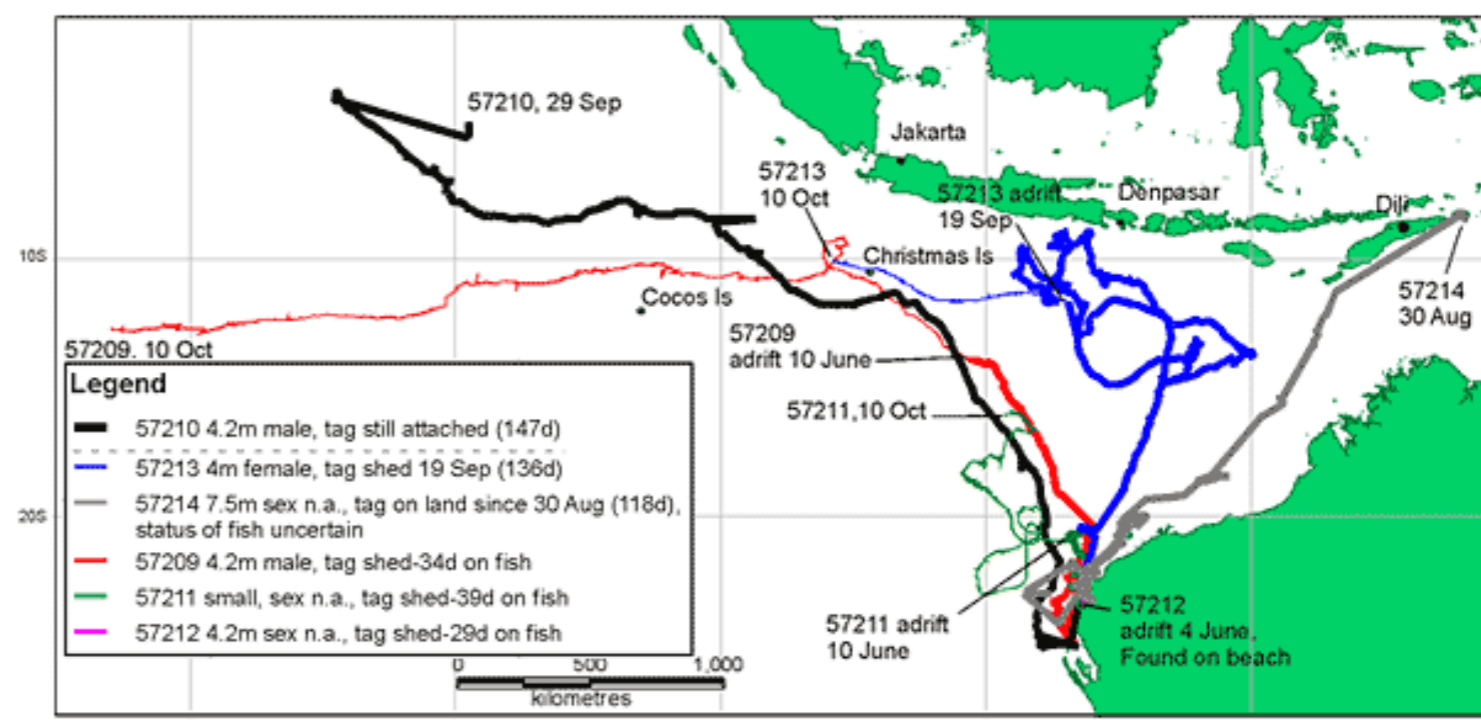
The study of the great white

sharks was conducted by researchers from the Marine and Coastal Management organization of the Wildlife Conservation Society in New York, the University of Cape Town and the University of Pretoria in South Africa. It showed that great white sharks display homing and patrolling behaviours as they migrate up and down the coast.

Scientists speculate that the sharks may use visual stimuli such as the stars or the sun to navigate across oceans rather than the Earth's magnetic field as previously thought. They also found that the shark, Nicole, preferred to swim most of the time on or just below the surface of the sea while she was in the open ocean. It is the first time this behaviour has been observed in the species.

Only one other fish, the tuna, has been observed to travel such distances as Nicole. The finding of such vast and fast migration in great white sharks is hailed as the most significant discovery in the study of the species. It is the first direct evidence of a connection between

Australian and African white sharks. Researchers say that future studies of the great white will need continued international cooperation. The great white shark study was funded by conservation groups in the South African government. ■



Whalesharks dive 1 km deep to feast on 'caviar'

Scientists have discovered new information on the world's largest fish, the whaleshark, through a program of electronic tagging. According to data collected, whalesharks dive almost a half a mile (1 km) in search of food where they can eat the offspring, or 'caviar', of shoals of spawning fish.

The findings of the Wildlife Conservation Society for the United States showed that whalesharks dive much deeper than previously thought. The whalesharks, which can grow to over 65 feet (20 metres) in length and weigh up to 15 tons, can reach depths of 3,200 feet (980 metres) in water just a few degrees over freezing. Now, scientists know why the fish have a layer of insulating fat below their skins.

The new data gathered in Belize Barrier Reef, a United Nations World Heritage site and the second largest barrier reef system in the world, is valuable to policy makers who can now adjust tourism programs and operations to protect the endangered species and their feeding sites.

Scientists say

the sharks stay in shallow waters during the night and make deep dives during the day followed by fast ascents that re-oxygenate their gills. It is when the creatures feed at the surface that 'pop-off' tags are placed on the whalesharks to collect data. Later the tags fall off the animals and return to the surface where satellites can pick up information gathered.

In August this year, a Mexican team of scientists tagged two male whalesharks off Isla Holbox near the northeast tip of the Yucatan Peninsula. Through the tagging program, the researchers found that whalesharks come to the feeding area in Holbox from many far away places, not just from the Western Caribbean or the Gulf of Mexico. They also found that the whalesharks dive up to 3200 feet. While some experts say the animals dive deep to find food, other say that the animals take the deep dives to dump excess heat collected in their bodies at the surface. ■



NOAA

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EDWIN MARCOW

Fishing for Great White Sharks banned in New South Wales, Australia

Fishermen were caught on tape targeting juvenile Great White Sharks in Australia. The incident prompted government authorities to move to ban the practice. While the fishermen in question claimed to be aiding research on the endangered species, information from within the fisheries department confirmed otherwise. For the safety of both the sharks and surfers in the area, the use of wire trace and baits over 200g is now banned. ■

Search and caesarean?

During a routine inspection, two fishermen with an illegal catch of sharks aboard were apprehended by marine and coastal management, working with inspectors of the South African National Parks. When one of the fishermen tried to flee, the officials discovered the sharks on board their boat. Gill nets and the boat were confiscated. When the officials examined the shark catch, they found several pregnant females, some in the process of giving birth. The inspectors rushed the baby sharks to the sea after performing impromptu 'caesareans'. Despite doubts whether the babies would survive, 26 of them revived and transferred to the open sea where they were released. ■

What's for dinner? Fish or Humans?

Australian researchers warn that great white sharks are switching prey to humans because of a decline in fish stocks. Due to over fishing, tuna, snapper, kingfish and mullet declined up to 95 percent in the last 60 years according to reports from the South Australian Research and Development Institute Aquatic Sciences. Scientists say, as a result, hungry sharks are exploring alternatives. The decline in fish populations is also attributed to the increasing number of people in the water.

Another possible explanation for the increase in shark attacks on humans is the increase of seals in Australian and Californian waters. The sharks may be confusing humans for seals. A direct link between growing seal colonies and shark attacks on humans has been shown in research from the US. Scientists disagree on whether sharks are switching prey. Many favour the notion that humans look a lot like a seal to a shark that will most likely reject the human in the end.

A second alternative explanation is that the shark attacks are more a factor of distribution, than anything else. Researchers say that in good years for sharks, there are more attacks recorded. It is not known what drives the distribution differences and it has not been long enough since the species was protected to attribute the increase in attacks to growing numbers. ■



Are Great White Sharks in Australian waters on the rise?

Fishermen operating off the coast of Western Australia warn of an increase in great white shark sightings. Numbers of white pointers encountered has soared with dozens of sightings according to shark-boat captains from Perth, Albany and Esperance.

Concerns were expressed by local skippers who worry an increase in shark sightings will lead to an increase in shark attacks. While fishermen suggest an increase in great white shark numbers, researchers speculate that the shark population may not necessarily be increasing, rather the reporting of shark sightings, incidents and attacks by the public and media has improved. ■

Shark sex on the beach?

Marine biologists in South Africa observed Great White sharks swimming into waters less than 2 metres deep near crowded beach areas. Ignoring bathers in the shallow surf, the sharks returned to deeper waters after a time. Similar sightings of sharks within 50 metres off the same beach occurred in the next few months. Then the sightings stopped abruptly.

Experts speculate that the shark behaviour is part of the reproductive activity among great whites. To date, no mating ground for the species has been identified, so the sightings may prove to be the first key to discovering the sexual behaviours of the great white sharks.

It would be a first step towards adjusting public policies to protect breeding grounds and humans from shark attacks. ■

Boat chumming brings sharks closer to surfers?

A shark victim in South Africa said boat operators that throw out chum to attract sharks for tourists are partly to blame for the shark attack that left his foot in tatters. While boat operators state that they operate within legal limits, surfers claim that they have often seen the boats come in close behind the break line about 200 metres from shore.

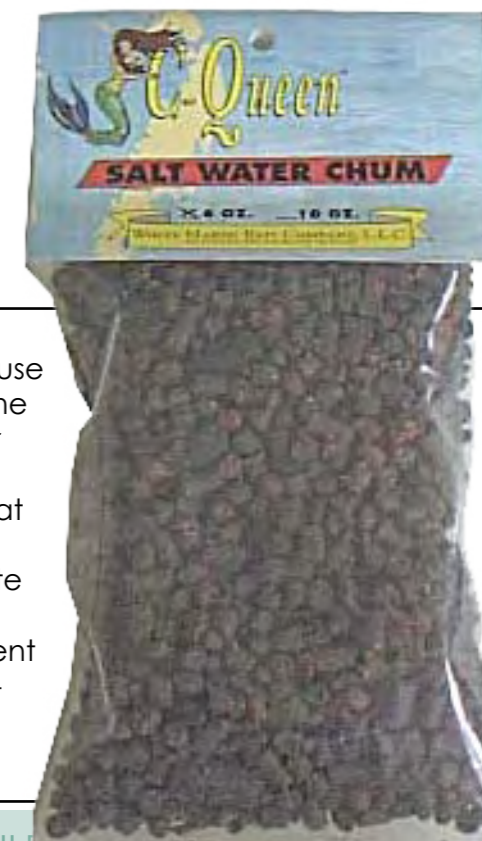
The injured surfer believed that because the boats come in shore with bait, the percentage of shark attacks is higher than if the boats were not operating in the area at all. The boaters said that boat-based chumming has not been proven to stimulate sharks to associate food with humans. However, regulations Marine and Coastal Management stipulate coordinates in which operators can work to keep them away from populated beaches. ■

Trawlers kill 50,000 tonnes of Atlantic sharks per year

Shark populations in British and international waters have fallen sharply because thousands of miles of semi-permanent nets on the sea bed are being set by a fleet of trawlers. Each year, the 180 mile long gill nets are catching at least 50,000 tonnes of shark according to the fishery. Investigators from Ireland, Norway and Great Britain say the catch is sold to supermarkets for their meat and fish oil is sold to health food and cosmetic companies.

Officials report that there has been immense damage to several species of shark and monkfish. Stocks of Atlantic deepwater sharks have fallen up to 20 percent in the past 10 years. In addition, Leafscale gulper shark and Portuguese dogfish numbers have dropped by 80 percent. Officials state that the current fishing practices are far in excess of what is considered sustainable.

A fisheries board vessel from Ireland found weighted nets on the sea bed and 24 miles of abandoned gill net holding seven tonnes of shark, 60% of which had to be tossed. It also found 180 miles of lost net that was irretrievable. Prompted by the report, UK authorities have been sent out for the first time to determine the scale of the problem in UK waters. ■



news

Edited by Peter Symes & Gunild Symes

Negligent safety practices on dive boat leads to death of diver



Advanced Diving of Belize has been forced to shut down in the aftermath of a dive trip accident that killed one scuba diver and critically injured three others . Owner permanently banned as dive guide

A weekend diving trip in stormy Caribbean seas off the coast of Belize ended in tragedy when the dive boat went adrift. An American woman perished and three other divers spent three treacherous days in rough seas until they were found and rescued by the coast-guard.

The body of Abigail Brinkman, 28, of Columbus, Indiana, was discovered south of Belize. Another diver, John Bain, 50, was hospitalized for hypothermia and jellyfish sting. Two other survivors, Nancy Masters, 38, of Portland, Oregon, and Japanese citizen, Yutaka Maeda, 34, were found in good condition.

Despite a small craft warning and rough seas from the recent passing of Hurricane Wilma, the captain of the dive boat operated by Advanced Diving allowed a dive-

master to take a group of divers out to South Water Cave. The divers were not informed of the warning. Shortly after the boat reached the destination, the motor died. Once set adrift, the divers discovered that the anchor was also broken. The radio was also discovered to be dysfunctional. Despite finding the divers discovering that none of the dive equipment aboard was outfitted with compasses, the divers decided to swim for land, but were unable to reach the shore in the dark and became separated in the water.

The divemaster, Vance Cabral, stated that he advised against the idea. Survivors disagree. They report that he actually helped them into the water.

Investigators found that there was no backup engine, radio or safety equipment aboard the vessel. The captain was not

aboard the vessel and the dive master leading the trip had a prior record of a boating accident with ten divers aboard. The previous incident also involved Advanced Diving out of Placencia. Although no one was seriously injured, the license of the operator was suspended for a brief period of time.

Despite numerous safety regulations on the books for dive boats, there is concern that the Belize Tourist Board is not making sure that the rules are followed by tourism operators. However, survivors of the drifting vessel say that Belize rescue workers and community members made an heroic effort to rescue them and did whatever they could do to help the distraught divers. ■



Head count saves two divers in Australia

Two British divers were saved when the captain of their dive boat counted heads and sounded the alarm 30 minutes after the pair were slated to return to the boat.

The two divers had been swept six miles from their boat by a strong current. The alarm brought a full scale air and sea search by the Coastguard who

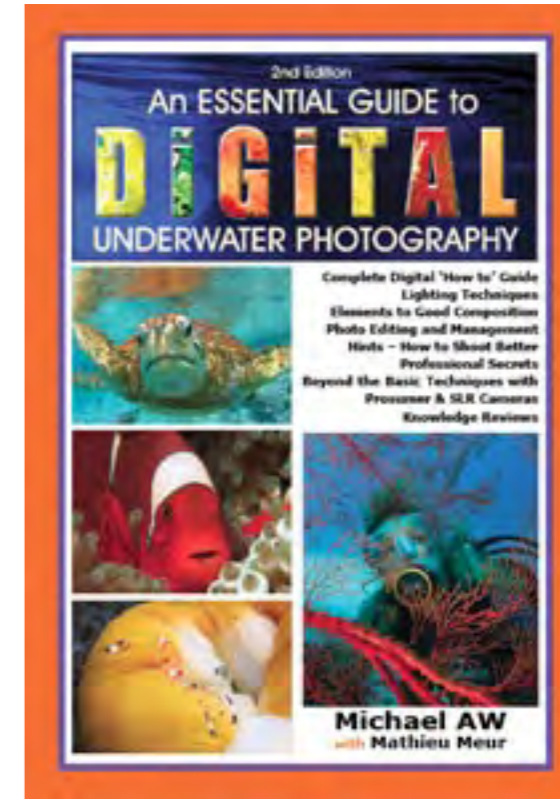
found and rescued the divers.

New logging procedures implemented after the high profile death of two divers left out at sea near the Great Barrier Reef by their dive boat in 1998, were responsible for the quick response.

The American couple who disappeared seven years ago were discovered missing after 48 hours. They



perished. The story of the lost Lonagans was portrayed in the 2003 film, *Open Water*. ■



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Edited by
Peter Symes &
Gunild Symes

Unusually warm Caribbean seas causing severe coral bleaching

The National Oceanic and Atmospheric Administration reported that unusually warm temperatures in the Caribbean have set off severe and possibly irreversible bleaching of corals in the region. The Alerts were issued for Puerto Rico and the US by the NOAA, which monitors 24 coral reef systems around the world. In some reefs around Puerto Rico, up to 85 to 95 percent of coral colonies were reported bleached according to researchers. Since early September, the surface temperatures of the Caribbean have averaged 2 degrees above historical norms. The higher temperatures put coral colonies in extreme distress causing them to expel the symbiotic micro algae living in their tissues and providing them with food. If the bleaching lasts longer than a week, it can kill corals. ■



ABOVE: A tube-worm colony is captured on high-definition video, which has seven to 10 times more clarity than standard definition

LEFT: Owned by the Office of Naval Research and operated by the School of Oceanography, University of Washington and Canadian ROPOS, the research vessel *Thomas G. Thompson* is 274 feet (84m) long and supports 36 scientists, two marine technicians and 22 crew members and officers. It hosts a variety of remotely operated vehicles such as Jason II,

ABOVE & LEFT: Photos courtesy of the VISIONS05 expedition
www.VISIONS05.ocean.washington.edu

Hydrothermal vents viewed live on HDTV

For the first time, a high-definition television camera was used to capture live views of a volcanic region of the ocean floor proliferated by hydrothermal vents and black smokers, chimneys that vent 700 degree F (371 degree C) hot water. Images of the Endeavour Segment of the Juan de Fuca Ridge 200 miles off the coast of Washington state in the US were broadcast from the sea floor on HD video which allows for 7 to 10 times more clarity than standard broadcast definition.

Founded by the W.M. Keck Foundation, the University of Washington and the national Science Foundation, the study was conducted on a research vessel supporting two remotely operated submersibles from the Woods Hole Oceanographic Institution. A 6-mile-long electro-optical cable permitted scientists to watch images captured by the submersibles' cameras and study the tectonic-plate interaction supporting ancient microbial life forms deep on the ocean floor. ■

This sea lily, *Endoxocrinus parrae*, was found at a depth of about 1200 feet (366m) on the sea floor off Grand Bahama Island in the Caribbean. The image was taken from a video by T. K. Baumiller and C. G. Messing from Johnson Sea Link II submersible, Harbor Branch Oceanographic Institution. Click on the image to watch a clip from the video



What? Sea Lilies move?

A new video showed that sea lilies crawl to escape predators much like their stalkless relatives, the feather stars. It was previously assumed that sea lilies, which are named for their garden-variety namesakes, stayed rooted. The animal used its finger like appendages to move from place to place. The discovery was caught on tape by researchers operating a submersible for the Harbor Branch Oceanographic Institution in the USA. ■

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Edited by
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Newly discovered Florida deep-sea reef may receive federal protection

Just off the eastern coast of Florida in the US lies the newly discovered Oculina reef, now considered one of the most biologically productive reefs in the world by scientists. Marine biologists from the Harbor Branch Oceanographic Institute returned from an expedition to the region armed with video recordings documenting the

deep-sea reef, which grows 3-5 foot coral bushes up to 100 feet from the ocean floor at a depth of 200-350 feet below the surface. In addition, images were captured of the numerous species that are supported by the reef.

It is hoped that this study and additional research will prompt legislators to implement strong protection for the reef and prevent trawlers from destroying the slow growing reef. *Oculina varicosus* coral is the dominant species that makes up the reef. Scientists say that it is more vulnerable to devastation due to its slow growth rate. While other shallow-water corals grow as much as 10 inches per year, the *Oculina* variety grows only half an inch per year, yet it hosts up to 2,000 sea creatures upon its volleyball-sized bushes. ■



Oculina Deep Sea Coral off Florida.
Photo: NOAA

US Senate backs protection for sea coral

Wide support came from both Republicans and Democrats in the US Senate for recently introduced environmental legislation to restrict trawling in parts of the ocean that hold deep-sea coral and sponge communities. The Bottom Trawling and Deep Sea Coral Habitat Act of 2005 is designed to protect habitats for species that are important to the seafood industry such

as snapper, rock shrimp and sea bass. There is concern from environmental groups that large-bottom trawler ships will destroy these cold-water corals as they rake the sea floor.

In addition, environmentalists warn that destroying coral reefs curtail efforts in the chemical properties of deep-sea corals in medical research for treating diseases. The bal-

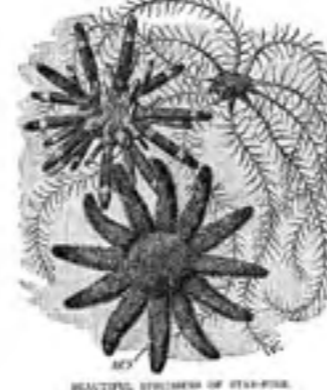
Many new species found in Philippines

An international team of researchers reported the discovery of new species of molluscs, crustaceans and echinoderms (starfish, sea cucumbers and sea urchins) as well as fish new to science from the depths around Bohol province in the Philippines.

The team gathered rare to very rare species in the area. These were animals previously thought not to be found in Southeast Asian marine ecosystems.

Unnamed deep-sea shrimp and rare crabs and bi-valves as well as a saw-toothed shark were found at depths up to 2,300 metres by the scientists of the Panglao Marine Biodiversity Project 2005: Survey of the Deep-water Benthic Fauna of Bohol Sea and Adjacent Waters.

Over a hundred species of fish and echinoderms, 600 species of crustaceans, and several thousand species of mollusc were collected by the end of the expedition making it the most comprehensive survey ever made here.



It is hoped that the discovery and cataloguing of new species will highlight the uniquely rich diversity, the natural and scientific heritage and value, of the Philippines and encourage the Philippine government to issue more protection of its marine ecosystems. ■



Cliff Simoneau loses battle with Cancer. The death of popular Dive Industry Veteran is a serious loss for the entire Industry

Cliff Simoneau, of Silent Diving Systems passed away peacefully on Sunday November 13th with his family and friends at his bedside. Cliff was diagnosed with Pancreatic Cancer in early September and courageously battled the disease right up until the last hour refusing to accept defeat. It was typical of his approach to life and business. He had recently celebrated his 46th birthday.

Cliff is survived by his beloved wife of 25 years, Kathy who would like to thank everyone for all the cards and emails received over the last ten weeks since the onset of Cliff's illness. The support of his friends kept his spirits high and his attitude positive right until the last hour.

One of Cliff's last wishes was to have his company, Silent Diving Systems, stand as his legacy in the industry. While SDS may stand as a solid testimonial to his entrepreneurial talents, his undying enthusiasm and unquenchable spirit of vigour will also be remembered as his trademark. No one worked harder at promoting diving and embracing innovations that led the industry. His long time friend and business associate Bret Gilliam reminds us all that "The Key To Immortality is Living a Life Worth Remembering." Cliff will be remembered fondly by all who knew him.

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Edited by
Peter Symes &
Gunild Symes

Legal battle over "CALYPSO" comes to an end ...for now

over her. Opponents were Cousteau's widow, now heading Cousteau Society (formerly l'Equipe Cousteau), and the original Calypso Team, and their association: the 'COF' (French Oceanic Campaigns). The court has now ruled in favour of Mrs. Francine Cousteau. It is presumed, or feared, that she will sell the boat to an American company, Carnival Cruise, who wants to repair the legendary ship before giving to her a new life in the Caribbean Sea. The COF have appealed the ruling in order to keep the ship "French", and in the Mediterranean. (To be continued in a later issue of X-Ray)



Model of Cousteau's famous vessel

Iran—the next hot scuba diving destination?

The Southern beaches of Iran in Chabahar area will become a center for dive training, reports www.iranmania.com. The skin diving club of Chabahar has within its 11 months of operation managed to take 500 tourists diving in the waters of the Persian Gulf, said Mohamad Nayeypour, head of the Skin Diving Club of Chabahar.

The Persian Gulf enjoys calm waters, and regarding the variety of fishes, it is a unique location for skin diving in the world. The best time for skin diving in Chabahar is in the middle of fall.

According to Nayeypour, a group of divers from the International British Skin Diving School is due to arrive in Chabahar and added that the first professional diving school in Iran will be established in Chabahar in a near future.

Ecologists slam Dubai's luxury islands

The 20 billion dollar islands being built off the coast of Dubai may look spectacular but the Gulf's delicate marine ecosystem is paying the price says environmentalists

Environmentalists say dredging work destroyed the only known coral reef off the shores of Dubai. Turtle nesting sites have been destroyed, natural currents rerouted and silt has muddied what were crystal-clear waters, they say.

"It has been detrimental for the natural environment of the Dubai coast, especially at the place and location of the first Palm island," said Frederic Launay, director of the World Wildlife Fund's office in the United Arab Emirates.

More Marine Parks urgently needed

World Conservation Union calls for the establishment of additional marine protected areas to prevent further degradation by making corals more robust and helping them resist bleaching.

Nearly half of the world's coral reefs may be lost in the next 40 years unless urgent measures are taken to protect them against the threat of climate change, according to a new report released by the WCU.

"Twenty percent of the earth's coral reefs, arguably the richest of all marine ecosystems, have been effectively destroyed today," said Carl Gustaf Lundin, head of the agency's marine environment program who helped write the report "Coral Reef Resilience and

Resistance to Bleaching." "Another 30 percent will become seriously depleted if no action is taken within the next 20-40 years, with climate change being a major factor for their loss," Lundin said. "Current predictions are that massive coral bleaching will become a regular event over the next 50 years."

In its report, the organization said that marine parks reduce the stress on coral reef ecosystems by reducing the impact of pollution and overfishing. "Destructive fishing practices such as blast or poison fishing can make coral reef more vulnerable to bleaching," said The Nature Conservancy's Rod Salm in a statement.

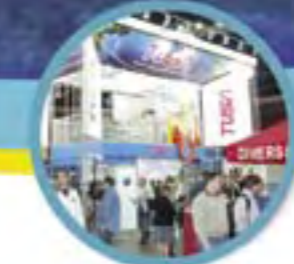
The report also recommends a strategy for the establishment of a global marine park network in the face of climate change, covering all important marine ecosystems including coral reefs.



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Edited by
Peter Symes &
Gunild Symes

Diving restrictions being lifted in Greece

A bill lifting restrictions on recreational scuba-diving was passed by both main parties following a discussion in a parliamentary committee. In past years, recreational diving was strictly restricted in Greece in order to deter antiquities smugglers, with diving only permitted in specific, closely-watched locations.

It was argued by members of parliament that new laws would help make Greece one of the most popular worldwide destinations for scuba-diving holidays and bring in significant revenue. The Communist Party of Greece (KKE) and the Coalition of the Left, Movements and Ecology expressed reservations about whether the new laws adequately protected submerged archaeological remains, however. The old law came into force in the early days of scuba-diving after several incidences where underwater artifacts have been illegally recovered.

Merchant Marine Minister Manolis Kefaloyiannis stressed that all measures in the new bill were fully harmonised with European Community law and aimed to allow full exploitation of the favourable weather conditions prevailing in Greece for the greater part of the year, as well as its natural, historic and cultural attractions, to draw the recreational diving sector.



Five new wrecks located in the Red Sea

Five new wrecks were located in the Gulf of Suez on an expedition run by wreck hunter Peter Collings and members of Bromley BSAC have located five new wrecks in the Gulf of Suez writes UK magazine Dive on their website. It is thought that this was the first time a group of divers has ventured so far north into the Gulf which is a notorious area for shipwrecks.

One of the wrecks is the *Scalaria*, a Second World War tanker that fell victim to an aerial bombardment in 1942. At 122m, it is one of the largest diveable wrecks in the Red Sea. Also found was a 76m-long Egyptian cargo ship, *Aboudy*, which foundered off Ras



Red sea wrecks are in high popular demand. File photo: Cedar Pride off the Jordanian coast

Gharib in 1988. The wreck lies on its port side, and much of the original cargo - bottles of cough medicine - can still be found.

The other wrecks included the *Alita*, a 1,365-tonne Maltese vessel, which sank when her cargo shifted on a voyage from Thessaloniki to Sudan in 1988, and *Bakr*, a survey vessel belonging to the United Arab Republic Petroleum company. It sank after being hit by Israeli missiles in 1973 during the Yom Kippur war. The Russian-built ship is about 44m long.

Meanwhile, a "Scuba Diving License" is under consideration in Australia

In Australia, the New South Wales government is considering establishing an annual licence for scuba divers similar to that required by recreational fishers. According to several Australian media primary Industries Minister Ian Macdonald said the scheme would involve the creation of an independent scuba diving trust who would allocate licence costs to programs to improve amenities for divers and possibly programs to protect the habitat areas of the critically endangered grey nurse shark. He said he

had recently met with senior diving industry representatives, who expressed support for the proposal. "The state government was previously considering introducing a fee to dive in these areas but the licence system will be simpler and fairer - instead of paying a fee for each dive in the habitat sites, divers will now have an annual fee," Mr Macdonald said.



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New Zealanders get new wreck

On Nov. 14, the former HMNZS Wellington was sunk off Island Bay in Cook Strait. It took less than two minutes to turn the 113 m long former frigate into an artificial reef. The ship had seen service with both the Royal Navy and the Royal New Zealand Navy before being decommissioned and prepared for scuttling. The former warship was bought from the Government for \$1 by the charitable trust formed solely for the acquisition of the frigate, to create an artificial marine reef and world-class attraction for dive tourists and commercial operators

in the area. Explosives were strategically placed on the ship to make it sink fast and land squarely on the sea bottom at 26m. The frigate had been holed from bow to stern before the sinking, with especially created holes for diving through the wreck.





Polluce Wreck

THE OFFICIAL RECOVERY

THE CONTINUED STORY ABOUT POLLUCE WRECK. FIRST PART CAN BE FOUND IN X-RAY #7

Text by Peter Symes
Photos by Enrico Cappeletti & Peter Symes

It was one of those highly unlikely chains of unforeseeable events that led us to Elba the picturesque but somewhat mislaid lump of land in the Mediterranean made famous by emperor Napoleon's exile here: The fact that the treasure ship Polluce was finally being excavated.

As our regular readers may recall from our previous issue this is where the treasure ship Polluce sank to the bottom in 1841. The official excavation is finally under way coinciding with our attendance so this



A model of how Polluce looks like on the seabed, 103m down



Top: A delicate fingerring with ivory portraits
Above: the sorting table.
Right: Massimo Anselmi with a gold pocket watch



(above). A watch as it came out of the mud. A little later the face came to light too (below) as did more coins and some yet to be identified artifacts



Four pictures above, clockwise from top left: The excavation barge that was held in place by four massive anchors. The winch bringing up the baskets with artifacts. The mesh cash into where all the suctioned mud and objects were deposited, There was mud, mud and mud everywhere.

Polluce Wreck

was a once-in-a-life time opportunity not to be missed. And here we are on a - rather uncharming I must say - barge with a huge crane, a lot of commercial diving equipment, a decompression chamber and lots of pressure tanks.. It is a truly big set-up. I am couple of containers the dive tenders have their command center from where they are in constant contact with the divers below.

Saturation divers

103 meter below the surface saturation divers, are working their way across the remainder of the wreck meticulously sorting and sifting through the debris, rectangle by rectangle. On a tv-monitor in the coffee-room we can follow the divers' progress. The image is grainy and comes from a camera mounted on the divers' helmet, enabling us to see what is going on in a restricted field in front of the divers. Sometimes we see a hand, sometimes the suction head protrude into the

From top: Work at the sorting grid where two meshes, one finer below retained any solid objects. A lump of coins, silver or gold stuck together. Officers from the carabinieri displaying some of the finds. A big lump of coins being wrapped for shipment back to the safe in the castle on shore.



Another 4 x 4 meter search grid has been welded together and is now being lowered into the water by the huge crane. In the foreground the decompression chamber can be seen behind with the big umbilical cord carrying the essential communications, hot water for the divers' suits and breathing gases going over the chamber

view as they remove a century and half of silt from whatever remain of this once so stately vessel. Once in a while we see some old timber, then some rock and then something that appears to be ... treasure? ... or...maybe not.

It is hard to make out on that little grainy monitor in the crewroom, the image quality isn't exactly a match for BBC's Blue Planet DVD collection.

From the starboard side of the wide barge the dive bell is suspended in heavy cables and a umbilical. The stream of bobbles rise from so deep – over 100 meters – through the water column that they break up into a myriad of smaller bubbles that turn the surface beside the barge into a froth. I can't help pondering how "another day at the office" may be like down there. The divers has to spend three weeks of ulti-

mate boredom in compression where they work in four hour shifts.

€350 a day

They must be paid very well I surmise out loud. About €350 a day comes the answer from behind me where one of the Italian tenders is having a smoke and a break and we get to talk. Not exactly a stately salary for enduring such an ordeal with the ever present dangers and lasting effects on your health. And for being without the wonderful Mediterranean sunshine that we can now enjoy - the sea is flat and it is pleasantly warm considering it is almost November. The atmosphere is pleasantly relaxed yet laden with tickling expectations of what the baskets may bring up next time. Many of the men around me are weatherbeaten veteran of the offshore or salvage industry.

Sturdy, with grey hair and furrowed faces they radiate all the experience and hard lives you can imagine. Yet they seem to retain this boyish goofiness and childlike expectations that only boys with toys can muster. Maybe a treasurehunt is a pleasant break from the dirty oilbusiness or the tedium of salvage work.

Carabinieri

Needless to say there was also police on board. Huge, stern looking carabinieri from the art and antiquities sections' underwater squad who, however, turned out to be just another bunch of jokesters, were there in strenght to provide the necessary protection and guard the treasure. No wonder. Some rumours had it that there might be as much as four tons of goldbars down there too. It has been alleged that a secret cache of

Polluce Wreck

goldbars were stashed somewhere in the fore departments and not listed on any cargo declarations. When Polluce sank it was a volatile era in Europe's history and many of the familiar nationalstates that we know of today, most notably Germany and Italy, were only starting to come together in a painful process.

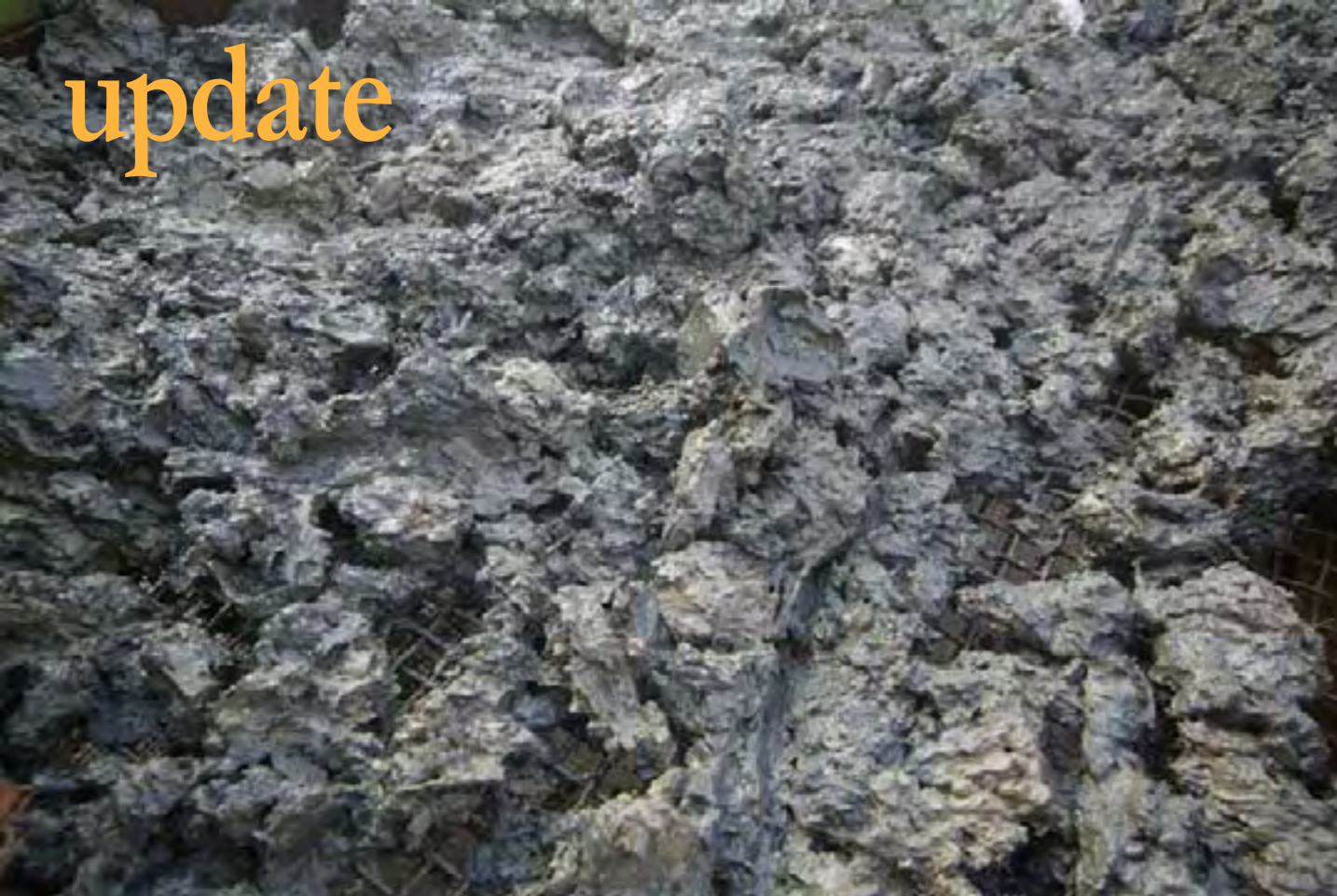
It is an unreal sensation being out here. How many of us have heard tales or stories about treasures, say like in the tales of 1001 night, pirate movies or our childhoods' bedtime stories? Most of us I guess. How many ever get to see actual treasure, see it come to light, let alone get to handle it? The chances of this must be like winning the lottery. Yet, I am witnessing it. Gold, silver, glassware, jewellery and other items come out of the grey clayish mud being brought up from the seabed.

Mud all over

One of the metal baskets is now being hoisted out of the water and swung into the cradle on the scaffold in which it fits and a new empty basket sent back down. The crew and the carabinieri shovels the content out on a big mesh for closer examination. It is a very dirty job. There is mud and grey stains everywhere.

The slurry of the mesh is then doused down with hand showers to wash off the silt from any solid objects. Most of it is gravel, sticks, pieces of timber and seashells. But here and there is a coin or two. Or some manmade object or piece thereof that is not always easy to identify. Who knows what broken of corner of a 1830's household item look like? I don't for sure - and I am helplessly puzzled by this clearly manmade, round object with concentric grooves and a spongy feel to it that I am now holding in my hand. I have no clue whatsoever what it might be. There is also this oblong cylindrical





Dig in and pick out the coins, lads

the watch turns up too, still with a hand attached to it. It seems that it stopped at three o'clock.

The plot thickens

Was that the real time for the collision frozen in time like on the crimes series on tv? That time doesn't correspond with the official records, so did the hand simply shift later perhaps as a result of all the dredging? Perhaps.

But there is, nonetheless something quite fishy, pardon the unintended pun, about this shipwreck. For one, what is it doing here, many miles from the shipping lane? Granted, that they didn't have much radar and GPS in those days but the night was clear and calm and there were lighthouses guiding the traffic up channel of Piombino. Yet this wreck lies tucked away under the coastline of Elba. And what was the other ship that collided with

thing about the size and shape of a modern ballpen casing, but ending in what seems to be a knee joint. What the h... is it, everyone seem to speculate. Nobody was able to help me out for my ignorance however.

I can't help wanting to get close to the mesh and watch. The men rinsing are wearing oilskins and with all the water and mud going everywhere it is a wise choice of garment. Me, on the other

hand, not knowing before I came here what to prepare for, I am wearing a sweater and trainers which is less than ideal. Much less. Needless to say, before the day was over I was in a complete mess. But who cares? And my mother is not here to complain. Coins come out of the slurry, then a delicate chain, some glassware, a bit of charred or tarred rope and then this casing of a exquisite pocket watch with a delicate clockwork inside. A few moments later the face of



Polluce's position (red dot) in relation to the shipping lane passing north-south through the channel de Piombino - the strait between mainland Italy and Elba. For an idea about the scale the strait is about 10kms wide.

So the question remains: What was Polluce doing on that position? And the Mongibello, the other steamer that collided with her?



Polluce Wreck

Securing the treasure. G. Mirto co-author on the book about Polluce smiles after a good day's work. And, no fellas, we didn't sneak any coins down our pockets. It is all going to end up in the museums

Polluce, the Mongibello, doing here, on this weird offsite location also?

Further speculations

Enrico speculates that the collision wasn't really an accident after all - though the result of Polluce sinking was probably not intended. The matter at hand is that Polluce was carrying a very significant amount of valuables and had very prominent passengers among which we find the count of Canino, Napoleon's grandson, for one. Was the Polluce perhaps intercepted?

And how could the Mongibello hit Polluce in her port side, behind the paddlewheel, if Polluce was heading north and Mongibello south as otherwise claimed? It doesn't take much analytical skill to arrive at the conclusion that the Mongibello must most likely have come from behind, and not from the front to strike where she did. Did Polluce head south at the time, or did the Mongibello come after her round the island of Elba.

Who knows? Only one thing's for sure and that is Polluce still proves to be fertile ground for speculation and that is where we leave the tale about Polluce and the island of Elba for this time. But the last chapter is surely not written yet. ■

Author Enrico Cappelletti (right) savouring the moment with master diver Primo Padoan (left)



Edited by
Peter Symes &
Gunild Symes

North Atlantic Right Whale Given Less Than 100 Years

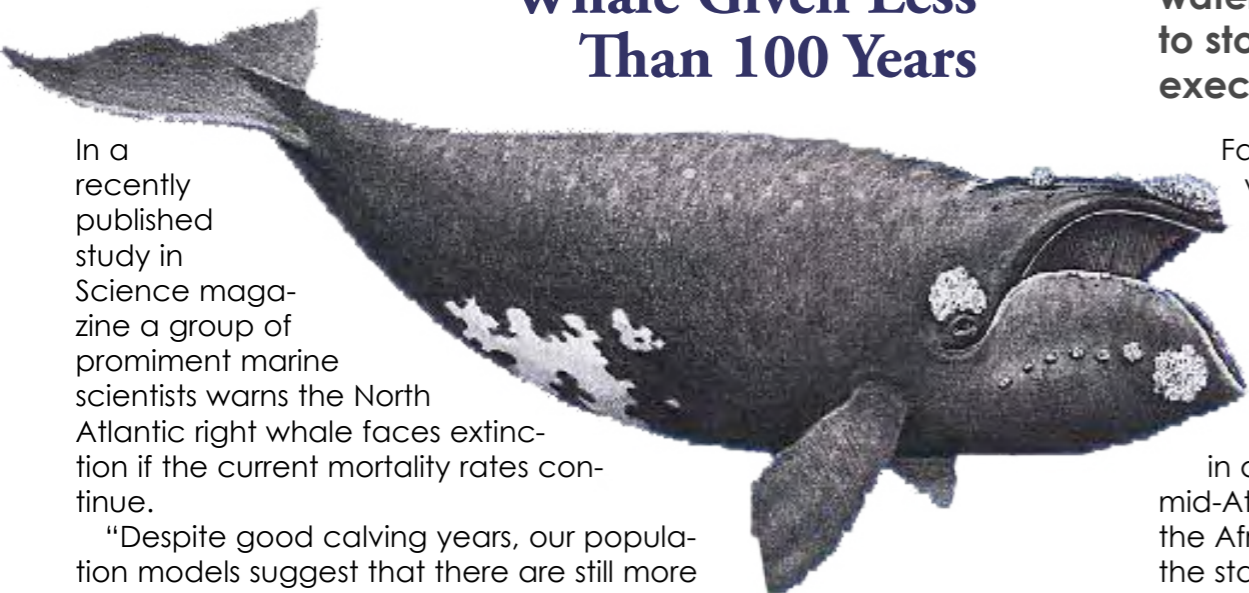
In a recently published study in Science magazine a group of prominent marine scientists warns the North Atlantic right whale faces extinction if the current mortality rates continue.

"Despite good calving years, our population models suggest that there are still more whales dying than being born every year," says Scott Kraus, lead author and senior scientist at the New England Aquarium.

In the past 16 months, there have been eight recorded right whale deaths - but the group's population models indicate that only 17 percent of right whale deaths are detected each year, leaving 83 percent undiscovered. According to this model and based upon the known deaths, as many as 47 right whales may have died in the past 16 months, although only eight of the deaths have been detected.

Ship strikes and gear entanglement account for at least half of all recorded deaths of this species

The eight dead whales included six adult females, three of which carried near-term fetuses. At least four of the whales were killed by human activities; ships hit three; and one whale was entangled in fishing gear. Ship strikes and gear entanglement account for at least half of all recorded deaths of this species, the scientists report.



European Union suggests controls to stop octopus overfishing

Octopus which is a delicacy in many Mediterranean cuisines, may be at risk of dying out in EU waters if controls are not enforced to stop overfishing, warns an EU executive.

Far too many undersized octopuses were being sold in the 25 EU countries, leading to a depletion of stocks.

To curb the overfishing, the European Commission has called for a minimum size of 500 grams for octopus caught in eastern central Atlantic waters. The area in question is that extending into the mid-Atlantic roughly from Morocco down the African coast to Congo. This is below the standard 750 grams allowed within EU waters but above the 350 gram minimum that applies in Senegal. Thanks to partner-

ship agreements that the EU has agreed with countries such as Morocco, Senegal and Mauritania many European trawlers also fish in African waters. If agreed by EU ministers, the measure would apply to octopus marketed anywhere in the European Union, whether caught by EU or non-EU vessels

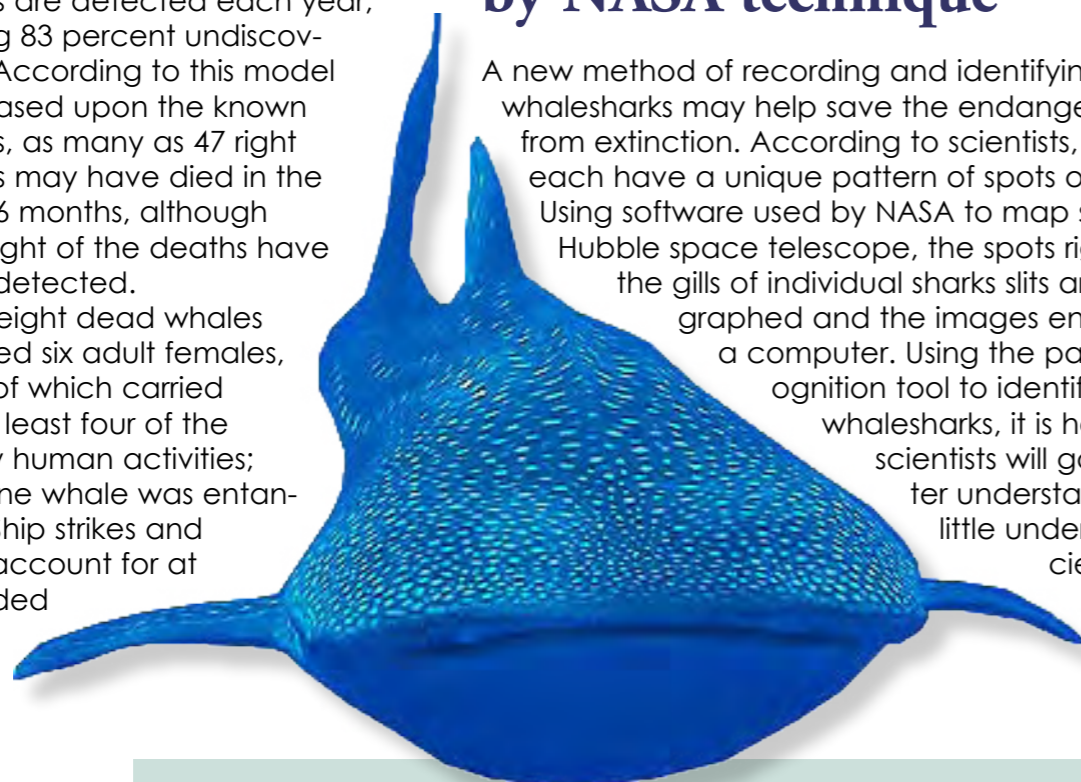


No more calamare romana?



Whaleshark spots identified by NASA technique

A new method of recording and identifying individual whalesharks may help save the endangered species from extinction. According to scientists, whalesharks each have a unique pattern of spots on their skin. Using software used by NASA to map stars in the Hubble space telescope, the spots right behind the gills of individual sharks slits are photographed and the images entered into a computer. Using the pattern recognition tool to identify individual whalesharks, it is hoped that scientists will gain a better understanding of a little understood species and their migratory patterns. ■



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DEMA announces launch of www.demauction.com to aid victims of hurricanes Katrina, Rita And Wilma



100% of Winning Bids on All Auction Items To Support American Red Cross Relief Efforts.

To help the victims of Hurricanes Katrina, Rita, and Wilma, the Diving Equipment & Marketing Association (DEMA) has announced the launch of www.demauction.com.

This DEMA-sponsored website will enable members of the diving community to donate items to be auctioned to the general public, with 100% of the winning bid of each auction item sold through the site until Dec. 16, 2005, to be donated to the American Red Cross to support the organization's Hurricane Katrina, Hurricane Rita, and Hurricane Wilma relief efforts.

DEMA anticipates items such as non-life support dive gear, electronics, eye-wear, t-shirts, trips to exotic destinations and marine-inspired artwork to be donated and made available for purchase on the site.

"Our hearts go out to the people of the Gulf Coast and Florida that have been affected by the recent hurricanes," said Tom Ingram, DEMA's Executive Director. *"We had many ideas on how we as an organization could help, but ultimately realized that we would make more of an impact if we enlisted not only the help of our members but also of fellow divers around the world."*

To donate to the auction, go to www.demauction.com, click on DONATE NOW! and complete the Online Auction Donor Agreement for approval by DEMA. To bid, simply complete the bidder registration process at www.demauction.com and submit your bid on a selected item. www.demauction.com

X-Ray Magazine's website gets overhauled

www.xray-mag.com is undergoing a facelift, and while new features are going to be added in early 2006, the new look with a more intuitive "tabbed" navigation and a more direct access to magazine download has already replaced the old look. To come is a range of enhanced features and competitions with attractive prizes. Be sure to check back often.



British Sub Aqua Club launch their 21st Century IT Rollout Programme

BSAC's new Forums are now on line and a brand new web server system, using the latest and probably the most popular forum software have been installed. The result is a solution designed to provide divers with a quick, easy and fun way to communicate and find information. BSAC wanted something flexible, and that can grow and evolve as Member's needs change. One aim was to build and develop a range of dedicated forums for Branch Officers, Coaches, Instructors, BSAC Clubs, Members and others, with the key word being 'involvement' aimed

at each group taking ownership of their own forum. The strengthened commitment to online forums and to provide divers with a solution tailored specifically not only to the needs of members and BSAC, but also everyone interested in diving is part of a new long term strategy and changes the way BSAC is using IT. www.bsacforum.co.uk



Patong Beach Clean-Up Project

NAUI Services Pacific Rim once again sponsored the Annual Opening Festival Day, which was held this year on Nov. 1 in Phuket, Thailand, entitled the "Patong Beach Clean-Up Project - Phuket".

In addition to NAUI, the event was co-sponsored by the Thailand Government Department, the Thai Department of Marine Coastal & Resource, a Local Long Tail Boat Conservation Group, and the Patong Administration Department. Hundreds of NAUI divers and members volunteered their time and expenses for the clean-up cause.

NAUI gave away T-shirts, caps, mask- straps and chances for additional prizes to clean-up project divers. NAUI Services Pacific Rim also provided dinner to the hundreds of participating divers on event day.



NAUI Launches Fresh, Newly Designed Website

Thanks to the feedback and great suggestions of our valued members and divers around the globe, NAUI Worldwide has launched a newly designed website! The new site is now complete with a fresh new look and functionalities for NAUI members, the diving public and those interested in learning more about the world's second largest diver training and certification agency. The new website design features updated graphics and a comprehensive search option add attractiveness and functionality. Popular pages from the original site such as "Scuba Jobs" and "Diving Events" are still available. Be sure to visit the new NAUI website at www.nauivv.org!

SCUBAPRO UWATEC invites you to "Have Your Say"

SCUBAPRO UWATEC have just posted on their Website their first Global Diver Survey, "Have Your Say", in order to gauge their customers' needs and to gather valuable feedback.

"Our aim is to listen to and better understand our customers," says Joe Stella, Vice President of Global Diving at Johnson Outdoors, "I myself am a passionate diver and I think it is very important for us to know our customers in order to be able to serve them as best we can."

To access the survey go to:
http://scubapro.com/haveyoursay/survey_usa.asp
http://www.scubapro.com/haveyoursay/survey_scandinavia.asp
 The survey will be on the SCUBAPRO UWATEC until Monday 9th January 2006.



Edited by
Peter Symes &
Gunild Symes

WWF launches fishing gear competition to reduce marine bycatch, \$25,000 grand prize

“WWF is looking for real-world fishing solutions that allow fishermen to fish ‘smarter’ by better targeting their intended catch while safeguarding the dolphins, sea turtles and other marine life often caught unintentionally,”

The WWF (formerly known as the World Wildlife Fund) has launched the second WWF International Smart Gear Competition. The contest seeks innovative fishing gear that reduces marine bycatch which is the accidental catch and related deaths of marine mammals, birds, sea turtles and non-target fish species in fishing gear such as nets and longlines.

The international competition will award a US\$25,000 grand prize and two US\$5,000 runner-up prizes to the designs judged to be the most practical, cost-effective methods for reducing bycatch of any species. The competition is open to eligible entrants from any background, including fishermen, professional gear manufacturers,

teachers, students, engineers, scientists and backyard inventors.

Conventional fishing gear does often not allow users to selectively target their catch. As a result, non-target fish species, marine mammals, birds, sea turtles and non-target fish species are caught and sometimes killed. More than 25 per cent of what is caught in the course of fishing — as much as 20 million metric tons annually — is thrown over the sides of fishing boats dead or dying. This bycatch is the leading threat to many endangered marine mammals, sea turtles and sea birds around the world.

Last year, WWF awarded three new practical solutions to marine bycatch: a system for keeping longlines away from sea turtles by a

former high-school biology teacher and commercial fisherman; changes to the chemical properties of fishing ropes and nets by a North American team; and modified trawls to reduce bycatch of undersized shrimp and fish by a team of Indian scientists.

Instructions for entry along with the competition rules are available at www.smartgear.org. Completed entries must be submitted by March 15, 2006.

“This unique collaboration among conservationists, fishermen and scientists is designed to inspire new technologies for more sustainable fishing.”



Turtle caught in net as bycatch. Photo: Greenpeace

The Academy Of Underwater Arts And Sciences Announces The Zale Parry Scholarship

The Academy of Underwater Arts and Sciences (AUAS) announced The Zale Parry Scholarship at the NOGI Awards Banquet in Las Vegas in October. Zale Parry herself made the presentation of this new scholarship in her name that will offer financial support to individuals seeking to

advance their knowledge or to enter professional careers in any of the following fields:

- Ocean exploration
- Diving equipment technology
- Hyperbaric research
- Marine conservation

Selection Criteria: Based on merit and financial need. Candidate Requirements for The Zale Parry Scholarship:

- Must be a certified diver
- Must be a citizen of North America

- Must be a student enrolled in an accredited college or university
- Scholarship Amount: \$1500 per Recipient and a \$500 voucher towards travel expenses to the Scholarship Presentation Ceremony

For an application, log on to the AUAS website, www.auas-nogi.org, and click the Zale Parry Application selection. Applications for The Zale Parry Scholarship must be received no later than July 31, 2006.

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Power (Watt):	20 W
Burn Time:	2.70 H
Reflector Dia:	51 mm
Bulb (Degrees):	12
Color Temp.(Kelvin)	3200
Weight in air:	2300 gr
Weight in water:	1900 gr
Lamp dimensions:	
Pack dim:	ø42 x 320 mm
Light on/off in light head	
Batteri type:	NIMH
Charging time(min)	10H

Description:

Lamp head made of aluminium machined in high precision, and double coated, oring sealed in front of lamp, and double sealed in back on the plug, light turn on/off just turn plug, charging of batteripack, on end of lamphead plug.

Batteri pack, made of aluminium double coated, and all plug ends are double sealed. Light system are waterproove to 220 meter.

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Ocean Pro is distributed worldwide exclusively by:

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13 million baby turtles hatched under protection of Mexican armed forces

So far, about 13 million endangered Olive Ridley turtles have hatched on Mexico's Pacific beaches and have made it safely into the sea, thanks to armed guards deployed by the government to protect against poachers, report Mexican environmentalists.

While only one in thousand of the juvenile turtles will actually survive to adulthood and breed, biologists are cautiously optimistic that the population is now on the rebound and they are winning the battle in Mexico against the poachers. Raw turtle eggs with salt and lime juice are supposed to be an aphrodisiac.

Mexico is home to half a dozen species of sea turtle many of which are classified as highly endangered. Each year hundreds of thousands of females come ashore each year to lay their eggs on the beaches

where they were born. But after surviving natural predators, bad weather, fishing nets and contamination, hundreds fall prey to poachers.

In August, after poachers bludgeoned and chopped up some 80 turtles to steal their eggs, the Mexican authorities sent two Navy ships to Escobilla beach, Mexico's top nesting ground and deployed armed guards on the beaches. Guarding nests, and sometimes taking eggs away to safety, has helped Olive Ridelies make a comeback. Last year 33 million were born in Mexico.

In the two main beaches no nests have been robbed this year but it still seem to be happening at smaller beaches, that are harder to protect but to a lesser degree than previously. The turtles can't be considered out of danger yet, only recovering. Each newborn takes 10-15 years to reach adulthood, so it will take years to stabilise the population

Biologists in Mexico are also working to boost numbers of the larger Hawksbill and Leatherback turtles. "The task will be won once we see a firm recovery of six species. Right now we have the Olive Ridley growing, the Black Sea Turtle and Loggerhead stable, and the Leatherback, Hawksbill and Kemp's Ridley still in a critical state," said a senior executive from the marine protection agency Profepa.

Unregulated aquarium fishing cause for concern

Dive shop owners on Hawaii are growing worried about the unregulated harvesting of fish and other marine creatures for the home aquarium industry are affecting the local environment

Marine biologists and divers too are concerned that this industry – which some say are virtually strip mining the reef will harm both the environment, the tourism industry and ultimately the aquarium fishery itself.

Only the Big Island's Kona Coast has a now five-year-old project to regulate the taking of aquarium fish, but everywhere else, a 50 dollar permit allows collectors to net as many of a species as they want, wherever and whenever they want.

Strange sounds

— and a burst of weird electromagnetic waves in the Indian Ocean

A hitherto unknown phenomenon has been observed along the beaches of Andaman islands. The fishing boats in the region have heard strange sounds since the last year's devastating Tsunami, reports India Daily.

Andaman is extremely active seismically but when these strange underwater sounds and a burst of electromagnetic waves are experienced, no seismic tremors are recorded.

The sound characteristic is strange but may be caused by slow shifting of oceanic crusts. But there are no correlation between small earthquakes and this strange phenomenon can be recognized.

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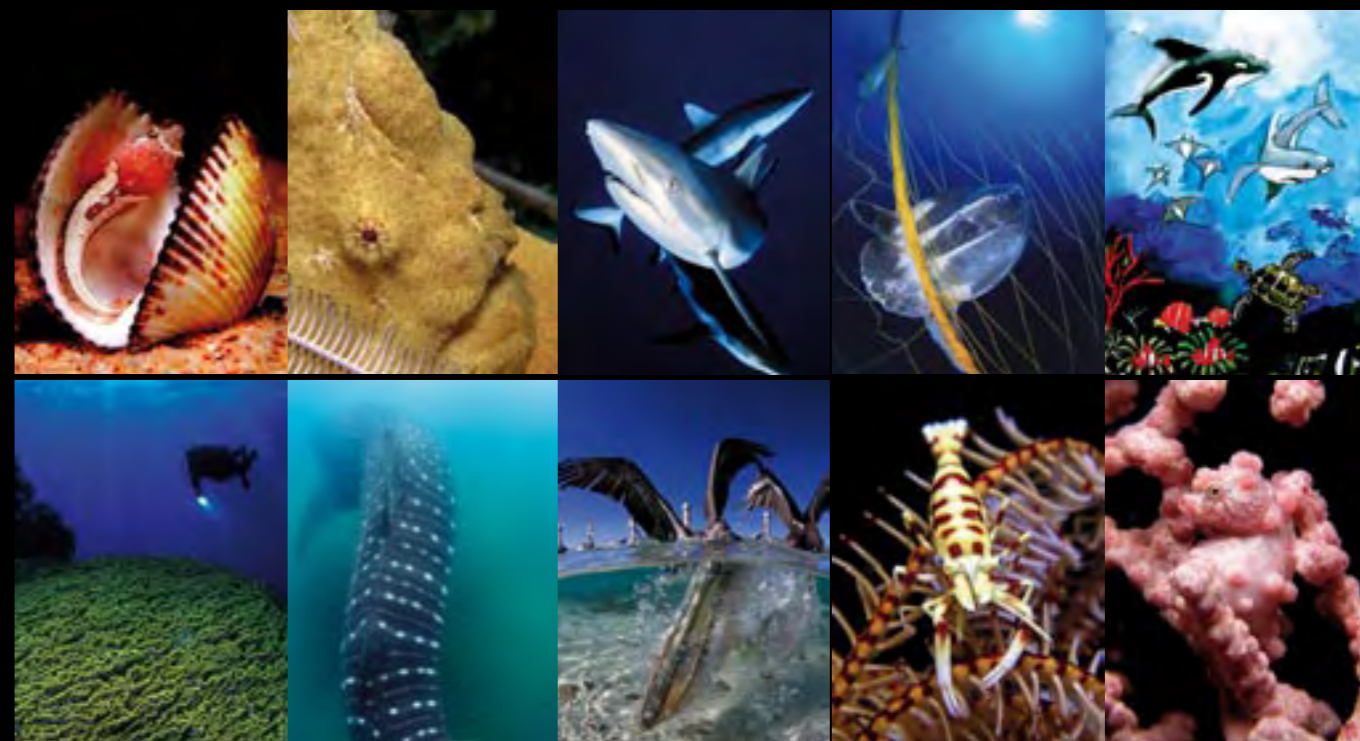


In association with
The World Festival
of Underwater Pictures,
Antibes Juan les Pins



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Wherever he goes, Jean-Michel Cousteau is always a center of attention from media and crowds alike

ANTIBES

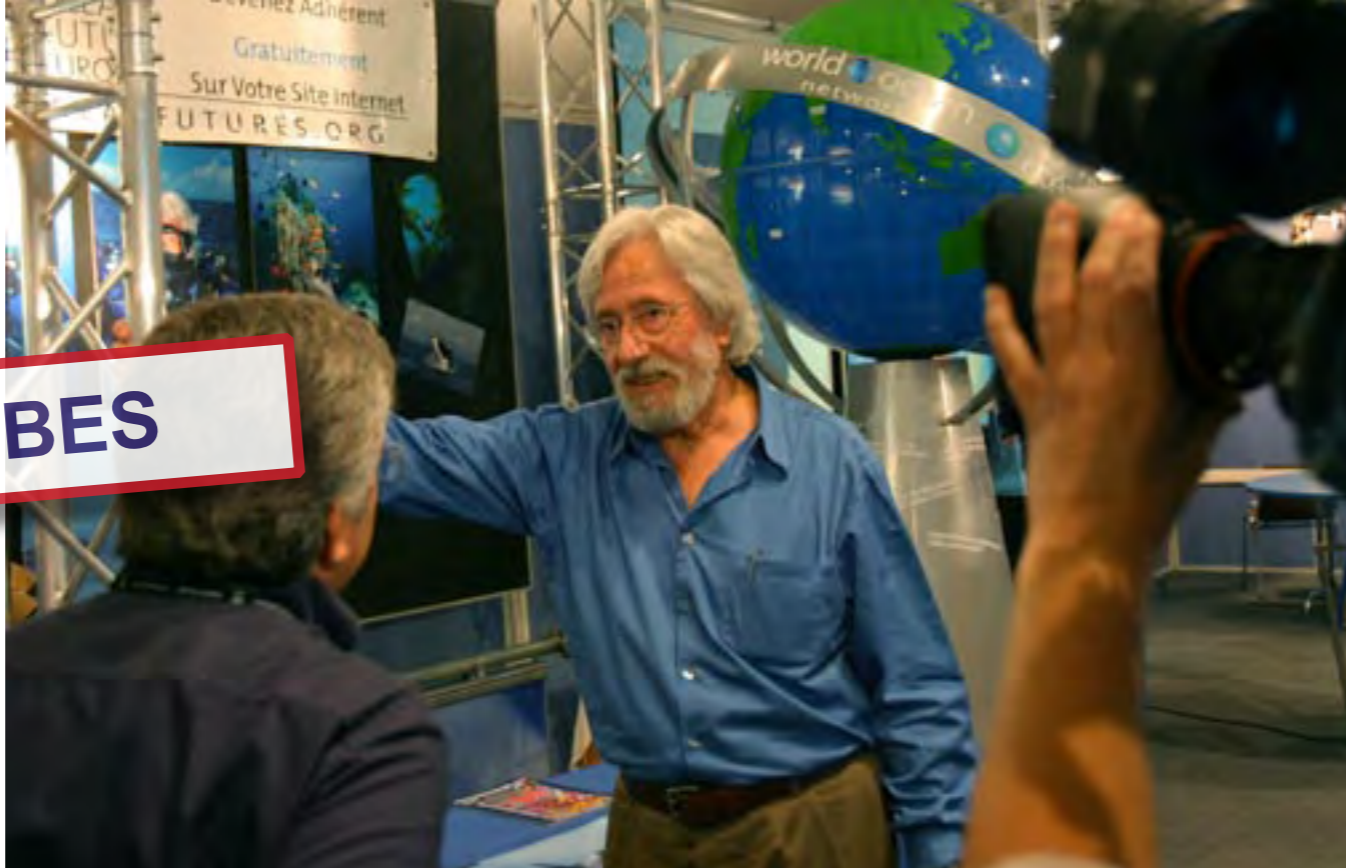
World Festival of Underwater Images 2005

Once more, for 32nd time, the World Festival of Underwater Images was held in Antibes on the French Riviera. During the last sunny days of October (27th -30th) 18,000 visitors passed the turnstiles and were captivated by the cosy atmosphere and special ambience in this special world of underwater imagery.

Inside the festival halls, entrants from 32 nations were competing for positions and prizes for best photos and movies in a number of different categories. Images in competition were on display in very first hall just behind the entrance where they were impossible to miss.

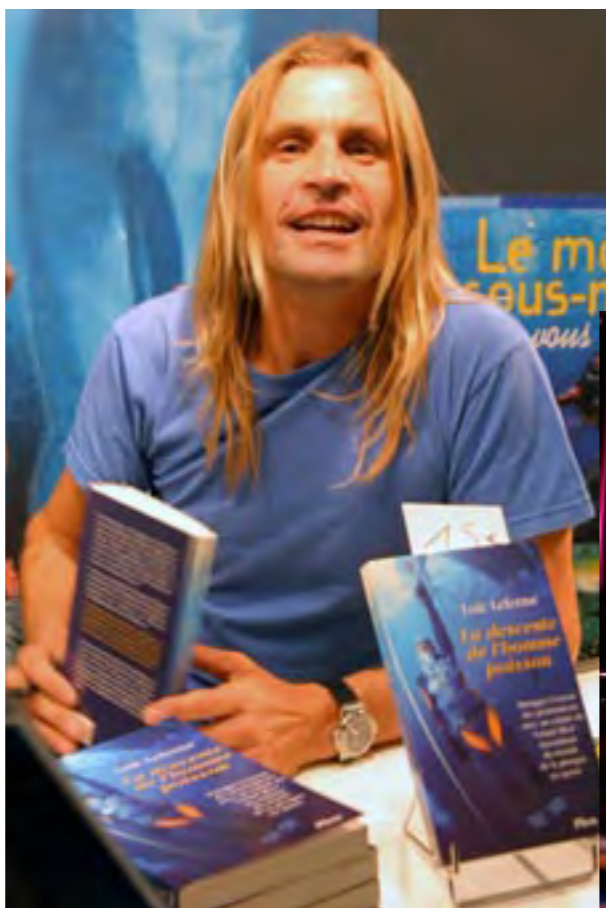
From Thursday through Saturday, pre-selected movies were screened in several movie theatres inside the festival compound. The showing went on non-stop from 9am to 11pm, in the three projection halls making it necessary to study

Freediving champion Loïc Leferme was auto-graphing his books

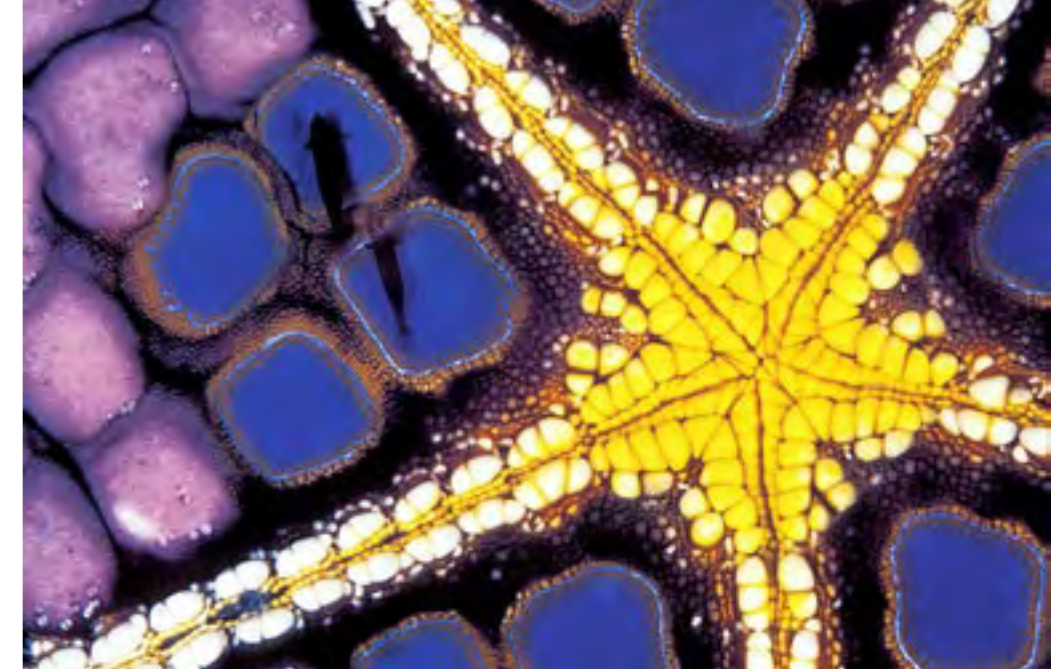


the program first and select some according to interests and favourite topics.

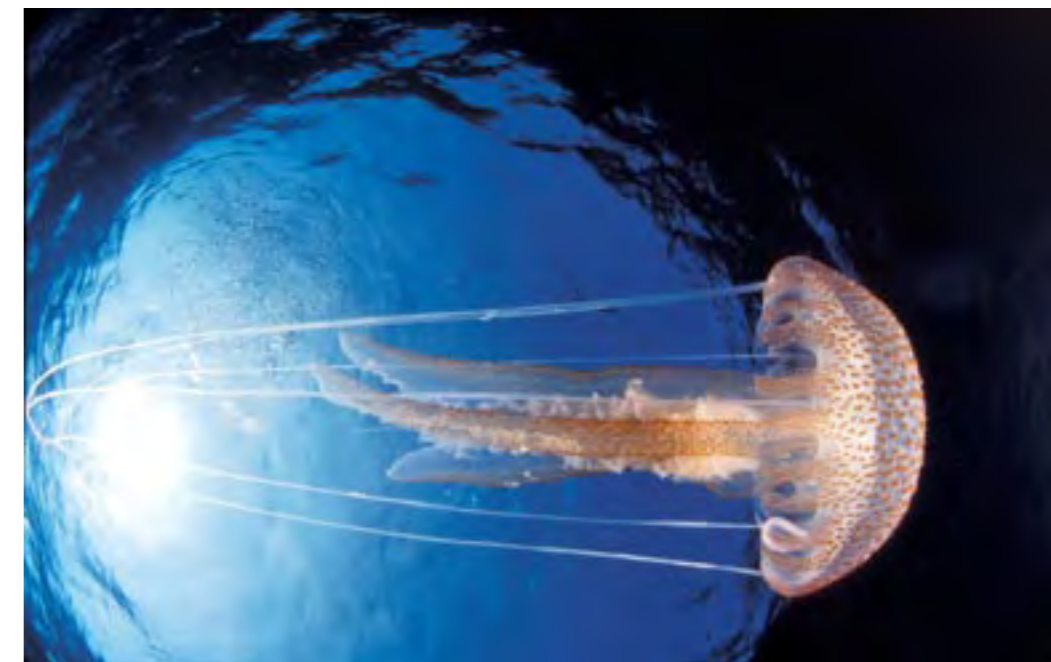
In the hallways, it was easy to meet celebrities like Daniel "Mr President" Mercier, Bill Todd



(NASA trainer), Jean-Michel Cousteau from "Oceans Futures", Kurt Amsler (the photographer), Loïc Leferme (free diver champions) and Albert Falco, Denis Martin-Laval and André Laban from the Calypso. They were all intensely busy, but also always ready and happy to have a short chat with anybody. The Antibes show is both a very public event with open access to every one with an interest in subject and a lowkey professional gathering where photographers, editors, filmmakers, magazine, painters and what not meet and do trade. Unnoticed by the average



Silver. Mirko Zanni



Gold San Felix Manu

guests this is also very much a networking event that most of the professionals enjoy being a far cry from the intense and stressful major dive shows elsewhere.

Here, any visitor have a chance to talk and exchange viewpoints with their favourite underwater photographer. First of all, when you're in Antibes, you're a sea

lover among others and you can feel that you belong to a family, rather

than just being another face in the crowd. This is what makes the Antibes-festival so special. And like most families, when the clock gets close to

... and plenty of these



Text & photos by
Yann Saint-Yves

Festival Mondial de l'Image Sous- Marine 2005

After a long season of shows and productions, the media professionals loosen up for a short while. Our Russian colleagues treated their colleagues to caviar and champagne



The grand theater where the movies are shown - and the awards ceremony is held

6 pm, many exhibitors are inviting their friends, neighbours, even competitors for an informal drink at their booth.

A big ceremony takes place on Saturday night, The Award Ceremony. The competitors or their representative, festival guests, VIP, journalists, gather in the Grand Theatre in tense anticipation waiting for the verdicts. There are many different categories: Documentary, fiction, black and white pictures, macro, underwater modelling, press articles, websites, music and anyone can participate.

Following the event Daniel Mercier and his team will show the best films and pictures at other event all around the world. You can contact the Festival organisation if you want them to come by your city. There are many others surprises at the show, but to discover what they are you must come to the World Festival of Underwater Images in 2006.

www.underwater-festival.com



Scuba Diver AustralAsia's publisher Michael Aw was obviously happy for winning first prize in the black and white category - see his winning picture in the South Africa (Sardine Run) article.



Bronze. Paper prints. Mirko Zanni

Philippe Valette from the Antibes Festival



"The last of the musketeers" Crew members from Jacques-Yves Cousteaus' famous exploration vessel Calypso - see page 12. From left: Denis Martin-Laval, André Laban and Albert Falco,

Festival President Daniel Mercier gets interviewed on TV in the main exhibit hall





A taste of SOUTH AFRICA

Edited by Edwin Marcow
Texts by Edwin Marcow,
Andrew Woodburn and Dan
Beecham. Additional
reporting by Peter Symes

Dive photos by Andrew
Woodburn, Edwin Marcow,
Thomas Peschack.
Wildlife photography
by Edwin Marcow

Covering an area of over 1,200,000 sq km, with nearly 3000km of rugged coastline, South Africa boasts some of the worlds most awe inspiring diving. From the Great whites of the Western Cape, to the epic Sardine Run, the pristine coral reefs of Sodwana Bay and the Ragged Tooth Sharks of Aliwol Shoal, many of the sights and experiences must

be seen to be believed. Since the end of apartheid eleven years ago more and more people have started travelling to South Africa, not only to experience the breath taking diving but also the spectacular scenery, vineyards, safaris, architecture, and local people that together make this destination a must for any seasoned traveller.



Republic of South Africa

Over the following pages we'll take you through some of the best dives sites, as well as looking in more detail at some experiences you can enjoy there.
Join us now, as we discover South Africa

EDWIN MARCOW

The Best Dive Sights in SOUTH AFRICA

South Africa



ANDREW WOODBURN



ANDREW WOODBURN



THOMAS P. PESCHAK

The primary three dive locations are Gansbaai, The Sardine Run, and Sodwana Bay - though there are also many interesting and varied shipwrecks dotting this rugged and extensive coastline. Since the 15th century ships from all over the world have come to rest here, the most famous wreck being the HMS Birkenhead.

A Note of Caution Diving in the proximity of Seal Island, off Mossel Bay or any large seal island colony's is not recommended and should be considered hazardous. In June 1990 the first recorded fatal shark attack on a fully kitted diver took place here. 21-year old Monique Price was attacked on the surface and later died of her injuries.

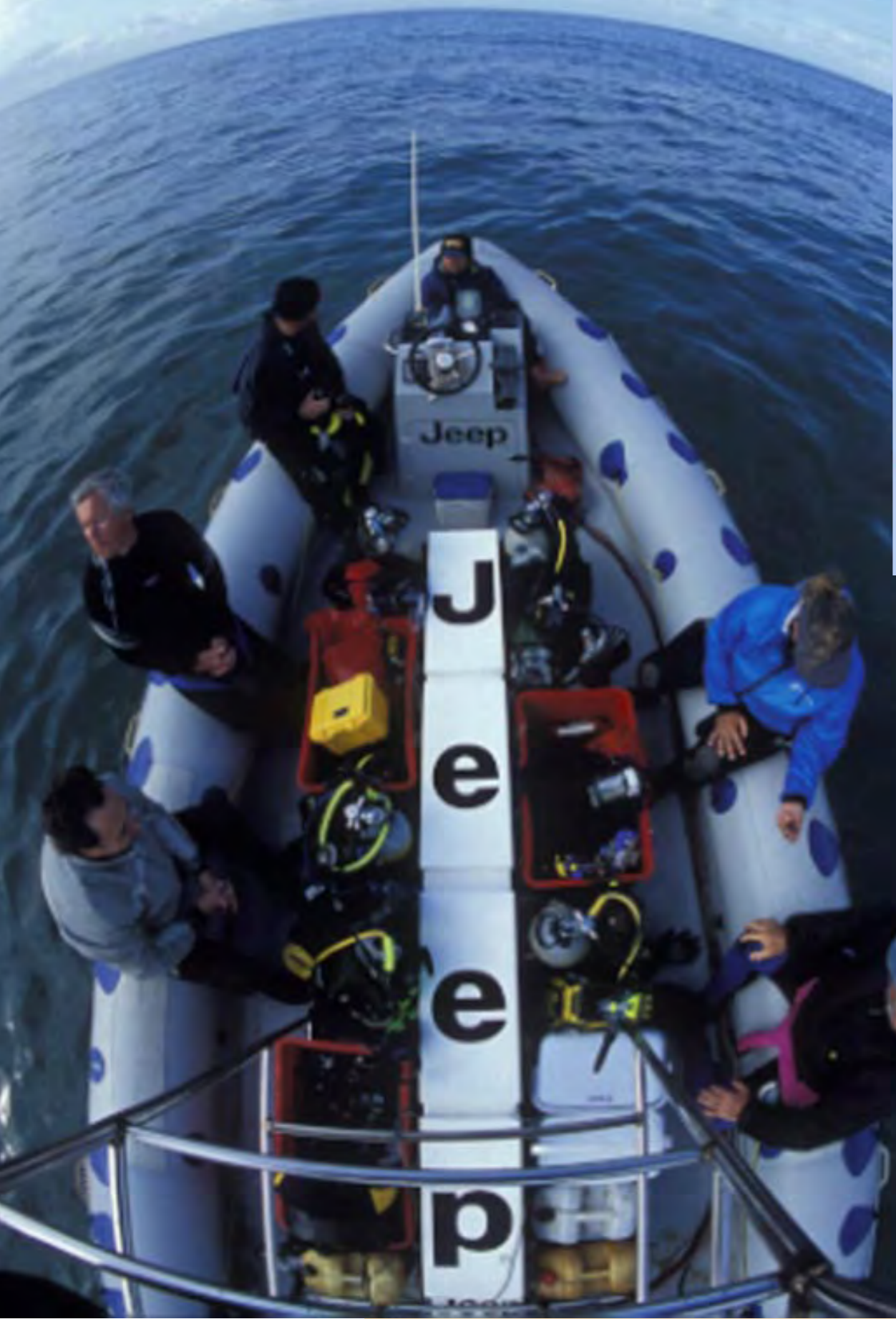
The following guide details the locations and encounters of the best sites to dive in South African waters. Conditions encountered in the Cape are not that dissimilar to diving in the North Atlantic Ocean. For the Cape and Western

Cape a drysuit is strongly recommended. Whether on land or sea South Africa is home to predominately large animals. This guide starts from Cape Town follows the coast and finishes on the Mozambique border.

Semi-rigid inflatable boat (rubber duck) is used through surf launches for divers, Indian Ocean



ANDREW WOODBURN



South Africa



THOMAS P. PESCHAK

Lobtailing

Cape Peninsula & The Western Seaboard

This region is one of the most scenic and beautiful areas of the country. The coastline consists of spectacular mountain and cliff drives that lead down to superb dive sites, with cool water which often have excellent visibility in gin clear - but cold water. The busy picturesque harbour of Hout Bay lies just a short drive from the beach and town of Llandudno, Horse riding on the beaches of Kommetjie, and South Africa's premier sunbathing beaches of Clifton and Camps Bay with excellent restaurants and bars, and people watching are all here.

The Lusitania This wreck is situated 2.5 km off Cape Point. The Lusitania was a twin-prop Portuguese passenger liner ran aground on Bellows Rock around

midnight on April 18, 1911. The 800 crew and passengers on board survived the grounding but eight passengers foundered when a lifeboat capsized. Two days later the 5500 tons liner slid off the rock and sank. It now rests in a position that is quite exposed to the elements and conditions have to be perfect to dive this site safely. There is a rich and varied sealife on the wreck but it remains a fairly deep dive with a maximum depth at this site of 37m making it recommendable only to experienced divers as a strong surge can also be encountered on this location.

Vulcan Rock - a large rock pinnacle rising to few meters below the surface off the Karbonkelberg, a short boat trip south west of Hout Bay. It is covered with hard and soft corals and playful seals are plentiful here. Nudibranchs, deep-water cowries, and crayfish are other good



ANDREW WOODBURN

DANIEL BEECHAM

Divers on their way to Sardine Run

Close-up of mollusc



ANDREW WOODBURN

A diver examines a giant starfish on the sea floor

night of July 29 1977. The Romelia was on tow with another ship destined to be scapped in Taiwan when the storm proved to put too much of a strain on a towing cable which snapped and sent the Romelia to her final resting place off Sunset Rocks, Llandudno. This big wreck lies fairly close to the coast. From the waters edge it is only a 200m swim to the wreck. The surge can, however, also at this site be very strong on the southern side and there is a strong suction through a hole on the Llandudno on the northern side of the wreck so it should only be dived when conditions are perfect. The wreck is partially broken down with the bow section

destroyed but the stern is still relatively intact. As the wreck rests on the rocks the engine room is partially out of the water though it must be entered underwater. Be careful however and don't attempt penetration without proper training and an accompanying buddy. There can also be quite a suction through the wreck from the swell and currents outside. Together with the surrounding areas with its dense kelp forest it makes for an interesting dive with lots of good photo opportunities with colourful invertebrates, crayfish, hottentots and other small fish living in the dense kelp forests.

photo subjects here. Vulcan Rock has a large tunnel running through its base at around 40m. The average depth for this dive site is around 25 meter.

Vulcan rock lies in an area where cold upwellings frequently occur and when it happens the water gets gin clear but icy cold - so wear an appropriate suit. There can be a strong surge if there is a swell running and currents can occur at any depth even if there are none at the surface. Bringing a SMB (see Leigh Cunninghams article elsewhere in this issue of X-Ray Mag) and a drift line is strongly recommended as the surface current can run at up to five knots.

The Romelia - a 20,000 tons Liberian oil tanker which foundered on the rocks on the stormy winter

Tall fronds of a kelp forest



EDWIN MARCOW

South Africa



EDWIN MARCOW

A moment of tranquility

Coral Gardens This site is one of the less known sites around the Cape but one of the most beautiful and rewarding ones nonetheless in spite of the location being quite popular and crowded with picnicing families. Beneath the surface however is stand out like an virtual underwater garden with the brilliant colours of soft corals standing out in shades of pinks, yellows, reds and oranges and healthy anemones everywhere.

As it is a rocky coast full of big boulders



ANDREW WOODBURN

ABOVE: Nudibranch (*Gastropoda univalves*) on coral reef in the Indian Ocean



EDWIN MARCOW

Yellowfin tuna

with the site opening up toward the opens seas straight in the direction of the prevailing swell resulting in heavy surge, this site is best dived on a calm day. The maximum depth is no more than 18m with an average depth of 10m.

Justin's Caves is another recommended coastdive nearby Camps Bay. It can be quite tricky to enter and exit, having to scramble up and down rocks and boulders in full kit but the prolific and brightly coloured underwater life makes this dive highly rewarding and recommendable. Most prominently the majestic caverns - that gives this site its name - and impressive arches and swim-throughs makes it an awesome coastdive for novice and experienced divers alike. To make the most of the dive and spot the critters hiding in the crevices, bring a good dive torch. This place is known for its large crayfish. Also a lot of small bottom dwelling sharks can be seen here. As with other sites in the area this location is affected by the strong currents resulting in a strong surge through some of the tunnels.

There are two entry points, which alter depending on the tide. Surface swim to site is about 150m but a strong

south-easterly can make the surface water pretty rough and in these cases the swim forth and back to shore is best done underwater. In these cases bring a compass, as the underwater geography can be rather disorientating. This is an excellent night dive as well, both for the novice or experienced diver with the abundance of marine life making every new turn around a corner worthwhile.

Geldikis

This rock about 400m out to sea off Sandy cove can make for quite a hard surface swim through chilly waters to get to but the dive makes it all worthwhile. It is a site to visit only in near perfect conditions as the swim can be very tiring in choppy seas, and there can also be quite a surge around the blinder in a big sea. Once there however the reef is the reef is un-spoilt, due to it being a bit bothersome to get to, hosting a diverse range of nudibranchs and crayfish.

There is also a cave with a chimney at 15m, and octopuses can be found hiding in the crevices and overhangs in the reef. Put it all together and this is a naturally beautiful dive. If the swim seems to long there two flat rocks between Geldikis and the coast that

South Africa

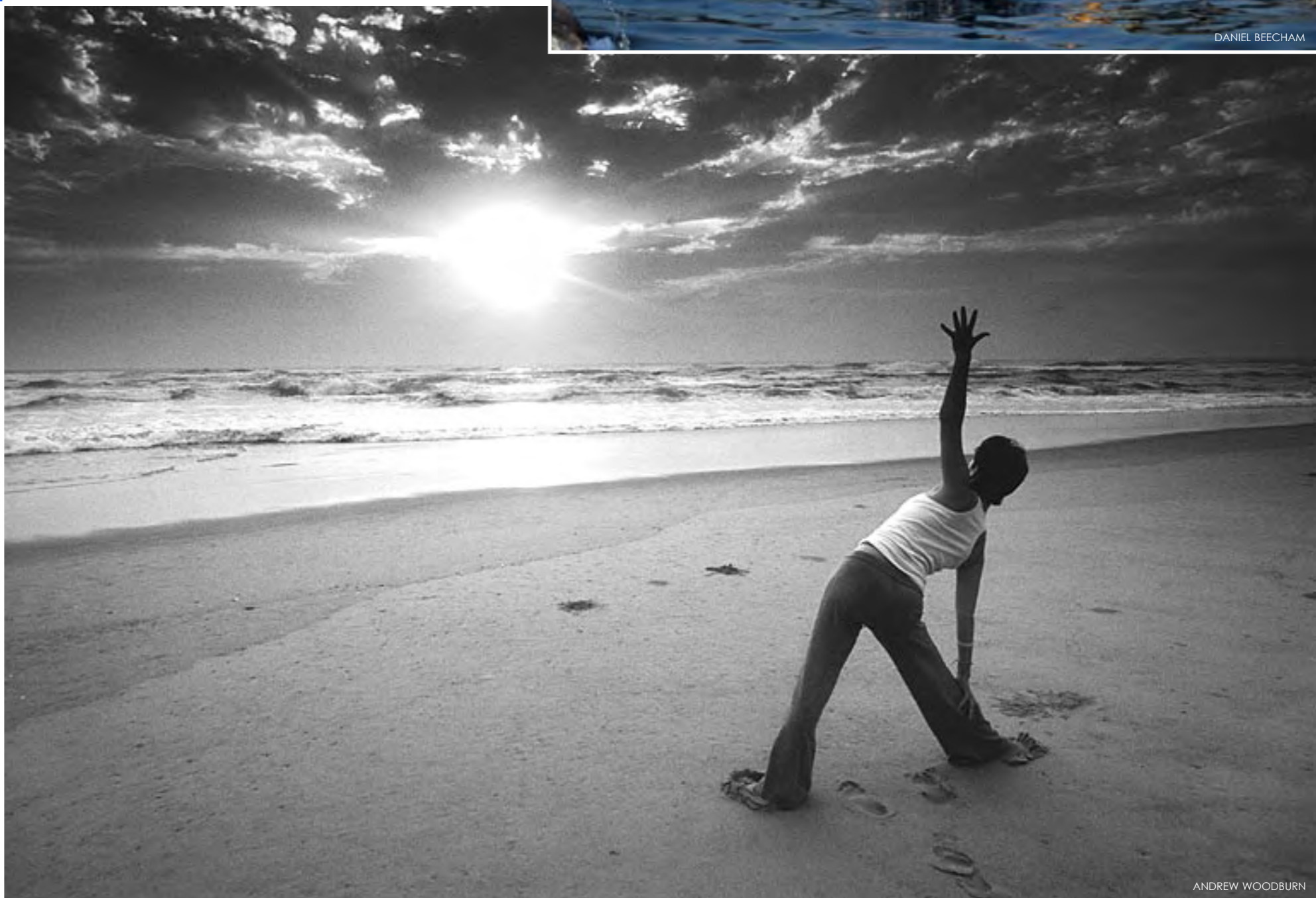
can serve as a resting place.

This area is part of the Cape Town city metropolitan area—close enough for non-diving partners to take full advantage of all that Cape Town has to offer meanwhile you go diving. The water temperature along this side of the bay is always a few degrees warmer than on the western side of the Peninsula. Temperatures can reach as high as 18° C, but also drop to as cool as 12° C. Visibility is usually between five and ten metres, if a south-easterly has been blowing, which is most likely during

Dolphins race alongside a rib full of divers



DANIEL BEECHAM



ANDREW WOODBURN

Meditation on a South African beach



The Western Shore of False Bay



summer, visibility may drop to zero. In winter the visibility can be an incredible 30m.

Boulders Beach & the famous penguins

This beach is one of the prettiest and most sheltered beaches in the Cape. A large resident population of endangered Jackass penguins reside here. A great place to spend the day sun bathing and relaxing as you share the beach and quite often your lunch with these very lovable and inquisitive fellow beach dudes. A good spot for beginner snorkellers, very fortunate divers have seen the penguins "fly underwater".

Whittle Rock

Whittle Rock is an awesome dive site situated in the middle of False Bay. The

rock climbs the water column to within three metres of the surface and covers a large area.

The invertebrate life is very colourful and unspoilt as there is very little diving here. This is most likely due to the increased chance of making contact with a Great White shark – a number of divers have had a Great White Shark effortlessly cruise past them - so maximum caution should be exercised at all times, though to date no shark has yet interfered with a diver. The site is huge and offers a wide variety of different diving from shallow to deep with the Rock formations creating a varied and interesting landscape. Due to the size of the reef there is always somewhere different to dive. As with many of the further dive sites there is a prolific amount of sea life making a favourite

spearfishing location. If you plan on spearfishing, keep in mind that fish should be kept on the boat, not a float line as any speared fish will attract sharks.

Batsata Rock

This site is located on the Cape Point side of Smits and consists of a large blinder that reaches within six metres of the surface. The rocks make an awesome underwater scenery and with the prolific abundance of fish makes a great dive. There is a great chance of seeing some pelagic fish

(yellow tail in particular) as well as many of the other fish common to False Bay. The Rock is also covered with colourful growth common to the area. An excellent dive for multi level dives as it slopes gently from 30m.

The Wrecks of Smitswinkel Bay

About 30 years ago five wrecks were scuttled as artificial reefs in Smitswinkel Bay, where conditions are sheltered and fairly calm. An echo sounder is essential to accurately locate these wrecks.

There are two former navy frigates, the *SAS Transvaal* and *SAS Good Hope*, and the *Rockeater* which was a diamond dredger as well as two fishing trawlers, the *Princess Elizabeth*, and the *Oratava*.

The depth, combined with the upright position of the frigates and the dredger makes these a thrilling and exciting dive. Maximum depth 40m, average depth 35m. Best accessed by boat from Millers Point, Kalk Bay, or Simon's Town.

The Eastern Side of False Bay

Steenbras Deep

The pinnacle is covered by big fans and sponges, with plenty of fish around. As it starts at a depth of 17m it is best found with an echo sounder.

At this unsheltered position the sea can be choppy with a strong surge if a south-westerly wind is blowing but it can be dived in a moderate swell.

This dive is not recommended for novice divers however. Maximum depth 30m.

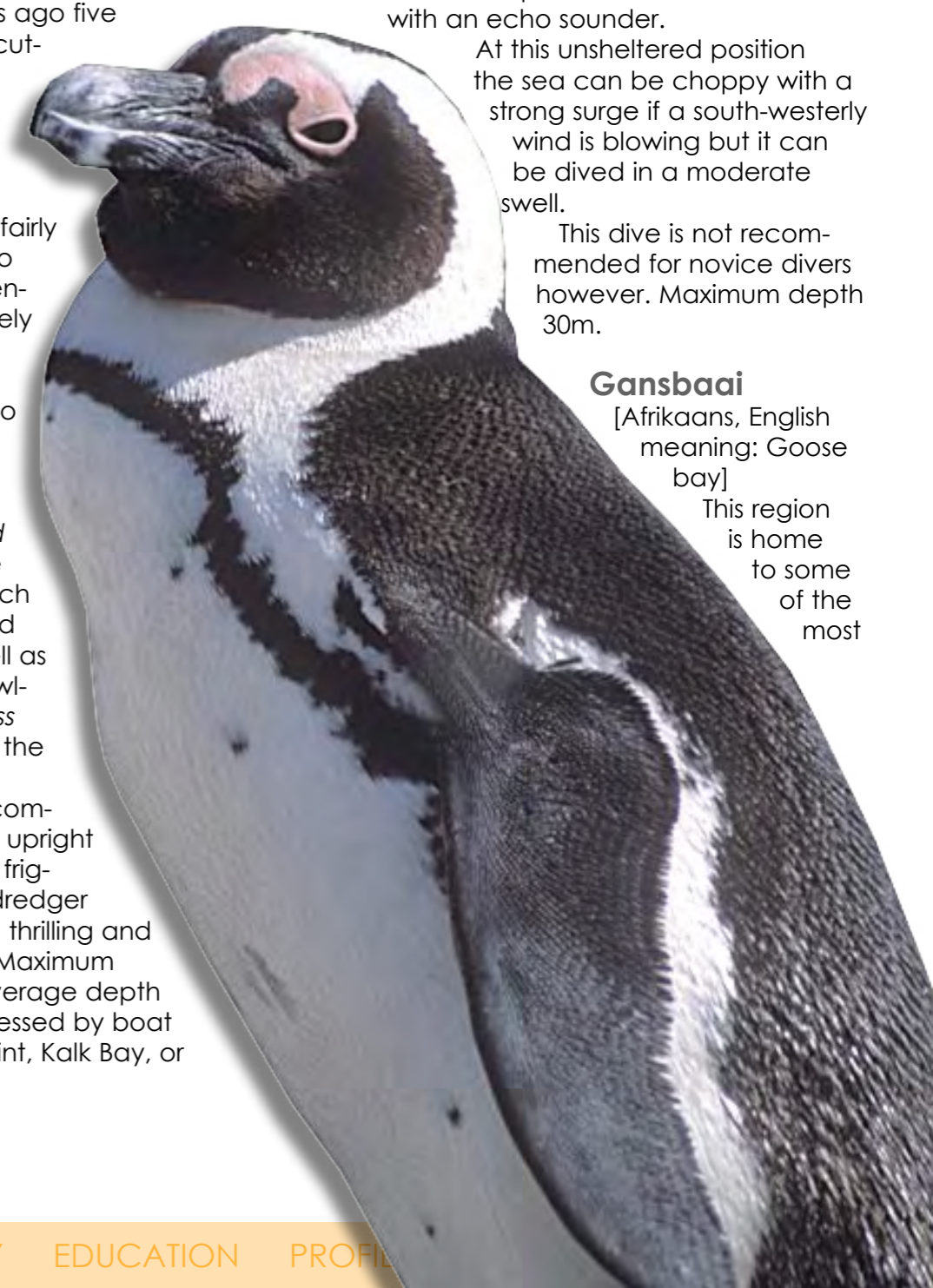
Gansbaai

[Afrikaans, English meaning: Goose bay]

This region is home to some of the most



The view over Cape Town. In the background, we can see Robben Island





South Africa

world were you could cage dive with Great White Sharks nowhere else is it so accessible - with shore-based accommodation and modest boat trip. Dyer Island is just a ride from most base in Gansbaai.

Dyer Island This location is really a couple of islands, Dyer Island and Gysler Rock and the channel that separates these two islands is called shark alley. It is located off the southern Cape coast, a 30-minute drive from the holiday town of Hermanus and a two-hour drive from Cape Town.

The boats leave from Kleinbaai [small bay], just outside of Gansbaai village. The boat ride to the site takes 20-25 minutes.



Caution: Several Great White Sharks inhabit this area. All divers should do a full kit up and double check on the boat. Once a diver has rolled into the water which I recommend is done as quietly and gently as possible, descend immediately to the bottom. Likewise, normal surfacing procedures do not apply here.

Cape Fur Seals



Cape fur seals are playful creatures - and the favourite meal of the Great White sharks

awesome animals encounters one could wish for: A huge apex predator with very sharp teeth right in your face.

Yes, we are talking about Great White sharks, close-up and personal. If you are looking for an experience that will leave you feeling both scared, excited, humbled, and privileged this is it. There aren't really any words that can accurately describe the feeling of being slipped a notch or twos down the food chain. Though there are other locations in the



Seal South Africa Heaven

Text and photos Daniel Beecham

All of my instincts are telling me this is a stupid thing to do. I'm sitting on the side of a small dive boat, in snorkeling gear, camera in hand. Dozens of playful Seal pups are bobbing up and down in front of me, mystified by the strange rubber clad creature about to invade their territory. It's not them that phases me, it's not even the large bulls lounging on the rocks a few feet away that phases me. It's the fact that I'm about to snorkel off of South Africa's Dyer Island, a world renowned hotspot for Great White Sharks that's getting to me.

Shark Capital

Dyer Island is a mecca for shark divers. Lying 5.2 nautical from mainland Gansbaai, near Cape town, it has long been famed for the large numbers of Great Whites which frequent the area year round. Its one of the few places in the world where divers can observe white sharks hunt, interact, and breach. The sharks are attracted by the thousands of Cape Fur Seals (*Artoccephalus puillus*)

which populate the island. Nowadays the seal population is very healthy but has suffered in the past from hunting, with great demand from the far east for the genitals of the bull seal for the aphrodisiac trade. It is thought that over 2.7 million individuals have been killed since the 1900s. Seal numbers around the island today can reach 60,000.

Living Legend

I had travelled to South Africa to come face to face with the Great White Shark from the protection of the cage. I was being guided by André Hartman, a living legend amongst shark enthusiasts. André is a pioneer in his field, working outside the cage, freediving and scuba diving with Great Whites. Many professional film makers and photographers from around the globe choose André as their guide when recording this extraordinary location.

Cape of Storms

The day had started like any normal cage diving day. The boat launched, and we headed toward the island. I was accompanied by a fellow shark enthusiast who had been diving the Island for the past two weeks. The seas were unusually calm for the time of year on the cape of storms. Many professional photographers choose to visit Gansbaai for up to a month at a time and wait for the suitable visibility and sea conditions to get the

Cape Fur Seals hunt and play in the waves around South Africa's Dyer Island

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There are two subspecies of this fur seal - the South African or Cape fur seal (*Arctocephalus pusillus pusillus*) and the Australian fur seal (*A. pusillus doriferus*).

The Australian fur seal population is believed to be derived from the South African fur seal population.

The South African fur seal is found along the coast of Namibia and the west and south coasts of South Africa. The population size is estimated to be 1.5-2 million, about two thirds of these in Namibia.

Breeding sites tend to be on small rocky inshore islands, but are also found on the mainland in rocky areas and on sandy beaches. The female mates about 6 days after giving birth and then starts going to sea to feed. Initially she spends alternate periods of 3-4 days feeding at sea followed by an average of 2.5 days suckling her pup on land. The female nurses her pup for 8-10 months.

South African fur seals are not known to migrate.

best photographic opportunities. Because of the ideal conditions we were having, André decided we would visit a spot on the island where he would be able to manoeuvre the bough of the boat close to the waters edge so we could photograph the seals sleeping the rocks.

When we were in position we both moved onto the bough of the boat with our feet dangling over the edge so that we could get as close as possible to the seals. At first, despite the noise of the engine the seals remain fast asleep, after a quick wake up call, and some revving of engines, they looked up at us thoroughly unimpressed, check out what's going, and immediately go back to catching a few z's.

After a while we decide to leave them in peace and start climbing back onto the deck of the boat, when to our surprise a burly south african voice shouted out from the wheel house "Hey, do you

guys want to go in?"

Mauritzio and I looked at each other and smiled, it didn't seem like the best idea he'd ever had, jumping into shark infested waters, surrounded by what must be shark canapés, without the protection of a cage.

"Yeah ok" I shouted back sarcastically.

"No, i'm serious you'll be fine"". We climbed off the bough of the boat and André began to explain to us that if we wanted to go in on snorkel, we could.

"There's a line that the sharks won't cross, the water is too shallow for them, I'll put the boat parallel to the rocks, you guys can jump in and you can have a play with the seal pups"

"Just where is this line?" I asked.

"Oh you can't see the line, its invisible, but trust me, its there, you'll be perfectly safe"

This is when I began to wander about Andre's definition of 'safe'.

I start getting flashbacks; documentaries about André, in the water, no cage for protection, swimming with sharks. This is the man who pioneered free diving with Great Whites, was that safe?. The only reason the sharks are there is the seals, surely jumping in the middle of them would not be the most sensible idea.

The temptation was too much, this was too good a diving opportunity to turn down.

Traditionally when cage diving only a suit, mask, and weight belt are

worn. No BCD is required as you simply stand on the bottom of the cage, wearing plenty of lead to avoid floating around. Air is provided either by snorkel, or a billie line-a second stage attached to a long hose with the first stage and cylinder on the boat. Because of this Mauritzio had decided not to bring the rest of his diving gear along. This presented a problem; one set of fins between two snorkelers. I didn't fancy the prospect of going in on my own, and it would be impractical for him to go in without fins, mild swells can pick up around the rocks so you need a degree of control to protect yourself. We decided to go in with one fin each.

Flashbacks again: programmes about natural selection, survival of the fittest-we were going to look like injured seals flailing around with missing limbs.

Deep Trouble

Sat on the side of the boat, mask: check, camera:check, fin: check. Just as I start slipping into the water André shouts out to me "you guys are insured, right?" Damn South African sense of humour. It was too late, I was already in.

After the initial plunge I feel disoriented, bubbles obscure my vision and hearing, I check that I still have everything with me, weight belt, mask, fins (or fin), camera, and then a quiet calm takes over, and I become more aware of my surroundings as the bubbles clear. The emerald green of the swaying kelp is mesmerising, and from the gin clear water, black shapes start to appear. At first the seals dart away when they get too close to me, alarmed by my presence. Very quickly the inquisitive young pups start coming closer, spiralling around me and staring at their own reflections in the lens of my camera. The really brave ones bite and pull at my fin tips, when I look down to make sure its a seal biting, and nothing more 'toothy', they quickly dart away, trying to look innocent. The number of them is overwhelming, every where I look the slender pinnipeds twirl through the kelp, as the morning sunlight strikes through the water in dramatic shafts.

To get a real seals eye view of the scene I free dive down to around three metres and hold

onto a Kelp holdfast - the thick woody root that bolts the giant plant to the seabed. At first the seals dart away from me, startled by my clumsy diving, but very quickly they are at ease with me again and



Seal Heaven

come close enough to touch, swimming through my legs and underneath my arms.

After a few dives I had used up my first roll of film, so I decided to reload, turning my back to the rocks and looking out into the green abyss, I suddenly remember where I am.

I tentatively swim back to the stern of the boat, trying to work out where the invisible line is, being careful not to cross it, and begin to scale the ladder. I pass up my camera and fin without lifting my head from the water, constantly looking around. This is when I feel most vulnerable, my legs hang down like snack sized morsels, and when I'm ready I dart up the ladder without hesitating.

Over the next hour or so the seas remain calm, and we dive at our leisure, either simply floating on the surface and watching the seals spiral around us, or by diving down to the sea floor and holding onto a frond of kelp. The seals are constantly amazed by our presence and never tire of us.

The time soon comes for us to move on. The sharks are waiting for us, and we wouldn't want to disappoint them. ■

The Southern Cape Coast

South Africa

Realm of Great White Sharks

Close Encounter

Alone, in mid water... but for three large Great White sharks. The largest one measuring in at five metres, they began to investigate me in ever decreasing circles. As the largest White shark approached me, closing the distance between us, I was in awe of the sheer size and girth of this incredibly large fish. I fired off a few shots and waited for the inevitable.

This was not how it was meant to be! I was here to shoot an advertisement for A.P Valves with Amos Nachoum posing as my model and Andre Hartman to work and control the sharks.

As the shark closed down on me, I could see right into her mouth—rows upon rows of shiny enamel. The tension built, and I could feel the adrenaline pumping through my veins.

I kept talking to myself, "Do not swim away or back off from this shark or you will turn on its predatory behaviour."

I flexed my elbows outward and pushed my camera as far as I could in front of my body to make myself look as large as possible. She came within inches of my camera, and to my relief, she

banked away.

I watched her as she swam away, and I thought, now is the time to dive to the sea floor—the safest place to be—and join Amos Nachoum. Andre would be with us soon—he was on the boat fixing dive equipment—and I would be okay.

To my horror, this large five-metre shark, which seemed about the size of a single story bus, turned around, almost on a sixpence, and was swimming directly towards me at head height and at great speed. As she drew closer, she gaped several times. This gaping was a direct threat to me. Either she saw me as a potential predator, a threat to herself or her food source... or I was lunch!



My mind raced. I was scared and excited. This was the most intense experience I had ever had. My heart pumped so hard I thought my chest was going to explode. I could feel the blood coursing through my veins like a fast flowing river. I kept talking to myself, "Do not swim away. Stand your ground."

Defining moment

A cliché it is, but my life flashed before my eyes. I saw my family, ex-fiancé and ex-girl-friends in my mind's eye. For a moment, I was

Cage Type & Design

Lightweight and cylindrical, this 12mm steel frame will provide comfort and security – though sharks do often mouth the cage and have a good look at the divers within it this is investigatory behaviour borne out of curiosity. It is not in the nature of the sharks to attack the cage or the divers within.



DANIEL BEECHAM

DANIEL BEECHAM

DANIEL BEECHAM





DANIEL BEECHAM

SHARK LINGO: *a player*
— name for a Great White Shark, which, once accustomed to the boat, will interact and stay with you for what will seem like a lifetime

I landed on Amos head and shoulders. We made ourselves comfortable, and moments later, Andre joined us.

Getting the shot

From this new vantage point, we framed and shot as much film as we could because we were now stuck on the sea



DANIEL BEECHAM

Great White Shark Seasons

The shark viewing seasons can be divided up into three seasons:

- High Season: May to August (winter)
- Intermediate Season: April, September and mid November
- Low Season: mid November to end of March

During the high season it is almost a certainty seeing a Great White Shark on any day at sea. It is winter, however, so weather can be a factor and storms can prevent boats going out. The intermediate season probably provides the best compromise between sighting sharks and not being hampered by bad weather. The chances of spotting a Great White around this time is still a respectable 60%. Low season which falls in the peak summer holidays in December the rate of success will fall below 50%. This is due to the prevailing summer south easterly wind, which stimulates the pelagic fish to school, and subsequently the sharks will hunt the game fish.

floor with three large Great Whites patrolling the ocean around us. Every so often, the five-metre shark would “dive bomb” our position, and we would bury ourselves into the sea floor with hands and camera housing over our heads. When the shark would pass over us, she was so large she would black out the sun and the water in her wake would drag and pull on us.

Twice, one of the two smaller Great White sharks came from behind and had to be “scared off”. By now, I had run out film. I was running very low on air and the situation was getting out of control. Andre signalled that he was going to terminate this dive and jumped up and pulled the tail of the large five-metre alpha female. She appeared to almost panic and shot off into the blue closely followed by the two beta males.

We ascended to the surface in a triangle of three with our backs to one another. Once on board, I was told I could not speak for about an hour.

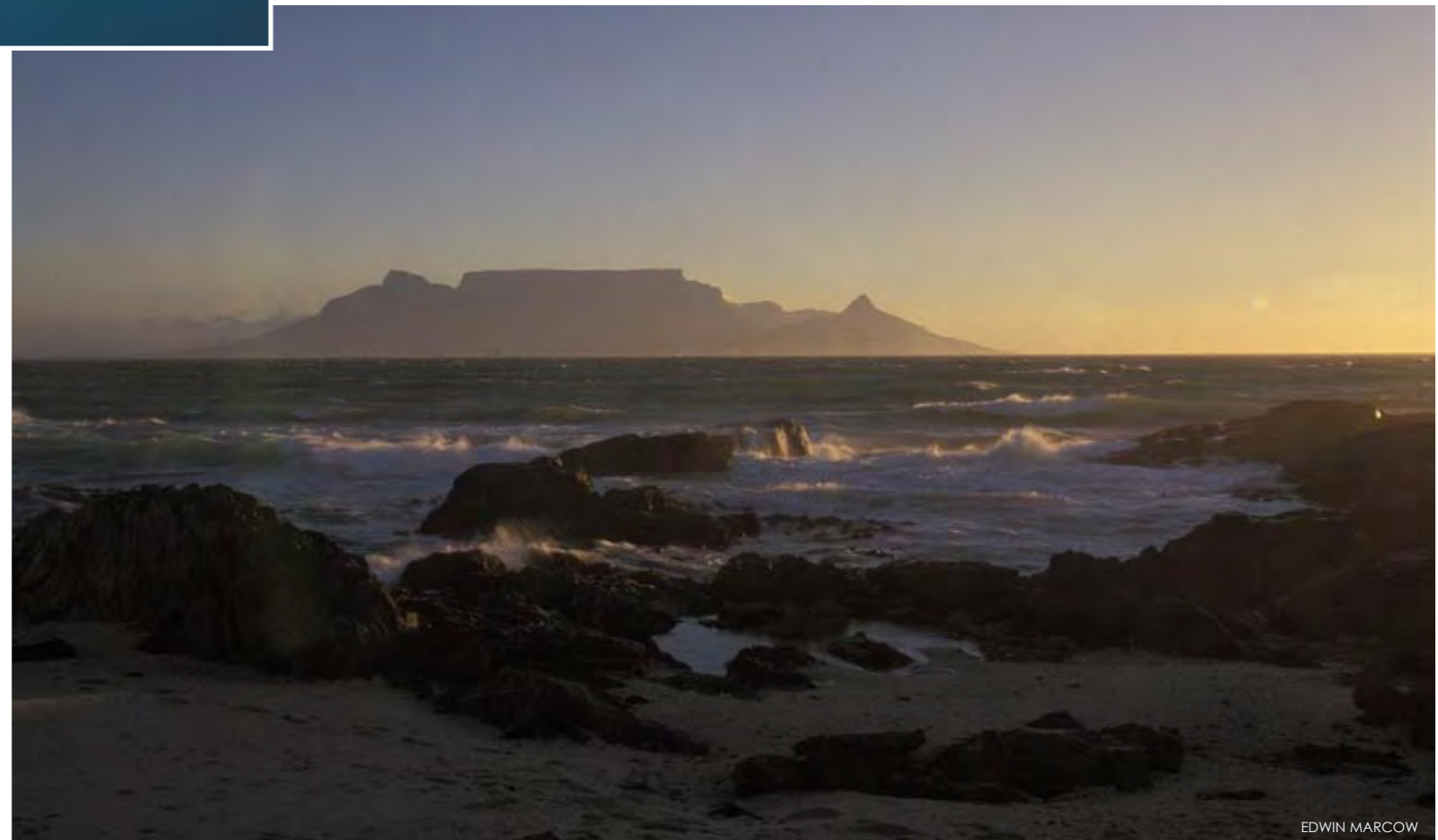
South Africa

Reflection

This was the most humbling experience I have ever had the privilege to enjoy. Although I have dived with White sharks before in the open ocean with no cage, this was an incredible, overwhelming, up-close and personal experience.

Furthermore, this incredible dive, which took place in July 2002, marked the moment when I become the fifth person in the world to photograph a Great White Shark in South African waters from the sea floor. One image was used for the A.P Valves advertisement and another image from this dive went on to place second in the professional division of the Sport Diver/PADI 2003 photography competition.

Above and beyond the successful results of the shoot, the dive with the Great White Sharks gave me the privilege and opportunity to turn dreams into reality. It was a great honour and an humbling encounter that changed my life and outlook. ■



EDWIN MARCOW





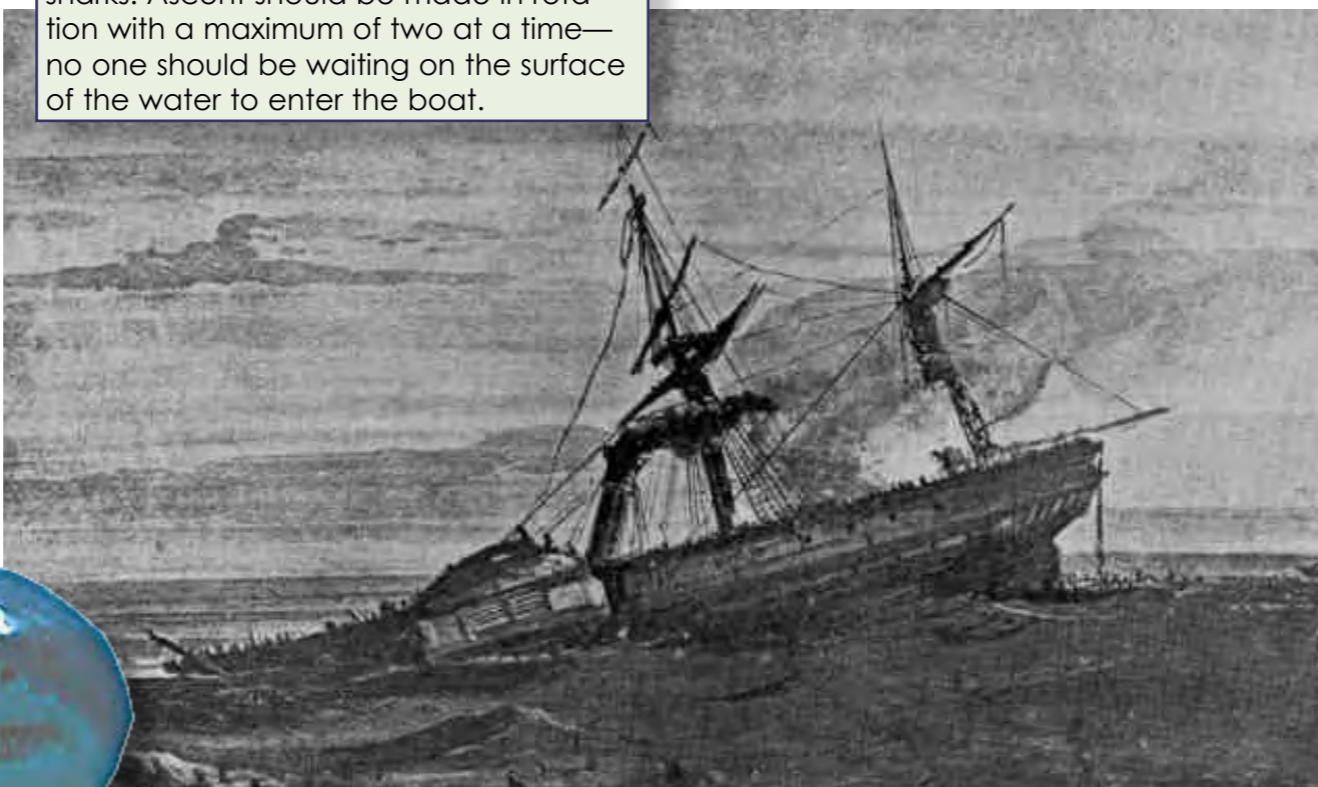
ANDREW WOODBURN

Shrimp (*Periclemenes emperor*) on a sea cucumber, Sodwana Bay, Natal, South Africa

the bow, the engine room, and the stern. This site is rarely dived by sport divers but for those that do –this is a very rewarding experience. Legend has it that £300'000 in gold and silver rests within her bows. Money being shipped by the army to pay its troops in the colonial wars. There have been many attempts to salvage her, mostly recently with much controversy in 1985, though with much disappointment. It is strictly prohibited to remove anything from this shipwreck.

The beautiful long stretch of coastline

Caution Diving the HMS Birkenhead is only recommended for experienced divers. Great White sharks are common in the area and a strong undercurrent and big swells as well as the depth (maximum depth 28m) and often poor visibility makes this a very challenging dive. Full kit up and check on the boat prior to entry. Entry should be as quietly as possible and descend to the bottom immediately due to the possible presence of Great White sharks. Ascent should be made in rotation with a maximum of two at a time—no one should be waiting on the surface of the water to enter the boat.



HMS Birkenhead went down in 1852 with the loss of 638. The drawing is made by one of the surviving officers



that runs from Mossel Bay to Tsitsikamma National Park between the Southern and Eastern Cape provinces is affectionately called the Garden Route. In the middle we find Plettenberg Bay, or *Plett*, a hot spot for Cape Townians to holiday with beautiful country and long deserted golden beaches. The Portuguese called her Bahia Formosa, meaning beautiful bay. This is where the warm tropical waters of the North blends with the cooler waters of the cape providing with a mixed underwater flora and fauna that is not seen elsewhere in the world. While it at a first glance may

South Africa



DANIEL BEECHAM

The Garden Route



ANDREW WOODBURN

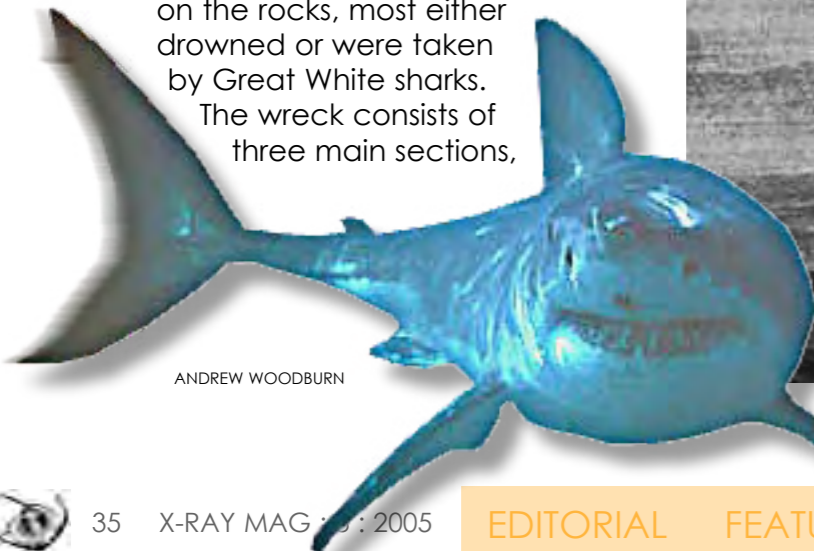
A porcelain crab hides in the fronds of a sea anemone

► continued on page 35

The HMS Birkenhead

This infamous wreck lies on the western side of Birkenhead Rock 2.5km off Danger Point. HMS Birkenhead, a British troop carrier sank on the 26th of February 1852 after hitting the rocks at Danger Point, She sank with the souls of 638. It was on this fateful night that the tradition was born of "women and children first". Of those that survived the initial impact on the rocks, most either drowned or were taken by Great White sharks.

The wreck consists of three main sections,



ANDREW WOODBURN

seem to lack the vibrant colours of a tropical reef the underwater life is very prolific as upwelling of deep sea water takes place in this area. The best time to dive this area is September through October.

Groot Bank

Known as the this reef starts 30-40m off shore. This is strictly a boat dive because a shore entry - exit would

be a very long arduous, walk with kit.

This site is known for having some amazing sealife make a somewhat awkward access worthwhile. The reef starts only 30 meter of the shore but access is difficult and a long walk with heavy gear, so in practice this is a boat dive. Also known as the Sodwana of the east coast by the locals this site boasts fantastic pin-

Premier Photographic & Safari Reserves

Though there are many excellent and informative travel books and guides detailing the vast array of South Africa's safaris and reserves, few, if any, cover what every enthusiastic photographer amateur or professional needs to know. Here is a few tips.

As photographers we would, for example, like to know which safaris and reserves offer the best photographic opportunities, has the best natural landscape and, of course, flora and fauna. If we have set goals to accomplish it is important to know which animals are best sighted at which reserve not to mention at what time of day, month, and season so we know what time of year one should travel. Lastly and most notably what species are you most likely to be successful photographing.

Let's start with a clarification and a *cautionary note*: In many safari parks or reserves animal subjects are *habituated* to cars and even people. This may seem like less than the real thing, but they are still very much *wild* animals. Who knows whether they will attack if they feel threatened, or in the case of big predators, whether they will interpret your actions as that of a prey? Always stay close to your vehicle (if you get out on foot) and always follow the guidelines of the camp you are staying at. People can be, and have been, killed at safari parks and reserves in South Africa.



Addo Elephant Park

Elephants are a fantastic sight and here they can be photographed year round. It is quite easy to find the breeding herds, but especially in hot weather, as the elephant will make regular visits to the watering holes. This is excellent for action photography. Addo also has a population of red hartebeest, ostrich meerkats, and buffalos and black rhinos – though the buffalo and rhino's are seldom seen close to any tourist road.

Cape Peninsula National Park

The entire Peninsula National Park is excellent for capturing dramatic coastal scenes and fynbos flora, but the opportunities for game and bird photography is limited. Do not visit when a south-easterly wind is blowing.

Boulders Beach

First mentioned in the travelogue article "sharing the beach with the other beach dudes" who may well pinch your lunch, sit on your towel, and if you do get to close with a camera and lens even a nip. We are, of course, talking about the jackass penguins and this is a fantastic location to get excellent images of these stubby fellas hobbling about clumsily on land – and, for the lucky ones, capturing them flying through the water. Our tip for a great shot is to try and shoot at sunrise or sunset with a deep red or orange sky backdrop.

Kistenbosch Botanical Garden & Helderberg Nature Reserve

((Table Mountain & Somerset West) Very good places to photograph Cape sugarcrows feeding on proteas. Time: In the spring and early summer. ►

nacles from 9-25m, large amphitheatres and caves and tunnels which all make for very exciting dive where you can expect to see many varieties of gamefish—steenbras, mussel-cracker, romans and the beautiful parrotfish just to name a few. Ragged tooth sharks are also quite common and when they occur a highlight to any dive.

The Wild Coast

Aptly named after the big rolling ocean swells that hits this coastline right on, and the unpredictable climatic conditions that are prevalent here. It is renowned for its rugged scenery, good spearfishing and abundant sea life but is not a popular area for scuba diving. There are few shore entries and those that exist are difficult to navigate. Yet for those with equipped with an adventurous spirit there are still many virgin dive sites in this region yet to be discovered and mapped. With many rivers flowing into the ocean it should be avoided altogether during the summer where there is much rainfall.

Travel in South Africa is as much about capturing glimpses of daily life and meeting the local people as it is about diving



EDWIN MARCOW

Meet a rhinoceros on one of the many wildlife safaris offered in South Africa

Eastern Cape

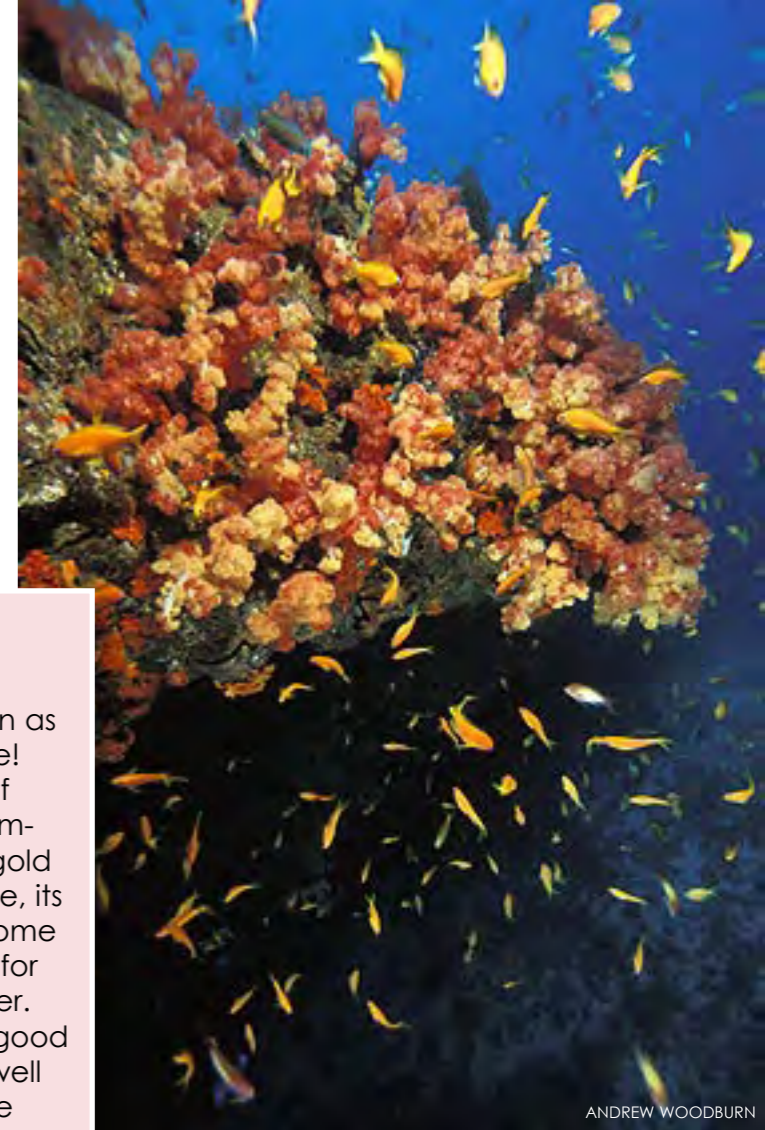
Shark's Gulley

An excellent little location on Fountain Rock off Port Alfred for seeing ragged-tooth sharks. As many as 30 have been seen on one dive here. There are also beautiful reef formations here and the nearby site called Towers has colourful pinnacles rising straight up from the bright white sand. Maximum depth 15m - average depth 10m

PLACES OF INTEREST

Jeffreys Bay

Also known as J'Bay – is known as the home to the perfect wave! With its unique combination of beautiful beaches, endless summers, abundant shells, white gold (calamari) and relaxed lifestyle, its no wonder this town has become world renowned as a Mecca for local and international traveller. Good surfing conditions and good diving conditions do not mix well – but as a place of interest the nearby St Francis Bay has spectacular surfing when the conditions are favourable. If you do dive – abalone and succulent oysters are abundant here, and can be picked off the rocks



ANDREW WOODBURN

Vibrant coral gardens are home to many species of brightly colored tropical fish



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Kgalagadi Transfrontier Par

Formerly known as the *Kalahari Gemsbok National Park*, this park is a favourite amongst photographers. It should be noted, however, that this area is an arid region with low game densities populations. But its brooding storms, awesome sunsets – coupled with crisp light – and the desert like landscape makes this an excellent location for the discerning photographer.

The best time to photograph predators here is November to March, the hottest months. Game herds – gemsbok, springbok, and wildebeest – usually peak from March to May following good rains. Black-backed jackal, cape and bat-eared foxes, and meerkats can be photographed from the road. Just remember that whichever subjects you pursue and want to get in the bag; putting in the necessary time is paramount.

There are three rest camps at Kgaladi: Twee Rivieren, Mata Mata and Nossob.



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The two most productive for photography are Nossob and Mata Mata but all are worthy of a visit. Within the camps take the time and opportunity to photograph the tame ground squirrel, yellow mongeese and small bird species that frequent the rest camps. Also look out for flocks of sandgrouse that visit the waterholes at Dalkeith {Mata Mata} and Cubique {Nossob}.

Kruger National Park

Arguably the most famous safari park of them all, although you may be surprised

to learn that many keen and professional photographers tend to stay away from Kruger.

This is due to the large crowds that are drawn here with a traffic load that can turn into a literal gridlock of 30-40 cars and 4 x 4's all vying for the best position to view a pack of lions. If you are lucky you may get a quick glimpse.

But that is not the complete picture. Good news is there are still excellent photographic opportunities in Kruger, you just need to know when to visit the park. Avoid June or July or any school holiday periods.

You may also look at it this way: Animal life at Kruger has now become so habituated to cars, 4 x 4's and people so if you can put up with the traffic and people jostling for position and being there with a different mind set, the opportunities are there for the taking. Animal subjects come in close and thus intimate close up photography is possible here.

The smaller bush camps and surrounding roads offer excellent opportunities very early in the morning or late afternoon.

Premier bush camps at Kruger include Mbyamiti, Talamati, and Bateleur. These three camps are good for 'the big five', as well as general game and other predators. Lower Sabie, Crocodile Bridge, Skukuza, Satara, and Shingwedzi are also all very productive bush camps. For cats choose Satara. Lower Sabie and Crocodile Bridge can be also have good photographic opportunities. ►



The South Coast



Map of Aliwal Shoal, South Coast, South Africa

After Sodwana Bay the South Coast is the best-known and most popular dive destination in the country with Aliwal Shoal, Landers Reef and Protea Banks being the three main dive sites together with their adjoining reefs. At Aliwal shoal otherwise migratory spotted ragged-tooth sharks are in residence.

The South Coast is a very well developed tourist area and for non-divers an absolute pleasure to holiday in the sun and comfort it has to offer. Long golden beaches, golf, tennis, horse riding, shopping malls and restaurants there is something for everyone here. Diving here is most dependable in the winter months from, May to September.

The Ragged-tooth sharks, (affectionately called *raggies* in South Africa) belonging to the are one of the most easily identifiable sharks in the ocean. There are two species in the family. Bigeye and Bumpytail. With their heavy bodies with a short pointed snout, and with highly visible and distinctive protruding 'ragged' teeth and small eyes they can hardly be mistaken for any other species.

Other characteristics include a light brown in colour with distinct blotches, which fade with age. Being slow moving, sluggish and docile they are somewhat the exception in the shark world. They can also pump water over their gills, and thus sleep and rest in caves and gullies. Although not aggressive some individuals whose personal comfort zone has been encroached by divers these have been literally been chased out of the ocean. The actions of divers can easily disturb these shy and nervous sharks, so please approach all raggies with respect and do not try to interact with them in any way – observe only.



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South Africa



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Diver and ray

Raggie Cave and Shark Alley

This dive site is located on the east side of Aliwal Shoal and best accessed by boat from Umkomaas River. The site can also be so caution should be exercised. Probably best known for being the winter home to a group raggies which can be found in the caves resting. Please do not be fooled by their docile and sleepy look. Many divers have been chased out of the water for pushing their luck too far. Do not enter the cave only observe from the sides or good vantage point.

South Sands

Also located on the east side of Aliwal Shoal, this is a a good place to observe a large number of rays, skates, sand sharks and guitarfish It is also a good place to start a drift dive, in a northerly current. Along the outer edge there are some seldomly dived ledges at 18m-22m which only makes exploring more rewarding.

Want to photograph elephants?

The number one location at Kruger is The Kanniedood Dam, situated next to Shigwedzi camp. This spot is one of the most productive and prolific hot-spots to photograph elephants within Kruger. Worth visiting all year round, though both predators and game are most concentrated in the dry seasons June to October. Bird photography opportunities are good here too. With a 200mm lens you can photograph the habituated glossy starlings, various horn-bill species and colourful barbets. Also keep a lookout for dwarf and banded mongeese and reptiles. Agama lizards are abundant here and offer rewarding opportunities.

Pilanesburg

The park is a great conservation success story. Pilanesburg now holds a vibrant healthy population of game habituated to cars and people. 'Big Five' sightings are frequent, but the big draw here is the rare opportunity to photograph black and white rhinoceros. The reserve is very busy over school holidays and even weekends, so if you have the option visit mid-week and miss the crowds. Good to visit all year round,

and being malaria free makes this an excellent park to visit.

Zululand Reserves

Mkuze of the Zululand reserves is a premier photographic location. In the dry season from June to October, excellent game hides allow access to water-hole photography. White rhinoceros, nyalas, zebras, wilderbeest, and baboons are all here. Pelicans and hippos can be photographed at Nsumo Pan - also at Mkuze- but you will need a long lens and a tripod would come in handy.

Hluhluwe-Umfolozi Park

The number one location within South Africa when it comes to white rhinoceros photography. Here you will also find an abundant elephant population as well as general game. In the summer months when the grass grows tall and makes productive photography difficult, try the Seme area in south Hluhluwe. Here the grass is cropped short, which gives excellent views of white rhinoceros, along with plenty of other game.

Ithala

Although lions are absent here, black and white rhino's are frequently seen here. General game is abundant here too and can be spotted all year round. Avoid visits in February to April when the grass is at its longest. ■



EDWIN MARCOW



ANDREW WOODBURN

The North Coast

A densely populated, attractive subtropical stretch of coastline north of Durban and a very popular spot for holiday-makers. Summer rainfall is high, winters are mild and pleasant, and the vegetation is lush, green and tropical. To my eye vast parts of this part of South Africa also resemble the green hills of England with a familiar look and feel to it.

The North-Coast is a very well developed tourist region with much to do for divers and non-divers alike. Highly recommended is a visit to the Natal Sharks Board at Umhlanga [pronounced oomshlanga] Rocks.

Diving

The best time to dive is May through July when the flow from the rivers are still low. The swells can be big, and the ocean is not always all that clean further out to sea. Launching the boats through the surf and out to sea is always exhilarating and physically arduous. Hence, it can only be recommended for fit and experienced divers.

Tiger Cove

Abundant with lots of caves and overhangs, named after a large colony of tiger cowries which regrettably fell prey to souvenir hunter dives. Located midway along the western edge of Aliwal shoal it is also a good place to start a drift dive along the inner edge. Maximum depth is about 14m.

Cathedral

An awesome site with a spectacular hole in the reef and home to many large stingrays and moray eels. The visiting spotted Ragged tooth sharks often rests in this site but are very easily disturbed here - even by the bubbles from your second stage bouncing off the archway at the entrance. The site should be dive very cautiously in a surge. Maximum depth 28m - average depth 27m

Margate

This is a very popular seaside resort which offers some of the best diving on the South African coast with large shoals of game fish congregating around Protea Banks followed by big groups of sharks

Arena

Situated on the Protea banks about 5 kms offshore and far into the Mozambique current Arenan can boast a visibility of up to 40m, and never less than

8m. The visibility is best from November to May but diving is good all year with most of the sharks seen in the winter months. and always an excellent chance of encounters with game fish, Ragged-tooth sharks, Hammerheads, Zambezi, Copper, and Bronze Whaler, Threshers, and even the odd Great White Shark. Depending on the strength of the current you may be able to explore the reef, or a fast drift dive while you 'fly' past the various game fish and sharks.



DANIEL BEECHAM



What do we know about the elusive Raggies

Much confusion

The ragged-tooth shark genus *Odontaspis* was, until recently, one messy pile of similar-looking snaggle-toothed sharks that differed only in minor details. In various locations all over the world, the shark was assumed to be a different species and given its own scientific name. In other cases, like with the American sand tiger shark the species was thought to be the same.

Chaos reigned until in 1981 the shark researcher Leonard Compagno examined museum specimens from all over the world, corrected misidentifications and sorted out synonyms leaving only two species of *Odontaspis*:

The Bumpytail Ragged-Tooth Shark (*O. ferox*) and the Bigeye Ragged-Tooth Shark (*O. noronhai*), the latter being

extremely rare with only 15 known specimens worldwide.

Distribution

The Bumpytail Ragged-Tooth Shark is widely distributed, but records of its occurrences are so spotty it is all but impossible to predict where one will next appear. It is typically a deep-water species that is most active at night. As a result, it is rarely seen alive and very little is known of its behavior in the wild. They are thought to be deep-water inhabitants of warm temperate and tropical seas; on or near the bottom on continental or insular shelves and upper slopes where they are observed by divers on coral and rocky reefs near drop offs but also occurs in open ocean. Known

depth range is down to 420 m.

They feed on small teleosts (A large taxonomic group containing most bony fishes, ed) and other sharks and ray, squids, shrimps and other crustaceans

Reproduction

Length at birth is estimated to be about one meter. Females will grow to a maximum size of 3.7m and 323kg with the largest recorded male being 2.75m long.

They are almost certainly *ovoviviparous* (eggs which remain in the mother's body until they are ready to hatch. When the young emerge, they are born live)

Embryonic nutrition probably features oophagy (egg-eating) and possibly embryophagy (womb mate-eating). No data exists on number of pups (2 - 4 are a guesstimate), pupping season, or nursery grounds.

Males reach sexual maturity at a length of about 9 ft (2.75 m), females at about 12 ft (3.6 m); no data on age at maturity or longevity for either sex.

Age & Growth Males reach sexual maturity at a length of about 9 ft (2.75 m), females at about 12 ft (3.6 m); no data on

DURBAN

This regional capital is a city with much to offer from an aquarium, a snake park, bird garden, colourful rickshaws that ride up and down the streets to a permanent amusement park situated on the beach front. The Hluhluwe-Umfolozi Park offers the most spectacular game viewing on unique walking safaris with good accommodation.

The T Barge

This wreck is located 3km off the Virginia Beach and has a maximum depth of 27m with an average depth of 20m. It can be accessed by the boat launch from Grannies Pool, Umhlanga Rocks. The T barge is an artificial reef sunk to provide habitat for various marine life including butterflyfish, emperor angelfish, batfish. Divers can see rays and skates as well as trevally, daga salmon and giant kingfish.

The Trawler or Fontao

This largely intact Mozambique trawler was sunk in 1990 to create an artificial reef. It is located 2km out to sea south of Umhlanga lighthouse. It can also be accessed by boat from Grannies pool. The dive takes you through shoals of batfish to a depth

of 27m with an average depth of 18m. The wreck attracts pelagics that feed on the fish living on it. On night dives, you may be lucky enough to catch a glimpse of the pineapple fish and its its flashing luminescent cells along its jaws. It is a small, plump, yellow-patterned fish that is active at night and hides in the crevices of the wreck during the day.

KWAZULU – NATAL

Pleasant all year temperatures, luxuriant green hills covered in sugar cane and banana plantations which roll down to golden-coloured beaches. This sub-tropical coastline encompasses the regions of Maputaland, The North Coast, Durban, and the South Coast, which we have just covered. In this area I feel we have left the best for last – Sodwana Bay.

Sodwana Bay

Sodwana, which means "little one on its own" in Zulu, is a paradise, of incredible beauty. Though Sodwana's coral does not form a continuous reef, but distinct reefs separated by the ocean the total reef is about 1.7km long and 900m wide. Orientation is roughly north-south, strong currents and surges



ANDREW WOODBURN





ANDREW WOODBURN

Goby rests on coral branch



DANIEL BEECHAM

Dolphins travel with friends and family

are rare, and thus excellent for night dives. Depths vary from as shallow as 12m to a maximum of 36m. The surf launches like elsewhere on this coast is exciting and great fun – everyone helps push the boat out to sea. Whale Sharks, pods of dolphins do visit here making this if you are lucky enough – a very rewarding experience.

POTENTIAL HAZARDS

Malaria is present here; please follow malaria guidelines found in the travelogue article on South Africa. Because you are near the ocean do not be fooled there is no malaria present here, it can be virulent in this part of South Africa.

Sea Snakes

Elegant, beautiful, and graceful, the markings are usually black and yellow, patterned in stripes or spots – with a flatted tail, which they use like a rudder or oar to propel them through the water. Sea snakes are true

South Africa

snakes and do need to return to the surface to breath, Extremely venomous, but are not considered a threat due to the fangs, which are positioned backwards. They cannot inflict a harmful bite on a human. If you are fortunate enough to see one, enjoy the experience – please do not follow any sea snake it may become frightened and hide in a cave or crevice which can cause it to drown.

Seven-Mile Reef

Structured with mushroom shaped pinnacles and drop-offs, this reef boast a lot of character and a great diversity of marine life including rays and turtels, shoals of colorful goldies and various reef fish that hover above its corals. Located about 11km north of Jesser Point, the reef lies 800m offshore near the beacon that marks the end of the St Lucia reserve. The dives here average 18m with a maximum depth of 24m.

Five-Mile Reef

A delicate reef system, Five-Mile is heavily protected by both the Natal Parks Board and the charter boat operators. With its large flat reef and outstanding variety of fine corals, it makes one feel like one is diving in an aquarium. With a maximum depth of 21m, the reef is located 1km from shore 8km north of Jesser Point.

Potholed & Sponge Reef

This reef is actually a large flat section of Two Mile Reef. Located on the eastern side of Two Mile, it lies in the deepest section of the reef, so coral cover is sparse. However, there are large red gorgonian sea fans and huge sponges along the potholed reef structure to admire. Drifting along this reef on a dive is like hovering over a lunar landscape due to its terrain and greater depths. Divers average 27 m with a maximum depth of 42m.

Gullies, Caves & Overhangs

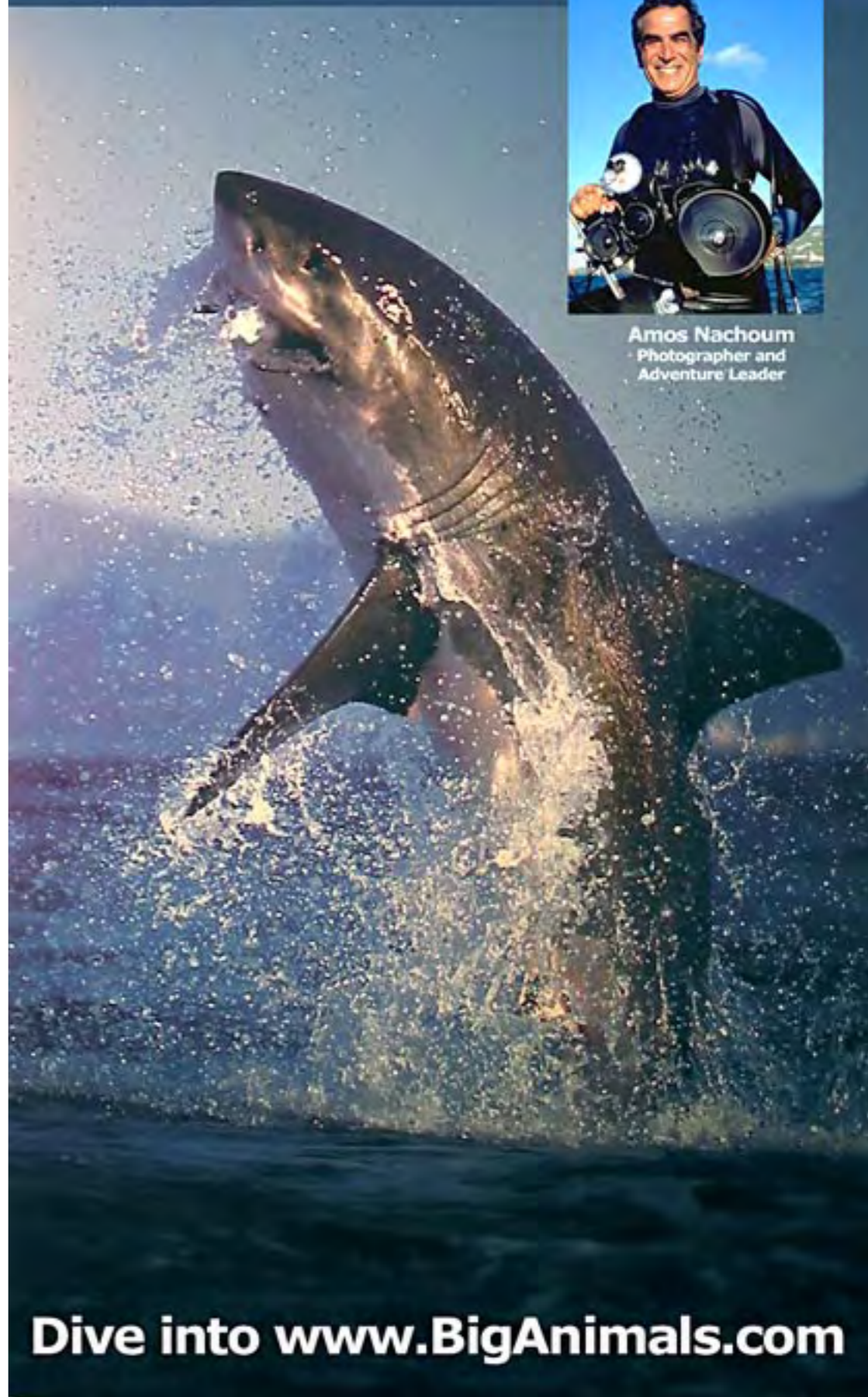
Located on Two Mile Reef, this shallow dive is made up of sandy gullies, overhangs that face the shore, pinnacles and coral arches.

► continued on page 41

Amos Nachoum's BigAnimals Adventure Travel



Amos Nachoum
Photographer and
Adventure Leader



Dive into www.BigAnimals.com

Sardine Run

Why?

The Sardine Run has been described as one of the greatest marine spectacles on earth. Every year an unimaginably vast shoal of sardines makes its way up along the east coast of South Africa. Millions of them. And hot on their trail an incredible array of predators like sharks, dolphins, seals, gannets not to speak of underwater photographers all gathering for this short-lived feeding frenzy and one of Mother Natures most spectacular sights.

From the last week of May through early July millions of sardines, make this 1,000km journey through treacherous ocean currents along the KwaZulu Natal on the East Coast. All of which is natural and, as far as anyone knows, has been happening forever.

Why do the sardines travel north? Marine science does not have a clear answer and Sardine Run remains a unique and unexplained phenomenon, however of growing interest to tourists and fishermen alike.

Sardines, or Pilchards as they are also known, are commonly found in enormous shoals in various areas of the world including, of course, South Africa where the main spawning grounds are on the Agulhas banks off the Southern Cape coast. Here the adults gather for a prolonged breeding season through the spring and early summer. Their eggs are simply released into the water, fertilized and left to drift off in the open ocean. A benign ocean current carries most of



South Africa

the developing larvae westwards and northwards into the productive waters along the South African West Coast, that is the Atlantic Ocean. Consequently that large bulk of South African Pilchard Stock is found in the cooler water of the Atlantic Ocean off to the west of the Cape.

However, each winter, for reasons still largely unknown, a small segment of this population (yet still millions of individuals) move eastward up the Wild Coast and the Indian Ocean. The eastern bound shoals of these small fish pursue migrate about 1,600 km northeast from the spawning ground at the Agulhas bank in a northwards direction, coming close to shore in the South Coast area during autumn and winter, until the current reaches the Durban area. By Durban, the current turns east, heads out deep into the Indian Ocean's high seas and disappears and the sardine along with it.

Where do they go afterwards? Do they return south and if that is the case when do they do it? Because of the cold currents along

coastline and their appetite for plankton, these fish converge close to the shoreline and to the surface, making ideal targets for hungry predators an awesome sight for scuba divers alike. The sardines shoal closely together minimising their chances of being taken by predators. But because the shoals become so concentrated into a narrow inshore band in the cool water, schools of marauding predators quickly locate the shoals and the feeding frenzy begins.

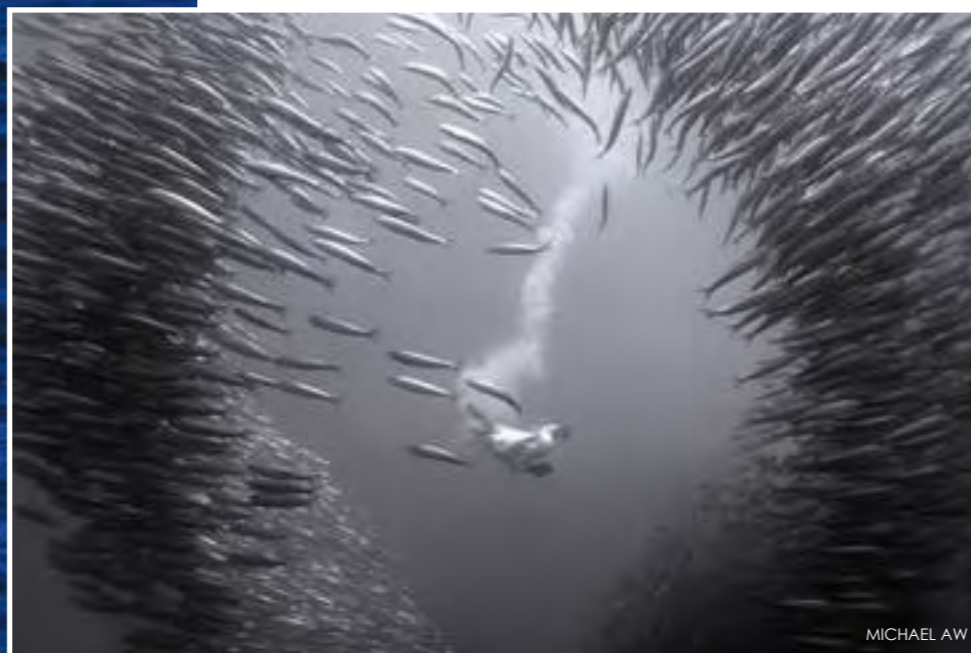
Tens of thousands of birds plunge from the sky like dive bombers, feeding on the fish which are driven to surface of large game fish, numerous species of sharks and dolphins that serve



AMOS NACHOUM



ANDREW WOO



MICHAEL AW

Sardine Run image wins Gold at 2005 Antibes Festival The image of a Cape Gannet catching a sardine at 60mph captured by Michael Aw has won the gold award for Black & White print at the recent world underwater film festival at Antibes. See report elsewhere in this issue

DANIEL BEECHAM

themselves from beneath and herd the fish into small baitballs and towards the surface. Every one seems to be gorging themselves on this unlimited selfserve buffet. An astounding variety of sharks from Bronze Whalers, Zambezies, Hammerheads, Coppers and Great Whites can be seen by the hundreds. Bottlenose and Common dolphins employ their unique hunting strategy where they, like sheepdogs, herd the sardines into a tight ball close to the surface. The dolphins then pounce on them,

gorging themselves on the tiny fish. Not be excluded are other marine mammals like Humpback whales, Minke's whales and Cape fur seals. And lately, this mixed party is often also joined by herds of divers, snorkellers, bird and nature watchers not to mention the plain tourists – some in the water, some not, some with some without cameras. ■





ANDREW WOODBURN



South Africa

ANDREW WOODBURN

South Africa boasts miles and miles of spectacular coast line

tropical fish and dense shoals of snappers, goatfish and big-eyes. Divers will find scorpionfish, large potato bass, marbled rays, small moray eels and triggerfish. Coral gardens are thick and diverse forming walls, overhangs, vistas and swim-throughs. It is one of the region's most spectacular and popular areas of Two-Mile Reef with much

to offer underwater photographers. Depths range from 15m to 18m.

Chain reef

A long ship's anchor gives this dive site its name where it lies draped over coral colonies spread out over the sea floor. A wide variety of small tropical fish and clown fish

can be seen as well as Leaf fish that live among the corals and anemones. Depths range from 15m to 18m.

Reference and recommended reading: The Dive Sites of South Africa by Anton Koomhof, published by New Holland, 1995, ISBN 1853685631. ■

Some creatures like this sand diver employ astounding camouflage



ANDREW WOODBURN

Shrimp and diver mirror each other in the deep

Divers will find large potato bass up to 1.5m that get up front and personal with you especially if they smell a handout. Sea turtles and tiny cleaner wrasse are seen here as well as a wide range of coral and invertebrates due to the good light penetrating the shallow waters. However, there can be surge where maximum depth does not reach beyond 15m.



Anton's Reef

Another fine dive site on Two-Mile Reef is Anton's Reef which houses a plethora of



WINE



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Andrew Woodburn reports:

The elusive tiger shark was rarer on my hit list compared to white sharks, bulls, hammerhead, sand tigers or oceanic white tips. I had listened with envy to fellow divers who would tell me of 4m plus tigers swimming within a group of divers just the day after I had been at the very same spot. So, when a team started working and presenting tiger sharks as an open water option, in warm clear water, there wasn't even a moment's hesitation for me to try and create an opportunity to experience this phenomenon.

I live in Johannesburg, South Africa, about as far as one can get (6hr drive) from the sea. I have been taking underwater photographs for many years now and have developed a speciality based on big ocean animals. With this in mind, South Africa has provided an unbelievable spectrum of big animals and nature spectacles. These happenings have formed the basis of features such as the BBC's *Blue Planet* with sardine run and white shark footage. I'm sure, by now, that any world-wide dive traveller and Discovery Channel viewer would put the country on the map for Great white shark viewing.

In addition to its awesome eco-dive tourism, South Africa has been producing world class shark viewing out of cages based on sand tiger sharks (Raggies at Sodwana bay and Aliwal shoal), mako and blue sharks (off Cape point) and bull sharks (at Protea banks).

As regards to tiger sharks, however, most of the global tiger shark interactive options involve more safety divers fending off sharks with long poles or divers huddling in reef holes for protection.

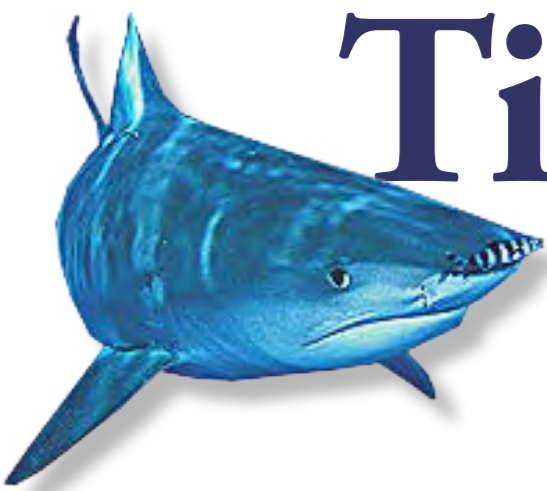
So, when Mark Addison and I were sitting on a boat doing sardine run work, and he started talking of his vision to build a unique programme where all users of the ocean

Toying with Tiger Sharks!

South African style



Text and Photos by
Andrew Woodburn
www.woodburnphoto.co.za



Toying with Tiger Sharks

Fact File: Tiger shark, *Galeocerdo cuvier*

The Tiger Shark is considered one of the most dangerous sharks. This is partly due to their occurrence in shallow waters and their indiscriminate feeding habits. They have been nicknamed the dust bins of the sea due to their voracious appetite and reputation for eating anything in their path including seals, turtles, jellyfish, seabirds, fish, sea snakes, crabs, other sharks and rubbish. These sharks inhabit warm seas worldwide and live near the surface and at moderate depths. They are often seen near the shoreline.

Tiger sharks have stripes running across a dark back, with a paler belly. The snout is short and rounded and the teeth are sharply serrated. Juveniles have spotted dorsal fins. The largest recorded was 7.4m, but on average, females are 3.75m and males are 3m.

Tiger sharks have good eyesight but rely on their acute sense of smell to detect prey. Tiger sharks are solitary except when breeding. The female gives birth to between 10 and 80 pups, which are completely independent at birth. They can reach speeds of 20 mph and can travel up to 50 miles a day. Source: BBC Science

could benefit—sharks, divers, scientists, surfers and bathers—I was in complete support. Bathers and surfers... how could this work? Don't sharks attack these ocean users?

The tiger shark programme has been an all inclusive programme with Mark Addison providing key access to tiger sharks while scientists attach sonic transmitters to them and monitor their movements. Receivers on both ocean reefs, shark nets and buoys at surfing spots identify sharks movements and the potential behaviour changes that might occur due to active shark eco-tourism.

Over the next few seasons, Mark became more famous and his programme built a database of interactions and experiences with primarily female sharks. This data was actually nothing new, as Mark had been interacting with tigers as a free diver and spear fisherman on the Kwa-Zulu Natal south coast for many years.

Over time, Mark had noticed that it was very infrequent that there was any aggressive behaviour. Rather, there was curiosity displayed by the sharks. Following these experiences, he began the programme supported by dedicated individuals such as his father Brent and brother Wayne.

One season we decided to go out to sea for the day, a memorable 10th of January. That day, we were lucky enough to catch a 22kg tuna, which provided a wonderful sushi dish for us that evening. We also spent one hour and 40 minutes freezing at 14m in a cave waiting motionless for tigers. At which point, Mark then



Shark wrangler free diving with one of his subjects

caught a glimpse of a small juvenile tiger shark in his peripheral vision. He decided that it may require about three weeks of regular visits to put the shark at ease. This was how it all started... with loads of effort and patience.

Establishing practice

Seasons later, there was an established methodology which provided the most interactive and close-up encounters with big tiger sharks. Diving trips began at 9 am with launches through the South African surf on RIB boats loaded with divers and lunch. The divers waited until

one or two tigers approach the boats anchored at specific locations. A shark wrangler would then enter the water to assess the shark's behaviour and water conditions.

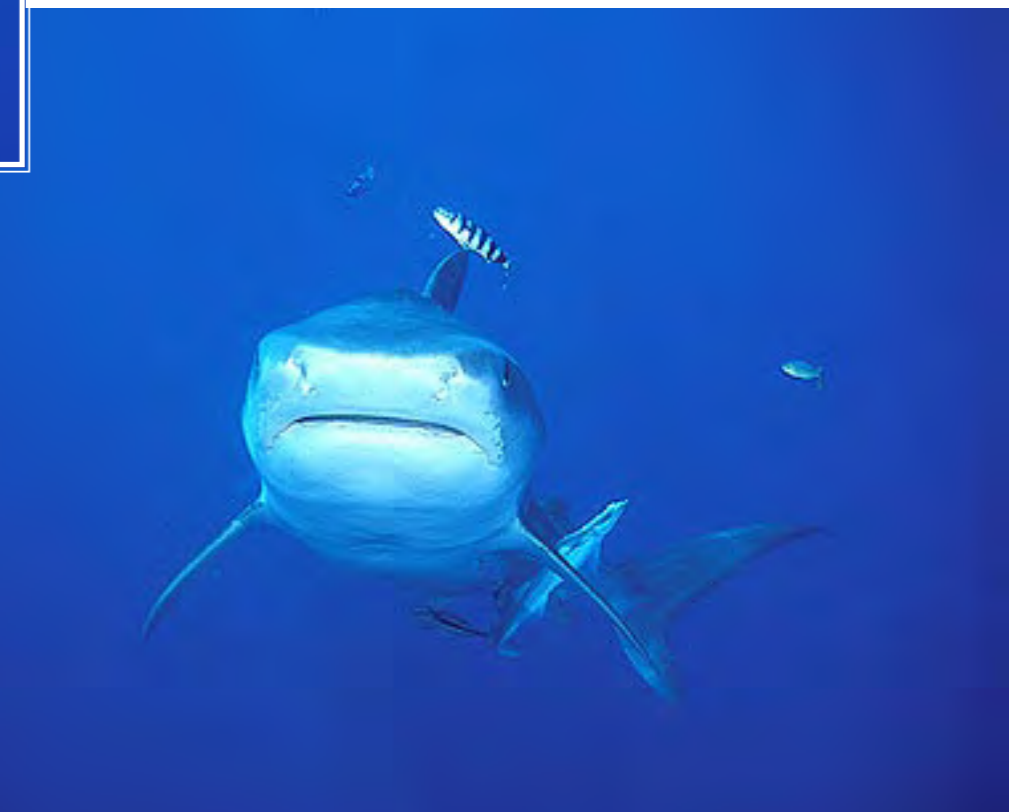
This is an exciting role to play. Using freediving techniques only, the wrangler will make contact with the animals and then invite the other divers into the water. Divers were told to stay to one side of the floating buoy and allow the tiger sharks to maintain their cruise patterns. With this process underway, anywhere from one to five or more sharks would be in attendance while divers

remained in a tight group between 5m and 10m deep.

Interactive... and no cages

Diving with these tiger sharks is the most interactive and close-up encounters I have ever had with multiple big sharks. These animals can approach you from above, below or behind, or they will circle you. This is real adventure diving, no cages, no cold water, but rather, a slow intimate interaction where each stripe and mark on the sharks can be seen and examined. They seem to find us as interesting as we find them and maintain a rigorous pecking order to manage social interaction between themselves.

As the dive progresses, the sharks become





Toying with Tiger Sharks



Diver and tigers examine each other close up and personal, close enough to touch.

more relaxed, and as divers also realise and adapt to this unique process, they also tend to drift apart a little. The sharks can then swim amongst the group of divers. This adds to the excitement as there can be multiple interactions at one time.

The fish behaviour that carries on around you also involves pilot fish and remoras all playing the game. Interestingly, while tigers are about, there isn't a single other type of shark around that may be seen. It is as if the pecking order starts with the tigers, and then it might descend to bulls, black tips and others.

The images of streamlined, large, powerful sharks slowly and calmly swimming through streaming sunlight, as silhouettes, and presenting stripy details, muscular energy and dark eyed curiosity, is an experience that will remain with me forever.

70 minute encounter

I dived for 70 minutes with these majestic wonders of nature, and within that

time, surfaced to change film five times. Each foray to the surface alone, was an interesting session. I thought tigers would follow me up to capitalise on my lack of support and separation from the herd, but never once did I have a perilous experience. The wrangler, himself, remained on the surface at the buoy watching over things and indicated when divers were in the wrong position.

As sharks approach him to investigate, he merely placed his hands on their snouts and pushed them through his legs or off to one side. He almost made them seem like puppy dogs... even hitching a ride on the odd occasion. Towards the end of the dive, as divers surfaced and fewer remained, the sharks seemed to lose interest, although one or two remained to have a last look.

This is real adventure diving, no cages, no cold water but rather a slow intimate interaction where each stripe and mark on the sharks can be seen and examined.

Total elation

The post-dive elation and sense of wonder among the group of divers is unbelievable. People were jabbering away uncontrollably after what, for most, was a truly once in a lifetime experience.

The interaction with the sharks is just unbelievable and converts any anti-sharker into a shark conservationist instantly. In contrast with the gruesome pictures of shark finning I have seen, these live creatures are priceless. Tiger sharks are listed as vulnerable by the IUCN Red List. They are hunted for sport and for their meat, fins and liver oil.

Learning more

The value of the sharks has become interlinked to surfers and scientists in that funding from the surf clubs has bought more sonic trackers to follow where these sharks go and to understand what danger they may pose at what times of year and day. As much as this ground breaking work may be inspiring, it is still saddening that we don't fully understand where these beauties go in the off season and what dangers they face. Constant long lining and uncontrolled shark finning offshore may mean more than one of these regulars might not be returning the following season.

When I look back on that one dive, I still see visual replays that send

shivers of inspiration down my spine, so much so that I have repeatedly tried to recreate the conditions and attendance but without success. For most dive travellers, the chance of experiencing this event is increased by spending longer than I had (2 days) at the ocean edge. Enjoy classic diving on wrecks and open ocean reef with unique ocean creatures such as the weedy scorpionfish (rhinophius frondosa), manta rays, bottlenose dolphin, sand tigers (ragged tooth shark) and incredible features such as cathedral of Aliwal shoal to add to your international divers logbook. Add more fun to your tiger shark safari with the Big Five (lion, leopard, buffalo, elephant and rhino) on a traditional land safari. It shouldn't be passed up. Some of the world's best safari lodges are only a few hours drive away. ■

Photographing tiger sharks:

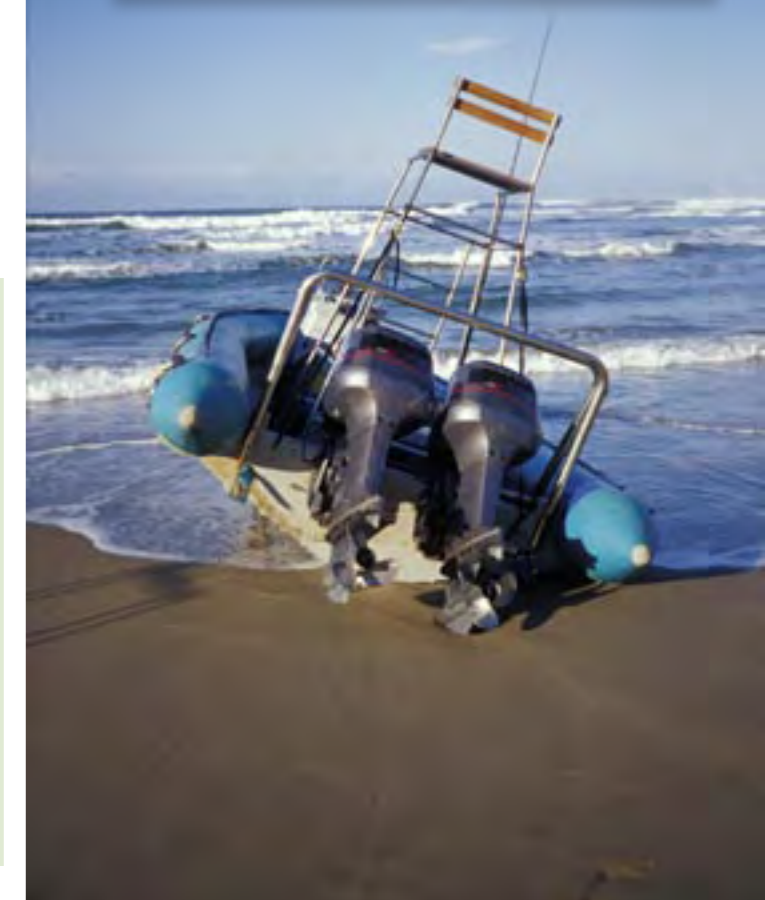
Andrew Woodburn Shoots both digital (Nikon D70) and Film Nikon F100 in SEA&Sea housings with interchangeable strobe rigs from YS90 to YS350 strobes on variable arm setups. Shoot tigers with a min 20mm lens and be careful not to light any floating particles in the water. Insulate the strobes as these sharks will be curious about the charge stored in the capacitors and want to either chew them or come very close to inspect them.

Andrew Woodburn is a freelance adventure photographer who lives in South Africa.

He has been diving over 17 years and has been lucky enough to photograph whales and sharks to minute sand divers and the oceans abstracts. He has also been published in Men's health, Shape magazine, Travel Africa, Divestyle Magazine and Marie Claire as well as winning numerous U/W photo awards.

Andrew believes that the more people see what is under the ocean the more they will value those things and hence stand up to defend them when the time comes.

Check out Andrews new website:
www.woodburnphoto.co.za





fact file

South Africa



Text by Edwin Marcow

When To Visit Summer is from November to January. The western Cape is hot and dry. The rest of the country is hot, humid and wet. Diving in the Cape is best at this time of year, although the water is cold. The Garden Route and KwaZulu-Natal South Coast is also an excellent destination this time of year. The best time to do cage diving in Gansbaai is in the winter months. Autumn is from February to April. The weather is warm and balmy, becoming decidedly cool by April. Diving over the whole country is variable. Winter is from May to July. It is cool and dry in KwaZulu-Natal. The diving in this region is excellent and very exciting with the presence of migratory ragged-tooth sharks. It is cold and rainy in the Western Cape and bitterly cold and dry in the interior. Spring is August to October and is a good time to visit the Western Cape to see the spectacular flowers and late September-October for game viewing. Please note that local tourism is high over the school holidays, especially on Easter and Christmas holidays, the whole of December and a good part of January. Traffic conditions in Cape Town at the height of the December season can rival any North American or European city. Two hours to get from one side of the city to another is not how I like to spend my well-earned rest and holiday time. The KwaZulu-Natal coast is very popular during the winter July Holidays.

Currency South African Rand
Exchange rate: 10 Rand = US\$1.50 / €1.27

Languages English, Afrikaans and numerous indigenous languages of the

Zulu's, Xhosa, Tswana, Venda, Ndebele. South Africa has 11 official languages.

Airlines All major airlines travel to South Africa, British Airways and South African Airlines have several direct flights to Cape Town per week from London.

Health Malaria alert in Kruger National Park, northern parts of KwaZulu Natal [St Lucia, Umfolozi, Hluhluwe, Kosi Bay] and to the northern arrears of Namibia [Caprivi, Kaudom Kavango]. Visitors are advised that these arrears fall within the malaria zone. Precautionary measures should be taken when entering these regions. Most malaria cases occur in the wet season peaking from February to May. Medication recommended is a daily combination of Paludrine and weekly Chloroquine [commercial names Daramal, Nivaquine, Plasmoquine, or a weekly dose of Larium. Also strongly advised is to apply Tabard repellent and the use of mosquito coils, vaporising mats and mosquito nets. No malaria is found in other parts of South Africa or Namibia.

Sun Protection — Be aware and careful of the strength of the sun. Some of the highest UV readings have been recorded in South Africa.

Culture South Africa is a whole World wrapped up in one country. European first world life, western culture, a modern health care system, a well maintained network of roads, a functioning economy, all combined with awe inspiring nature and traditional African culture. Enjoy French, Malay, Indian cuisine or Braai (barbequed food) in some of the most sophisticated



restaurants you could find anywhere in the world.

Terrain A variety of scenic landscapes from burnt-out deserts and arid savannahs to idyllic green hills and fertile valleys to dramatic mountain alpine snow peaks. Two thousand kilometres of coastline hem the country from the rough, harsh and melancholic in the west to the mild and Mediterranean on the east coast to the tropical warmth of the northeast.

Places to see Cape Town is considered one of the most beautiful cities in the world attracting millions of visitors each year from all over the planet. Surrounded by breathtaking landscapes, beautiful mountain ranges, stunning wide golden beaches and unique flora and fauna.

Table Mountain can be accessed by cable car. At its peak, you have remarkable views of Cape Town from the beaches of Camps Bay and Sea Point to the city centre. Other attractions include visiting the Castle of Good Hope and several historical buildings from the Victorian and Edwardian eras.

Shopping at the V+A Waterfront — you can shop in style from European designer labels to art galleries.

Green Market Square — browse through the flea markets and arts and crafts stalls in the heart of the city centre.

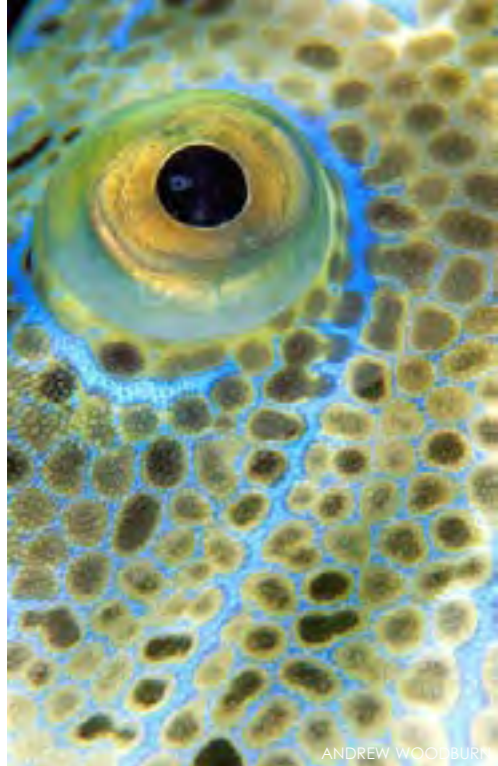
Not to be missed is Hout Bay — eat fresh Crayfish in the many seafood restaurants.

Hout Bay is also a good place to dive from. There are a number of very good dive sites that are accessed from Hout Bay by Zodiac. The water is very cold and, at times, visibility can be almost zero. But on a good



ANDREW WOODBURN

ANDREW WOODBURN



Fact File

two to three days in Cape Town, preferably at the end of a trip, to relax, enjoy and unwind prior to heading back home.

The Western Cape reaches out to Plettenberg Bay in the east. This consists of the famous Garden Route, a diverse journey of breath taking scenery.

Enjoy stop-offs at quaint little towns such as Knysna. Walk through a rain-forest or just go for a ride on an historic steam train whose path hugs the coastline.

Plettenberg Bay, a mecca for South Africans in the December holidays, has accommodations that range from luxurious hotels to comfortable guest houses. It is home to stunning, long golden beaches, Robberg Sanctuary and large pods of dolphins that swim and surf in the warm Indian Ocean. The best time to photograph the dolphin pods is in winter. The same applies to Great White Sharks in Gansbaai.

A multiple of options in Plettenberg Bay include visiting the Cango stalactite caves, the ostrich farms of Oudtshoorn or the Addo Elephant National Park near Port Elizabeth.

Neighbouring Countries

Swaziland — You will find spectacular

hiking in Malalotja Nature Reserve less than a day's drive from Sodwana Bay, a good value for the money, and big game safaris are offered at Mkhaya Wildlife Refuge. One day white water rafting trips in the summer can be experienced in the Great Usutu River.

Lesotho — A country within a country, Lesotho is completely surrounded by South Africa. Miles of hiking, biking and equestrian trails can be enjoyed in the mountainous terrain. These treks are often organised in the small resorts or villages. Good trout fishing, hangliding and paragliding.

Mozambique — After 20 years of civil war, this country is finally opening up to the rest of the world. Johannesburg International Airport is the usual access port followed by a substantial drive inland to a resort and the dive operation that is run by Marine Dynamics. Diving here is in conditions similar to the southern Red Sea. Big Manta and Whalesharks.

Before traveling to any region of Southern Africa, be sure to check with your physician about inoculations for various tropical diseases and prevention of Malaria. ■

LEFT: Fish eye
RIGHT: Diver meets tiger shark



South Africa

day, the diving [particularly the ship wrecks] is rewarding. A dry suit is highly recommended.

Popular destinations include the winelands of Stellenbosch, Paarl and Franschoek. Speir, only 30 minutes from central Cape Town, is a beautiful hotel and winery estate with restaurants and fine wines. It is home to Cheetah Outreach, an organisation with which I have had a long relationship. Here, you can meet ambassador cheetahs as part of a conservation program to protect these magnificent animals.

It is strongly advised to try and spend

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Andre Hartman Shark Man



Text by Daniel Beecham
Photos by Edwin Marcow & Daniel Beecham



Nowadays, sharks are big business and many divers and scientists have made a name for themselves by making new discoveries about shark behaviour and biology. There is however one man who for many shark enthusiasts needs no introduction. A true pioneer, Andre Hartman is the original shark wrangler who, in an age of misunderstanding, has pushed the boundaries of shark diving to learn more about a species that has been misunderstood for too long.

He has made discoveries that have questioned our understanding and has made many of the most memorable shark photographs and documentaries possible by bringing the world's

“It tried to bite me! I was spear fishing at the time and carrying a lot of fish. It came in and tried to take me. I saw it coming, so I gave it the gun. It didn't like it, so it swam away”

top underwater photographers and cinematographers face to face with *Carhcarodon carcharias*, the Great White Shark.

Andre Hartman, with his thick bushy beard, his coarse South African accent and his towering physique, looks like a true sailor. He has enjoyed a long and illustrious relationship with the ocean working in the navy as a commercial salvage diver and as a Springbok champion spear fisherman.

Andre is a hero in his hometown of Gansbaai. His discoveries have earned him a reputation as one of the most respect-

ed sharks behaviourists in the world. However, his knowledge does not stem from specimens studied in a lab or facts and figures in scientific journals. It comes from spending time in the water, with no cage for protection, with one of the ocean's top predators.

Andre was born in Bellville, Cape Town, in 1953. His relationship with White Sharks started in 1977 when he first encountered them in open water.

“It tried to bite me! I was spear fishing at the time and carrying a lot of fish. It came in and tried to take me. I saw it coming, so I gave it the gun. It didn't like it, so it swam away”

Many South African spear-fishermen encounter large sharks, including Great Whites. The animals are attracted by blood and the distress of speared fish.

The diver must use his spear gun to fend off the shark. Some spear-fishermen choose to carry a *power-head*, or *bang-stick*, for extra protection, which is used in extreme circumstances.

“I was petrified of the things. I was spear fishing for South

Andre Hartman

profile

Africa at this time, but before I got my Springbok colours. We used to run into these animals all the time. We needed to learn more about them, which places to avoid, how to push them off with a spear gun or how to use a power-head to scare them away. I never shot a shark with a power-head myself though."

Andre also worked as a commercial salvage diver on numerous wrecks around the Cape, playing a major role in exploring, mapping and salvaging historic shipwrecks such as the British steamer 'Joanna' and the HMS Birkenhead, famed for the tragic loss of 445 men some of which were taken by white sharks. The accident also gave birth to the phrase 'women and children first', which after the sinking, became naval protocol throughout the world.

"I have a very good memory underwater. When I see things like a school of fish in a hole, even 10 years later I can go back and find it. So, when I see something like a wreck, I first swim



above it, review its outline from above, and then I can go and map it out. With every dive, you add more detail to the map. That was basically my job. It was frightening diving on those wrecks, knowing that there were such large white sharks around and knowing so little about them."

Appreciating Great Whites

Andre continued to encounter white sharks underwater throughout his commercial diving career, often encountering

sharks on long decompression stops in mid water, however it was through diving and spear-fishing around Dyer Island that Andre grew to better understand and appreciate the White Sharks.

"I first came to Dyer Island in 1986. I saw the White sharks here when I was spear fishing. I again had to fend them off. I was taking the fish to the boat. There was blood in the water, and a shark investigated me assertively. But I thought: How nice they are here! "

It was in 1996 that Andre realised the commercial potential of Dyer Island where large numbers of Great Whites fre-

quent the waters year round; it's one of the few places in the world where divers can observe white sharks hunt, interact and breach.

"I decided to start up a business here because I had seen how many tourists were attracted to the sharks at Aliwal Shoal near Durban. So, my friend, Jean Pierre Botha, and I went into business."

Their company, Marine Dynamics, grew in popularity very quickly and earned a reputation for being the premier boat charter for diving the island. Many seasoned professional photographers and cinematographers, including crews from

Andre Hartman accidentally discovered an unusual trance-like behavior of the Great White Shark, *Carcharodon carcharias*, when it is touched on the nose



CATERINA GENNARO



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Shark Man

the BBC, National Geographic and The Discovery Channel to name just a few, travelled to dive with Andre using his unique knowledge and experience to get shots that had never been seen before.

As well as working as guide to the world's top underwater image makers, Andre is himself an accomplished cameraman shooting with Sony VX1000 and VX2000 cameras. He also produces and markets his own independent productions.

Understanding Great Whites

The more time Andre spent around the sharks, the better he understood them. It was during the early years he

spent working around the island that he discovered what many consider to be one of the most amazing spectacles in the natural world.

Often, whilst diving with Great Whites, the animal would attempt to bite the out-board motors of the boat. Sharks often 'investigate' metal objects in the water, attracted by the electronic impulse emitted by the metal. Concerned about the shark damaging his motors, as well as harming itself, Andre

reached into the water from the back deck of the boat one day to push the shark away by the snout. To his amazement, it lunged out of the water with its huge jaws agape, and then swooned backwards into the water. The sharks seemed to be in a form of trance, but Andre believed that when the shark's snout was touched, it experienced sensory overload.

The Ampullae of Lorenzini, electro-receptors in the snout, are so sensitive that there is a rush of information putting the animal into temporary sensory overload. The shark is almost overwhelmed by the experience, and only comes back to its normal state after a few moments when the overload has passed.

Andre continues this exercise today. One must see to believe it.

Guiding divers

Today, Andre continues to guide divers around the island running trips for shark enthusiasts and seasoned professionals alike. Many people decide to go, meet and dive with Andre after seeing him in one of the many documentaries in which he has starred alongside various top wildlife presenters and scientists.

After meeting Andre, and diving with him, I learned more about sharks than I ever thought I could. As much as they amazed me, I couldn't help but be equally intrigued by Andre's reaction to the animals. I revelled in anticipation as the shark's fin broke the water, excitement as it lunged for the bait and wonder as it effortlessly slid back into the deep. After all these years of working with sharks, Andre is still in awe of them.

Andre Hartman

Andre is a man who has lived alongside the white sharks all his life. He is a character who will go down in history as the man who introduced the world to the true character of the Great White Shark, a man who continues to try and learn more about the most misunderstood fish in the sea.

To me, the man is a true diving legend. When I think of Great White Sharks, I can't help but think of Andre Hartman.

For more information about Andre Hartman, please visit: www.andrehartman.com ■

Disclaimer: "Don't try diving with Great White sharks without a cage on your own. These great animals are top predators in their own environment and could kill you in an instant."



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POINT & CLICK
ON BOLD LINKS



Edited by
Andrey Bizuykin
& Peter Symes

Equipment

What's hot...what's next

Dive Xtras X-Scooter

X-Scooter Standard Body Frisco model is the Standard power motor with a standard body length.

This version uses one battery (not included) giving the diver an burntime of 1 hour.

Saltwater resistant powder coated aluminum body and tail cone. Can be Interchanged with one piece body length to Long or Xtra Long and additional battery packs www.dive-xtras.com



Cochran EMC-14

Cochran has added a new computer, the EMC-14 to their product line. Many of you familiar with the "Captain" which has been sold as a simple computer for the past many years will be pleased to see its "big brother" return in the form of the EMC-14. As with the Captain, it has user-replaceable batteries but now it can be ordered as a single-mix Nitrox computer. Please have a look because it generated a lot of excitement at the DEMA show. www.divecochran.com

Oceanic HUD mask

The HUD contains a miniature liquid crystal display (LCD) panel, multi-element optics, microprocessor, depth transducer, wireless cylinder pressure receiver, diver replaceable battery, and controlling software - all built directly into a dive mask. Oceanic's wireless transmitter module attaches to the regulator first stage and transmits the diver's cylinder pressure to the mask. While the HUD Mask will have immediate military applications, recreational divers will also benefit from this jointly created technology as Oceanic plans to release a consumer version next year. www.oceanicworldwide.com



Freedom fins

The thrust fin from Freedom Fins is attached to the lower leg; not the feet and ankles. This attachment location produces considerably more force than conventional fins because the ankles and wrists are the weakest joints in the body. With a flick of the release snap, the fins fold, facilitating seamless transition from shore or boat to water. FreedomFins are boat ladder friendly and enable good walking www.freedomfins.com



Mako fins from Aeris

There were a lot of news from Aeris. Let's start with the Mako fin. The engineered channels and side rails direct water flow off the tips of the fin without allowing water to "spill" off the sides of the blade and reduce power.

www.diveaeris.com



Report & Comment

DEMAshow 2005 - Las Vegas

This year's DEMAShow was a great show. Plain and simple. And what a pleasure it was attending.

What happened? Was it because so many attendees were coming back after skipping last year's show in Houston which



was disasterously slow and boring—and obviously in the wrong location. Or is the dive industry finally back on the upbeat? Cautiously I would like to say the latter. This show was very busy, there were many new products and most of us who exhibited were bogged down by streams of customers in our booths. The overall sentiment seemed to be energetic and optimistic with a lot of thumbs up. Trends can

be fiendishly hard to interpret correctly but it seems that the world has now finally adapted mentally to a post 9/11 reality and started being outgoing again. On the travelfront most destinations seem cautiously optimistic being in positive mood but without staking too much yet on major developments. Set aside, maybe, Ocean Hunter's new

minisubmarine – which is an instant eyecatcher. Talk about a Ferrari-effect. Most boys at the show, regardless of age, must have drooled. As regards to new equipment, the industry has, for some years, seem to be struggling with their products being mature – I mean, how much can you keep on improving on a snorkel? - and to come up with true novelties. At the moment the cutting edge

Submerge Underwater Propulsion



Top rated u/w scooters with outstanding endurance different models of this make were recently used during a 14km cave dive in Mexico. The UV-18 model comes in at GBP 2500 incl. VAT and airfreight. More details at: www.silent-submersion.com

Special Ops

The Special Ops Watch is the world's first and only electromagnetic rechargeable watch with LED lighting system. It's powered by a rechargeable lithium ion cell battery. To recharge, simply place the Special Ops Watch on the included electromagnetic induction charger overnight. The Special Ops Watch is equipped with overcharge protection and low battery alert and is water resistant up to 330ft. The band links are individually connected with allen keys, making them easy to adjust www.specialopswatch.com/products.htm



Aquatek CCR



Voyager from Aquatek is a mechanical design with manual CCR setpoint control. O₂ is injected into the lid after the axial scrubber unit which comes with a clear canister. Without tanks and absorbant it weights 14 kg/31 lbs. The Voyager is CE certified to 40m with EANx and 100m with Helium. www.rebreather.it

Nemo

Mares Nemo Dive Computer & watch. A cutting-edge dive computer and an elegant watch. Now in steel with black PVD treatment with sapphire coated glass. Elegant and a complete dive computer, offering all functions for dives with or without decompression. It can also be used for Nitrox mixtures. For freediving enthusiasts, it also offers the special "free-dive" mode. www.mares.com



Apeks WTX

With the WTX series the manufacturer of the renowned regulators have announced a new selection of BCD products. Stainless steel plates, harnesses, buoyancy cells and accessories comes as modular components that can be assembled into numerous combinations from highly technical BC rigs or scaled down to make a travel friendly rig that any diver would want to use. Made out of 1000D Armorshield Cordura www.apeks.co.uk



Haskel

Now, those fine people at Haskel can say what they want but pretty it ain't, their new booster. But who cares? Haskel are known for their quality products. Their newest series of electric driven gas boosters offers contamination-free operation at lower cost and smaller size than metal diaphragm compressors. The new EDA Series eliminates oil migration in applications using all inert gases including nitrogen, helium, argon, CO₂ and air. The booster's design includes separation; therefore, only cleaning is necessary in order to use it for Oxygen service. www.haskel.com



DEMAshow 2005 (cont'd)

seem to lie in the continued application of hi-tech in dive equipment both electronics of course, like in the new Oceanic HUD mask, new computers and rebreathers but also in the application of new fabrics in suits and garments. These recent years has seen some interesting developments in, for example, thin but warm wetsuits with



X-Ray Magazine publisher Peter Symes (left) with OCEAN REALM Magazine's Ken English and publisher Richard Stewart (right)

neutral buoyancy such as the Radiator as well as the new stretchables from Bare.

Interested in rebreathers? *Rebreather World* has a in depth going show report on these matters on their site at www.rebreatherworld.com - it is worth a visit (just click on this link). Down the same vein,

I would also like to recommend to checking out WETPIXELS report on the show and new photography equipment presented here this year.

Link to www.wetpixel.com's show-report.

A good collection of videoclips from DEMA 2005 are available at [OCEAN REALMS website](http://www.OCEANREALMS.com)



Interview with Al Hornsby



unreal... Undersea Hunter Gets New Submarine

Have you ever wondered what lies deeper than you can go on your scuba set. Did you ever dream of sailing in a submersible? Well, now the dream is possible. The famous liveaboard Undersea Hunter now has DeepSee which is a custom built one-atmosphere submarine, capable of carrying one pilot and two passengers.

It goes down to a depth of 475m (1500 ft). It is the first deep submersible designed and developed with the ocean enthusiast and underwater explorer in mind and as a dedicated filmmaking observation vehicle. DeepSee is equipped with a High Definition video camera, and an impressive array of HID lights, that will document all the DeepSee dives. Passengers can use their own video or camera equipment

from inside the acrylic sphere that offers the viewers an unparalleled and unobstructed 360° view of the undersea world. DeepSee has a dive autonomy of 6 hours at a speed of up to 1.7 knots.

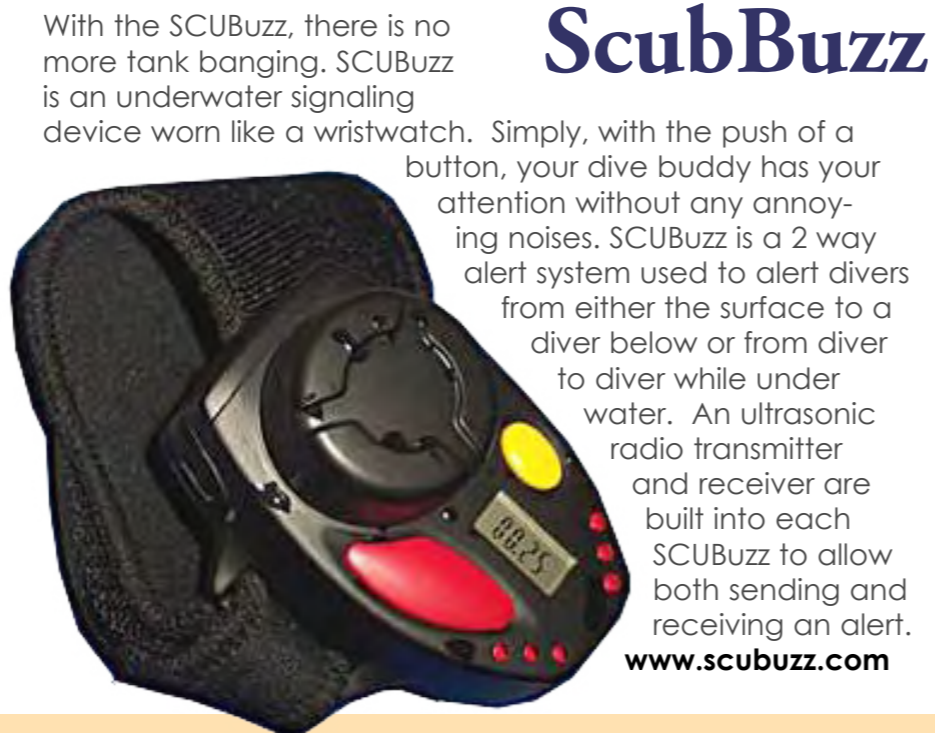
www.underseahunter.com

Note: We could only find the info using Internet Explorer, not Netscape/Firefox



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Epic**

Hoseless air-integrated technology, so small and stylish you can wear it on your wrist to dinner. AERIS "Distinguished by Design" technology enables more features to be loaded into this handsome and functional "wristwatch style" dive computer.
www.diveaeris.com



ScubBuzz

With the SCUBuzz, there is no more tank banging. SCUBuzz is an underwater signaling device worn like a wristwatch. Simply, with the push of a button, your dive buddy has your attention without any annoying noises. SCUBuzz is a 2 way alert system used to alert divers from either the surface to a diver below or from diver to diver while underwater. An ultrasonic radio transmitter and receiver are built into each SCUBuzz to allow both sending and receiving an alert.
www.scubbuzz.com

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- Soft inserts for optimum comfort
- No-fog and handy bag included



Quattro Excel

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- New ABS-Plus buckle System
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S555 on MK17

A powerful all-rounder, S555 is an air balanced high performance second stage; the ideal choice for divers looking for a simple to operate second stage with superior breathing performance, coupled with a captivating design. This second stage incorporates diver adjustable Venturi Initiated Vacuum Assist (VIVA), also known as dive/pre-dive control switch. The balanced flow valve initiates effortless and instant air flow. The anti-freeze components for cold water performance make it remarkably durable and reliable in cold water.

www.scubapro-uwatec.com



Jetboots

Sounding like something coming out of a Science Fiction movie, Jetboots are a unique hands-free electric propulsion system for swimmers and divers engaged in recreational, commercial, or military dive activities. Coming in January, a new, less expensive version of Jetboots especially for the recreational diver.

www.jetboots.com



Spacy

The Neptune Space is a progression of Ocean REEF's current full face mask, the Neptune II NIRA, which was introduced in 1998. In Neptune Space the regulator has been moved closer to the visor, reducing the mask's profile and reducing the breathing effort; the inhalation effort required for the Neptune Space is 20% less than that of the Neptune II NIRA.

www.oceanreefgroup.com

Looking good for your money

Still scratching your head, not knowing what to give her for X-mas? Diving equipment or something fancy to wear? Don't despair, this fashionable hydroskin rash vest from Fourth Element may just be the answer to all your problems. Nothing quite does it like a soft package under the tree. www.fourthelement.com



AquaSketch

AquaSketch represents a leap forward in underwater communication. Not only does it simplify the task of writing and drawing underwater but it also offers unlimited paper capacity making it unnecessary to waste time erasing during a dive. Holds up to ten feet of waterproof vellum. Charts, graphs, dive logs or any technical or visual computer input can also easily be printed on the vellum. www.aquasketch.com



Pressrelease from Diversitea:

Russian Navy says Diversitea has positive effect

Diversitea Herbal Supplement Tea for Divers was recently tested at the Makarov State Maritime

Academy in St. Petersburg, Russia.

A controlled study was conducted where two groups of mice were taken to 200 meters (657 feet) in a hyperbaric chamber over a period of 20 minutes, then brought up to surface pressure in five minutes.

One group was given Diversitea for two weeks before being submerged and the control group

received plain water. Upon ascent, the mice who received Diversitea had a mortality rate of 28%, and the control group mortality rate was 84%.

This led the testers to conclude that Diversitea Herbal Supplement Tea appears to have a positive effect on the reduction of Nitrogen waste in the body, as less formal experiments had previously

indicated. Diversitea is marketed through live-aboard dive boats, dive shops, the Internet, vacation resorts and specialty retail and gift stores.

This release has not been edited or validated by X-Ray Magazine. More info about Diversitea on www.diversitea.com



Text by
Michael Arvedlund, PhD

ILLUSTRATIONS BY GUNILD AND PETER SYMES

Dolphins

A few things you probably didn't know about them

When you are on the way back to the harbor after the afternoon dive, wild dolphins often swim in front and along the dive boat. They seem to love following boats. Sometimes they then perform for us, in form of huge jumps out of the water and “tail shows”, keeping the tail up for minutes remaining still in the water.

Usually after a few minutes, the dolphins disappear again. If you enter the water, they also usually disappear. Only recently did I experience swimming together with some of these dolphins: two young dolphins were simply too curious about the noise the bunch of snorkellers and divers made, and came within a distance of less than a meter.

My biggest surprise was to see how fast these beautiful animals actually swim underwater. One of these young dolphins tried to teach me her kind of swimming, but quickly gave up on such a clumsy student. This recent first encounter made me think about how

much – or how little - do we actually know about dolphins: their biology, ecology and behavior?

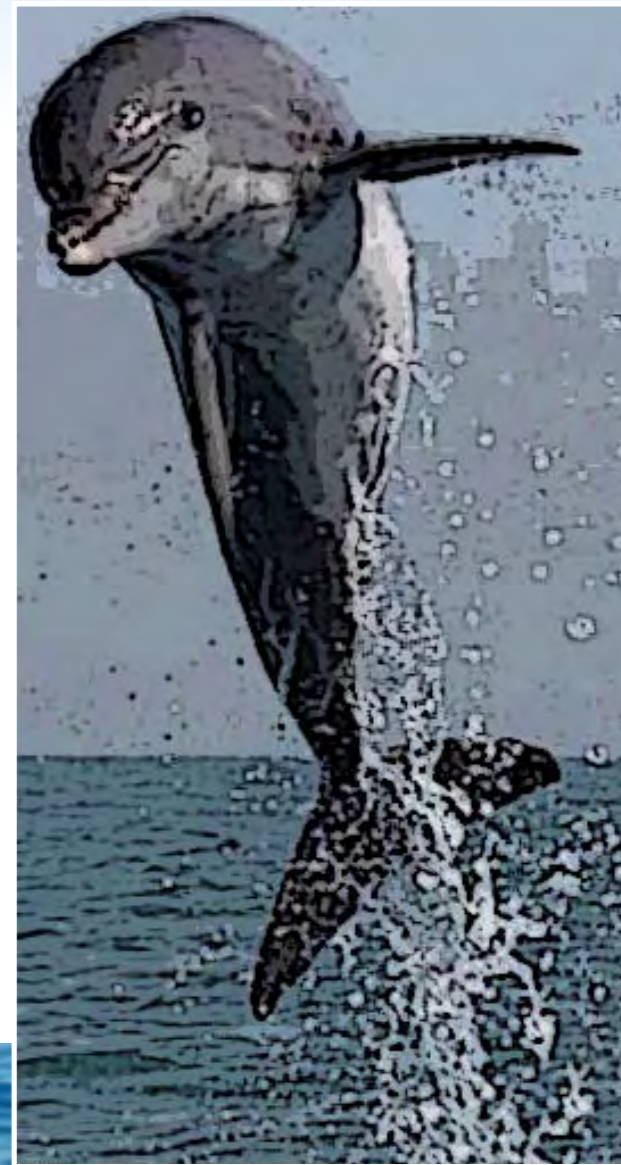
In captivity Much of what we knew was about dolphins was, until quite recently, entirely based on studies of animals in captivity and only from the species of bottlenose dolphin, i.e. “Flipper”, *Tursiops spp.*, and the orca or killer whale *Orcinus orca*.

From these studies we know they talk, i.e. they have a language and there are even different dialects among some groups of orca, that they have complicated relationships and they have a

culture. The latter is currently the subject of a lot of attention and debate among scientists as it is argued that animals with a culture should have this quality included as regards to conservation issues.

Fortunately, in recent years field based studies have been on the increase which have provided us with many new insights into the fascinating lives of dolphins. We will present some of the known facts as well as some of the many newest findings.

Dolphin Sonar Dolphins contain a unique sensory organ which is used for hunting and communication: the



organ for echolocation, which also bats possess. Echolocation is also known as "dolphin sonar". By listening to the echoes of the

are capable pick up minute objects with their echolocation with outstanding accurateness. It is still not quite clear how the dol-

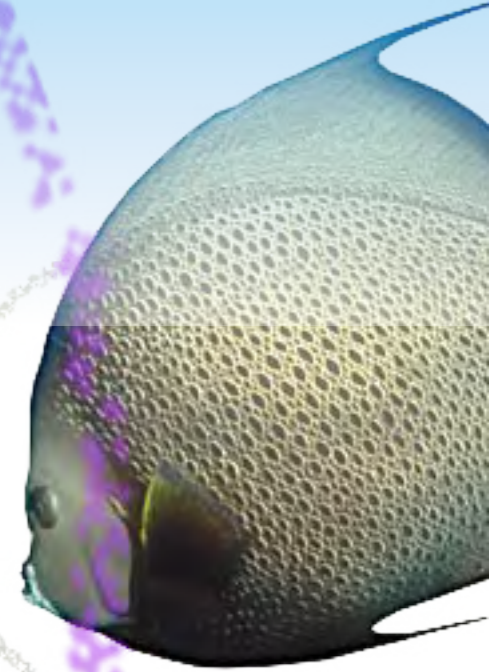
discriminate between the densities of objects. They can apparently even distinguish between different species of fish. This is of course used when they hunt: echolocation is used in the detection and tracking of prey. Some scientists think that the eco sound can stun fishes: It is thought that dolphins stun large schools of fish with the sound beams and then make the attack.

increased as a function of time. But with the dolphins, what happens is that they control their level of their emissions so that as they close in on a target, they reduce the amplitude of their signal, so that they try to keep the amplitude of the echo relatively constant."

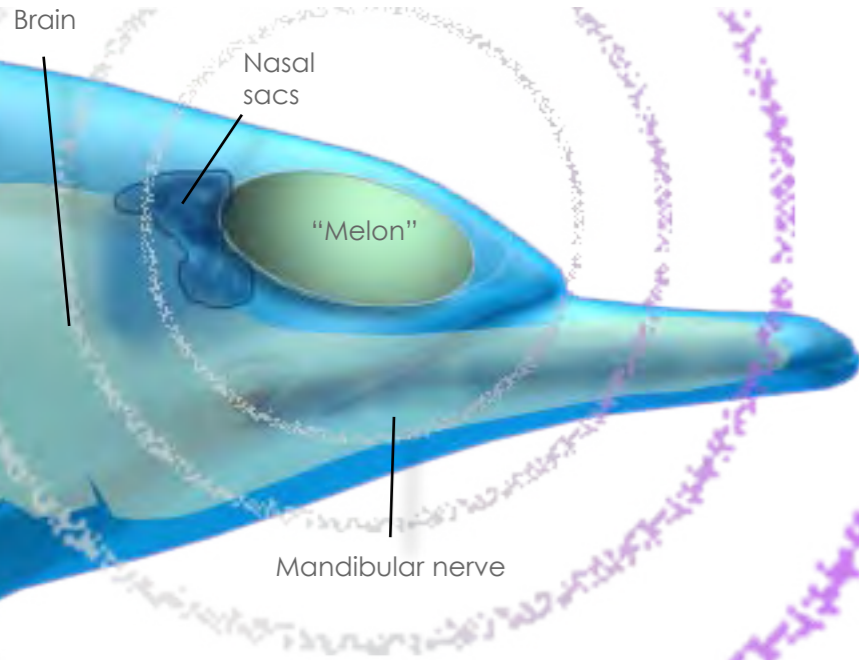
animals in coastal areas and up to hundreds in oceanic waters.

Spinner dolphins inhabit tropical and subtropical zones with herd sizes that range from 2 to 300 in coastal areas and up to thousands in oceanic waters. Spinner dolphins rest and socialize during the day, feeding at night on fish in the open ocean, whereas bottlenose dolphins rest, socialize, and feed both during the day and night. Bottlenose and spinner dolphin acoustic emissions or phonations can be classified into two general categories:

- a) tonal whistles, and
- b) pulsed sounds or clicks.



The dolphins sonar clicks reflects off fish' swimming bladders sending the echo back to dolphin



It is theorized that the sonar "clicks" are being generated in the nasal sacs and then focused through the "melon" which acts as a sort of acoustic lens. The returning echo is then probably being recieved through the lower jaw

sound they produce, dolphins can locate objects and fish with amazing achievement. A dolphin is capable of creating an acoustical image of its environment, including other animals, by using the pulses of ultrasonic sound which bounce off surrounding objects, almost like an x-ray image. Even when captive dolphins are experimentally blinded they are still able to echolocate to make their way to whatever the target is. The echolocation, sounds like a bunch of clicks or squeaking sounds, however, they are beyond the field of human hearing. Dolphins

phin sonar system works. The echolocation may be in its lower jaw. If this jaw is covered experimentally, dolphins have difficulties echo locating. Another hypothesis says that the ear canals, even though this is a reduced organ in dolphins, are where the center of echolocation is. Dolphins can learn about its surroundings by measuring how long echoes take to come back. They can

Building knowledge

Much is still poorly understood about the echolocation ability in dolphins, but progress is made every year. One of the leading researchers within the field of dolphin echolocation is Dr. Au from the University of Hawaii. In a recent interview he says the following of some of his new research results: "We recently discovered that by looking at echolocation signals from wild dolphins that they have a form of automatic gain control or a form of time varying gain. Now they do

it very different than our sonar would do it. In technological sonar, time varying gain usually occurs with the receiver, where the gain of the receiver is

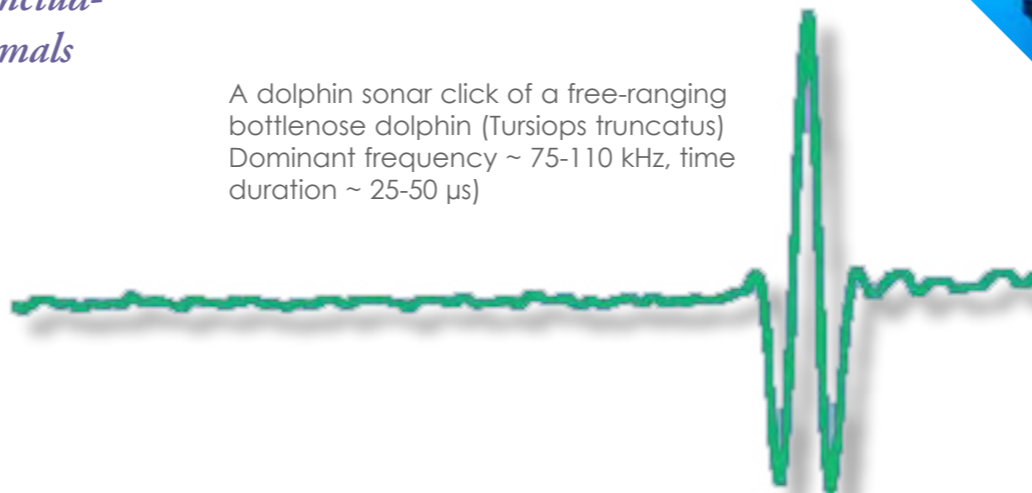
Dolphin society

Aspects of the social structure, language and learning abilities in dolphins

The Mexican dolphin researcher Dr. Carmen Bazúa-Durán recently conducted a comparative study on the ability of spinner- and bottlenose dolphin to whistle which seems to be a kind of "language" that at least some species of dolphins possess beside their sonar system. She tells the following about her and other researcher's recent findings of the social structure and language in dolphins: "Bottlenose and Spinner dolphins live in coastal and oceanic waters of the world's oceans. Bottlenose dolphins inhabit tropical and temperate zones with herd sizes that range from 1 to 30

A dolphin is capable of creating an acoustical image of its environment, including other animals

A dolphin sonar click of a free-ranging bottlenose dolphin (*Tursiops truncatus*) Dominant frequency ~ 75-110 kHz, time duration ~ 25-50 μs)



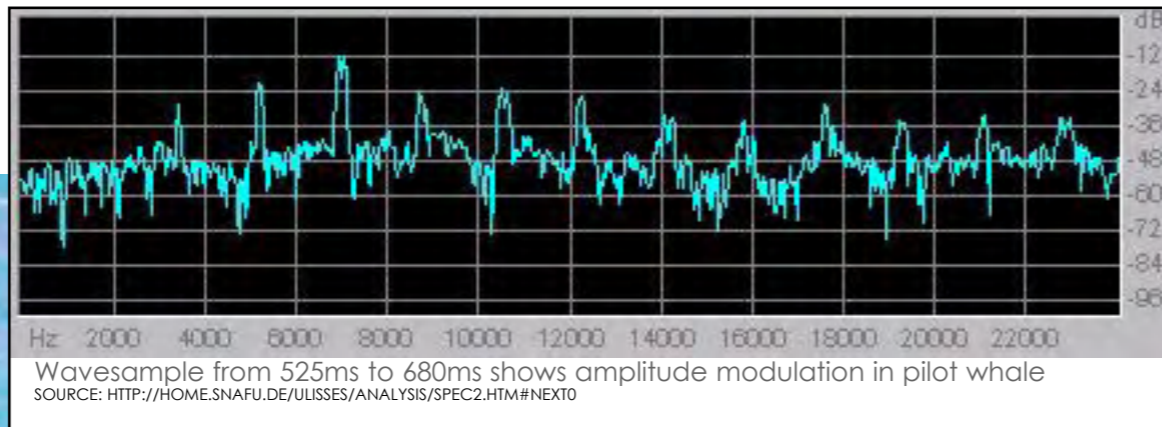
Whistle spectrogram

Dolphin whistles have typically been characterized in terms of their frequency as a function of time (spectrograms) which is also referred to as "whistle contour". Whistles are frequency modulated sounds with a fundamental frequency usually below 20 kHz and harmonics up to 100 kHz and durations between 0.05 and 3.2 s. Whistles are considered signals used to regulate group organization and function. The study of dolphin whistles has included the categorization of whistle con-

tours into classes and the extraction of acoustic parameters from each whistle contour."

The two American dolphin researchers Dr. Rachel Smolker and Dr. John W. Pepper recently documented a previously unknown whistle "union" phenomenon among adapted free-living male bottlenose dolphins. During a four year study period, three males formed an alliance, spending most of the time

together and cooperating "herding" females: small gangs of males kidnap females and keep them for a considerable time span for mating. Within the male individuals studied by Dr. Smolker and Dr. Pepper, the whistle repertoires were more variable than expected, based on previous studies, mostly performed with captive dolphins, but became less so during the time span of the study. Among the individuals,



Dolphins Parade, by Jean Lamy, oil on wood, 80 x 55cm
www.jean-lamy.com

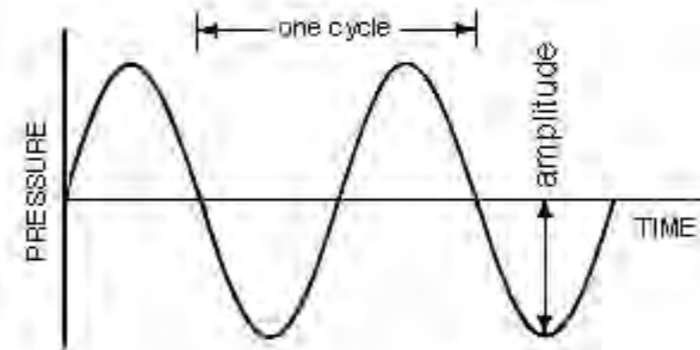
Dolphins belong to the family Delphinidae. Most species of dolphins are larger than porpoises, with the males usually being larger than the females. The family Delphinidae is the largest and most diverse family of the cetacean order. Scientists have discovered fossil records of ancient delphinids, which date back 11 million years. This family is composed of what we commonly call dolphins. There are over 30 different species in this family, the largest of which is the Orca, or killer whale. One of the smallest known dolphin is Hector's dolphins, *Cephalorhynchus hectori*, with a length of only 1.4 m. Delphinids are characterized by sharp, cone shaped teeth; most (but not all) possess a semi-circular fin on the back and a "melon", i.e. a rounded waxy mass found in the head that is thought to play a part in the focusing of sound signals. This "melon" is joined to a distinct beak. Dolphins are found in most sea of the world from the arctic to tropical regions.

the distinctiveness of individual whistling repertoires decreased such that the three males were practically indistinguishable by the end of the study. The three males had formed a

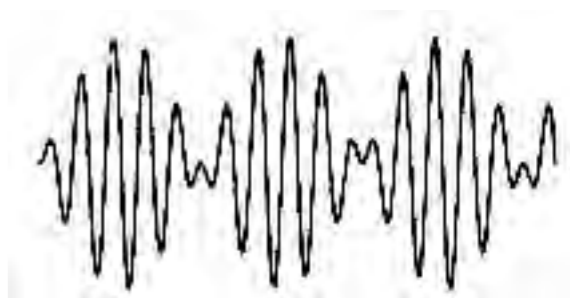
close "alliance" and had all reached the same point on one particular shared whistle form which they had only rarely produced before the forming the alliance.

Getting behind the technical terms: What is amplitude modulation really?

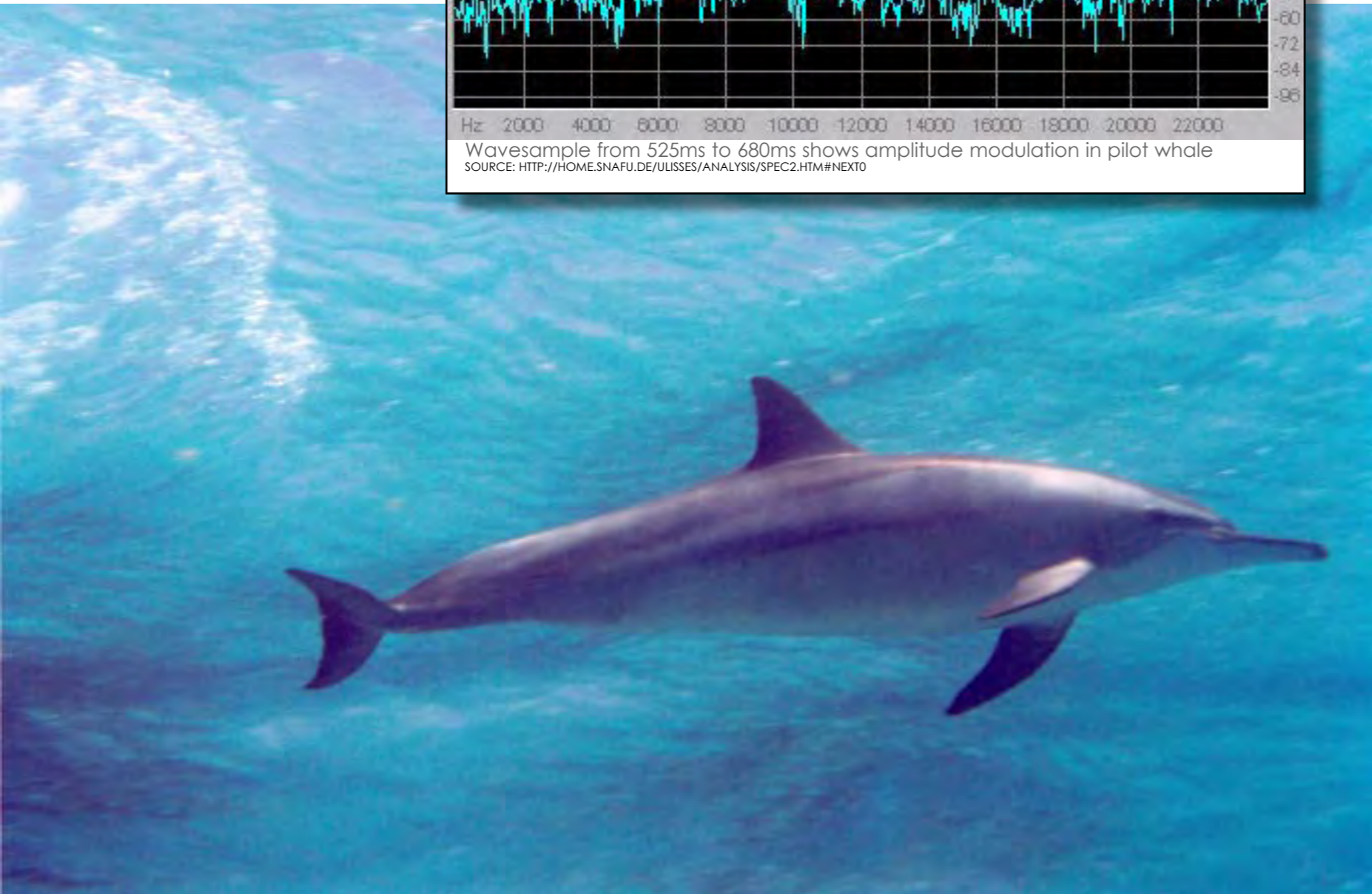
The **amplitude** of a sound wave (below) is the maximum amount by which the instantaneous sound pressure differs from the ambient pressure. One cycle corresponds to the frequency (tone)



Amplitude modulation (AM) is the process of varying the amplitude of a sound, often periodically. An example of AM is the violinist's Tremolo, where the amplitude of the vibrating string is rapidly altered by a movement of the bow.



Modulated amplitude
Click here to hear example of AM.
Requires Quicktime plugin and online connection. Example from Simon Fraser University 500 Hz carrier, 50 Hz modulator, raising the depth of modulation from 0 to 100%.



Dolphin sex

— now we got your attention, huh?

The staff at the Dolphin research center in Florida, USA (www.dolphins.org) has been breeding bottlenose dolphins for many years and has become experts within this field. They tell the following of sex and reproduction in bottlenose dolphins: dolphins have no secondary sex characteristics.

The only way to determine a dolphin's gender in the wild is to see a clear view of their genitals, or to observe an erection, act of intercourse, or a calf swimming close to an adult presumed to be a female.

Spotting the difference

Males have two slits that look similar to an exclamation point. The long anterior slit houses the genital region, while the smaller posterior slit houses the anal region. Two small pores are present on either side of the genital-anal slit, which have been considered possible vestigial nipples. Females have one continuous slit which houses both the anal and genital openings, the anus being towards the posterior.

The only way to determine a dolphin's gender in the wild is to see a clear view of their genitals, or to observe an erection, act of intercourse, or a calf swimming close to an adult presumed to be a female.

Females also have a set of slits housing the mammary glands. These slits flank either side of their genital slit. Occasionally females will have extra false sets of mammary slits. These extra slits are generally non-functional and could be a hold over from the dolphin's terrestrial ancestor.

Doing it anytime

There is no actual mating season for dolphins. They mate 365 days a year, just like humans. Ninety percent of their mating activity, however, is foreplay. Intercourse only takes seconds.

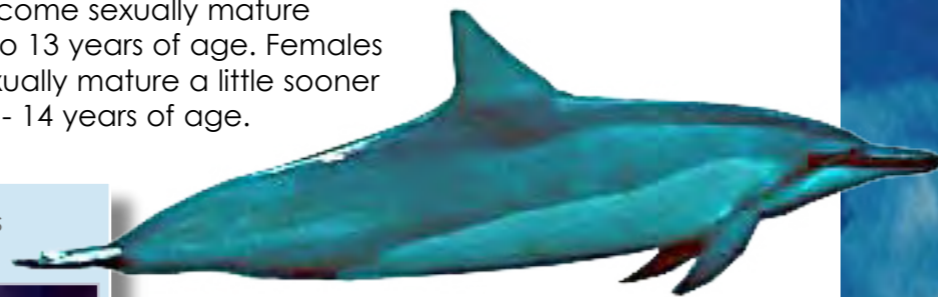
Males become sexually mature between 5 to 13 years of age. Females become sexually mature a little sooner at around 9 - 14 years of age.

Playing games

Much of the amorous activity between dolphins includes chasing each other around and raking each other with their teeth.

Dolphins have a tendency to get lazy looking eyes and lay on their sides, sinking like a log, when they are feeling amorous. This seems to be the height of erotic behavior for a dolphin.

The more dominant dolphin is usually found beneath the more passive, which is playing the "floating log".



Whenever, whoever

Dolphins are indiscriminately amorous. They have sex with the opposite gender, the same gender, and engage in masturbation with inanimate objects. Female dolphins have been observed suctioning things (like plates) to their genital region when they are feeling amorous. They also seem to enjoy buzzing on each others' slits using echolocation. What are the possible reasons for this type of behavior—as it is not just leisure? It is believed that dolphins may possibly engage in

this type of behavior to learn about sex as well as to maintain strong social bonds for many sorts of cooperative activities. Dolphins must maintain a streamlined body to move efficiently through the ocean. Therefore, male dolphins have both their penis and testicles packed inside their body. On mammals, testicles are usually found outside the body since sperm dies at body temperature. Dolphins compensate for the extra heat that their testicles must endure by utilizing a special feature of their circulatory system.

Dolphins

More than 30 species

Dolphins, whales and porpoises are placed in the scientific order Cetaceans. Cetus is Latin and is used in biological names to mean "whale". It's original meaning, "large sea animal," was more general. It comes from the Greek word ketos ("sea monster").

Cetology is the branch of marine science associated with the study of cetaceans.

Shapes and form

Cetaceans are the mammals most fully adapted to aquatic life. Cetaceans are nearly hairless, and are insulated by a thick layer of blubber. As mammals, cetaceans have these characteristics that are common to all mammals:

- They are warm-blooded animals.
- They breathe in air through their lungs.
- They bear their young alive and suckle them on their own milk.
- They have hair - though generally only a few 'whiskers'.

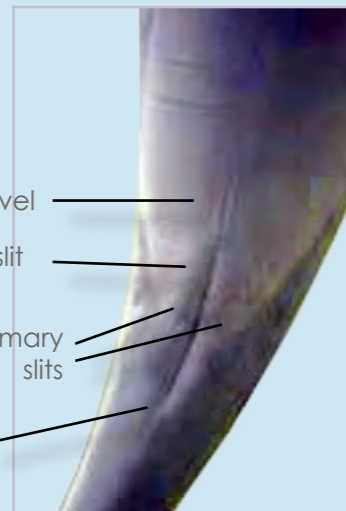
Another way of discerning a cetacean from a fish is by the shape of the tail. The tail of a fish is vertical and moves from side to side when the fish swims. The tail of a cetacean - called a "fluke" - is horizontal and moves up and down instead.

It can be difficult to tell the difference between males and females but females have mammary slits

Male



Navel
Genital slit
Mammary slits
Anus



Female

Pregnancy

Recent research indicates that bottlenose dolphin pregnancy lasts about 12 months. During this time, there is very little room in the uterus for a baby to develop. As a result, and to make birth easier, the tail fluke and dorsal are cartilaginous and are folded over in the uterus. The organs are also located beneath the developing baby, which could be the reason for a female gaining more girth during pregnancy and not developing a bulge. Mothers double their intake of food following the birth of their babies. Intervals between calves vary from about three to five years.

Calves

Calves are usually born tail first, weigh 25-40lbs, and are generally three to four feet long. We can get an approximate idea of how old a baby is by looking at the dorsal fin. It is thought that the dorsal fin stiffens within a few hours. The tail flukes seem to take a bit longer.

A calf swims in a position next to its mother called the *echelon position*. The calf swims in this position to catch mom's slipstream, allowing the calf not to work as hard in order to keep up with its mother. When calves are born they have lighter colored bands spanning their mid section. These are called fetal bands and are derived from being scrunched up

in the mother's womb. These bands will slough off after multiple weeks. Newborn dolphins are very dark in color. It is possible that this dark shading is used for camouflage as the baby travels in the mother's shadow. This coloration is also sloughed off after multiple weeks.

Learning to breathe

When calves are new to the world, they have to get used to their bodies not only swimming, but also breathing. They have to get comfortable with where their blowhole is. As a result, calves do something called chin slap breathing, which involves taking its head farther out of the water than necessary to breathe.

Echolocation is an ability that babies have to learn how to use over time. For this reason babies end up with a few cuts and scrapes within the first weeks of life.

Due to the need to look out for a clumsy calf, you sometimes see mothers "steering" their calves away from what might be considered a danger. Calves nurse an average of about

every twenty minutes or more for 24 hours a day. In the first few weeks of life this can be in more frequent intervals. They nurse, on average, a minimum of two years but have been observed to nurse up to four and a half years. Calves have many fringes along the edges of their tongue, believed to be an aid in nursing. Calves apparently roll their tongue and clasp the fringes together in order to form a watertight funnel for the milk to flow through. Mothers take the active role in nursing by squirting the milk into the baby's mouth.

Maternity pods

Groupings of females with calves are naturally occurring in the wild. The groupings are called *maternity pods*. It is important to have other females available to a mother dolphin. Female dolphins have been seen assisting in birth, and more consistently as "baby-sitters" or "aunties" helping to rear young dolphins. One of the best ways a female dolphin can learn how to care for a calf is to be around a baby and other more experienced females. Adult male dolphins generally do not appear around females unless mating. Male dolphins tend to congregate in groups of two or three and sometimes form what is known as a *pair bond*.

Bonded for life

Pair bonded males will stay together for an extended period, if not all, of their lives. Male dolphins play no role in raising their young. In fact, male dolphins have been known to be a threat to the calf.

Adolescent dolphins also congregate in separate groupings called juvenile pods. This will occur once a calf is old enough to leave its mother. Each female dolphin seems to have a unique mothering style. Some mothers are very protective parents, while others seem more relaxed with letting their calves explore. These variations have also been observed in the wild.

Dolphin Culture

– a case for better conservation?

There is increasing evidence that culture is an important determinant of behavior in some non-human species including great apes and whales and dolphins.

Recently, a team of Canadian, British and American researchers lead by Dr. Hal Whitehead of Novo Scotia, Canada, has argued that at least in some cases, there may be repercussions for population biology and conservation in dolphins and whales. This may of course depend on how "culture" is defined.

Dr. Whitehead and his team follows the definition that "culture" is *information or behavior, shared by a population or subpopulation, which is acquired from conspecifics through some form of social learning*'.

A "population" could in these cases include the whole species, and "subpopulation" any subdivision of a population which contains at least a few individuals in each set. Dr. Whitehead and his team argue that culture can affect behavioral and population biology, and thus conservation issues, in ways that are importantly

FREE back issues



CAYMAN ISLANDS, Bloody Bay Wall, Freediving World Records, Coral Spawning, Innerspace, Wrecks of Narvik Norway, Siberian Cave Diving, Tagging Whalesharks, Cabilao. **Link: X-RAY #5**



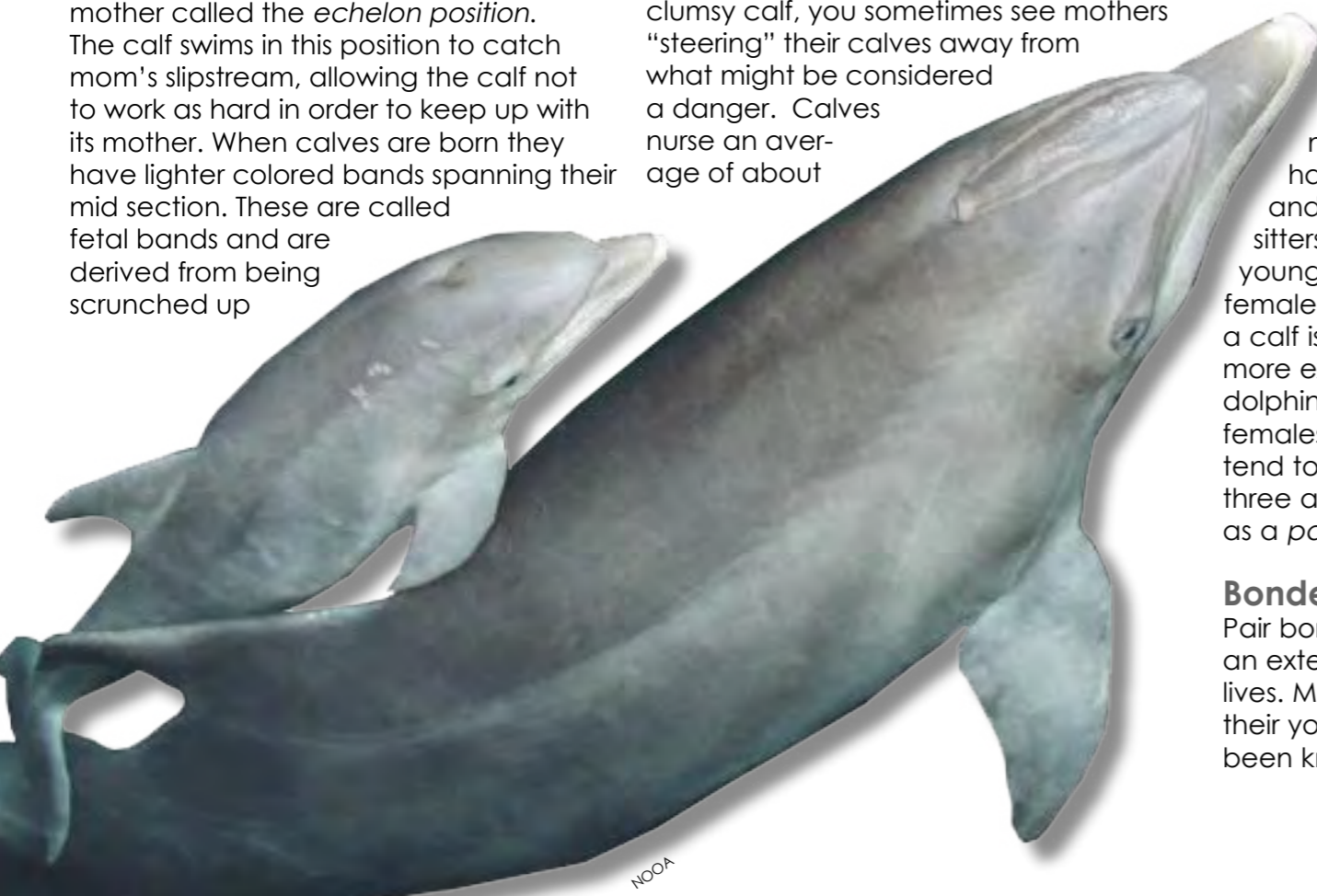
PACIFIC NORTH WEST AMERICA, Vancouver Island, Puget Sound, Neah Bay, Alaska, Honduras Sharks, Amous Nachoom, Jon Gross, Apeks, Fish Sense. **Link: X-RAY #4**



MALAYSIA, Coralreefs after the Tsunami, Whale beachings, Tragedy in South Africa, Nemo's Nose: The Science of Fish Fashion, Ice Diving in Russia, Todd Essick. **Link: X-RAY #3**



Diving in the Himalayas, Swimming with Orcas in Norway, El Dorado in the Philippines, Gaansbai in South Africa. **Link: X-RAY#2**



different from those traditionally expected from a model that only includes genetic inheritance. Culture is very varied, and this variation has implications for its interactions with conservation.

Horizontal or vertical culture

For instance, contrasts have often been drawn between *horizontal* cultures, where transmission is between members of the same generation, and *vertical* or *oblique* cultures where animals learn behavior from parents or other members of previous generations.

Horizontal cultural transmission can be highly effective in quickly changing population behavior in adaptive ways, an example being the rapid decrease in the use of certain chemicals by humans once they are shown to be toxic.

Conversely, vertical cultures, like some religions, can be highly conservative and can constrain adaptive responses to environmental change.

Cetacean Culture

Dr. Whitehead and his team argues that by these criteria, culture is quite common among animals, especially those that are more cognitively advanced, such as the dolphins.

However, in most of the species possessing recognized cultural capacities, only a small proportion of behavior seems to be determined by social learning, and much of this may be functionally neutral.

Despite difficulties in studying the behavior of the whales and



"Dall's Porpoise"

Carved and painted red cedar cutout wall panel. By Odin Lonning. Read more about his current works in both traditional and contemporary media about his tributes to the killer whale on his website:

www.odinlonning.com

Culture is very varied, and this variation has implications for its interactions with conservation.

dolphins, and, compared to primates and songbirds, a lack of knowledge on behavior, communication and social structure, there is strong evidence for cetacean cultures in the four best studied species, and some most interesting speculations for some of the others - for instance on spinner dolphins, *Stenella longirostris*.

Sophisticated social learning abilities exist, at least in bottlenose

dolphins and orcas.

Social learning

Of the several types of social learning which have been recognized, imitation is often singled out as being particularly significant for the propagation of culture.

The bottlenose dolphin can imitate both vocally and nonvocally and has been shown to understand the broad concept of imitation. Some consider it the most

sophisticated non-human imitator. This social learning seems to have led to culture, of various types. Among the baleen whales (suborder Mysticeti), there are several known cases of horizontally transmitted cultures.

Humpback song

The best understood horizontal culture of cetaceans is the mating song of the male humpback whale.

At any time during the winter breeding season, all the males in any ocean sing more or less the same elaborate song, but this communal song evolves over months and years. Songs in different oceans at any time are different but follow the same general syntactical and evolutionary rules.

Horizontal cultures are also found in the suborder *Odontoceti*,


the toothed whales and dolphins. An example is the *dead-salmon carrying* fad of the well-studied *southern resident*, fish-eating, orcas of the Puget Sound area of the northeast Pacific.

Of the several types of social learning which have been recognized, imitation is often singled out as being particularly significant for the propagation of culture.

AND THE SECOND


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The famous K-Pod

It began with a female in K-Pod carrying around a dead salmon in 1987, spread to the other two pods in the southern resident community over a 5-6 week period and then stopped. It was noted a few times the following summer, and then never again. Probably more significant from the conservation perspective are vertically or obliquely transmitted cultures.

Populations of all the well-studied odontocetes are culturally structured

and subpopulations with distinct cultural trait groups are often sympatric. Among the bottlenose dolphins of Shark Bay, Western Australia, there are at least four distinctive foraging specializations, at least some of which are likely transmitted vertically from mother to daughter. Similar population structure by foraging specializations is found in other dolphin communities, for instance in cases of human dolphin fishing co-operatives.

Cooperation with humans

In Brazil there are at least two cases where some, but not all, bottlenose dolphins in a community have a long-standing and complex cooperative relationship with local fishers which are almost certainly vertically transmitted between generations of *both dolphins and fishermen*.

The population of orcas off the west coast of Canada is clearly structured at a number of hierarchical levels, and much of this structuring seems to be cultural. At the highest level, different types of orca ("residents" and "transients") are sympatric, but

show sufficient differences in feeding behavior, vocalizations, social systems, morphology, and genetics that they may be incipient species. It

For a range of non-human animals, culture is a vital determinant of phenotype, and so how the animals interact with humans and our cultural artifacts

has been suggested that this division was originally cultural. At lower levels, "communities", "clans" and "pods" of orcas may differ in vocalizations, foraging behavior and social behavior, but often have overlapping ranges.

Sperm whales too

The complex, stable and sympatric vocal and behavioral cultures of orca groups have no known parallel outside humans. The closest analog is with the sperm whale, whose society is also arranged into a multi-level hierarchy, at least two levels of which may support cultural differences among sympatric groups: the approximately 10-member "social units" and ocean-wide "clans" with thousands of members each.

Dr. Whitehead and his team concludes that we have heard arguments that if we are at the stage of conserving non-human cultures, then the real conservation battles have already been won. Dr. Whitehead and his team disagree. For a range of non-human animals, culture is a vital determinant of phenotype, and so how the animals interact with humans and our cultural artifacts. Thus, culture should be an integral element of the conservation biology of these species: cultural organisms behave very different than those for which culture has little significance.

At lower levels, "communities", "clans" and "pods" of orcas may differ in vocalizations, foraging behavior and social behavior, but often have overlapping ranges.

It's called

Earth Day.

That's not to say

we need to treat it

like Dirt Day.



After more than thirty years, we thought it was time that the other 72% of the planet got some attention. Which is why we're asking people to Dive In To Earth Day the week of April 18 to 24. So grab some friends and install a mooring, do a reef survey, or organize an underwater cleanup. Everybody into the water. For more information, visit www.coral.org or call (415) 834-0900.



West Marine





Opinions

Letters &
All perspectives expressed in this section are those of the individual author and do not necessarily reflect the views of X-RAY MAG or its associates

Edited by
Peter Symes

comments

Sinai: Build bridges, not barriers

I read in on X-ray magazine's website about the new "Berlin wall" around Sharem El Sheikh. As an Israeli that is familiar with the conflict from within, and as a diving instructor, photographer, journalist and most of all nature lover I would like to tell a short story.

About one month ago I was leading A group of nine Israeli divers on A diving Safari to the Ras Mohamed National Park in the south of Sinai. I went there with a Israeli group under very strong recommendations from the Israeli ministry of defence NOT to go down to Sinai during this time as there are many warnings about terrorist organization that are intending to kidnap tourists in Sinai (and especially Israelis).

After many cancellations and doubts we finally made the 3 hours drive from our border in Eilat to the harbor in Sharem El Sheikh safely. We went on board with the lovlies Egyptian crew and on the second day of the journey when we arrived to the world famous Thistleworm wreck, we received the most beautiful gift we could imagine from Nature: six wild dolphins came to play with us, and swam around us for long minutes which happens very rarely in the Thistleworm. They were so close and so lovely as you can see in the picture

I am publishing the story of this special safari trip in at least one magazine I am working for in Israel, and I hope it will help people to make the decision, to fight their fears, get out of the sofa - in front of the T.V. where they show us mostly the bad news, to go to Sinai to travel, to dive, to enjoy the beauty of nature and life, together with our neighbours from the other side of the border.

We are all sharing the same future. we all share the same beautiful Red Sea, and I believe after all we all love Dolphins. There are only a few extremists on each side, and we shouldn't give them the pleasure and bring hate or fear into our hearts. They want us to stay home scared, and to hate the other side.

We should fight them without weapons, only with our spirits and love and we will win in the end. At least that what I felt when those beautiful peaceful creatures were swimming with us right next to that huge broken war machine that lies on the ocean floor.

I don't think Sinai is anymore dangerous then anywhere else on the planet, neither does Israel. please come and visit us!!!

For me it is very important that people around the globe will know that there are many Israelis and Egyptians that are sick and tired of that war, and are searching for peace, underwater and above, and sometimes even find it...

My best to you

Yonatan Mir
Eilat, Israel

I believe our love for nature and diving can be a bridge.

Holidays behind fences? I think not

In an effort to improve security for tourists in Sharm El Sheikh, Egyptian authorities intend to build a 20km fence around Sharm

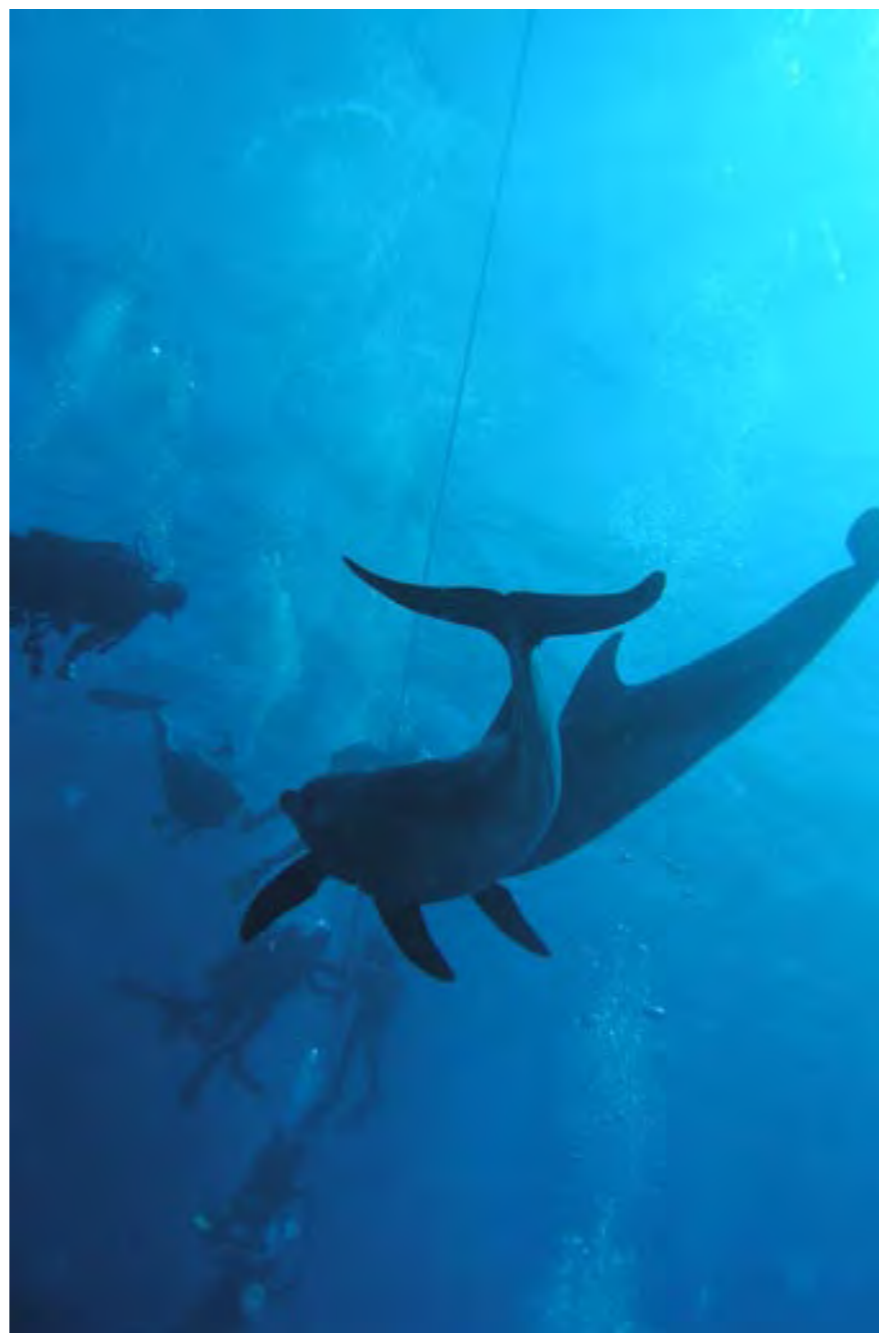
This summer three bombs exploded in Sharm, killing 88 people, including 11 Britons, wounding about 150 others. Yet this hasn't dampened our enthusiasm; Sharm is more popular than ever and this winter the tour operator Thomson will be flying 15 charters a week into Sharm, which is more than double from last year. Only this year, the tourists will encounter heightened

security, including vehicle checkpoints to get into the resort. But while the authorities are right to crack down on terrorism, and the proposed fence will be out of sight of the tourist areas, do we really want to take a holiday behind a barricade? Sharm has already turned into a tourist ghetto, where tourists and locals live separately and a wall or fence will only make this division more stark.

And if Sharm is fenced off, what's next? Terrorists may just target other nearby resorts such as Nuweiba, Dahab or Taba. We can't erect fences everywhere, nor should we. We need tourism where locals and visitors are well integrated, where

local communities are provided with both an income and a sense that tourists are guests who visit on an equal footing with locals. Creating resorts that facilitate such encounters will help to knock down any perceived divides between cultures rather than creating them in the first place is ultimately the way to overcome the "us and them" divide that is already afflicting resorts such as Sharm. Fences are for prisoners and prisoners we will not be.

Jaime
Huddersfield, England
(no surname supplied)



Enough of the hypocrisy

Japan should admit its whaling program is a total farce. They have for years maintained its scientific whaling program is about real science, while it has been glaringly obvious to just about everyone else what was really going on. Now genetic testing has confirmed that the blue whale, one of the world's most endangered species, is being sold at Japanese fish markets. Blue whale is one of the species Japan is not allowed to kill under International Whaling Commission (IWC) rules.

Charles Hook
San Diego, United States

Turtles go into soup too

Dear X-Ray Magazine,
Thank you for taking such a clear stance on the issue with Disney serving shark fin soup at their Hong Kong resort. Unfortunately sharks are not the only species threatened by culinary practices in the region. If endangered species of Indian turtles also seem to vanish, them being a delicacy in Chinese cuisine has very much to do with it. The demand for turtle meat in the Chinese market has reached such a level that it has landed these species in serious trouble. Moreover, they make a detour via Kolkhata (Calcutta) and Bangladesh to reach Chinese kitchens. A survey done in 1999 in South China had revealed that 70 per cent turtles were

imported from South East Asia. There have been some success in reducing this number through farming turtles domestically in China and in making the Chinese government and public more sensitive to the fact that these species are threatened. But the reports that turtle markets in China appear to be changing and that the Chinese seem to be taking to farmed turtles should be viewed with extremely guarded optimism. The demand in the market is still too high to be met from China's own farming which has resulted in the recent inclusion of Red Crowned Turtles (Kachuga kachuga) in the red list of IUCN.

Sonia Singhani,
Mumbai, India

Pollux or Polluce?

Your article on the Polluce - page 56 - states:

"Nigel Pickford lists it as the treasure of Pollux in his authoritative *Treasure Atlas*, so it is well known. However there has been much confusion about the names Pollux and Polluce. Pollux has to a large extent been the one that got stuck in the minds of people but wrongly so. The Pollux is a vessel that were lost in the beginning of the 1800's. One reference tells that Ferdinand IV, King of the Two Sicilies, fleeing Napoleon's advancing forces as they were invading Naples, loaded his treasures aboard an English sailing ship, and

No!



sent it northwards, towards a friendly port."

I have Pickford's book and it says POLLUCE – it does however state 1806 and talk about fleeing Napoleon's forces. Could you please clear this up for me? Could he have meant: 1841, POLLUCE and the traditional story of the 1841 Polluce?

Help! I'm so confused!!

Kathy Cunningham
(no adress supplied)

Enrico Cappeletti replies:

Kathy, is a good question.

Even the great Pickford made a mistake. I spoke few times with him and he learned about the mistake. He mentions the POLLUCE- the ship went down june 17, 1841 at 11.45 pm. She had on board a lot of coins in silver and gold.

If you go in our website www.hdsi-talia.com you can see all the pictures I shot October 10 -31th during the salvage operation of what was left after a group of illegal english treasure hunters. Polluce was a ship of Sardinia Reign. She sailed on the Marseille-Naples route twice a week. We spent three year to understand that was the same ship that an anglo-italian team broke to pieces.

Polluce is the name in Pickford's Treasure Atlas. But the date is wrong. Pickford, as others before and after him, relayed a story that went all over the island (Elba) about a Spanish sailing ship that in 1806 carried a treasure belonging to the king of Naples. Few miles from Elba—and this was at that time when Napoleon was exiled on the island—she sunk herself in order to not fall into the hands of the French. As this story goes this ship was Pollux, or Polluce in Italian.

When we found the ship, it was made of iron and with



paddles. It wasn't a sailing ship of course but something else. It took us more than a year to find out that a ship went missing between Marseille and Naple just looking the timetable. This ship was the Polluce belonging to the Rubattino Company, Genoa, She was bought in Le Havre in 1839 and entered service on the line in April 1841.

The story that circulated on Elba was telling about a golden trolley. We found out in Marseille in an old newspaper that Della Rocca princess had onboard her trolley.

But there is more to the mystery about this ship. Why did Polluce already in 1859 come under the eyes of the treasure hunters? Why did the owner try to salvage the ship in Oct 1841? Why did English, Swiss, French and Germans come to the waters off Elba island water to give it a try? How come the greatest the treasure hunter in the world didn't touch her while someone in the United Kingdom was was able to buy the histoical information? Why aren't there any evidence of the vessel in the Italian historical database? How much was really on board? From what we can gather from the latest information it was much more than first assumed.

The four english divers went on trial in UK. They were fined for £ 2500, that's all. They smashed the only treasure ship we had in our waters and nobody can do anything about what happened. They were backed up by some Italian and one French guy and they will go on trial in January 2006.

Next summer we will go back to collect what is left. Meanwhile I have ten month to discover what else might be inside that ship.

regards
Enrico Cappeletti

Eating fish - or not

Your editorial on our consumption of tuna and it is implications for the dwindling stocks was right on. Finding substitutes or solutions will not be easy.

In the meantime there are absolutely no excuses that we don't put an immediate stop the indulgence in exotic species just on culinary reasons when the fishing practises wreck havoc with the ecosystems in the seas. Orange Rought costs about the same as smoked salmon and is served up in the smartest restaurants. But although Orange Roughy may seem a luxurious treat for the well-off, bringing it to the table comes at a horrendous price.



Orange Roughy. Illustration from New Zealand's Ministry of Fisheries

It is fished by bottom-trawling in which trawls suspended from factory-size fishing vessels are dragged violently along the seabed while their metal plates, nets and rollers ploughs everything up in their path. But the hauls bring up nothing more than a small catch of deep sea fish while breaking huge areas of tonnes of ancient coral. Like with the shark fin issue please help pressure fishmongers and restaurants not to stock these fish.

Robert Smith
United Kingdom



Deep Down the Navy Divers want the Best

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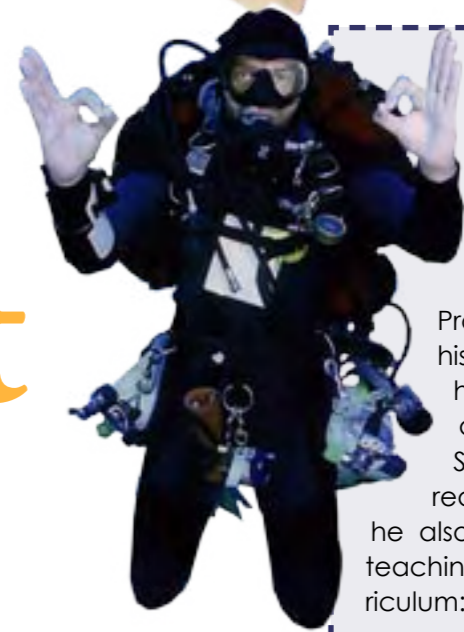


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After a year of intense research the Royal Danish Navy decided what suits them best

DYKKERCENTRET

From mask removal, replacement and clearing Getting it all right to SMB deployment



Leigh Cunningham is the technical manager and TDI Instructor Trainer for Ocean College, Sharm El Sheikh.

Probably best known for his records - Leigh once held the record for the deepest dive in the Red Sea - and attempts of reaching extreme depths, he also has a wide range of teaching credentials to his curriculum:

TDI instructor trainer, DSAT Tech Trimix instructor, PADI MSDT IANTD Technical diver instructor CMAS 3 star instructor.

Mask clearing and deployment of the Surface Marker Buoy. What's the connection between these two unrelated skills, you may be excused for thinking. They are both giving many students problems during training, that's what. In both cases it's all about getting it right from the beginning

During entry level "Open Water Diver" training it is the mask removal, replacement and clearing skill that students routinely have most problems with. Likewise, during entry level technical dive training, the deployment of SMBs, Surface Marker Bouys is surely the exercise that ranks highest on the tricky-issue hitlist.

Problems and cures
In this article, we are therefore going to discuss possible cures for problems associated with the above skills, hence prolonging the sanity of the diving instructor as well as making the world a better place. On both accounts I am talking from personal experience

in years gone by and the experiences related by fellow diving instructors. I can clearly remember spending hours at the pool side, telling students that it is perfectly normal to not be able to breathe solely through your mouth without breathing through your nose at the same time. After all, this is the first and only environment that we have been in where this is necessary to sustain life.

Rewinding the tape
However, under water we might one fine day find ourselves in a situation where we will have to rely on being able to do just that. So even though you weren't all that cool with this mask removal business back then, let's rewind the tape and redo some exercises. It will do you good and, in case you had problems back then, you'll probably be a lot more at ease with it all now anyway.

A good exercise
Try to adopt a circular breathing pattern. That is, inhale through your mouth exhale and through your nose. Practice at the pool side, with no mask and just a snorkel. Lie face down in the water, at the surface, in the shallow end. With some calm and focused practice, any problems associated with near drowning from inhaling water in the mask or while the mask is off, will be resolved quite quickly. For some it's going to take a little longer.

During training
I have often been thinking that training agencies should consider additional equipment requirements for the instructor during confined water training. Namely a cloths peg with a reasonably strong spring.

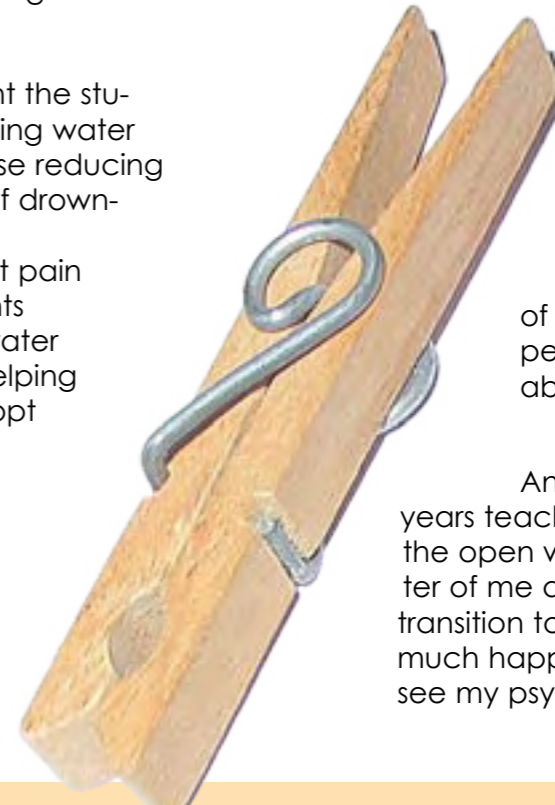
During mask removal and replacement in confined water training, if students start to snort water while apprehensively looking at the surface, the cloths peg could be swiftly attached to the students nose by the instructor. The cloths peg in this situation would have a constructive dual purpose, as well as being a useful tool for hanging your washing out to dry.

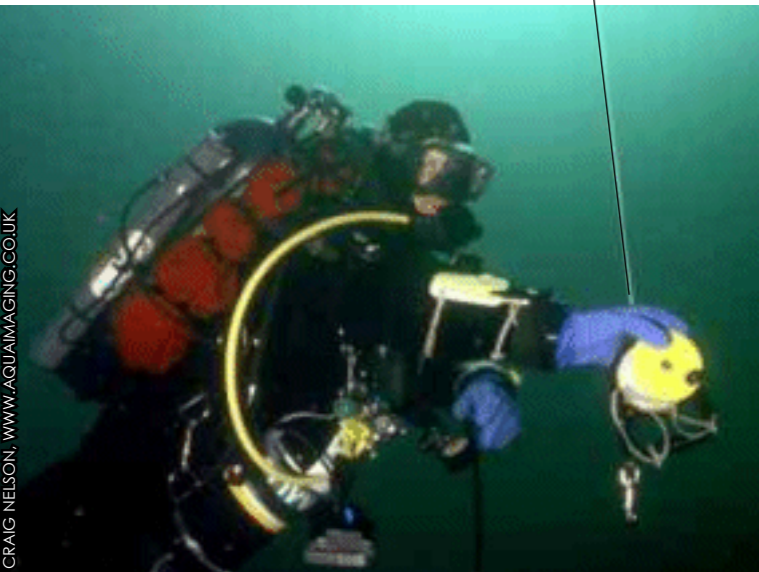
- 1) It would prevent the student from inhaling water through the nose reducing the likelihood of drowning.
- 2) Cause sufficient pain to deter students from snorting water in the future, helping students to adopt the correct breathing pattern.

Obviously the cloths peg is not a tool to be continuously used

after training by a diver who has not mastered separating breathing between the mouth and the nose. It is simply a tool to be used during training to help the student and instructor reach the end goal. Mask removal, replacement and clearing must be mastered without the use of the cloths peg before an Open Water diving license is issued. Rocky (my dog) used to piss in my house, I would slap him on the nose and rub his nose in it, he soon stopped pissing in the house. I don't think slapping students is the answer, in the case of mask problems. The cloths peg could be the key. It is all about conditioning.

Anyway, after a number of years teaching open water courses, the open water students got the better of me and I decided to make the transition to technical teaching. I'm much happier now and I only have to see my psychiatrist once a month.





Deploying and decompressing under a SMB is an essential skill, which however, takes some practise to master.

Now onto SMB's —Surface Marker Bouys

These are sometimes carried by the recreational diver in specific environments (like drift diving in strong currents) and as a required equipment for all technical divers in most environments.

The SMB has many uses:

1. To act as tracking device during drift decompression, so surface support and the boat captain can track divers underwater from the surface during the dive and to signal the support team that the dive has run to plan.



2. The line attaching the SMB to the surface will act as a reference for divers during open ocean drift decompression.

3. Hanging slightly negatively buoyant on the line/SMB will make a series of complicated decompression stops more accurate and comfortable to carry out.

4. A predetermined emergency SMB can be deployed by a diver from underwater to signal the support team that back up gas on the boat or shore is needed in the water now, or simply as a signal for a support diver to come in the water and see what the problem is.

Worst case scenario: if the reel does jam, let it go!!

For the decompression diver the reel, line and SMB could determine the safe return to the surface —or not. Bearing this in mind, it becomes an fundamental and essential skill to be able to deploy the SMB comfortably without problems in open water.

How to do this correctly depends to some degree of what type of SMB you carry. There are three different types of SMB.

- 1) The open ended, which is the cheapest and least reliable.
- 2) The type with a one way valve allowing gas to go in one end, so, if the SMB reaches full gas capacity during the ascent, gas will escape through a standard dump valve on the side of the SMB, instead of out the end where the gas went in (one way valve). This type is more reliable than the open ended.
- 3) Closed end with a LPI (Low Pressure Inflator) inflation system (Halcyon) or a small .25-.5 liter cylinder attached to the SMB for independent inflation. These are, in my opinion the best types, and the most reliable.

Don't opt for the cheapest type. You get what you pay for.

There are several methods for deploying the SMB (adding gas). The most trouble free is the closed end type



with the small cylinder attached for independent inflation. But don't forget to fill the small cylinder every time before you dive. One fill is good for one deployment only. The small cylinder can be filled by attaching it to a standard scuba cylinder and equalizing the pressure. The disadvantages with this type is that it's quite bulky (more difficult to stow) and you need to remember to always have the tank filled or topped up.

Therefore the closed end with a LPI *) inflation (Halcyon) system is my personal favorite. A standard low pressure inflator hose/connection is used to add gas to the SMB.

The male connection on the SMB has no ridge, so the LPI cannot lock onto the SMB. Good thing. Just imagine if the buoy started going up and you couldn't disconnect – you would be dragged with it to surface faster

*) LPI: Low Pressure Inflator

than a ballistic missile fired from a submarine. You simply add sufficient gas to the SMB via the LPI, the hose slips off and the SMB makes its way to the surface with expanding gas vented from the dump valve on the side of the SMB.

The semi closed (one way valve) type has the same options regarding how

Don't clip your reel onto your wing or BCD. If a boat passes you might get dragged faster to the surface than you bargained for



to add gas to the SMB, as the open ended. But filling it is less sophisticated. One method would be to use a second stage, i.e. simply purge sufficient gas into the SMB. This method is not to be recommended in cold water environments as extensive purging of a regulator adds to the risk of it freezing and freeflowing.

Dumping wing gas, on the other hand, into the SMB doesn't carry the risk of a second stage freeflow and has another advantage over other methods of adding gas. As you are simply moving gas from one bladder (your wing / BCD) into another (your buoy) your overall buoyancy doesn't change. Until the buoy is released that is after which the diver would need to add gas to the wing directly after releasing the SMB to maintain neutral buoyancy.

Another method with the open ended and one way valve type is to exhale while holding the SMB above the second stage you are breathing from. Gas would then escape from the exhaust valve into the SMB. This method works well from deeper water, but it's not the best method when deploying the SMB from shallow water. A third option would be to use a small air gun attached to an LPI.

Bigger is not necessarily better.

Size matters

Something divers should consider is the size of the SMB. Bigger is not necessarily better. Yes, in open ocean environments with a big swell at the surface, the 2 meter tall SMB would be the way to go. A 1-1.5m buoy in this environment may not be seen clearly by surface support as its lost in the swell. But the bigger the SMB, the harder it would be to get a good fill and a nice erect SMB at the surface.

"Think Boyle's law" deploying a 25 liter SMB from 20 meters. The 2 meter SMB would have a gas volume of 20-25 liters. Consequently the SMB would need over 8 liters of gas added (1/3 full) to ensure an erect SMB at the surface, as a floppy sausage is no use to anyone.

For in-shore, lake and calmer water environments the 1-1.5 meter SMB would be a wiser choice as it easier to fill.

Another important issue as regards to deploying the SMB is to make sure the line on

a floppy sausage is no use to anyone.



the pool is actually ON the spool. If you have excess line running off the spool as you are about to deploy, the line could snag on the locking nut/brake or handle on the side of the reel.

Worst case scenarios

If the reel does jam, let it go!! Do not let the SMB drag you to the surface. Once the SMB is up, do not clip the reel off. If boat traffic at the surface ran over the SMB you could find yourself on the surface very quickly.

On a concluding remark

Please get formal training where considerations regarding SMB deployment are thoroughly covered and practiced, before deploying SMB's from underwater.

An article like this is no substitute for the real thing

Have fun and dive safe.

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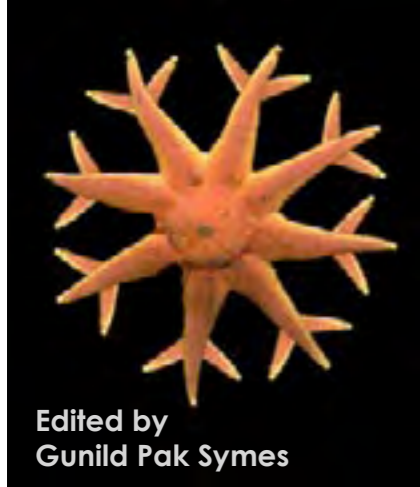
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Edited by
Gunild Pak Symes

for the diver who has not been naughty but nice...

Holiday Gifts



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Holiday Gifts & Stocking Stuffers



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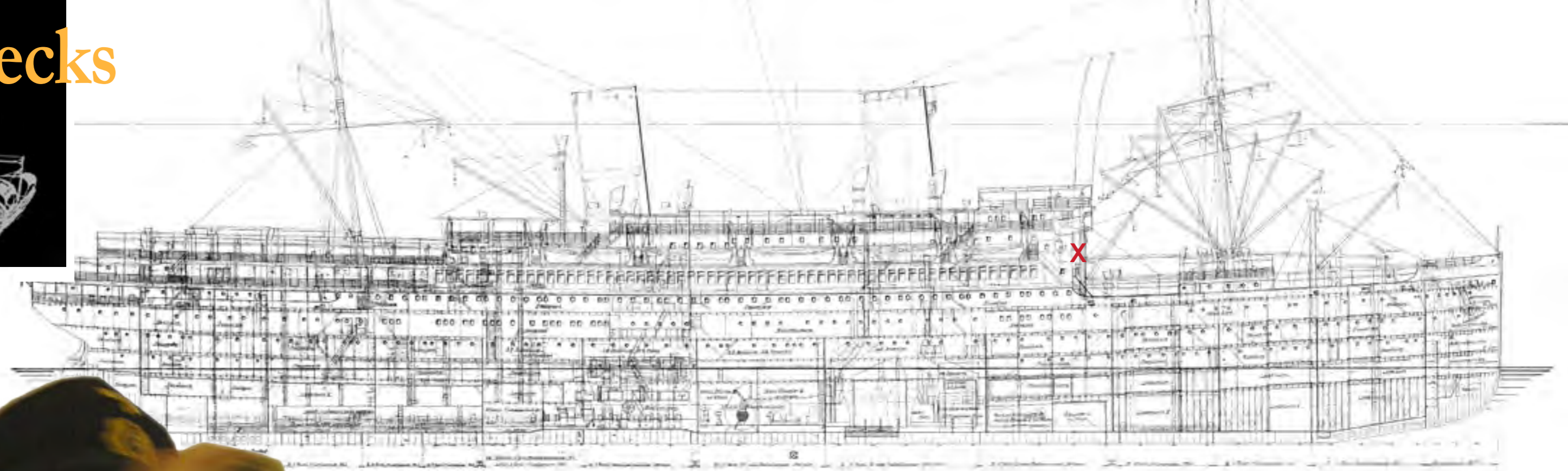
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German ocean liner *General von Steuben* was torpedoed by a Russian submarine in 1945 taking

thousands of refugees fleeing the advancing Red army with her to the bottom. She now rests at 72 meters

in the Baltic Sea making it one of the most impressive Baltic wrecks and daunting technical dives.

General von Steuben (GvS) was built in 1923. A modern ocean liner for the time, her top speed was 16 knots and she took 1100 passengers. With a weight of 38 500 tons distributed over a 168 meter long hull and a nearly 20 meter wide deck she was often referred to as "The beautiful, white Steuben" in advertising material from that time. As it happened, GvS was the first German commercial ocean liner to port in the US after the First World War, opening the trade over the Atlantic once again. No one then knew what fate awaited her and her passengers.

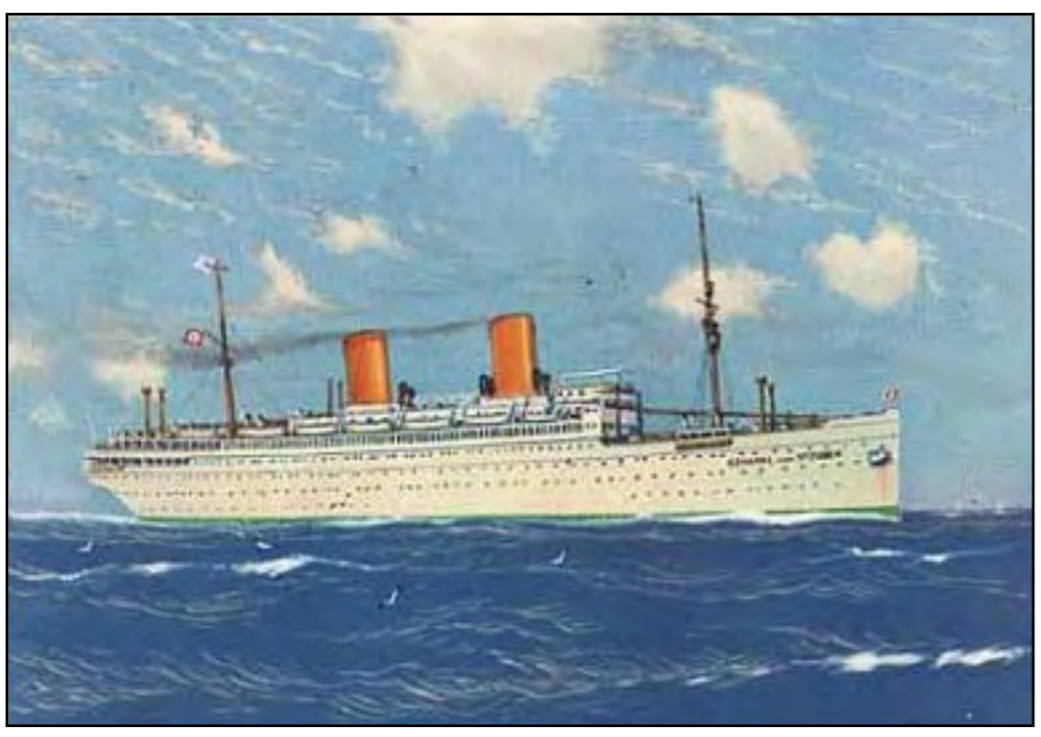


Divers on the starboard side, above the lantern house (the 'X' on the drawing above)

Text: Michael Tagliati

General von Steuben





Promotional postcard for the "beautiful white Steuben"

The collapse of the East Front

During the Second World War many commercial ocean liners were requisitioned for military service as transporters. The fighting on the East front was particularly nasty. The German campaign in Russia had soon erupted into an incredible carnage, violence and terror so when the tide turned in 1943 the Russian

soldiers were eager for revenge. As far as they were concerned the only good fascist was a dead fascist. Civilians, women and children making little difference. In retrospect, none was better or worse than the other. It was war. The stakes were high. The sheer fear of the Russian army among the German civilian population who now found themselves



at the front line was enough to make whole families commit suicide in some areas. As the German front retreated the situation was desperate. Several hundred thousand civilians needed to be evacuated to avoid the advancing Russian 9th Army. So what did the German military command do?

The beginning of the end

The ocean liners General von Steuben, Wilhelm Gustloff and Goya were given the task to evacuate wounded soldiers and civilians and rescue them from the wrath of the Russian army. But the risk was immense as the Baltic Sea was dominated by Russian submarines. That the superior speed of GvS was sufficient to outrun these submarines was, in a sense, a correct assumption. However, as this was not the case for escort ships these, in this case, represented the weakest link in the chain. One of them had a much worn down insulation in the chimney and running on steam it generated sparks which were visible at great distances at sea, regardless of the blackout routines practiced onboard at the time. Alexander Marinesco, captain of the Russian submarine S-13 soon spot-

Spare steering wheel on the aft deck

ted the sparkling lights on the deck in his binoculars.

The End

At 00:52 two torpedoes struck the starboard side.

General von Steuben had 5 decks; the lower was completely filled with immobilized wounded German soldiers. Before leaving from Pillau General von Steuben was overloaded with people who wanted to escape the Russian Army. Built for 1100 passengers, she now held nearly 5 000 passengers. This sheer number of people onboard meant several children were born onboard every day.

As the most of the crew

quarters were located exactly where the torpedoes hit, any organized effort in handling the emergency was crippled from the onset. Panic ensued.

Only 659 people survived in the 4° C cold water and by 01:32 General von Steuben was gone from the surface.



T. ÅGREN



The engine room telegraph on the port wing bridge of General von Steuben - at 68m

The advancing Russian army drove hordes of German refugees in front on them



General von Steuben also evacuated wounded soldiers



pleased. As I don't have much experience diving to these depths and this alien environment I would have aborted the dive in case of bad visibility. Suddenly I get this feeling of being a trespasser in a cemetery. This isn't all that great. I am

is the visibility?

After seven minutes I finally see the outline of the hull. The sound of breathing penetrates my mind. In the twilight all kinds of visualisations and fantasies seep into my mind. *"Is that a net?"*

The visibility is quite good. This is very important and I am

terrified. Everything worthwhile living for is up at the surface, so what am I doing down here?

It is the helium enriched breathing gas that makes my fantasy overactive. After a couple of minutes I manage to get my composure back and feel like continuing the dive. The downline is like an umbilical to life. If I am unable to find it

"Is that a net?"



Buildplate beneath the bridge. The ship was built in 1923, but new owners took over in 1931.

Sentiments

Sitting on the aft deck of the dive vessel Moskus brings many thoughts and sentiments to mind. While one part of you is exhilarated about the adventure lying ahead another significant part of you is intensely focused on the concrete dangers and challenges ahead. You try to be very methodical, calm and focused on relaxing. It may sound easy but donning all that equipment is very symbolic. Many technical divers therefore rely on ritual routines to prevent mistakes and alleviate stress prior to the dive.

If you are already stressed before you leave the surface one thing is certain; it is not going to get better once you dive.

Being in a hurry is simply lethal.

The biggest challenge is faced by the divers going down on the wreck first. They don't know what they are going to face, or whether it is possible to successfully attach the downline to the wreck – which is a requirement in order for the dives to proceed in a safe manner.

In my case, I lie on the surface while my pulse gets back down to its normal resting level. My breathing become a central aspect in controlling the mental state.

Going down

I breathe with long calm breaths. The downline goes straight down into the darkgreen haze. I start pulling myself gently down by the line while I routinely

monitor all my equipment. The computers are working, the lamps are functioning, the rebreather is doing what it is supposed to do and the suit isn't leaking. Everything is AOK.

At 20 meters the light gets dimmer and the temperature drops steadily. After four minutes I find myself at 40m but I still seeing nothing ahead of me but the beam of my divelamp. Am I heading straight into a big fishing net? Am I running into a current? How



Wrecks



T. AGREN

Sign on compass

again the risks associated with this dive will suddenly rise exponentially. Every fin stroke which takes me further away from this exit point has consequences. It is important to be present. Over the port bridge wing I spot a big cod being caught in a net. It is struggling.

Once again a fear of becoming entangled in the net myself creeps in on me. There are plenty of nets on this wreck as it has been down here for 60 years.

Experience matters

I signal my buddy Larry that I am uneasy. We haven't had many dives together and there aren't many people around in this county doing these kind of dives in the first place. But we have spent a fair deal of time together on the dive vessel Moskus, enough to establish a trust in each other. Larre is very experienced, which is comforting for me who is not.

The cold is starting to make itself felt and time is ticking away. I was at the downline at 50m after seven minutes and at the bridge at 65m after 15 minutes. The cold

makes me lose the sensation in my hands. We read each others eyes and movements in the water. The trepidation from being in a graveyard won't let go. I didn't expect it to feel like this. I feel perturbed, get philosophical and start thinking intensely about my family, my wife and my children.

Focusing

I focus once more on my breathing. Now I start longing after seeing the downline again. This dive has been very demanding. The thousands of hours spent under water is starting to pay off though. I am calming down. I see a boot lying beside the engine-room telegraph at 65m. I take a look at

the bridge. It is in a vertical position, the door is like a windbreak. I can't enter with all my tanks, it is too narrow. I am aware that more dives are possible and that time is now against us, and I decide to turn around and head for the downline. After 25 minutes we are back at the downline as planned. Ahead of us waits one hour of decompression during which one can ponder a lot on life. Each diver seem to be engrossed in his



Penetration on the starboard promedadeck

M. TAGLIATI

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Wrecks

own thoughts busy with the dive computers, changing gasses and timing each stop. The water gets warmer and the light and hope returns. Once all the divers are gathered aboard *Moskus* we start comparing experiences and information constructing a joint picture of the circumstances down there.

The next dives take on a different character of a somewhat more intellectual flavour. The trepidation I experienced during my first dive recedes and armed with more information and confidence it becomes possible to perform more advanced dives later on. We stay on site for three days and dive twice a day. That is all you can cope with mentally and physically. Many of the divers have a passionate relationship with vessels and their construction and find each ship has a personality, a soul.

General von Steuben was "the white

beautiful Steuben" as it was promoted in the days when she served as a liner. Now she sits like a church on the seabed.

As far as I am concerned I was tested to my limits. But what I have witnessed and the experiences I can now share with a wider audience, will hopefully help remembering the incredible suffering the second world war brought upon so many people. We now have something in common on board. Humbled by the experience, we have found a new respect for life and for pulling this venture off together.

Rediscovered after 60 years

Until 2004, the exact location of General von Steuben's was unknown. Discovered by Swedish company "Marin Mätteknik" and Deep Sea Production, a Swedish film production company she re-emerged as a dot on the GPS once again. National

Geographic were quick to fund a Polish diving expedition and others soon followed.

Issues

General von Steuben rests in international waters and the legal aspects of accessing the wreck are not well defined.

Ethically the issues are more troublesome. How long is long enough to allow divers to enter what is a grave? Ask different divers and you will get different answers. For those with national, cultural or family ties to the wreck such activities stir strong emotions. For those with a profound interest in contemporary history, naval design and technical diving the perspective is a different one.

It is all about perspective but if one can show respect and understanding for fellow human beings it helps, no doubt.

Filephoto: Artifacts recovered from other Baltic wrecks. Should these wartime wrecks and seamen's graves be disturbed?



PETER SYMES

Swedish diving expedition to General von Steuben

Our dives took place July 2005. With the Swedish diving vessel "Moskus" and Captain Tobias Åberg our resources were somewhat limited compared to the extensive Polish expedition which featured large ROVs, decompression chambers and other goodies on a 100-ton commercial diving vessel.

The Swedish diving vessel "Moskus" being smaller, no less offered all needed for men with courage. Yes, the stories after National Geographic featured their article were that General von Steuben was covered in nets, after 60 years of fishing in the Baltic. As locals, we knew that this is true for most wrecks in these waters. However, dropping the anchor on an echo and seeing Tobias Åberg and Peter

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Russian submarine captain Marinesco aboard the S-13

Oleander descending down to secure the anchor line and decompression line on the wreck left us concerned for a while. More than one diver has perished in fishing nets in the Baltic.

Anchoring

Tobias and Peter are experienced with more than 1000 hours each in these waters. After 80 minutes they surfaced. We learned that our anchoring point was just below the bridge. The hull located at 50 meters and the bottom at 72 meters with the amount of fishing nets being a concern to us. Darkness prevailed at these depths, but visibility was good with no currents present. With winds of less than 4 meters per second and nearly dead calm conditions at the surface the conditions were excellent, which is very rare in these waters. The Baltic Sea is generally a shallow basin so winds above 6-8 meters per second immediately generate very rough conditions at the surface.

Technical aspects

Our dives were based on using CCRs, mostly Inspiration, KISS and MK15 units, VR3 computers and trimix with 10/50

mixtures for bottom gas, partial pressure of oxygen set to 1,2 Bar and some of us had 4th oxygen sensor and real-time tracking of actual gas mixture for basis of decompression. The nets were fought with conventional tools, but the water temperature and the penetration dives were too much for our digital video equipment. Read more details and see more images from the expedition on www.cortex.se. (link)

Diving General von Steuben

The Baltic Sea provides very varying diving conditions. One day is never like the other, even on same location. During summer, the algae are blooming and this reduces visibility quite considerably, especially along the coasts. In open sea visibility usually improves a lot with depth. This is quite paradoxical as the sun doesn't penetrate further than 30-40 meter, even in blue sky conditions.

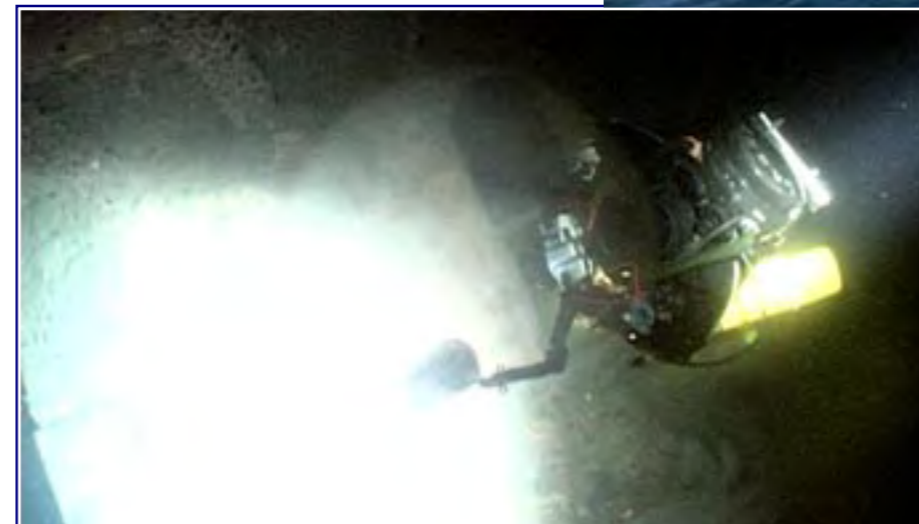
I rested on the surface and waiting for my pulse to come back down after all the preparation and dressing up under the burning sun on a 25° C hot day wearing nearly 80 kg of diving equipment, before I turned on the lights and monitored my oxygen sensors.

Descending I turned the rebreather to high-set point of (1.3bar) ppO₂ and filled the suit with gas. 40 meters time was reached 5 minutes into the dive. We had intentionally a short anchor line to reduce decent time to minimum. Our decompression line was separate from the anchor line. A good thing at times of unstable weather conditions. It was dark now.

Partial pressure

The partial pressure was holding stable much thanks to the ADV. (Automatic Diluent Valve that equalises the counterlungs on the rebreather, ed.) Lights were good. Visibility was excellent! I noticed the portholes at 45 meters and touched the hull. Leaving an 80 cc bottle 50/50 mixture for backup on the line. Larre Ländin, my diving buddy and I both noticed the bridge from the drawings we had on General von Steuben.

Leaving the starboard bridge and descending to 55, 60, 65 and 68 meters we found ourselves five meters above the bottom. General von Steuben is resting on her port side, tilted more than 90 degrees. A great deal of debris and nets are located on the port side. We looked straight up into the bridge, which was all intact. Very few divers had been here.



The previous expeditions had done a lot of penetration dives. Lines into the ship were obvious and observed from several other diving colleagues who did other tours on the wreck.

Time was now 18 minutes, and we realized that we needed to return to the ascent line to follow or initial dive plan. The sensation was that of entering a relic of the tragedies that took place here. We felt uncomfortable at times and avoided penetration dives initially. The cold water was also affecting us and the expectation, anticipation and preparation started to take out its toll. In the later dives we did pursue deeper penetration dives, much forced upon us by appearing underwater currents.

The General von Steuben is extremely spacious and excellent for penetration diving. However, due to its awkward position it is difficult to maintain a good sense of location and the size does influence the perception and attitude regarding bottom time. We went from doing profiles 65 m and 25 minutes bottom time to doing 70 m for 40 minutes bottom time. After 3 days most of us was mentally and physically exhausted.

Blurred vision & Hallucinations at 70m

Being a landlubber, going out on the Baltic Sea usually means having to use some kind of motion-sickness medication

Most divers have been told about the side-effects of medication will be altered with increased pressure, most common relating to drugs which will alleviate swollen mucous membranes in the upper airways and problems to equalize, which we all know is contraindicated and relates to risks of reverse block and ruptured tympanic membrane (ear-drum).

With motion sickness, the use of

scopolamine, an anti-cholinergic substance has been gaining use since the introduction of transdermal patches which permitted slow release over 72 hour period.

However, side effects such as impaired accommodation (blurred vision), bradycardia (slow heart rate), reduced salivation still are very much a side effects despite the mode of distribution.

Desorientation

Another aspect which technical divers need to take into consideration is that an unusual but reported side effect of scopolamine is "desorientation, anxiety and hallucinations" in less than one out of thousand cases. Not a good thing to experience such side effects when reading your diving computer at 70 m in 4° C pitch black water.

Add to this the combination of trimix gases and the lack of mental sedation which nitrogen otherwise brings (which we of course do not want). The combination of trimix gases and medications at partial pressures well above normal levels speaks its own language. Very little research have been done, preclinical and in laboratory environment only. No case reports have been published.

Personally as a physician and starting out as a technical closed circuit rebreather diver with the aim to take pictures of the wreck General von Steuben, I found after comparing my experiences with my dive buddy back at the surface that I have had visual hallucinations and that my footage and video from many dives was out of focus, as I thought my mask was fogging up on me as it might have in previous thousands of dives I have done.

Lesson learned

Scopolamine transdermal patches and trimix diving is not an acceptable combination. Not all will hallucinate, but the compromise if you have to travel great lengths at sea before reaching destination is to put these patches on 4-6 hours before trip starts, and remove them 12 hours before diving. Better still is not use these at all, stick to antihistamin drugs of newer types. Ask your doctor.

It is plausible that pressures above 5 bar along with trimix gases potentiate and increase serum concentrations that might give a higher frequency of reported side effects. Better safe than sorry. Task load is enough with CCR, trimix, Baltic Sea deep diving and videocamera as it is more than so often.

Summary

We did penetration dives into the General von Steuben and saw many things, which we out of respect for the readers and relatives do not speak about or have taken pictures of. Over 4000 people rest here, and we have not disturbed them. We think of it as visiting a gravesite. She is very intact, has tremendous spacious internal areas that provide excellent, world-class penetration dives. If you have the opportunity and have the skills, equipment, experience and crew needed this is a wreck you have to dive. But read up on your knowledge of the 2nd world war, share it with others and have a deeper more meaningful experience than just another logged dive. This site demands a humble approach, as is true with many physical and psychological challenges in life.

Additional links

Swedish diving vessel "Moskus" in Ystad, Sweden. www.moskus.se

Scopolamine transdermal patches and trimix diving is not an acceptable combination.

Who was General von Steuben?

The First Inspector General of the American Army von Steuben actually immigrated to America during the Civil War. Offering his services to the American Army and not asking anything in return unless he was successful he found himself in service under General Washington in Valley Forge late winter of 1777.

Upon arrival von Steuben immediately recognized that no military discipline was present. Many of those who fought for the Army was doing so out of free will. Hence, they considered their actions to be of individual rather than military incitement. Steuben had served in the Prussian army which was considered one of the most modern and advanced internationally at the time. Using his experience he quickly gathered the best 100 men in the American Army and started military drills marking the excellence and precise attitude needed to successfully operate as a group in combat. As he finished training the men, they were dispersed to conduct the same training with the remaining soldiers. Essentially this initiative changed the structure of the whole army and

contributed a great deal to the victory of the American Army.

In recognition of his services, the Congress granted him an annuity and New York State presented him with a large tract of land. He became an American citizen and lived in New York until his death in 1794. He was laid to rest in a hero's grave on his estate in Steuben County, where the inscription on a bronze plaque sums up the contribution that he made to the new nation: "Indispensable to the Achievement of American Independence". Steuben's military services in America are likewise very adequately indicated in General John McCauley Palmer's biography on Steuben by his most praiseworthy statement:

"...In the course of my researches, I was soon convinced that the military services of two men, and two men only, can be regarded



as indispensable to the achievement of American independence. These two men were Washington and Steuben. When I say that their military services were indispensable, I mean that each of them contributed something essential to final victory, that could not have been contributed by any other man in the American Army..."



General von Steuben







In the middle of the Baltic Sea the German oceanliner has been resting undisturbed for over 60 years.

Nearly 4000 people lost their lives when the ship was hit by a couple of Russian torpedos in february 1945.

Follow the Swedish expedition down and into the wreck at more than 220 ft where the sun never reaches.

divedvd.com

cortex
PRODUCTION
<http://www.cortex.se/steuben.html>

tsunami on Sumatra

in retrospect

Now, one year after, the situation remains difficult.

It was a day of unbelievable violence. Sometimes Nature decides to wake up and with an unforgettable result. This was the case on 26th December 2004 when the giant earthquake struck and a day that will be remembered for long time in areas as Simeulue and Nias Island, North Sumatra, Indonesia which were the nearest points to the earthquake epicentre. From this day on life changed profoundly for the islands' inhabitants

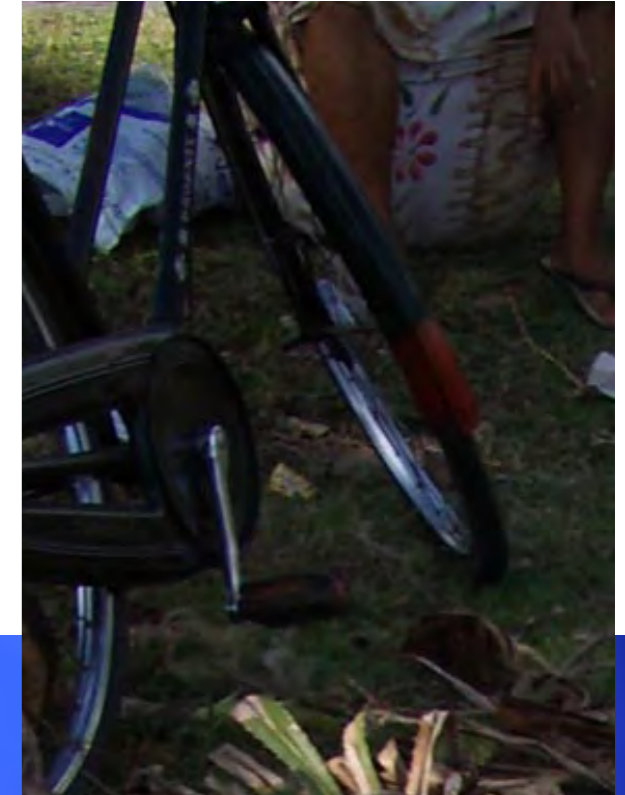
Text and Photos:
Francesco Ricciardi
www.biodiving.it

Geography has changed, the beach has moved away. Everything that was underwater, corals, sponges and algae is now out of the water for hundreds of kilometres along the coastline. The earthquake on Dec. 26 lifted the seafloor about 2 meters both in Simeulue and Nias.

Now, one year after, the situation remains difficult. "Everything is changed in the lives of Northern Sumatra's inhabitants", says Sebastiano Gulinello—the Italian owner of the boat which carried us into the tsunami area. He has been living in Indonesia since 1999, doing surfer's cruises.



Debris brought on the uplifted coral reef after the backwashing wave



"Most of them are going away. The earth is continuously moving, and the people who remain are dependent on the international aid. The economy is stagnant, and there are no signs of recovery". Immediately after the event, the

Crab left high and dry by the earthquake. Unable to make it back to sea it now lies mummified by the sun

humanitarian aid arrived in abundance. Boats that were usually charterboats for surfers transformed themselves in hospitals, medicine cargoships, and water and food transporters. But despite of this, almost a year later, recovery is not complete and inhabitants are still completely dependant on aid to survive.

Sebastiano and his crew are experts in this area, which was seriously affected by to big earthquakes in 2004 and 2005. They took us on tour to visit both islands for a scientific expedition organized by Ancona University (Italy), whith the pur-

Table corals broken by earthquake and killed by sand and debris in the water.





Some Porites colonies left dry after the uplift of the reef are now becoming green with algae

The uplifted reef bleaching under the sun. A big dead heliopora colony is a solemn witness of the wonderful coral reef existing before December 26.

pose of evaluating the damage caused by the earthquake and tsunami on Sumatra's reefs, which are the resource that the local population is dependent upon as well as a tourist destination.

On board were specialists in different fields of coral biology, from invertebrates to fish ecology. We were witnessing a historic event, and were the first divers on the submerged reefs off Simeulue Island after the catastrophe. "All people living in this area are frightened and people with money are leaving the area or buying homes far from the sea", Sebastiano says. "The Indonesian Government is preparing some emergency plans for the eventuality of another tsunami, since experts confirm that the event of another one remains a possibility"

Our first dive, in front of Busung, one of the small villages on Simeulue, was a little surprising: There were no apparent damage to corals due to tsunami, though there were some signs of dynamite fishing. The ecosystem was healthy, with corals adapted to the strong waves that make this island a favourite among surfers. Fish community seems to be in a good condition with butterfly fish, which are corallivorous, (eat corals, ed) and therefore a good indicator of reef health, are abundant and colourful. Second dive was off the little island of Simelutjur, which is also exposed to strong waves, confirmed the previous impression. The tsunami did not have any effect on a environment that was already well adapted to a "high-energy hydrodynamic situation".

The following destination was Lakon, which were an incredible sight: The whole little island was lifted about two meters, leaving wide areas of reef exposed and out of the water. Giant massive corals of the Porites genus, table-corals known as Acropora and Pocillopora lay bleached on the reef surface. Other areas, still moist from the sea sprays and high tide, were completely green because of the colonisation of algae.

Walking on exposed reef was very impressive. It was like a stony forest where we saw reef organisms such crabs, shells, sea urchins, stranded and mummified by the sun, unable to reach the sea that was now out of reach for them. Now, the sea carried a lot of sand on the reef, transforming it in a sandy beach.

Diving in front of Lakon confirmed the impressions from the topside scenario. The earthquake shook the carbonatic shelves, provoking some big collapses. The backwash of the waves then carried mud out to sea resulting in strong siltation and unusual water turbidity

further out. In other words the water became clouded with particles and material that then settled on the corals with knock-on effects on the whole ecosystem. Surgeonfish and parrotfish which feed on algae were prevalent in the fish

community as they were the only ones able to find some food in this devastated ecosystem. Besides, the more striking feature of the fish community was the impressive proportion of juveniles relative to adults (up to 70% of the herbivorous



Fish communities appear to be in a good condition



Some corals outside of the water

fish and 80% of the butterflyfish) recorded in the sites most affected by a strong siltation. This is unusual. Many fish species appeared in their recruitment stage, while many adults have been likely killed or displaced by the tsunami.

The same impressive situation met us in the front of Langi village, where the presence of rice paddies and human activity have stolen more space from mangroves, which are plants with roots that could have retained some of the mud and detritus (dead organic matter, ed.). People living in Langi told us about the primordial terror brought down on them during seven minutes of earth tremors, so violent that they couldn't remain on feet, while witnessing how the sea was sliding away, and the corals going up for thou-

sands of meters of coast. Tradition and histories handed down from the village's elders saved many lives this day. Tales told about an old earthquake where the sea retracted following a giant wave that have destroyed the village in the early '900. The escape from the village saved hundreds of

people. Few minutes later, in 2004, the tsunami wave on Simeulue killed only 6 people. "Sumong" in the local language means "tsunami". The close tie Simeulue's people have with nature made the difference in comparison to other regions, where the wave killed thousands.

Fish life were prolific even after the quake



systems, continuously evolving depending on external conditions. "There are some incredible dive sites in the Mentawai Archipelago" – tSebastiano told us, a dive instructor before starting the surfer's activity - "and the Government is planning to make some little Marine Protected Areas". If not damaged by human activities (like cyanide and dynamite fishing), the coral will grow again but slowly. It will probably need at least 50 years in the impacted areas. But we will given another chance of experiencing Sumatra's underwater beauties. Let Nature take her course.

Life survived!



An astonishing colony of Porites massive coral broken by earthquake and shifted by tsunami wave

Last stop was the little island of Silaut Kecil, the region closest to earthquake epicentre. Some impressive breaks on the sea bottom was a testament to the incredible violence of the earthquake. Coral reefs in shallow water were completely destroyed, while the drop-off areas maintained a good overall condition, as they were apparently better

able to resist to the quake's power. Some big fish, as a manta ray and some schooling bumphead parrotfish were still present, while in the other dive sites they were completely missing.

Now, the project is to monitoring the slow recovery of the corals. Probably the reef in this area will never be the same but coral reefs are dynamic





Edited by Jason Heller & Daniel Beecham

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Photography



By Daniel Beecham

As any diver knows, at depth light is absorbed, and one by one the colours of the spectrum disappear.

Red is the first to go which disappears at around six metres, followed by orange, yellow...

Underwater photographers are constantly battling against the effect water has on colour and light, and use various methods to return good colours to their images.

In this issue we're going to look at under-

water flash units, or 'strobes'. We'll also look at some of the problems that digital cameras have presented with underwater flash units, and what to look out for when you want to purchase your own flash system.

Choosing & Using Underwater Flash Units

Electrical or Optical?

Most of the principles of flash photography are the same on DSLR's (Digital Single Lens Reflex) and compact cameras. There are however some differences in the way flash units are connected to, and communicate with the cameras.

To fire an external flash unit on a DSLR, an electronic connection runs from the camera *hot shoe*, through a cable in the housing, and then to a connector called a *sync socket*. From this socket, a *sync cable* connects the housing to the external flash unit.

Most digital compact cameras do not have a hot-shoe connector, and even if it does, it may not be accessible through the housing. Because of this, external flash units for compacts generally work as *slaves*; they are triggered by the built in flash on

the camera-via a fibre optic cable, rather than an electronic sync cord. The cable mounts onto the housing in front of the built in flash. When the built in flash fires, light travels up the cable, hits a slave sensor on the flash unit, telling it when to start and stop firing.

When a built in flash is used on a compact, the camera will put out a series of pre-flashes before the main flash fires and the image is recorded. Because of this, when you want to fire an external flash unit, you must use one that has been designed to ignore the pre-flashes, and will wait to fire with the main flash. If you try to use an older strobe (one designed to be used with a film system) the external flash will fire early and so will not have time to recycle and fire on the main flash.

Early strobes which were designed for compact cameras used an 'auto' system to control the power output. With an auto system you set the desired aperture on the camera, and set the same aperture on a dial on the flashgun, this gives you the correct exposure.

Newer strobes such as the INON D2000 now provide a 'TTL' system. This has been achieved by building a slave sensor that actually copies everything that the built in flash does, including the pre flashes. These guns also feature exposure compensation controls so you can adjust the power output to achieve the desired result.



Nikonos V type connector has five connections



The more rugged S6 V type connector comes with six connections - and triple o-rings

Let there be light



Let there be light



Other Compatibility Issues

Digital cameras have created a few problems with flash systems on DSLR cameras as well. Tradition film cameras used TTL systems to meter the amount of flash needed to expose the picture properly. DSLR's use different TTL systems, such as DTTL, iTTL, and E TTL. If you try and use a digital camera with a traditional TTL style strobe, the two will not communicate properly; they speak different languages.

A Tetra housing with Ultra Light arms mounted showing how brands can often be combined - there are many connectors, adaptors and clamps available. Productphoto from Light & Motion's website.



This has presented a problem for manufacturers of underwater strobes, it takes time to develop a flash unit that can properly communicate with a DSLR, and at the rate that new cameras are being released, the strobes are often out of date by the time they're available!

Many people continue to use older strobes that have been designed for film systems, and simply use the manual power settings to control the power out-put. The instant review on the LCD screen allows you to check the exposure, and adjust if necessary. If you feel this is too much like hard work, there are ways to get a TTL system working.

Using land flash

Some photographers use a normal land flash, and place it inside a custom built housing, this means that the flash is wired directly from the camera hot shoe to the flash, and so communicates properly.

Some small companies are now producing converters that change the signal from the camera into one that the flash unit can

understand, the downside with these is that they often mean you have to retro-fit them to your housing, which can be risky.

Even though TTL is now available through various methods, many photographers still choose to work with manual flash, preferring the amount of control it offers the user. It is worth bearing in mind that you can always turn a TTL gun to manual; you can't turn a manual gun to TTL.

Strobe Positioning

The position that strobes are placed in is critical. Suspended particulate in the water can be illuminated as it reflects light back towards the camera. This is often referred to as 'back-scatter'. To avoid backscatter place your strobes in a position where they will light the subject only, and not the water in-between the subject and the lens.

It's important to remember that the strobes generally have very wide coverage, and as such they do not need to be pointed directly at your subject.

Flash Arms

Do not underestimate the importance of good flashgun arms; it is through them that you control your light source. Good arms will hold their position when you move them, without the need to loosen and tighten the clamps that hold the frames together. You don't want to be wasting your valuable time underwater adjusting arms, not spent taking underwater pictures.

Another option is a manual strobe controller, in this case for the Ikelite DS series strobes. The strobe must be set to TTL mode when used with the Manual Controller



FROM OCEAN OPTICS, LONDON, UK

Many highend strobes has manual settings



Call for entries

2006 - 1st Annual Wetpixel.com and DivePhotoGuide.com

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in association with Our World-Underwater

Over \$25,000 in prizes!

Wetpixel.com and DivePhotoGuide.com have teamed up to celebrate the beauty and delicacy of the marine environment by developing the first instance of a new, annual, international underwater photography competition.

Photographers will compete in six categories to win more than \$25,000 in prizes, including premium dive travel, underwater photography equipment, and more! Dive packages in the prize list include trips to some of the top photo destinations in the world: the Solomon Islands, Lembeh Strait, Raja Ampat, Komodo, the Galapagos Islands, Papua New Guinea, The Bahamas and Palau! Other prizes include camera housings, strobes, lighting systems, and other valuable items (see website for complete prize list).

The contest includes a category for images that focus on conservation and the marine environment, and one specifically for entries taken by compact digital cameras.

All entrants will receive one free, digital issue of Dive Chronicles Magazine, and all entrants in the Compact Camera category will receive one free photo lesson from renowned underwater photographer, Marty Snyderman, via TheUnderwaterphotographer.com.

Winners will be announced on stage at the 2006 Our World-Underwater festival in Chicago, Illinois (February 24-26, 2006). 15% of entry proceeds will be donated to marine conservation efforts.

Official Websites:
Wetpixel www.wetpixel.com/contest
DivePhotoGuide www.divephotoguide.com/contest06

Let there be light

Considerations When Purchasing Underwater Strobes

1) Power and Coverage

Make sure the power of the strobe you're looking at will fulfil your requirements; an underwater guide number of around 22 will be sufficient for most peoples needs. Regarding the coverage of your strobes, look for a unit that covers around 100 degrees, or preferably more. This will ensure your strobe will cover most wide-angle lenses. Often strobes also come with diffusers, which will increase the coverage of your strobes, although they will reduce the power.

2) Recycle Time

This is the time it takes the strobe to recharge its power cells after firing on full power. Its important to check the recycle time on a strobe you're looking to purchase, if the strobe is very slow to recycle, you may find yourself missing pictures whilst you're waiting for your strobes to recycle

3) Power Source

Some underwater strobes are powered by normal AA batteries, whereas others have built in cells. Both power sources have their advantages and disadvantages.

When using AA cells you can travel with a couple of large packs of disposable batteries or with a few sets of rechargeable batteries and chargers. You should have enough to keep you going for your dive trip, but if you run out or your charger gets damaged you can source AA's almost anywhere, so you should be able to keep shooting.

One of the disadvantages is that you'll have more maintenance to do on your



Subtronic strobes have built in Ni-Cad batteries

strobe, servicing o-rings on the battery compartment.

Some strobes such as 'Subtronic's' have built in Ni-Cad batteries, which can be charged through the sync socket. These batteries are generally very powerful and give the strobe a fast re-cycle time. They can also be more reliable as they have fewer o-rings because there is no battery compartment, and therefore fewer potential weak points. These batteries are generally not user replaceable, and must be carefully maintained. If the cells are allowed to drain completely, or are not recharged often enough, they may be irreparably damaged, and so you could find yourself on a dive trip with a strobe that will not hold its charge.

4) Size and Weight

This is an important consideration with purchasing any diving gear or underwater camera equipment. The size and weight

of strobes can differ dramatically; also take into consideration the size of the unit along with all the necessary accessories including flash arms, cables, chargers and/or batteries. Try not to get caught in the trap of having too much gear to comfortably transport your gear as hand luggage, if your system get too heavy or large it will have to be checked into the hold, and you risk paying excess luggage fines on your dive trips.

A full underwater camera system represents a significant investment for most people, and a flash system may represent a large portion of that investment. Be sure that the system you're getting into will fulfil your needs now, and in the future. Visit a reputable dealer who knows the equipment before you buy, and if possible get in the water with the equipment you're going to be using before you hand over your credit card!



About The photoevent calendar

In an effort to keep our readers informed and involved, each issue will feature upcoming competitions, film festivals and general event announcements. We hope we can help you stay up-to-date and further fuel your passion for underwater imagery.

December is a big month for underwater photo and video competitions. There are 9 international competitions with deadlines in December. Some competitions are open to all photographers, while others are only open to amateurs. Remember, always make sure that you note the specific usage rights secured by the competition before submitting any images or videos.

Good luck!



DivePhotoGuide.com

Photoevent Calendar by Jason Heller

Welcome to another great new X Ray feature - our Dive Photo & Video Event Calendar, provided by DivePhotoGuide.com.

Dec. 1

British Society of Underwater Photographers Annual Open Portfolio Competition (UK)

► www.bsoup.org/Open_Portfolio/intro.php

Dec. 25

Moscow International Diving Festival "Golden Dolphin" (Russia)

► www.mosfest.ru

Dec. 31

Underwater Photography.com Annual Contest (USA - Online)

► www.underwaterphotography.com

2nd Annual Manta Network Photo Competition (USA)

► http://mantas.somebox.com/html/documents/Contest_Desc.pdf

Beneath The Sea 2006 Photo and Video Competition (USA)

► www.beneaththesea.org/v2005/contest.html

The North Carolina Aquariums Photo Competition (USA)

► www.ncaquariums.com/newsite/press-releases/photocontest05.htm

2006 Scuba Diving Magazine Photo Contest (USA)

► www.scubadiving.com/photocontest

British Underwater Image Festival (UK)

► www.divemagazine.co.uk/news/article.asp?UAN=2108&v=1&sp=

International Photoshop Competition (USA)

► www.digitalcanvasawards.com

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shark tales



Text and photo
by Edwin Marcow

The surf pounded and broke upon the shoreline pushing the diver backwards. As the surge swept back into the ocean, it pulled on the diver's aching feet and legs.

The "heroic" diver hauled in his twelfth kill of the day, another man-eating shark, the ragged tooth one, now disposed of. With its huge bulk and protruding fangs, people would be in awe of the diver's bravery. Girls would flock to be by his side. Guys would wish they could be "just like him."

That was the mid 70's, the time of *Jaws*, where the only good shark was a dead shark. With the exception of a few, mass hysteria, mis-placed fear and above all, ignorance, played out on our all our parts.

It is hard to believe that this could have taken place, but it did, time after time, in particular Australia and South Africa. How things have changed...

Old Raggie

The Ragged Tooth shark, *Carcharias taurus*, is also known as the Sand Tiger shark, Grey Nurse shark or fondly called "Raggies" in South Africa. It has a robust size and girth, brown skin often commonly seen with large dark spots on each flank, pointed snout and numerous fang like teeth.

What a formidable killer this shark must be! Well nothing could be further from the truth, although a large shark like this is made all the more lethal with the equal size of its dorsal and anal fins. Measuring in at an average length of three metres and about 300 kg, this large shark is slow, sluggish and docile.

For the un-initiated, it is hard to believe that



the formidable large shark feeds only on small fishes. This rather shy and almost timid shark will only attack if provoked, most often when disturbed from a restful slumber.

Though "common" in South Africa in particular off the coastline of KwaZulu Natal where they mate or reproduce in summer bearing two pups nine months later, this is a species on the endangered list due to the actions of a few all those years ago.

Getting there

If you should travel to South Africa to dive with the Raggies. Please see *The Best Dive Sight's in South Africa*. Look under The South Coast chapter where there are numerous listings for dive locations to see and observe these magnificent fish.

Do please treat these wonderful sharks with the respect, the kind of respect you would show to a wealthy relative who you hoped would leave

you "something in their will".

The Ragged Tooth shark, for all it's imposing size and protruding fangs, is a passive animal. With their unique ability among sharks to be able to pump water over their gills, they Raggies can sleep and rest in caves and gullies, which seems to be their favourite pastime.

Although not aggressive, once the personal space of a Raggie has been breached, they can become quite a

handful. It has been witnessed when an over-friendly diver ventures too close. The diver will be literally chased out of the ocean.

So, if you should go down to ocean today, please, please observe only, or you too, could be chased out of the sea. ■

ABOVE: A Raggie or Ragged Tooth shark emerges from the deep. They can grow up to three meters (10 ft) in length and weigh up to 300 kilograms (662 pounds)





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Edited by Peter Symes
& Gunild Pak Symes

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OceanDive is a fun combination of an exploration game and 3D scuba diving screensaver. Now, you can enjoy realistic scuba diving vistas of the underwater world when you are not diving beneath the waves. No gear to don, no getting wet. Journey through shoals of fish, undersea caves, coral reefs and stunning submarine views. OceanDive will take you far away from your desk. Check out the scuba diving exploration game or upgrade your older version. Guaranteed with no spyware and no adware. Free screensavers and free trial of the game are available for download at the website. Price for Ocean Dive Adventure game with free upgrades: US\$19.99 www.oceandive.com



DIRECTOR: John Stockwell
STUDIO: Metro-Goldwyn-Mayer
and Columbia Pictures
RATING: PG-13

LENGTH: 110 minutes
RELEASED: 30 September 2005
STORY: Into the Blue is a deep sea thriller set in the shark-infested waters of the Bahamas. Four young divers enter a game of high stakes when they discover a legendary shipwreck thought to hold millions of dollars worth of gold. They cannot believe their luck. But the plot thickens when nearby, they discover a sunken plane on the ocean floor. It is full of illegal cargo. The four friends make a pact to keep silent about both finds until they can extract the shipwreck's treasure before a rival team uncovers their secret stash and beats them to the treasure. But things turn for the worse when the divers find out that dangerous smugglers are already on their way to the missing plane and a fatal decision by one of the young friends changes the role of the treasure hunters into the hunted...

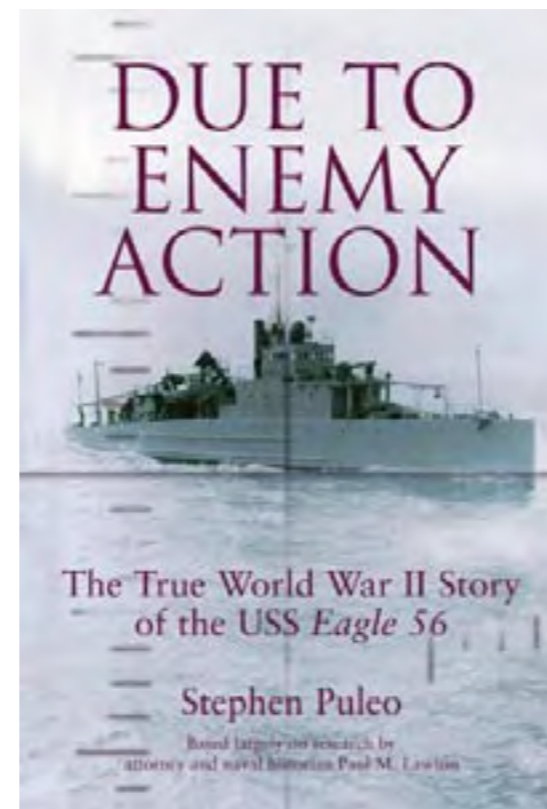
www.IntoTheBlue-Movie.com

DVD



General von Steuben DVD

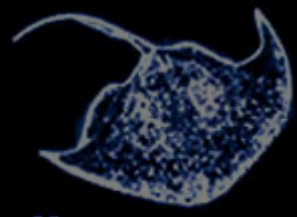
This DVD takes us to the German Ocean Liner *General von Steuben*, which was employed as a transport vessel for wounded soldiers by the the Nazi navy during the Second World War. The ship carried both civilians and soldiers out of East Prussia to avoid the advancing Soviet army. In February 1945, she was sunk in the Baltic Sea by the Soviet submarine S-13. The ship now rests at a depth of 72 meters, the last resting place for several thousand people who perished in the freezing cold waters. Price: €49.00. www.divedvd.com



Due to Enemy Action

Author: Stephen Puleo
Hardcover: 352 pages
Publisher: The Lyons Press; 1st edition
Date: June 1, 2005
Language: English
ISBN: 1592287395
Price: US\$ 22.95

Author Stephen Puleo brings us an account of the USS Eagle-56 sunk by a German U-boat near the end of World War II. At the time, the ship's sinking was wrongly blamed on a boiler-room explosion by the US naval court most likely to avoid embarrassment that the Navy had allowed an enemy warship to operate so closely to the mainland towards the end of the war. But in March 1988, two sons of one of the Eagle's crew members and their persistent lawyer, Paul Lawton, a naval historian, revived the case and persuaded the Navy to recant, thereby clearing the names of the crew and setting the record straight. www.amazon.com



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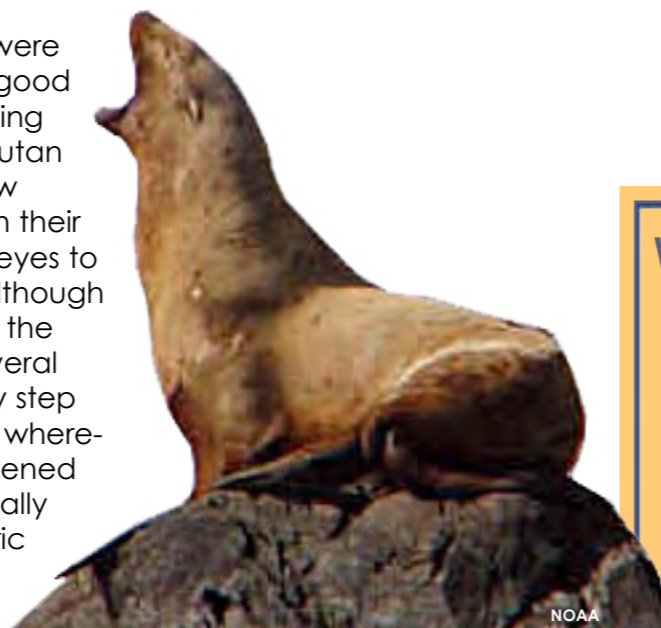
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Even sea lions have to brush their teeth

Captive sea lions living in an ocean park in China have to brush their teeth before bed just like humans do. In the wild, marine animals such as sea lions find that seaweed makes a perfect dental floss. But in captivity, these animals need a bit of help from the electric toothbrush, which trainers and keepers use to clean the sea lions' teeth at least twice a week. Like humans, leftover food stuck in between the sea lions' teeth will cause tartar and stains as well as oral diseases if not cleaned. Sea lions in the wild usually use their teeth for hunting, but captive sea lions feed on food that is

dropped to them.

At first, the sea lions were reluctant to receive a good tooth brushing, according to keepers at the Laohutan Pole Aquarium, but now many of them will open their mouth and close their eyes to enjoy the treatment. Although some did not adapt to the electric toothbrush, several went through a step by step desensitisation process whereby they looked at it, listened to it, touched it and finally brushed with the electric toothbrush.



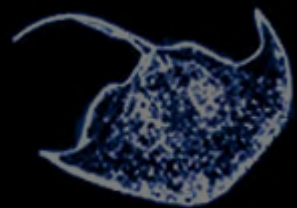
NOAA

A Singing Iceberg?

Scientists recording seismic signals in Antarctica to measure tectonic movements and earthquakes picked up a low but clear tune under the waves. Upon investigation, they found that the sounds, which were around 0.5 hertz and too low to be heard by humans but when sped up sounded like an orchestra warming up or a swarm of bees, were actually coming

from an iceberg stuck on the seabed floor. The 50 by 20km iceberg had collided with an underwater peninsula. The scientists found that when water pushed through the iceberg's tunnels and crevasses at high pressure, the big lump of ice would start to sing. Located on the South Atlantic coast of Antarctica, the melodious iceberg was discovered and studied by researchers from the German Alfred Wegener institute for polar and marine research.





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Artificial Reef Society of British Columbia —Pressrelease

Boeing 737 Gets Go Ahead To Be New Artificial Reef

The Artificial Reef Society of British Columbia has announced that all impediments appear to have been removed in preparation for the sinking of a Boeing 737 airframe that will serve as an artificial reef near Chemainus, on Vancouver Island, British Columbia.

The regulatory requirements included a final inspection by Environment Canada, and completion of consultations with the Hlu'qumi'num Musti'muhw in what is a landmark agreement with First Nations insofar as their participating in the review and permitting of an artificial reef project.

January 14th 2006 has been set for sinking the airframe. This sink date will enable the society to meet the deadline for inclusion in the upcoming Discovery Channel series "Mega Builders". Discovery has suggested that this program will reach 100 million viewers world wide.

By virtue of her being only 40 feet high, even sitting fifteen feet above the ocean bottom, she will be able to offer divers the opportunity to do penetration dives shallower than 70 feet. This makes for an ideal training environment.

The 6 ships the ARSBC have sunk are somewhat deeper, with main decks at over 80 feet in most cases and the bulk of the artificial reef below that.

geous depth. It will be an excellent and safe place to learn basic wreck diving and overhead environment skills.

Howard Robins, President of the ARSBC, who has also led the cleaning and preparation of the airframe for sinking, said, "A large number local divers, as well as divers from Washington State, worked very hard as volunteers to prepare the airplane for sinking. We expect that with this announcement many of them will plan to return for the sinking event January 14th 2006.

January 14th 2006 has been set for sinking the airframe

For more information, go to www.artificialreef.bc.ca, or www.divemaster.ca/boeing, or contact Howard Robins at 604-733-1122, or Peter Luckham at 250-252-0758



Thomas Peschak





Photos by Thomas P. Peschak
Text edited by Gunild Pak Symes

Thomas P. Peschak is a marine biologist based at the University of Cape Town's Marine Biology Research Institute, where he conducts scientific research on kelp forests, illegal fishing and the ecology of sea otters. He is an experienced field biologist and professional diver who has worked extensively in Africa, Central America, the Middle East and the South Pacific.

With a snout equipped with an arsenal of sophisticated sensors, this curious great white shark is about to lightly bump the dome port of my camera to learn more about the strange object that has invaded its realm

RIGHT: Sunlight struggling through the canopy of a flooded forest

PREVIOUS PAGE: During the austral winter southern right whales congregate in great numbers along South Africa's coast. They frequent shallow and sheltered bays to mate and give birth



Thomas Peschak

In marine protected areas along South Africa's sub-tropical east coast large predatory fish like potato bass are still common and often show little fear of divers

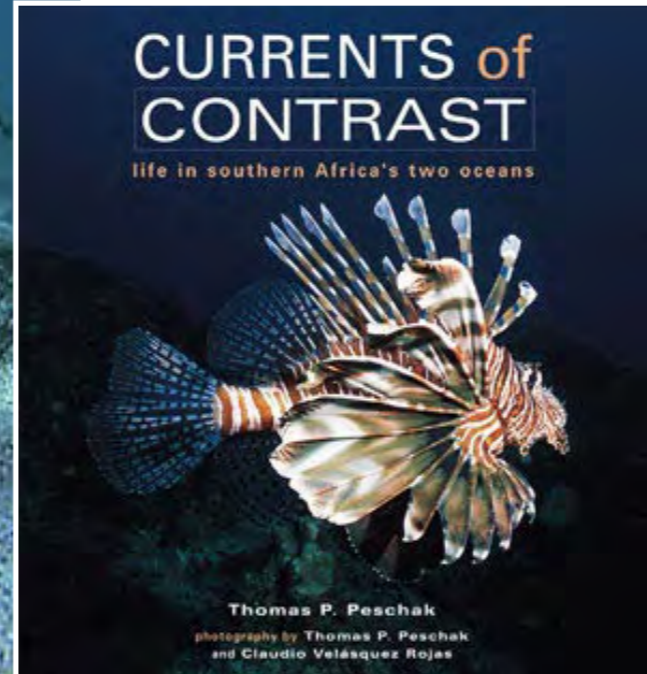


ABOVE & BOTTOM RIGHT: *Indigenous spear fisherman.* Along a remote stretch of the South African east coast live the Tembe-Thonga tribe, some of last true marine hunter gatherer people left on earth. To survive they glean food from the sea by spear fishing and harvesting marine invertebrates from the rocky reefs

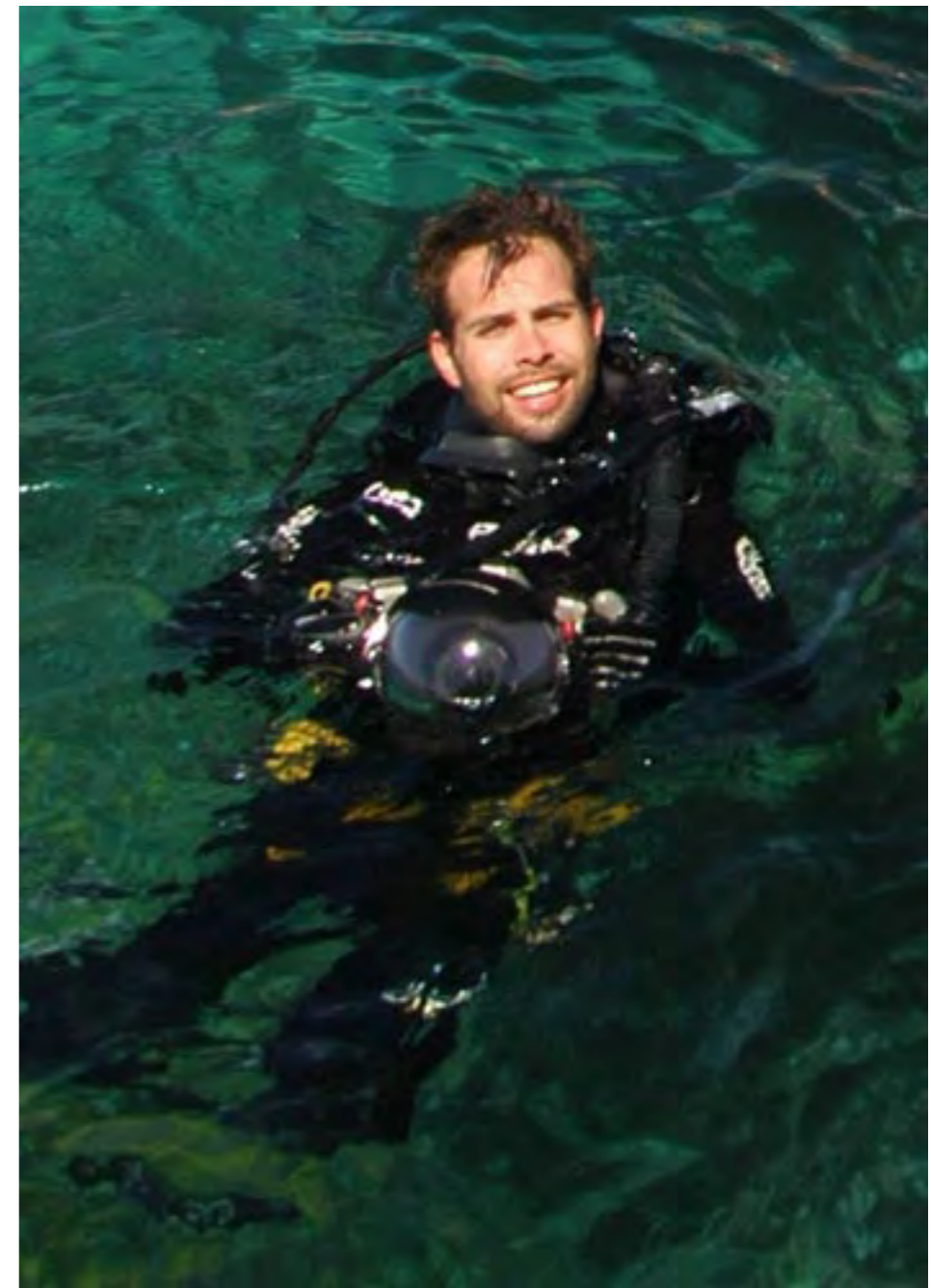
In addition he is also an award winning underwater photographer and author dedicated to telling stories and capturing images of Africa's oceans and coastline and these days spends at least half his year in pursuit of elusive uniquely African marine subjects.

In 2004, Peschak was given the title of official marine photographer for the World Wide Fund for Nature - South Africa for whom he continues to cover a diverse range of marine conservation issues. Thomas is a regular contributor to BBC Wildlife and Africa Geographic magazine and his images and words have also appeared in many international travel, natural history and

Thomas Peschak



RIGHT: Thomas Peschak
ABOVE: His new book



A territorial west coast rock lobster attacks its own reflection in the dome port of my housing

dive publications as well as in over ten books. His recent book, *Currents of Contrast: Life in Southern Africa's Two Oceans*, was published in June 2005 by New Holland. It has received critical acclaim and favorable reviews.

Mark Carwardine of BBC Wildlife Magazine's Book of the Month Club said, "How I wish I had written this book! It is a joy to read and the breadth and depth of coverage is very impressive.... the hundreds of spectacular colour photographs form one of the best image collections I've seen from the region."

The editor of Getaway Magazine, David Bristow, wrote about the book, "It is the next great work on southern Africa's oceans, with world-

class photography both above and underwater. You're going to have to get this one!!!"

Professor of Marine Biology, Dr. George M. Branch, of the University of Cape Town said, "Above and beyond the stunning photography, the book is filled with authoritative accounts of the key topics that capture the imagination: sharks, whales, kelp beds, sardines and coral splendour are all dealt with in satisfying detail but in an accessible style that makes the book a pleasure to read."

Peschak is currently working on three new major projects. The first is a definitive natural history book on the shark fauna of southern Africa to be published in early 2007 by

New Holland. He is also developing a guide to marine wildlife tourism and underwater photography in southern Africa for the same publisher. The guide is due out in 2007.

Thomas P. Peschak's book *Currents of Contrast: Life in Southern Africa's Two Oceans* can be ordered from www.amazon.co.uk or is available from most good bookshops. Limited edition posters of some of his images are also available from www.africageographic.com.

For more information or to order images directly from Thomas Peschak, please visit: www.currentsofcontrast.com ■

A cape clawless otter, Africa's very own version of the more well known North American sea otter, forages for lobsters, crabs and benthic fishes on rocky reefs





South Africa's Wild Coast is home to a rock formation know as the Hole in the Wall. Over millions of years the ocean and river have carved a massive opening into a sea cliff and during calm seas one can swimm through the hole from the river into the ocean

For most of the year, the waters off Dyer island, the region's white shark hotspots are murky and green, but on a few rare occasions, oceanic water moves inshore and bathes great white sharks in near crystal clear water



Thomas Peschak

Wherever divers encounter Cape fur seals , these agile and graceful swimmers are bound to put on a impromptu undersea ballet performance



Thomas Peschak



At the edge of a kelp forest a cape fur seal hunts fish by herding them into a bait ball and pushing them to the surface

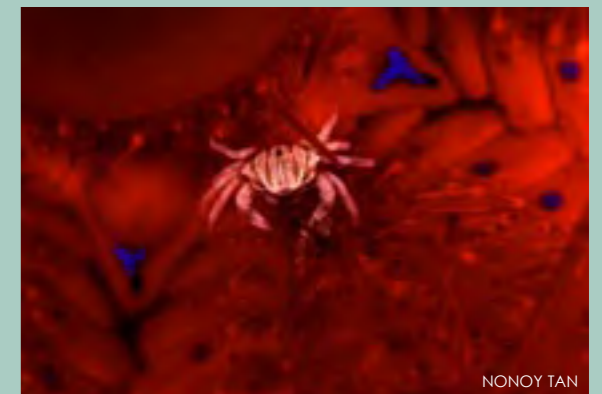


LEFT: Vast kelp forests thrive in the cold waters off southern Africa's west coast, taking advantage of the bountiful nutrients driven to the surface by coastal upwelling

ABOVE: South Africa is a true shark hotspot and many species, like this spotted gully shark are endemic to the region and occur nowhere else on earth

IN OUR NEXT ISSUE

Diving in The Philippines



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