X-ray mag

GLOBAL EDITION
February :: March
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Number 9

Valentines Day Special: Gifts for Divers

Exotic Diving
The Philippines
LIGPO CEBU MALAPASCUA DUMAGUETE DAUIN

History
First Frogmen

Deepest Wreck Dive
Yolanda

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Isla Guadelupe
Sharks

Profile
Dr Phil Nyutten

Portfolio
Ray Troll: Sharkabet

COVER PHOTO BY NONOY TAN

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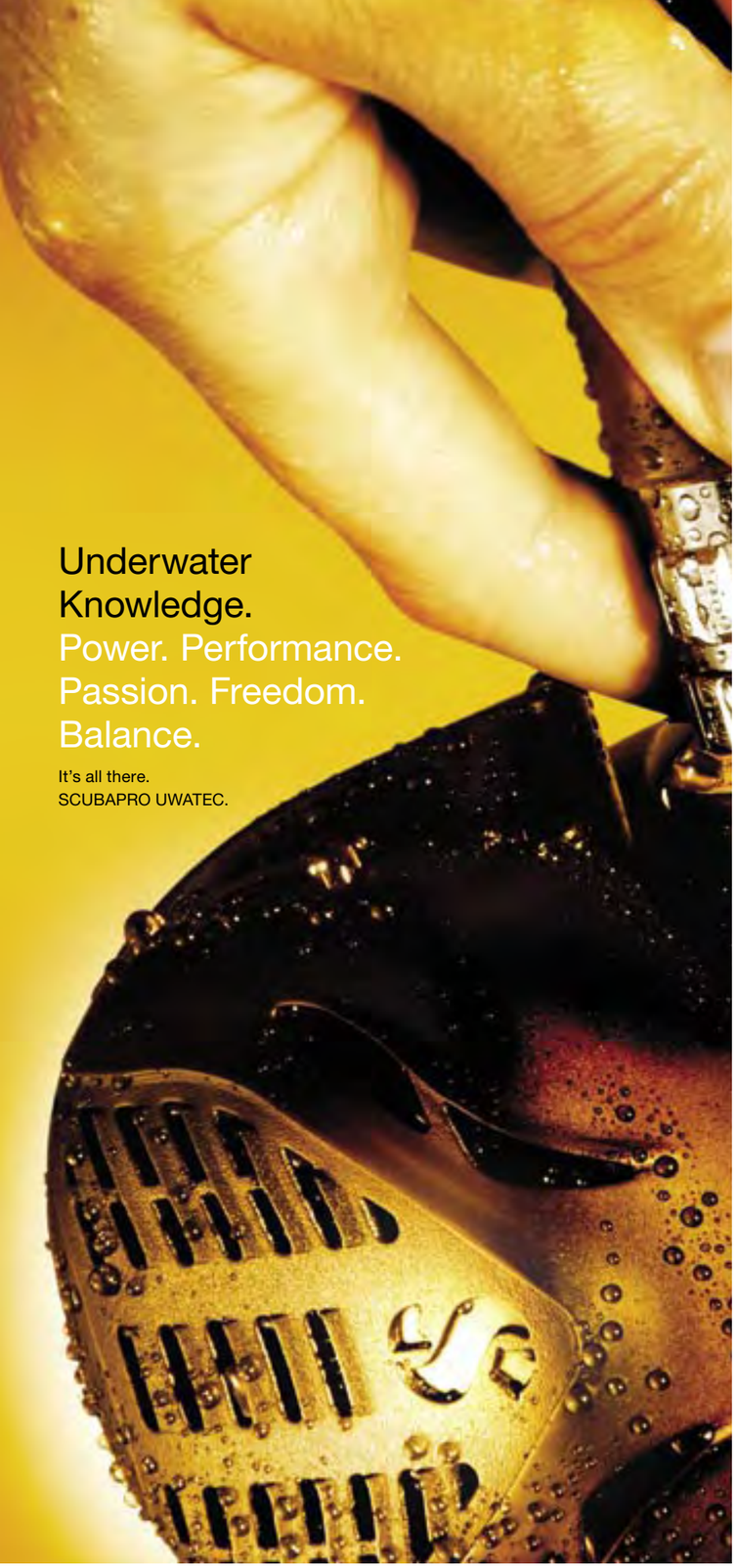

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Are whales cute?

Whales are just so cuddly likable, aren't they? With their big dreamy eyes, high intelligence and highly organised family structures, it is just too easy to relate and empathise with these magnificient fellow inhabitants of our Blue Planet. They have become icons for the environmentalists, often to the point where they become shrouded in a romantic aura. We in the West certainly don't want to hunt them anymore, and we are outraged when the Japanese send out whole fleets of whalers to the Southern Ocean *whale sanctuary* to catch hundreds of whales for consumption under the guise of conducting "scientific catches".

Well, other animals, cows for example, have nice eyes and are cute too. But we eat them without putting much though to it—except perhaps when we become all wound up over mad cow disease and such. Whales are meat too, so what's the problem?

... Hippocracy is, and the fact that most whales are on the brink of extinction as most of us are so painfully aware.

The concept of "scientific catches" was, needless to say, never intended to be a legal loophole for a whole nation's whaling fleet to exploit and enjoy a self-serve spree on the other side of the globe. Granted, Japan is not the only whaling nation. We also have some here in Northern Europe, of which we are not too happy either, but the magnitude of the Japanese operations and the vagrant mockery of what the whaling moratorium is supposed to be all about is a provocation that flies right in the face of the rest of us. It calls for a firm response.

Japan is expected to kill 935 minke whales in the Southern Ocean whale sanctuary

This came at the end of December, which saw an intense standoff between Greenpeace and the whalers, with Japanese warships purportedly under way to interfere in the conflict and with the Australian government, on the other hand becoming very vocal, vowing to bring whaling in the southern Oceans to an end.

Whose whales are they anyway? Do you have to plant a harpoon in a whale to claim it as "yours"? Assuming that we all have equal rights to ownership of these creatures, how do I go about keeping "my whale" alive. Do I have to fear that somebody else will kill it? These notions of ownership over wild, free roaming animals is, of course, ludicrous. That is why we have treaties regulating their sustainable exploitation, and it is also why breaching the rules amounts to stealing from the rest of us. Us, meaning me and you, and future generations who will not get to experience these magnificent creatures... That is, if we don't put an end to the madness that whaling constitutes at the moment. If there was huge self sustaining populations of whales, which could be exploited in a sustainable and responsible manner then, maybe, we would have an entirely different issue at hand. But as matters stand, hunting the whales is just impoverishing the planet, and once they are gone, they are gone for good.

What's scientific about these catches?

On these matters, we side 100% with the Australian government, which is perhaps the most vocal of the17 anti-whaling nations. Argentina, Austria, Australia, Belgium, Brazil, Finland, France, Germany, Ireland, Italy, Luxembourg, Mexico, New Zealand, Portugal, Spain, Sweden and the UK have all signed a formal letter urging Japan to end its whaling activities.

Japan, however, remains defiant and will not change its stance. Japan intends to continue its whale-hunting program despite mounting international protest, according to statement from a spokesman for the Japanese Fisheries Agency Hideki Moronoki. He added that Japan is entitled to catch whales under international whaling law, "We plan to continue with the research hunting," he said.

In response, via a joint statement, Australian Foreign Minister Alexander Downer and Environment Minister Ian Campbell remained equally adament and committed to ending whaling under the guise of scientific research.

Something's got to give, and it's got to be whaling! ■

The International Whaling Commission (IWC) declared a moratorium on commercial whaling in 1986, but whaling for scientific purposes is still allowed. Japan is expected to kill 935 minke whales in the Southern Ocean whale sanctuary over the first four months of the year in what the country claims are scientific research hunts.

editorial

"The best way to predict the future is to invent it!"

2 years!

It has been two years already since our little baby, this magazine, came to light. We can hardly believe it either. Yet, like most parents, we can't help marvelling over how far our baby has developed and grown in the interim. This little anniversary also provides us with an interesting yardstick—a measure of how fast the media scene changes.

Only two years ago, some of our main concerns where whether the general diving public was ready for a digitally distributed magazine concept like X-RAY MAG and whether downloads of 4-5Mb file size were too heavy.

Perhaps, the size was just on the borderline at the time. Lately, we have been publishing issues at 12-15Mb size with no worries. Broadband is now quite commonplace, and people shop and search information through their home computers like there's no tomorrow.

Our everyday habits certainly have changed quickly. A recent survey revealed that we in the West, on average, now spend almost three hours daily online, far surpassing TV and other past times.

In the past year, we have also received a lot of heart warming letters from the readers and flattering reviews. ***Thank you!***

This feedback and encouragement has meant, and still means, a lot to the whole hard working crew and contributors of X-RAY MAG. We appreciate the support that has been given to us from our readers, advertisers and colleagues.

In these communications, we often receive comments stating that the arrival of digital magazines on the media scene heralds the downfall of traditionally printed magazines. We disagree. Radio is still here, despite of TV. Video didn't eradicate the movie theatres or the live stage.

But roles do change as times change, and so should media and how we use it. Distribution modes alone—email vs. snail mail—isn't or shouldn't be the defining feature of a magazine or any media. It is the message *in* the media and what it communicates that counts.

In this regard, we want to press the boundaries of what digital magazines can do, be and mean in the dive industry and the global diving community. You, our readers, play a large part in our production process here at the magazine. We welcome your opinions. So, what's been on your mind? Tell us: **editor@xray-mag.com**

■

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NAUI WORLDWIDE
DIVE SAFETY THROUGH EDUCATION

News from NAUI in X-Ray Mag:

This issue of X-Ray Magazine includes news and press releases from NAUI in sections designated by the NAUI logo. While the page design is done by X-Ray Magazine as an integrated part of the magazine, these news items are brought to you by NAUI at NAUI's discretion.

X-ray mag

News edited by Peter Symes

how about that?

NEWS

Stem cells mobilized by hyperbaric oxygen

Hyperbaric oxygen treatments appear to aid in the recovery of injured and diseased tissue by increasing stem cell mobility. Stem cells, also called progenitor cells, are crucial to injury repair.

A report to be published in the April 2006 American Journal of Physiology-Heart and Circulation Physiology, says a typical course of hyperbaric oxygen treatments increases by eight-fold the number of stem cells circulating in a patient's body. It is reported that this is the safest way clinically to increase stem cell circulation, far safer than any of the pharmaceutical options. This study provides information on the fundamental mechanisms for hyperbaric oxygen and offers a new theoretical therapeutic option for mobilizing stem cells.

Stem cells are unique in that they can multiply indefinitely and 'differentiate' into specialised cell types as they multiply. This is what makes them potentially so important for use in medicine as it opens up the possibility that these cells may be used to create any type of cell for use as a treatment to replace diseased and damaged cells

Meat eating sponges discovered

Carnivorous sponges, globe-trotting tuna and an eerie underwater "dead zone" at the epicentre of last year's tsunami are a few of the surprises that have turned up in the first census of the world's oceans, and more may lie ahead.

DORTE JANUSSEN, SENCKENBERG MUSEUM, FRANKFURT

Asbestopl, a never-before-known species of carnivorous sponge, about 1 cm in diameter, engulfs other organisms with its "mouth," one of four such species, three of them new to science, found in the Southern Ocean abyss.

Having reached the mid-point of the unprecedented 10-year census, which involves scientists in more than 73 nations, it is reported that the 230,000 marine species now known to science are the tip of the iceberg. By the time the census is completed in 2010 it is expected that a million new species will have been collected. Most new species are likely to be very small though this is no surprise in an environment where 90 percent of the living mass is microscopic.

Dead zones

A puzzling find was the discovery of "dead zone" near the epicentre of the December 2004 earthquake and tsunami in the Indian Ocean where thick silt seems to have destroyed all signs of life. That area is very puzzling. It is a place on the ocean floor where there is absolutely no life visible - no crabs, no starfish, no tubeworms, nothing.

New technology

The pace of discovery in the census is due in part to the fact that scientists, equipped with deep-diving robotic vehicles and new technology, are looking for life where few have looked before—abyssal plains miles below the surface, polar seas and remote underwater mountain ranges. By satellite, too, scientists are already tracking more than 21 species of fish, turtles and sea lions.

In a midway tally of the census findings so far, more than 40,000 species have been identified many new to science, and a surprising amount of diversity in regions once thought to be bereft of much sea life.

The Census

The census grew out of a 1995 report from the National Academies of Science describing a startling level of ignorance about ocean biodiversity. The deep-sea floor covers nearly 116 million square miles at an average depth of 2.5 miles. The area the census has sampled so far would cover only a handful of football fields. In gathering their data, scientists are focusing on biological hot spots and sampling those. That directs their focus to coastlines, continental shelves and undersea features such as submerged mountains or mid-ocean ridges where the earth's crust is being renewed.

Ocean census expected to collect a million new species

Mid-Atlantic ridge

Tallying life along the mid-Atlantic ridge, for example, involves 115 scientists from 14 countries. The ridge supports an abundance of life that turns the waters above it into a refueling stop for whales, sharks, tuna and migratory fish that live closer to the surface. The team's vessel uses high-resolution sonar to spot fish more than a mile below the surface, then rolls out large nets. The nets, designed to close at different depths, allow the team to sample waters at various levels within their broad zone of interest.

At great depths, some fish are snakelike, sporting large heads with sharp, curved teeth. Many dangle luminescent lures to draw prey. Others light up to attract mates or startle predators. All are extremely fragile. With nothing more solid than one another to bump into, these creatures die when coming into contact with the nets. Their fragility also makes tagging them impossible, although researchers are working on ways to do that.

Though results so far aren't enough to allow researchers to create a meaningful picture of the whole ocean, planners expect that to change in the next five years. ■

Source and images: ***www.coml.org***

DAVID SHALE

Aphyonus gelatinosus, a strange bottom-dwelling fish covered by a gelatinous layer, has only been recorded twice. Once along the Northern Mid-Atlantic Ridge in 2004

Jellyfish, *Crossota millsaeare*

KEVIN RASKOFF

Singaporean diver Khoo breaks world record for longest scuba tank dive

All of us here love being in the water, but would you be willing to stay underwater for nine days—nonstop—just to break a world record?

By Catherine GS Lim

That's precisely what Singapore adventurer Khoo Swee Chiow did. Decked in scuba gear, he climbed into a special tank filled with mineral water at 3:34 pm on 16 December 2005. And there he stayed for the next 220 hours, long enough to set a new world record for the World's Longest Scuba Submergence (Controlled Environment) beating the previous record by seven and a half hours.

For someone who has climbed Everest, trekked to the North and South Poles and cycled 8,200 kilometres from Singapore to China, this latest feat doesn't sound like a big deal. Well, not quite. For starters, Khoo had to endure hunger, thirst and sleep deprivation, surviving on a liquid diet of isotonic drinks and fruit beverages (and this was during the festive season!). This caused him some diarrhoea and an eventual weight loss of 3.6 kilograms. Then, there was the 20 x 10 x 8 feet watery environment and scuba gear that caused infection and skin maceration to develop. To prevent decompression sickness, he also had to spend time in a hyperbaric chamber after his feat.

Khoo took these challenges in stride, supported by doctors, paramedics, nutritionists and equipment and dive operation specialists. He also gained strength from his family and friends, as well as the thousands of curious onlookers who waved, took photos and wrote words of encouragement to spur him on. His wife even dove into the tank shortly after the world record was broken to celebrate. "They were all very supportive and I really drew my strength from them," Khoo said to reporters after his feat, which he described as his Christmas gift to Singapore. ■

IMAGES: AONIA UNIVERSAL PTE LTD AND

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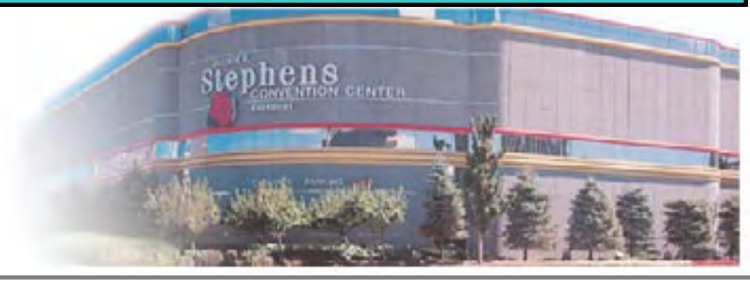


Reef closures helping fish stocks

Policy of area closure on the Great Barrier Reef to allow spawning has been very successful

Professor Bruce Mapstone from the Cooperative Research Centre for the Great Barrier Reef World Heritage Area (CRC) undertook, during an 11-year study, one of the world's biggest fishing experiments to get a better idea of the effects of both commercial and recreational line fishing. Data is still being analysed, but it is already clear that the policy of fishing bans in certain areas of the reef has worked.

"Some of the things that we've learned along the way include the area closures that the Great Barrier Reef Marine Park Authority has put in place have really been very effective in protecting significant portions of the stock that has been fished elsewhere from fishing so that they can spawn and rekindle the populations of the fish for future generations to harvest," Professor Bruce Mapstone said to ABC News.

"All of the research we've been doing both in the effects of line fishing experiment and associated projects indicate that the reef line fishery is now in relatively good shape," he added. ■

NAUI Seeks Qualified Representatives in Europe

As part of an ongoing effort to bring support and services to members around the globe, NAUI Worldwide has established local and regional representatives to provide members assistance in multiple languages.

Through its subsidiary, NAUI Services Group Europe (NSGE), NAUI is now expanding its group of representatives and seeking active members to become Course Directors and Representatives in the following countries: Austria, Bulgaria, Croatia, Denmark, Egypt, France, Ireland, Israel, Luxembourg, Libya, Malta, Morocco, Norway, Poland, Portugal, Scotland, Sweden, Switzerland, and Tunisia.

NAUI representatives are already established in Belgium (French-speaking), Cyprus, Czech Republic, England, Finland, Germany, Greece, Hungary, Italy, Lebanon, the Netherlands, Romania, Russia, Spain and Turkey, however additional representatives are needed in some of these countries

If you are interested in the possibility of becoming a local representative you must be an active status NAUI Course Director and have a certain stock of NAUI products to assist members in your area.

► For more information and additional qualification criteria, contact NAUI Services Group Europe at **info@naui-europe.com.**

NSGE was established in 2003 as a subsidiary of NAUI Services Group, and is responsible for the day-to-day servicing of European members, providing educational support materials in multiple languages and certification card processing to instructors teaching diver training courses in the region. For more information on NAUI Services Group Europe, visit **www.naui-europe.com** ■

NAUI Services Europe Establishes Corporate Offices

As part of its ongoing effort to bring support and services to members residing and teaching in Europe, NAUI Services Group Europe, Inc. (NSGE) has established its corporate offices in a newly purchased building in the Netherlands for its base of operations.

Currently undergoing renovations, the building will ultimately include corporate offices and warehouse space for NSGE, plus classrooms and support areas housed in over 20,000 square feet (4,000 square meters) of total space. "We are excited to be taking this next step in NAUI's growth," said Richard Lucas, General Manager of NSGE. "Our members in Europe have already benefited from the establishment of NAUI Services Group Europe, and this corporate headquarters will serve as a flagship location for them."

NAUI Service Group Europe, Inc. is a subsidiary of NAUI Services Group, Inc., a Florida-based corporation established at the end of 2002 to manage the business affairs of NAUI Worldwide, the diver training organization known for its quality of instruction and educational products. NSGE provides translated educational products in multiple languages and certification card processing to NAUI instructors teaching NAUI diver training course in the region. ■

German Manual

NAUI's popular Scuba Diver and Advanced Scuba Diver student textbooks in German language translations are now available through NAUI Services Group Europe. These translations are two of the latest in a series that enable NAUI instructors and affiliated dive centers to provide the best training in the dive industry.

With the release of these German language materials, NAUI continues to expand its already broad market share in Europe and elsewhere where the German language is spoken. NAUI offers translated materials in numerous languages. "The release of these new translations enables instructors to better provide their German language students the quality education they have come to expect with NAUI," said Jim Bram, President. "Our customers want the best training available, and we are committed to expanding our product line such as with these new translations."

The NAUI Scuba Diver Textbook in German (item #11000G) and the NAUI Advanced Scuba Diver Textbook in German (item #11500G) can be ordered through NAUI Services Group Europe at (+31) 548-611769 (fax) or via email at **info@naui-europe.com**. ■

Event calendar

Training at NAUI EUROPE training facility:

► European REPW
(2-day representative workshop)
Thurday 9th February 2006
Friday 10 th February 2006

► International ICC
(3 day instructor cross over course)
Monday 20th March 2006
Tuesday 21th March 2006
Wednesday 22th March 2006

► International ITW
(2 day instructor-trainer workshop)
Tuesday 21th March 2006
Wednesday 22nd March 2006

► International CDW
(2 day course director workshop)
Thursday 23rd March 2006
Friday 24th March 2006

► European REPW
(2 day representative workshop)
Monday 27th March 2006
Tuesday 28th March 2006

► NAUI TEC week (week 14 and 15 2006)
During these weeks NAUI EUROPE offer Technical diver, Technical instructor and Technical Course Director workshops in the following NAUI TEC courses;
Intro to tec,
Technical EANx,
Decompression techniques,
Heli-air, Heli-trox
Wreck penetration,
Technical Wreck penetration
Trimix-I, Trimix-II,
Mixedgass blender
SCR-rebreather

For further information and how to participate on one or more of the above mentioned courses and/or workshops, email to **info@naui.nl**

NAUI Dive & Travel Insurance

In 2005, NAUI launched the NAUI Worldwide Dive & Travel Insurance program, a comprehensive program that provides emergency medical and dive accident insurance (including hyperbaric chamber treatment and medical expenses) and travel assistance coverage to certified divers, dive professionals and students enrolled in NAUI courses around the world. Whether you're a student, certified diver or instructor, you qualify!

NAUI Worldwide Dive & Travel Insurance plans also offer comprehensive coverage for medical expenses for treatment of non-dive related accidents and medical emergencies that occur away from home; emergency evacuation benefits; disability, accidental death or dismemberment; dive vacation interruption or cancellation; lost diving equipment; 24-hour emergency hotline services and much more.

With three affordable plans to choose from, you and your family members can travel and dive with the confidence of knowing you have NAUI quality coverage, and unlike other programs, there's no need to join a member group to be eligible! Simply sign up for the plan you want and enjoy the comfort of knowing you have insurance coverage right away. To select the plan that's best for you, compare program details, and apply online, click the "Dive & Travel Insurance" link at **www.naui.org.** ■

Other dive insurance news:

Press Release recieved Jan. 22, 2006:

Bahamas recompression chamber to no longer accept DAN America Insurance

Nassau, Bahamas: Effective immediately, the Bahamas Hyperbaric Centre, LTD will, until further notice, no longer accepts the Divers Alert Network (DAN) America insurance for payment of diving related injuries. All divers traveling to the Bahamas are advised to either secure appropriate dive insurance from a source other than DAN America or be prepared to pay out-of-pocket for any treatments related to possible diving accidents that might require a recompression chamber. Of course, the Bahamas hyperbaric clinic will continue to treat all patients as medically necessary.

Unfortunately, because the clinic is faced with increased financial pressure to keep its facility operational and its staff on ready alert, the Bahamas Hyperbaric Centre, LTD can no longer accept Dan America insurance as payment for services.

This action only applies to DAN America (not DAN Europe, DAN Southern Africa, DAN S.E. Asia-Pacific or DAN Japan), as DAN America is the only insurance carrier that has not settled its claims with the Bahamas Hyperbaric Centre, LTD. It is worth noting that the other DAN World organizations, PADI Insurance and all other dive insurers worldwide, including major medical health programs in the United States and Europe, including National Health programs have settled satisfactorily claims for hyperbaric medical services with our company and continue to be accepted at the chamber. ■

For additional information please contact: ***cdammert@medicalhyperbarics.com***

DAN Responds to SSS Press Release

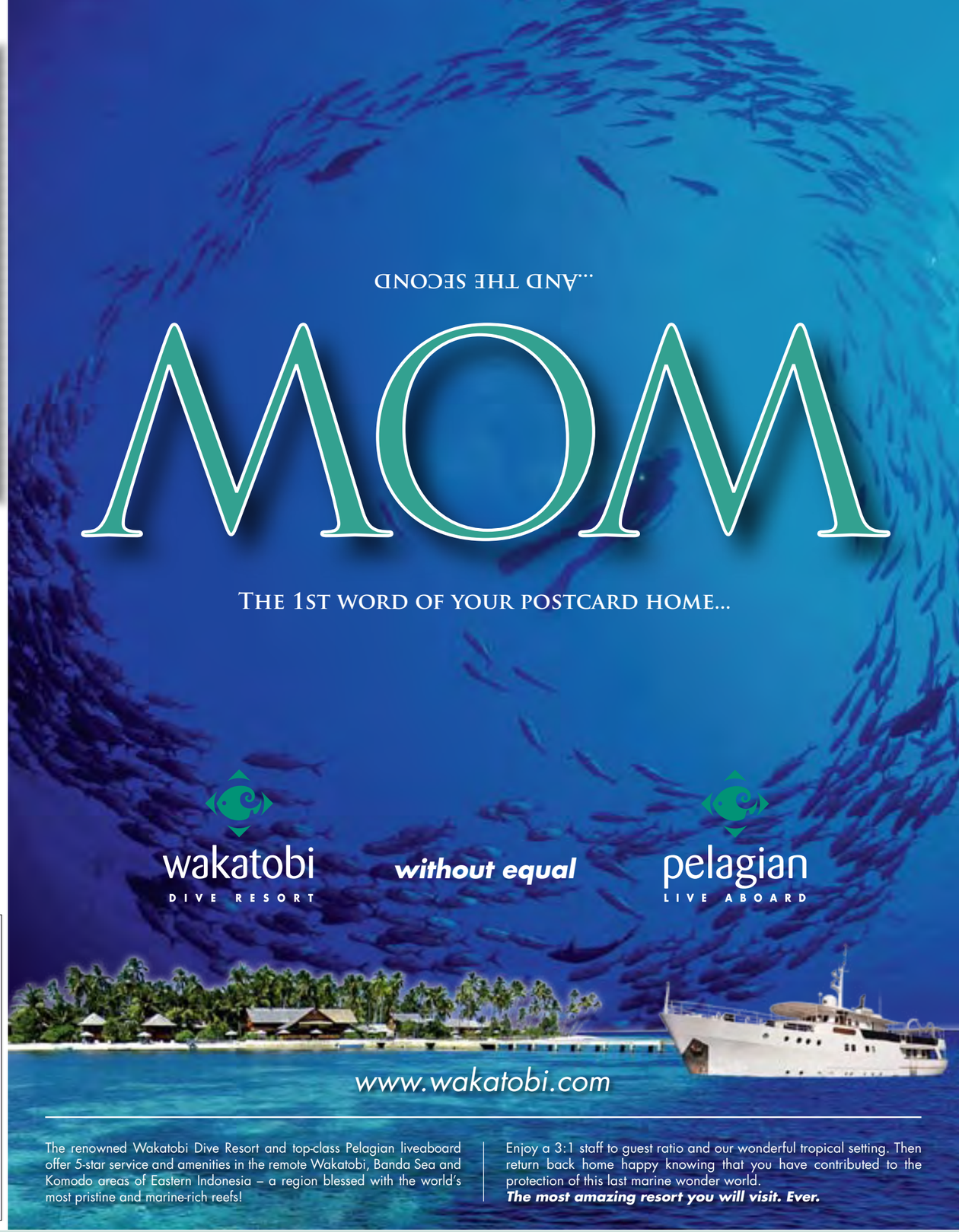
(recieved Jan 14)

SSS USA Corporate Offices to Accept DAN Insurance

The DAN Diver Accident Insurance Program has provided coverage for hundreds of thousands of divers and their families, and DAN America's insurers have paid out more than $20 million dollars in claims to members and treatment facilities around the globe.

During this time, DAN has collected and exhaustively studied a wealth of information on treatment charges. From this, DAN has identified "reasonable and customary" charges for treatment of decompression illness. This information is an important component to any insurance program to assure treatment of injuries at a fair price. This benefits both the insurer and the insured.

Unfortunately there is currently a dispute between DAN and Mr. Mauricio Moreno, the owner of a few chambers in our region. Specifically, the dispute involves what constitutes reasonable and customary charges for hyperbaric chamber treatment. It is DAN's view that reasonable and customary means the usual charges of similar chambers. It is the view of Mr. Moreno that reasonable and customary means what the chamber charges, even if the charges are significantly higher than charges of other similar chambers. One major international insurance company previously withdrew coverage altogether due to these high charges. Having been sued by Mr. Moreno, DAN is now forced to address this situation legally. (cont. ►)



news

Edited by
Peter Symes &
Michael Symes

SSI to Launch the Master Diver Challenge

January 1 saw the beginning of SSI's 2006 Master Diver Challenge! The program is designed to reward SSI divers for continuing their dive education. Each time a diver reaches a new level and purchases the related specialty card, SSI will send them a Milestone Award through their SSI Dealer.

Prizes include a 5 day Cayman Island Dive Trip, High Quality Dive Watch, T-shirts, Patches, and Personalized Diplomas.

- **Milestone #1** Specialty Diver (2 Specialties + 12 Dives) earns an SSI Congratulatory Diploma
- **Milestone #2** Advanced Open Water Diver (Specialty Diver Rating + 2 Specialties + 12 Dives) earns an Advanced Open Water Diver Patch and SSI Congratulatory Diploma
- **Milestone #3.** Master Diver (AOWD Rating + Diver Stress & Rescue* + 26 Dives) earns a Master Diver Patch, SSI Congratulatory Diploma, Master Diver T-shirt and a chance to win a trip or a high quality diving watch. *If Diver Stress & Rescue has already been taken, diver must complete another specialty.

To be entered into the contest, the Master Diver level must be reached by Dec.31, 2006. ■

New Zealand: Diving guide faces cold reception

New scuba diving safety guidelines are to be introduced in New Zealand in an effort to reduce the number of deaths.

Diving has become one of New Zealand's most popular past times but it kills on average six people per year. Experts say most deaths could have been prevented.

New Zealand Underwater Association has been working hard throughout 2005 to introduce new safety guidelines which will include an emphasis on encouraging more regular medical tests, particularly for older divers.

"I would say a lot of guys just see diving as an exercise and primarily just put on their gear - they've done it for a long time, they really don't check themselves over too well, from a health point of view or a fitness point of view,"Alan Muir, executive director of Water Safety New Zealand, who has been helping to produce the recommendations.

But experts in the field say it's not just diver's health that needs more attention and equipment neglect is also responsible for many diving accidents.

But there are fears the new guidelines may get a cold reception. It will not be easy to ask all those people who have been diving for a long time to get a medical certificate to continue their diving. And while it may be a good idea, it will also be difficult to police.

"The coroners report from the past five years show over half of the people haven't been following the safe diving practise standards,"

Lynn Taylor, president of the New Zealand Underwater Association to TVNZ

The Underwater Association says it will distribute the new guidelines to medical centres and dive shops across the country. ■

(► "DAN Responds..." continued from page 8)

There is no dispute, however, that DAN's insurers have agreed to pay Mr. Moreno's chambers at what they consider reasonable and customary rates. Therefore, if Mr. Moreno requires divers to pay in full for services when rendered, even for the portion of charges in excess of what is reasonable and customary, Mr. Moreno is needlessly overreaching and inconveniencing divers.

Despite these issues, DAN is committed to providing coverage to our members regardless of where they live and dive. Therefore, we have attempted to negotiate with Mr. Moreno over several years, including DAN's attempt to identify costs unique to his chambers, but without success. The good news is that the vast majority of chamber operators in the USA and around the world provide excellent treatments and services at fair rates.

Despite this dispute, DAN will continue to take care of divers in need. DAN encourages members to ALWAYS contact DAN directly if there is any question about treatment issues or payment of services. DAN, as we always have, will address such inquiries immediately, 24/7/365. No DAN member who purchases dive accident insurance through DAN should be at risk of not being covered.

Read Full release here:
Divers Alert Network (link)

NOTE: If you have questions regarding the availability of any chambers in the SSS network, please contact *insuranceqt@sssnetwork.com.*

This is the SSS USA corporate offices, which, as indicated below have nine chambers that DO support DAN insurance. ■

news

Edited by
Peter Symes &
Michael Symes

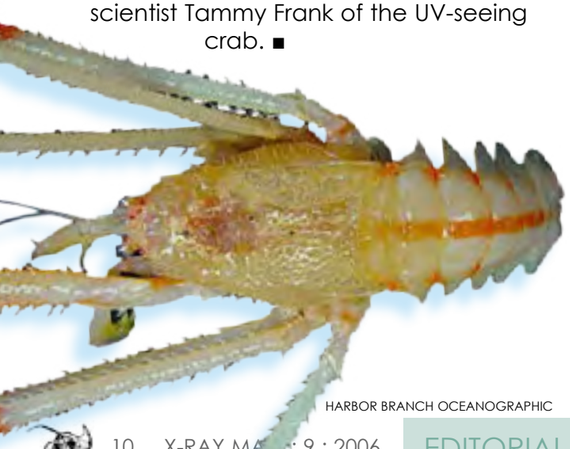
Deep-Sea Crab sees Ultraviolet Light

Scientists aboard the Harbor Branch Oceanographic Institution's *Seward Johnson* research vessel caught a mysterious deep sea crab that can see ultraviolet light during an expedition last year to the Mexican Gulf of Mexico. The secret to their success was the innovative Eye-in-the-Sea apparatus, which uses dim red light to watch animals attracted to a pile of bait.

Why?

The big discovery of the ultraviolet-seeing crab raises the question of what the crab sees in UV at depth of 575 meter, where no solar UV can reach. UV sensitivity is common in animals that live closer to the surface, but has never been discovered in a deep species. The reasons for this seemingly bizarre ability are not clear, but the sensitivity could point to a deep-sea light source about which researchers are not aware, or to some unknown characteristic of known light sources such as bioluminescence--the light chemically produced by countless open ocean organisms.

"It was totally unexpected," said chief scientist Tammy Frank of the UV-seeing crab. ■



HARBOR BRANCH OCEANOGRAPHIC

Squid care for their eggs

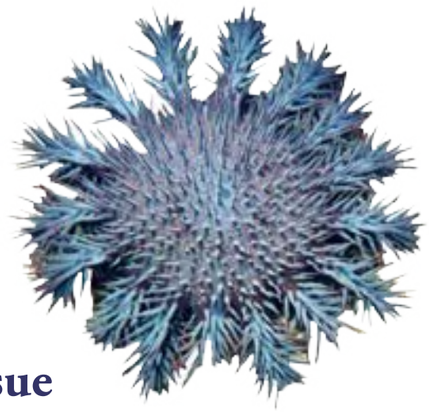
Unique footage from Monterey Bay Aquarium Research Institute showing a squid caring for its eggs

Scientists to test underwater strobe lights to save fish

Strong flashing lights may be able to keep fish away from power plant intake valves. At least, that is what some scientists have set out to test at the TVA power plant in northeast Alabama, USA. Power plants are being told to reduce the number of fish killed by 80 percent to 95 percent by early 2008. If successful, the lights could reduce the thousands of fish killed annually at Widows Creek and other power plants and help US utilities comply with tighter enforcement of the Clean Water Act.

Biologist, Mark Bevelhimer from Oak Ridge National Laboratory, said the lights will be mounted on frames and installed underwater. The underwater strobes will flash 300 times a minute and create a "wall of light" to deter fish from entering a plant's water-intake areas.

Scientists say strobe lights have been tested at a few plants in other parts of the US and have proven to be an effective deterrent with certain fish species. ■



Coral predator proving a thorny issue for dive firms

Dive companies along Queensland's (Australia) Great Barrier Reef are destroying up to 150 crown of thorns starfish a day on Queensland's Great Barrier Reef according to ABS News.

The Association of Marine Park Tourism Operators has been granted $600,000 to continue eradicating the coral predator but the work is complicated and hard because they have to be very careful not breaking the delicate coral wherein the dreaded predatory starfish sit.

"When the starfish is found on the plate coral and it's fairly open, you can get in and get a large number," the association's Col Mackenzie says, adding that he hopes the state's major tourism reefs should be free of the pest in 18 months.

"But most of the stuff we find is on the branching corals, which are quick growing corals, and it's still very difficult to deal with. It's labour intensive—very, very slow work." ■

ReefVid

Library of coral videoclips

At www.reefvid.org, there are around 550 video clips designed for use in PowerPoint posted on the web and they're available free of charge for educational and scientific use. The clips cover reef ecology, diseases, coral bleaching, hurricane impacts, human impacts on reefs, corals, fish, sponges, mangroves, seagrass beds and so on. They can be inserted into PowerPoint to illustrate your presentations. ■

www.reefvid.org

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news

Edited by
Peter Symes &
Michael Symes

Bluefin tuna getting leaner, suggesting shift in ecosystem

Tuna have become lot leaner than they were a decade and more ago, suggesting a major shift in the ecosystem. It's unclear exactly what's happened to the species, a top predator in the Gulf of Maine and the premium tuna for sushi lovers in Japan, according to Molly Lutcavage, director of the Large Pelagics Research Lab at the University of New Hampshire. But 14 years of records at a Seabrook fish auction house reveal that tuna are less abundant in the gulf, and they aren't eating as well as they once did. The study shows a steady decline in oil content since 1991, with the steepest decline occurring between 1992 and 1995. The high oil content that makes tuna so tasty to Japanese palates -- and brings the highest prices to fishermen -- is the best indicator for the overall health of tuna.

Taiwanese Fishing commission slashes Atlantic big-eye tuna quota

Taiwan's fishing quota for the Atlantic big-eye tuna will be cut from 14,900 tons to 4,600 tons due to overfishing and "fish laundering" by Taiwanese fishing boats, the International Commission for the Conservation of Atlantic Tunas announced in a move to urge the local Fisheries Agency to strengthen fishery management and reduce illegal fishing. Fish laundering pertains to the act in which a fishing boat exceeds its quota but falsely reports its excess catch as belonging to another fishing boat that has not reached its quota.

Deep-sea trawlers threaten rare Atlantic fish

NORTH WEST ATLANTIC FISHERIES ORGANISATION

Some of Europe's most spectacular deep-sea fish species are being wiped out by overfishing, according to reports from fisheries scientists and WWF, the conservation organisation. According to WWF Scotland, whose study has criticised the fisheries around Britain as among the worst, the numbers of deep-water sharks such as the leafscale gulper have declined by 80% in just 10 years.

Fleets of mainly Spanish and Panamanian trawlers fish for deep-sea species such as the orange roughy and the round-nosed grenadier which are popular among consumers on the continent.

The crisis for deep-water species began 20 years ago with a rapid decline in the population of cod, hake, haddock and other shallower-water species. This prompted fishermen to seek stocks further offshore in water up to 3,000ft deep. Such species are popular with Spanish and Portuguese fishermen who use high-tech echo sounders to target them. A few years of heavy fishing have sent these populations plummeting also.

In addition the techniques used to catch such fish are also destructive and wasteful. Gill-net trawlers leave their nets attached to the sea bottom for weeks at a time. By the time the fishermen bring up the nets for harvesting the catch, more than 60% of it is unfit for human consumption as it has rotted in the nets.

EU chickens out in cod crisis

OFFICE OF SEAFOOD AND OFFICE OF REGULATORY AFFAIRS, U.S. FOOD AND DRUG ADMINISTRATION

Despite scientific advice for the fourth consecutive year that catches should be cut to zero to protect stocks from collapsea, the European Union has given fishermen permission to catch half of the present haul of cod in the North Sea next year.

After what is one of the bleakest assessments on record for fish stocks after over-fishing EU allow a catch of about 23,205 tons of cod, although the total spawning population is estimated at only 41,000 tons, a decline of 2,000 tons since last year. The number caught could far exceed the quota because of the number of fish caught illegally.

California Wreck-Tech Extravaganza

Join international expedition leaders Capt. Dan Crowell and Joel Silverstein aboard the M/V Horizon for an unprecedented week of wreck diving along the California Coast. This team has put together an exciting week of wreck diving, training, and fun.

Starting off in San Diego higlights include: Yukon (110fsw), Ruby (90fsw), Submarine Docking Station, Catalina Island (225fsw),Tuna Clipper (190fsw) and an underwater sketching workshop on the Valiant (100fsw). Santa Clara (160fsw), Moody (150fsw) Sacramento (Redondo Canyon) (220-265fsw), Sea Witch (140 fsw) and the Jerry Lynn in 140fsw/ 42msw.

We end this wreck filled week Friday with a special dive on the B-36 Bomber (275fsw) and the Missile Launcher (180fsw) off the coast of San Diego.

Limited to 16 divers using both open and closed circuit equipment is sure to be an outstanding week. There are four spaces available. Trip dates are: March 5-11, 2006. 6 days up to 12 different wrecks. Contact: joel@techdivinglimited.com
www.techdivinglimited.com

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news

Edited by
Peter Symes &
Michael Symes

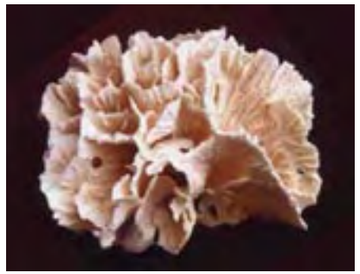
Yemen to create Marine Life Sanctuaries

Yemen has signed a protocol agreement for marine sanctuaries in its Red Sea and Gulf of Aden waters. Under the protocol of the Jeddah-based Regional Authority for Marine Environment Protection in the Red Sea and the Gulf of Aden, Yemen will team up with other countries in the region to implement the Biodiversity Agreement for the protection of marine life.
Source: Yemen Observer Newspaper

India: Pirates caught looting underwater treasures

It took six months for a special team from India's Ministry of Environment and Forests to unearth one of the biggest ever wildlife rackets in the country.

For the last half a decade a racket with roots in Mumbai, Tamil Nadu and Goa and operations all over the world collected sea shells, conch and precious coral and sold these globally. All these are banned and endangered sea animals under the Wildlife Protection Act 1972. These products are not sold in the shops openly and their clients are aware of it. They mainly operate through international agents and the telephone.



Threatened Cactus or Leaf Coral is protected under the Washington convention (CITES)

It started as a routine raid in some shops in Colaba. Finally, the ministry team had a huge international gang on its hands, supported by local politicians and other strongmen. More than 100 shops were found in the coastal city and some of the owners foxed the officers. "They are extremely well-networked and most importantly, they all know that these items are banned. It is not by chance that they gather these shells. There are workshops where people further work on the material to sell them in the international market," said an official. "Everywhere, they burnt their products and we could not seize too much material. However in the ashes and other hideouts enough proof was found to make a case". Source: dnaindia.com

US: Titanic Expedition to air on History Channel

Last year History Channel funded a Titanic Expedition led by well-known technical divers John Chatterton and Richie Kohler. Over the course of three days the Deep Sea Detectives duo conducted a number of dives on the historic wreck augmented by ROV filming. What came from those three days of diving was significant, as important new discoveries were made at the Titanic wreck site, throwing new light on how she broke up and the speed she sank. All will be explained on 26th February, during Titanic's Final Moments on History Channel. 9pm Eastern Standard Time.

Survey: Europeans Prefer Responsibly Sourced Seafood

In a poll among European consumers, supermarkets, chefs and restaurateurs on attitudes toward seafood and the ocean, 79% said that the environmental impact of seafood is an important factor in their purchasing decisions. Respondents said that reassurance is more important than price.

86% of surveyed consumers preferred to buy seafood labelled as environmentally responsible. Over 80% said they were quite or very concerned about the state of the oceans in Europe. More than half of the surveyed consumers acknowledged the problems of bycatch and overfishing.

EU's Role in Illegal Fishing in Africa

A new report 'Party to the Plunder' reveals the extent to which the European Union contributes to the continuation of illegal fishing in the waters of Guinea, West Africa. Detailed investigations undertaken by the Environmental Justice Foundation (EJF) show that these operations are facilitated and in some cases even subsidised by failures and loopholes in EU and member states' regulations and policies.

Despite adopting a Community Plan of Action to combat illegal fishing more than three years ago, there is little evidence of its implementation. EJF is calling upon the EU to fulfill its existing commitments and to take concrete and immediate actions to redress these serious problems. Source: allafrica.com

95 percent of European consumers and 85 percent of seafood professionals said they wanted more information about how to buy sustainable seafood.

Fish illegally caught in Guinean waters can enter the EU with very little scrutiny and consumers have few means to avoid buying illegally-caught fish.

Dolphin swim eases clinical depression

Symptoms of mild to moderate depression can be alleviated by swimming with dolphins according to researchers of a study published in British Medical Journal. It was found that two weeks of treatment instead of four weeks was required for effective psychotherapy or drug therapy.

Two groups of outpatients, one which swam one hour daily with dolphins and the control group which did not, were studied by scientists of the Department of Health Sciences, Division of Clinical Psychiatry, University of Leicester Medical School, Leicester General Hospital in Leicester, England.

It is thought that the echolocation system of the dolphins as well as their aesthetic value and the emotions raised in humans during interaction may explain the healing effects of the dolphin swim program. The researchers work supports a concept connecting experiences with nature to improvement in human health and wellbeing. Restoring health through contact with nature has been given the name, 'ecotherapy'.

Patients in the study swam with dolphins at the Roatan Institute of Marine Sciences in Honduras over a two week period. Four weeks before they participated in the study, the patients with mild to moderate depression discontinued anti-depressant drugs or psychotherapy. Three months after the end of the study, patients in both experimental and control groups reported lasting improvement and did not need further treatment.

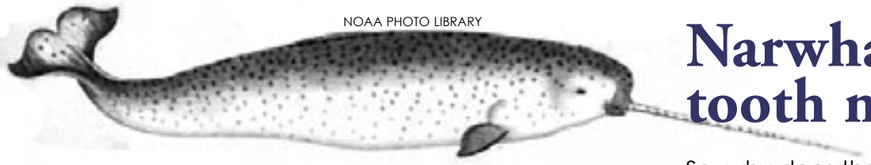
The ramifications of the study suggest that drugs may not be necessary when patients receive biophillic treatment with animals according to the researchers Christian Antoniolli and Michael Reveley, experts in psychiatry.

Biophillic treatment is based on the notion developed by psychologist Erich Fromm that cultivating the capacity for love underlies human emotional wellbeing and mental health.

According to reports, opponents of dolphin swim programs cite an explosive out of control growth of these programs for tourism, abuse of the dolphins in confinement, mistreatment during capture, and that dolphin behaviour is compromised in captivity.

But dolphin swim operators say their programs help educate the public about the need to protect dolphins in the wild, say local reports. ■

NOAA


NOAA PHOTO LIBRARY

Officially Endangered: Puget Sound Killer Whales

A population of 89 orcas, known as the Southern Resident killer whales, have now received protection under the Endangered Species Act one year after the initiative.

Since the 1970s, the whales have faced increased threats from capture for commercial aquariums, disease, oil spills, increased shipping traffic, exposure to toxic chemicals and decreasing food stocks such as salmon.

Historically small, the whales in Puget Sound will be protected from abuse by federal agencies who must certify that their actions to not harm the marine animals, rather, whenever possible, benefit them instead. ■

Narwhales' eight-foot tooth mystery solved

So, why does the narwhale have an eight-foot tooth coming out of its head? Well, Harvard researcher, Dr Nweeia, has an answer.

The tooth of the whale, which grows ups to 15 feet and weighs up to 3,500 pounds, has hydrodynamic sensor capabilities according to Dr Nweeia. The tusk is able to detect water temperature and pressure changes and particle gradients. The scientist says there is no comparison in nature to this unique tooth, neither in form nor functional adaptation.

Experts on the animal, which lives in the Atlantic portion of the Arctic Ocean with a few in the Greenland Sea, say that the tooth grows in a spiral from the whale's upper jaw in most males and some females.

Collaborating with Dr Frederick Eichmille of the Paffenbarger Research Centre at the National Institute of Standards and Technology and James Mead, curator of Marine Mammals at the National Museum of Natural History of the Smithsonian Institution, Nweeia presented his conclusions at the 16th Biennial Conference on the Biology of Marine Mammals in San Diego. ■

See Valentines Day Special on page 78

Beluga whales help kids with autism

After a beluga whale was reported to have helped a little autistic boy learn to speak in China, dozens of parents are taking their children to Shanghai Changfeng Ocean World to play with the whales.

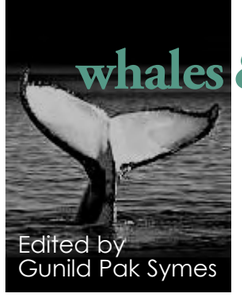
It is thought that the beluga whales' ultrasonic waves can stimulate the brain in autistic children, thereby improving brain function and encouraging the development of language skills.

Parents report that their children begin to speak simple words after playing several times with the belugas. Now, daily programs are taking place at the centre where two children can touch or feed the whales for 30 minutes. Currently, ten children are signed up for weekly meetings for beluga whale 'treatments', while 60 more kids are on the waiting list.

Beluga trainers who work with the children warn eager parents that improvement is different for each child and must be taken step by step. ■

ROBYN ANGLISS, NMML, NOAA

A spyhopping Beluga whale



It's too darn hot!

Dolphins and whales threatened by warming oceans

Global warming is threatening dolphins, whales and porpoises, say marine experts. Reports from the Scottish west coast feeding grounds this summer suggest that warming oceans is negatively affecting the supply of food for these creatures raising alarm in the £10 million whale-watching industry.

While little is known about the situation of many species according to Mark Simmonds, the Whale and Dolphin Conservation Society's international director of science, but he says the highly endangered North Atlantic right whale is particularly threatened by higher temperatures of the oceans. Loss of prey is now linked to reduced reproductive success in some species.

Even though commercial capture of this species ended, it is still struggling to survive according to Simmonds. The endangered right whale is like the canary in the mine and serves as a red flag regarding the impact of the changing environment. Simmonds stresses that more research needs to be done to find out how to manage and help the species at risk.

According to experts, global warming also effects species with a relationship to sea ice, which form an important part of the habitat of certain whales such as narwhales and bowhead whales according to experts.

Additional threats to marine mammals include ship strikes and entanglement in nets. ■

Doug Allan wearing Fourth Element Thermocline whilst filming a humpback and her calf on their annual migration, photo © Sue Flood sueflood@mac.com

Manatees have super-hearing underwater

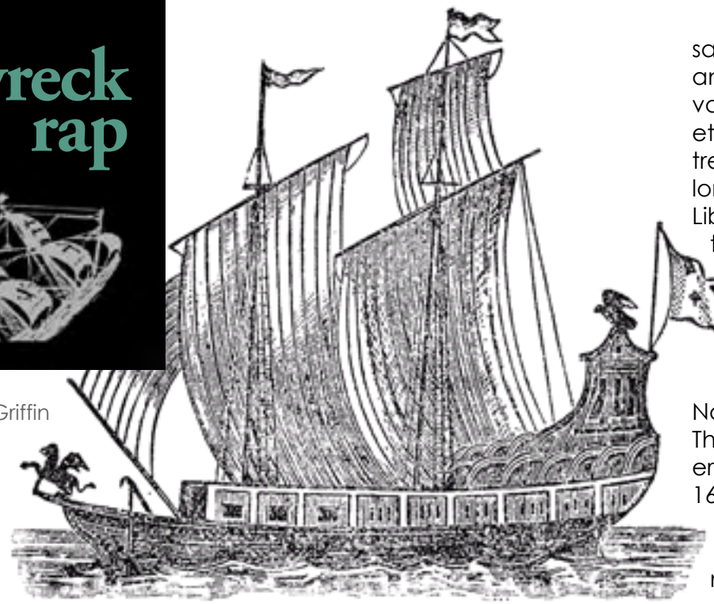
A study published in the Journal of Comparative Physiology suggests that manatees have 10 times better hearing than humans underwater. While impressive, this is only half as well as dolphins hear underwater. But it still leaves scientists wondering why so many manatees get hit by boats.

Around 70 to 80 manatees out of the 3,500 that live in Florida get hit by boats each year. The study negates the thought that the manatees could not locate from which direction the sound of the motors were coming. Now it is thought that perhaps the manatees are just not very good at dodging the boats or put themselves in the way of oncoming boats.

In order to measure the hearing of manatees, researchers of the study employed a technique similar to that used on newborn babies. They tested the range of sound frequencies that the manatees could hear and found that the manatees were able to follow frequencies up to 1,400 cycles per second. ■

PHOTO BY D.R. & T.L. SCHRICHTE. NAL, USDA

wreck rap



The *Griffon* (Griffin in English) was the first European vessel to sail the Upper Great Lakes

The search for the oldest shipwreck in the Great Lakes takes a new twist

Griffon is the oldest and most elusive of the Great Lakes shipwrecks. It is a French vessel that explorer Rene-Robert Cavelier, Sieur de La Salle, sent out on its fatal trip with a crew of about five. Ever since it mysteriously disappeared in 1679 on its maiden voyage in northern Lake Michigan, it has been tantalizing adventurers, historians and wreck enthusiasts alike.

Steven Libert is such an amateur underwater explorer who has been searching for the *Griffon* most of his adult life—and he may now have found the wreckage near Poverty Island. He has, however, for more than a year been tied down by a legal battle with the State of Michigan over salvage rights to what's left of the ship, but apparently has reached an agreement that will enable Libert to continue his work. Michigan claims all shipwrecks within its waters. But Libert says he should be able to maintain salvage rights to his discovery, and he doesn't give up easily. The value of the wreck is not monetary. The *Griffon* wasn't carrying treasure, and its cargo of furs is long gone. Its value is historic. For Libert it is the hunt for it that matters.

If it really is the *Griffon*, it may be the grand prize of his shipwrecks. Samples of the wood were sent to Chicago's Field Museum of Natural History for carbon dating. The results gave Libert's discovery a 33% probability of dating to 1679. But carbon dating isn't an exact science, because fluctuations in temperature and climate can affect the test results.

The court battle has stopped Libert from getting back to the site. He says it's too early to tell whether his find is the *Griffon*, But Libert points to other evidence, such as ax marks on the wood indicating it was hand hewn. He said it's also possible he found the *Griffon's* bowsprit, and the rest of the ship is loosely buried behind it.

He has formed the company Great Lakes Exploration Group LLC to salvage the ship. And he's trying to use a combination of his own money and whatever investors and grants he can attract to fund the venture. In addition, the Field Museum is helping Libert write a grant to fund more research.

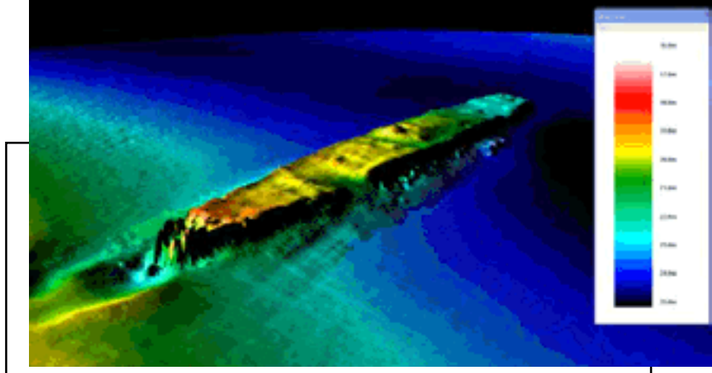
www.lasalle-griffon.org ■

Hunley scientists find clues to vessel's demise

Did a leaky port sink the *Hunley*?

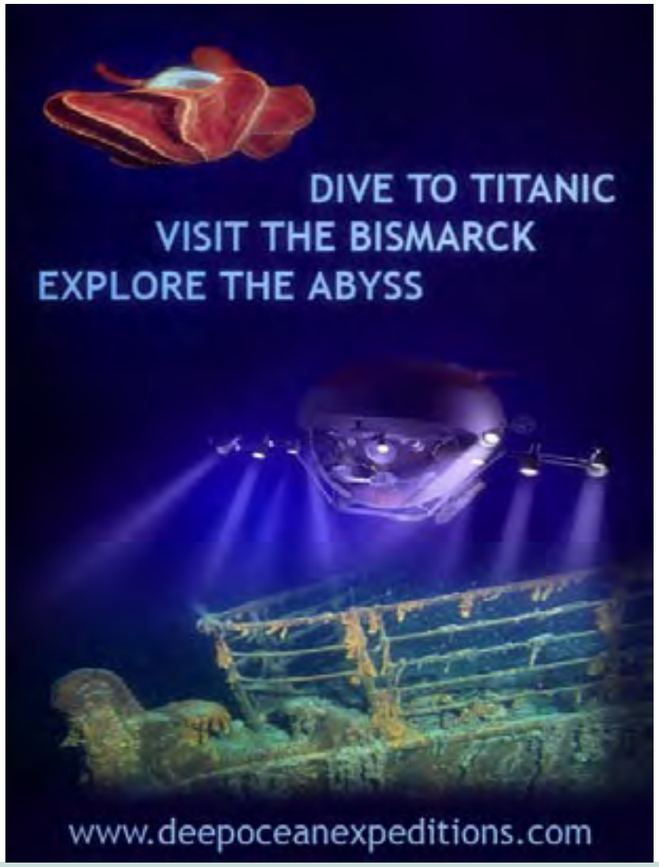
H.L. Hunley was a Confederate submersible from the American civil war that demonstrated the advantage and danger of undersea warfare. Although not the nation's first submarine, *Hunley* was the first submarine to engage and sink a warship. The vessel disappeared right after it sank an enemy warship in 1864, the prevailing theory of its demise being that the tower was blown in by an enemy warship causing the *Hunley* to fill with water. Now, scientists chipping away the hard layer of mud that covers the submarine after it was raised in 2000 have discovered that a view port on the front of the vessel is missing.

Experts say if none of the pieces of the view port are found inside the sub, it will substantiate this theory. Removing the mud and sediment around the *Hunley* is a tedious process, and scientists say they are probably about a year away from uncovering the mystery of why the *Hunley* failed to return after its mission. ■



New life to old shipwrecks images with 3-D

A new seismic technology nicknamed Chirp is making music for the ears of archaeologists interested in the wrecks of sunken ships. Named for the bird-like blips it makes in action, GeoChirp 3-D is able to generate three-dimensional images of just about anything lying beneath the seafloor, including shipwrecks hidden under years of muck and sand build-up. ■



Australia: Plan to scuttle *Canberra*, but where?

Several Australian states are vying to be the site of the next artificial reef. The former frigate *Canberra* could be scuttled in Victorian waters and made into a tourist attraction, with the premier of Victoria, Steve Bracks making a late bid for it. The *Canberra* was a long-range escort frigate commissioned in the US on March 21, 1981. It was decommissioned in 2005. A spokesman from the Dive Industry Victoria Association, Tom Wende, said other artificial reefs on the Mornington Peninsula were slowly collapsing and the *Canberra* would be a boon for tourism, particularly among divers. It could be sunk off the southern coast of the Mornington Peninsula near four existing submarine dive sites. Artificial reefs created by scuttling decommissioned ships at Victor Harbour, in South Australia, and Mooloolaba, in Queensland, had contributed to major tourism and economic benefits for both those states. The New South Wales and the Northern Territory governments have also expressed interest in the ship, which has been offered to Tasmania as well . ■

Artificial reefs off Hurghada opens to divers

The former cargo ship *Hebbat Allah* has become the first purpose-sunk wreck off Hurghada. The *Hebbat Allah* is 51m long and now lies at a depth of between 27m and 44m sitting upright on a flat, sandy sea bed at South Erog Giftun. She was donated to the Red Sea Governate by hotel owner Mohamadi Hoeidek after it ran aground in the area.

The *Hebbat Allah* is expected to attract thousands of divers each year and the Red Sea Association, which together with Egyptian naval forces was responsible for sinking the vessel, hopes the *Hebbat Allah* wreck will alleviate pressure on crowded dive sites in Hurghada.

The wreck is intact with the masts still in place and rising up some 15m towards the surface. Marked entry points and a series of guide lines have been fitted to make the wreck safe for divers. The accommodation area is easy to explore. Needless to say, marine life has yet to invade the wreck, but coral bushes are already beginning to appear around the wreck, schools of fusiliers patrol the perimeter, groupers hang around the forecastle and trevallies can be seen around the propeller. To dive the wreck divers must have a minimum of 100 logged dives. ■

Source: Dive Magazine

ABC NEWS

Part of one of the Japanese midget submarines found in Neutral Bay

Search for wrecked 1942 Japanese sub in Sydney harbour turns up emptyhanded

During December, a search was on for the missing third Japanese midget submarine that attacked Sydney Harbour in 1942.

Three Japanese midget subs sneaked into Sydney Harbour on the night of May 31, 1942, to attack warships near Garden Island. One got stuck in netting and the crew blew themselves up. Another was spotted by patrol boats and depth charged at Taylors Bay. The crew shot themselves. The third, with the designation *M24*, reached Bradleys Head and fired two torpedoes at the American cruiser *USS Chicago* but missed. One hit the converted Manly ferry *HMAS Kuttabul*, killing 21 sailors sleeping on board. *M24* was detected slipping out towards the Heads but was never seen again.

It was tracked going out past the barrier that stretched across the harbour from Watsons Bay, but what happened since to the *M24* and its two crew members have remained a enduring mystery in Sydney, as it never reached its mother submarine waiting off Botany Bay.

The raid, although failed, caused fear and panic as it was the first time the war came to Sydney. Days later the mother subs fired shells into the eastern suburbs.

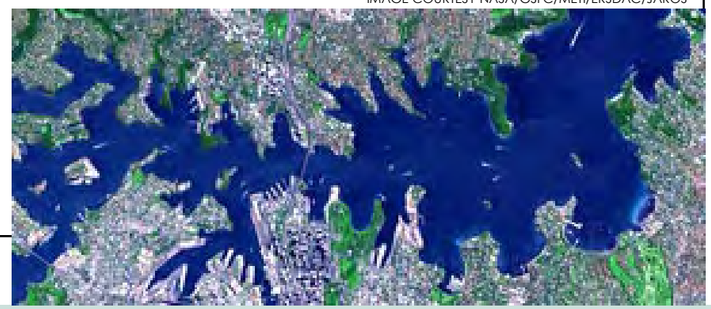
M24 finally found?

That was until Damien Lay, an Australian filmmaker whose documentary on the midget submarine attack has recently been screened on The History Channel, claimed to have located the wreck of the *M24* at a site with shifting sands, 20m below the surface, not far from Sydney Heads. Here, sonar readings and tests for metals pin-pointed a metal object, the size and shape of a midget submarine, just below the sand.

Damien Lay handed over his evidence to the NSW Heritage Office, which is responsible for the management of the state's underwater heritage including historic shipwrecks.

However, on Dec 17th, Planning Minister Frank Sartor reported that a Heritage Office investigation had failed to unearth any evidence of a buried sub. Mr. Sartor said a remote sensing archaeological survey, carried out east of Lion Island, had no success. "Unfortunately, one of Australia's great maritime mysteries will remain a puzzle, for now, with the sonar survey failing to unearth any evidence of a buried sub," Mr. Sartor said. ■

IMAGE COURTESY NASA/GSFC/METI/ERSDAC/JAROS



Satellite photo of Sydney harbour

PETER SYMES

Fiilephoto

Malta: alleged underwater thieves standing trial

The Maltese police have charged six expert divers with stealing and destroying priceless underwater heritage from Maltese territorial waters in the first ever case of marine heritage pilfering to end up in a Maltese court. The accused face a maximum six-year imprisonment sentence and a fine of between Lm500 and Lm50,000 (€115,000 or $140,000).

The suspects, who include two foreigners, stand accused of looting heritage items from Malta's seabed, some of them dating back to the Roman period. They are also charged with holding illegal exploration for national heritage, which would require a special licence, illegally removing the discovered artefacts without a permit from the heritage authorities, failing to report their discoveries to the authorities and damaging and destroying heritage items.

Their arrests earlier this year had sent shockwaves among the diving community used to "taking souvenirs" from deep-water wrecks, even though the accused were notorious among divers for their unrestrained looting for business. ■

Source: Malta Today

Turkey: 14 Shipwrecks off Turgutreis to be made available for divers

Fourteen shipwrecks off the coast of Yassı Ada, a small coastal island located between the Turkish mainland and the Greek island of Kos, will be made available for sightseers after the completion of a project entitled, The Yassı Island Shipwrecked Ruins Project.

Mayor Ali Server Yazgan, of the southwestern coastal province of Muğla Turgutreis, told the *Turkish Daily News* that a rocky underwater cliff, covering 500m^2, was located off the coast of Yassı Island and that the tip of it reached up to one meter below sea level. Yazgan noted that the 14 ancient ships, sailing near the island had struck the rock and sunk. He added that records of these ships were kept in the Bodrum Museum of History. Yazgan stated that the project, which will cost approximately $1 million, would be complete by next summer as long as it does not encounter any unforeseen financial difficulties. ■

Source: Turkish Daily News

The Final Flight of a 737

British Columbia, Canada. A beatiful day in January saw the end of a long voyage for the 737 that is now the latest addition to the impressive series of artificial reefs put down by the Artificial Reef Society of British Columbia (ARSBC)

On a beautiful day which offered a welcome break from the weeks of grey skies and rain, the "Xihwu" (pronounced key' quot) Boeing 737 was flawlessly placed into the waters off Chemainus, to become B.C.'s (and the world's) newest artificial reef. Approximately 180 boats came out for the sinking - everything from kayaks to a B.C. ferry which carried 150 people. Several hundred more watched from the nearby shore.

Xihwu

The name Xihwu Reef will be given to the site out of respect for the Red Sea Urchin, which lived in abundance in the area in the past, and which was at one time a significant food source as well as spiritual creature to the Hul' qumi'num Mustimuhw people. Many marine creatures have been significantly impacted over the last 50 to 100 years from pollution in the way of sewage, industrial effluent, and forest industry waste. Over-fishing and bottom-dragging have also seriously affected the habitat. It is hoped that the habitat created by the artificial Reef will provide the opportunity for the return of these and other significant creatures in the environment.

In recognition of the permission to use the location for the placement of the artificial reef a plaque will be placed on the aircraft giving thanks to the Hul'qumi'num Mustimuhw.

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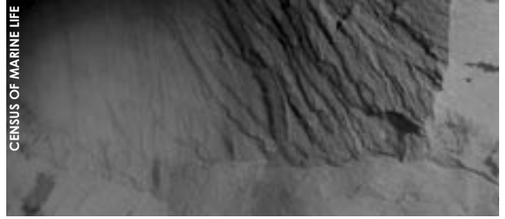

A scan of the seabed at the tsunami epicenter

Tsunami reef damage recovering

A year after the killer tsunami ravaged regions of Southeast Asia, scientists have documented the recovery of tsunami-affected coral reefs.

Dr Gregory Stone,vice president of global marine programs for the New England Aquarium, was on a diving expedition off Fiji on December 26, 2004, when the first reports reached his ship about the catastrophic tsunami in South Asia. Amid his horror over the human toll, another thought quickly formed in the scientist's mind: What would be the impact of this natural disaster on the region's stunningly beautiful and ecologically critical coral reefs?

Several months later, Stone traveled with a team to the Thai resort island of Phuket. After 500 dives at 56 different sites, the researchers found 14 percent of the area's coral reefs were devastated and another 50 percent moderately damaged, while there is minimal damage to 30 percent of the region.

"What we found was that the effects of human activity—overfishing and global warming—actually had a stronger impact than the tsunami," he said. "It really woke us up to what is happening to the coral reefs of the world and what people are doing to them." ■

Dead zone located below the ocean in wake of tsunami

A"dead zone" devoid of most life has been discovered on the ocean floor near the epicentre of the earthquake that triggered the Dec. 26, 2004, tsunami. The first scientific dives off the coast of Sumatra since the disaster have revealed that, while most marine life was not affected, one site appears to have become uninhabitable to large marine species. A submersible that made an 11-hour dive to a feature known as the Ditch, 4km beneath the ocean's surface west of the earthquake's epicentre, found no trace of fish or other marine "megafauna". The absence of visible life was "unprecedented in 25 years of deep-sea sampling," Ron O'Dor, the senior scientist from the international Census of Marine Life said. "The sea is rich in life and you would expect a site like this to be quickly recolonised, but that hasn't happened. ■

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Exotic Diving

The Philippines

PHOTO BY SCOTT BENNETT

7,107 Reasons to Go Diving!

Exploring The Islands of the Philippines

SCOTT BENNETT

STEWART L. SY

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STEWART L. SY

Text by Stewart L. Sy
Images by Stewart L. Sy, Scott Bennett

The Pearl of the Orient is a term now not normally associated with the Philippines. Nowadays, the association is more toward corrupt politicians, People Power and most recently, the Abu Sayyaf rebels' association with Al Qaeda. I read and hear about these stories of my birth place with a heavy heart. To me, the Philippines brings back thoughts of a warm and friendly people, rich in culture and old world traditions. A place where adversity, be it political, social or financial, is met with a nonchalant shrug of the shoulder and a smile just before the strong will of the Filipinos decide to tackle the issue.

You know, it's funny. I spent the first 20 years of my life in these beautiful islands. My family even had a beach house near what is now the most popular province for diving in the country. But, call me crazy—and believe me, a lot of people do—I learned how to dive in the frigid waters of British Columbia, Canada, instead of this tropical paradise. Now, over a decade later, I'm just beginning to appreciate the wonders beneath the waters of the Philippines.

The magical Philippine islands are hosts to some of the most diverse ecosystems in the world

Located along the western edge of the Pacific, about 500 miles west of Guam and that other diving *Mecca*—Micronesia—the Philippine Islands are technically considered an archipelago, encompassing approximately 7,107 islands, which combined, is more coastline then the entire US. Home to approximately 80 million inhabitants, the country's heritage is a mixture of Malay, Chinese, Spanish—it was a Spanish Colony for 400 years—American, and of course, *Pinoy*, which is the local slang for, well, being a local. The Philippines is the only predominantly Christian country in Asia.

I've been returning regularly to the Philippines in search of some great diving for the past six years, mainly going with a bunch of friends to capture some of the underwater wonders on film (and lately on CF Cards!) Unfortunately, blast and cyanide fishing is still practiced.

I will not whitewash the issue, there is still some reef destruction going on, many of the locals are subsistence fishermen, they need the seas for food. I don't think it is for us, Westerners, to stand on our soap box and say that the

PREVIIOUS PAGE: Aurora
LEFT: Dauin Beach

TOP LEFT TO RIGHT: *Amphiron Ocellaris,* a.k.a. "Nemo", Anilao; Pygmy Seahorse, Puerto Galera; Blue Ribbon Eel, Anilao

STEWART L. SY

The Philippines

FAR LEFT: Delicate ballet of manta rays

BELOW: Lively coral gardens are homes to a great diversity of marine life

preservation of our reefs is of paramount importance, especially when the one's we're preaching too are simply trying to feed their families.

There is an admirable conservation effort going on in the country. Many marine parks, official and unofficial, are being formed by either the government or by the local towns. The country has begun to realize that diving dollars is more lucrative than fishing, and that happy divers will tip more after a one week trip than the fishermen would make in a month.

Well, let's get to the good stuff: the underwater world of these beautiful islands. The country is divided into basically three distinct island groups, Luzon, the Visayas and Mindanao. I've had the pleasure of diving in the first two. Although diving is found throughout Luzon and it's surrounding islands, the predominant areas are the Provinces of Batangas and Oriental Mindoro, more popularly known as Anilao and Puerto Galera.

Anilao & Puerto Galera

Anilao and Puerto Galera are a macro photographer's heaven. There are hundreds of species of nudibranchs found in the area (700 at last count). Blue ribbon, moray and snowflake eels, lionfish, various species of parrot, damsel and trigger fishes, and of course, the perennial favourite of any South Pacific reef species, Oceallaris, the clown or anemone fish, recently made popular by Disney/Pixar's film Finding Nemo. Once in a while, large species such as tuna, black tip sharks and mantas can be seen. The hard and soft coral cover are in amazing shape here even after the much talked about El Nino and La Nina cycles that devastated much of the world's reefs.

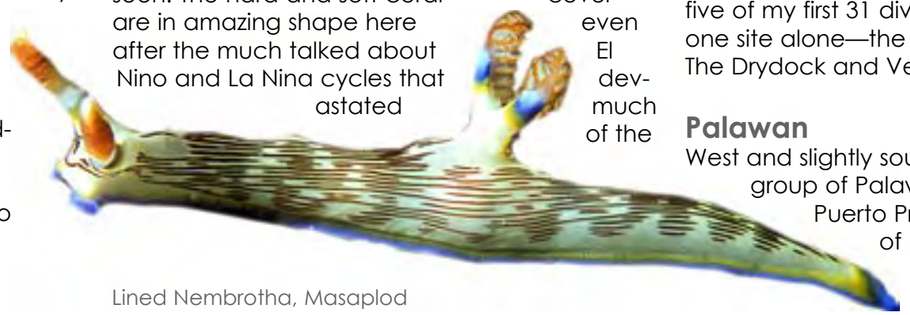
Anilao is a fairly painless three-hour car ride from the city of Manila, Puerto Galera requires a further 1 hour boat ride from Anilao. Diving in the Philippines is usually done on local outrigger canoes called "bangkas". The smaller ones will take up to four to six divers and the larger boats are capable of transporting up to a dozen.

A simple backwards roll takes one into the warm clear tropical waters. To adequately describe the area would require a lot more space than I have here. Dive sites of note in Anilao are: Beatrice, Bahura, Basura (local term for garbage, but the ultimate in critter dives!), Cathedral and Twin Rocks, although there are over twenty sites in the area.

Across the channel is Puerto Galera (Port of Galleons). Its sheltered natural harbour is a former stop point of the Spanish Galleons headed back to Spain from the Americas. The underwater flora and fauna of Puerto Galera is similar to that of Anilao, though in my opinion they are in greater numbers here. Must see dives are those of Sabang Wreck—five years ago, I did five of my first 31 dives in Puerto Galera on this one site alone—the Canyons, Sinandigan Wall, The Drydock and Verde Island Pinacle.

Palawan

West and slightly south of Mindoro is the island group of Palawan and its captial city of Puerto Princessa. Here is the jump of point for liveaboard dive-



Lined Nembrotha, Masaplod

SCOT BENNETT

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The Philippines

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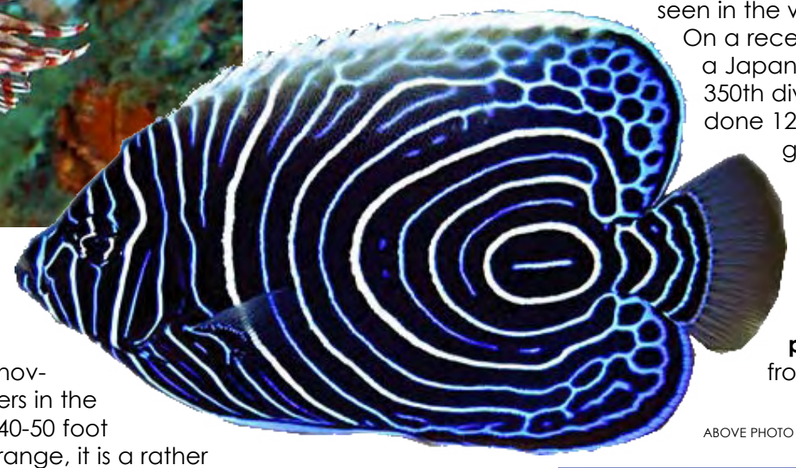
CLOCKWISE FROM TOP LEFT: Neon bright tropical reef fish hover in schools around a large barrel sponge; Lionfish; Juvenile Anglefish; Moray eel and cleaner wrasse



ABOVE PHOTO BY STEWART L. SY

PHOTO BY STEWART L. SY

boats going to the Tubatahha National Marine Reserve, a United Nations World Heritage Site. Open only during the months of March to June, this amazing reef system teems with amazing fish life and amazing coral walls. Large pelagics such as sharks, rays and mantas can be seen here. It is truly a place worth visiting.

Visayan Islands

Heading south takes one to the Visayan Islands. The jump-off point here is the island of Cebu. Serviced by the Mactan International Airport, direct flights from many of Asia's gateway cities come this way.

Cebu, itself, has numerous dive spots. One area now gaining popularity is the island of Malapascua. Three hours north of the airport, this little island has become famous for regular sightings of deep-water Thresher sharks. Though one has to be up at 5:30 am to be on the boat by 6:00 and in the water before 6:30.

Monad Shoal, as the site is called, is the top of an underwater plateau. Rising from a thousand of feet below, the top averages at around 70 feet. Guides lead divers to the edge of the mountain. The sharks will then slowly start coming by. As the visibility here hovers in the 40-50 foot range, it is a rather un-nerving experience when a 12-foot long fish materializes out of the gloom. Shark sightings are pretty regular, year round. At the approach of the rainy season, large Pacific Mantas will start visiting the shoal as well.

Southeast of Cebu is the Bohol and the gorgeous island of Balicasag. A tiny little island that one can walk around in 45 minutes, Balicasag has amazing drop-offs just a few yards from shore. Large coral fans and schools of jacks are ready to greet you. A fish sanctuary was established by the Philippine Department of Tourism here as well as a lovely resort on the west side of the island. Duplex huts of native construction are within 20 yards from the drop-off.

Apo Island Marine Reserve

Southwest of Balicasag is the Island of Negros and specifically the Apo Island Marine Reserve. The southern most tip of Negros is composed of dark volcanic sand. The most amazing creatures are found here. Most notable is the clown frogfish. This tiny creature was found on a channel marker in 15 feet of water—right in front of a fishing village!

Apo Island Marine Reserve allows only 15 divers per day and the condition of the reefs show it! Beautiful fronds of soft coral, large amounts of fish and the most amazing site of all, Anemone Fish City, where in 30 feet of water, literally hundreds of thousands of anemone fish rise up to greet divers.

I've only scratched the surface of what can be seen in the waters of these amazing islands. On a recent trip to Puerto Galera, I met a Japanese fellow who was logging his 350th dive in the area. Well, having only done 120 or so myself in Puerto Galera, I guess I have to start catching up! Mabuhay!

Getting There

Cathay Pacific Airways Ltd (**www.cathaypacific.com**) and Philippine Airlines (**www.philippineair.com**) offer the most flights from the west coast. Cathay Pacific

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The Philippines

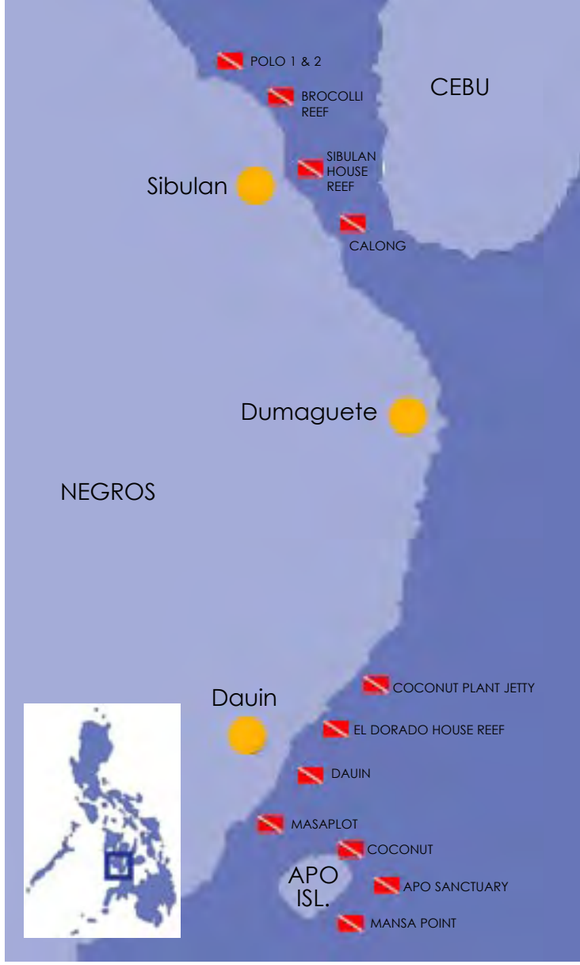
requires a quick layover in Hong Kong, though they offer a choice of either Manila or Cebu as a final destination. Philippine Airlines will fly you to Manila where you can then take advantage of their local routes to get around the country

Climate

Temperature ranges from the mid 80's during the rainy season to near 100 in the summer. High SPF sunscreens are a must. What to Bring: For us accustomed to the North American climate, light clothing is desirable. Leave those heavy jeans at home. Unless you're planning on going to a formal dinner party a polo shirt and slacks will do for pretty much any occassion. Besides, make sure you leave room to buy some of the shirts available as souveniers!

Water temperature

Low to mid 80's. If you're diving only occassionally then a dive skin is fine, but for repetitive dives (3 or more a day) a 3mm suit is best.



Electricity

220 volts, 60 cycles. Bring a voltage transformer and only 2 prong plugs.

Entry requirements

American and Canadian citizens are automatically allowed 1 months stay, as long as you have a valid departure ticket and that your passport is valid for 6 months past your depature date.

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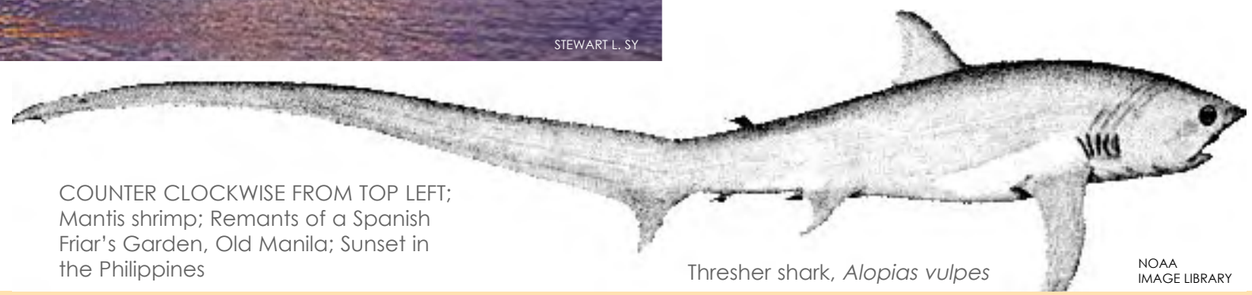
Ghost Pipefish SCOTT ENNETT



COUNTER CLOCKWISE FROM TOP LEFT; Mantis shrimp; Remants of a Spanish Friar's Garden, Old Manila; Sunset in the Philippines

Thresher shark, *Alopias vulpes* NOAA IMAGE LIBRARY

The Philippines

Money matters

At the time of this writing, the Philippine Peso hovered at the 56:1 mark to the US Dollar. In the cities, credit cards are ok but unless you've made prior arrangements with the resort, cash is preferred to credit cards or traveller's cheques. There will be a surcharge to use plastic.

Stewart Sy is originally from the Philippines. He is now based in Richmond, British Columbia, Canada. Ironically, Stewart learned how to dive in the chilly waters of Western Canada. He returns to the Philippines annually for the fantastic diving and photography. His photographs and articles have appeared in Philippine Diver, The Golden Dolphin, Naturescapes.Net and The Vancouver Sun. ■

LEFT TO RIGHT: School of Barracuda; Two Mandarin fish snuggle above the corals; Porcelain crab in anemone; Frogfish

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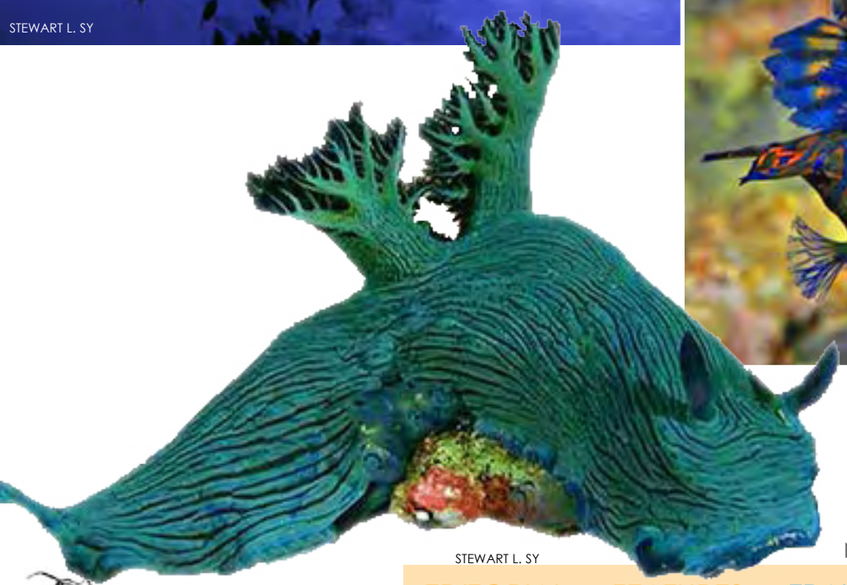
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Nudibranch

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One of The Philippines' Best Kept Secrets

Dumaguete

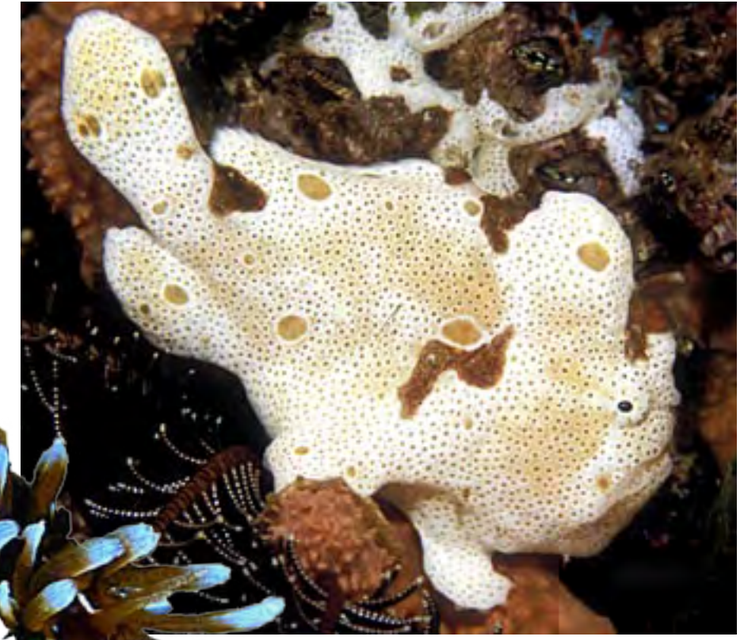
Text and Photos by Scott Bennett

Negros, one of the largest islands in the Visayas region of the Philippines, is one of the least visited, often overlooked in favour of more popular Cebu or Bohol. This is a shame, as Southern Negros is one of the Philippines best kept diving secrets! Lying outside the typhoon belt, southern Negros is a year-round scuba destination. A twenty-minute drive south of Dumaguete is Dauin. Wide beaches of brown volcanic sand line the shores, remnants of an ancient eruption. A wide variety of dive sites can be found here; the brown volcanic sand provides superb muck diving, with a number of great sites to be found right off the beach.

Dumaguete

Bethlehem

I queried Chris Heim, owner of Sea Explorers, as to why the site was named Bethlehem. Grinning, he replied, " Because it's better-than-Lembeh!"



Situated right in front of Sea Explorers' new Pura Vida resort is the area's newest star attraction. This artificial reef was created in 2004 with the sinking of a banca, one of the ubiquitous outrigger boats found throughout the Philippines. In just over a year, the wreck has become a magnet for a diverse assortment of critters.

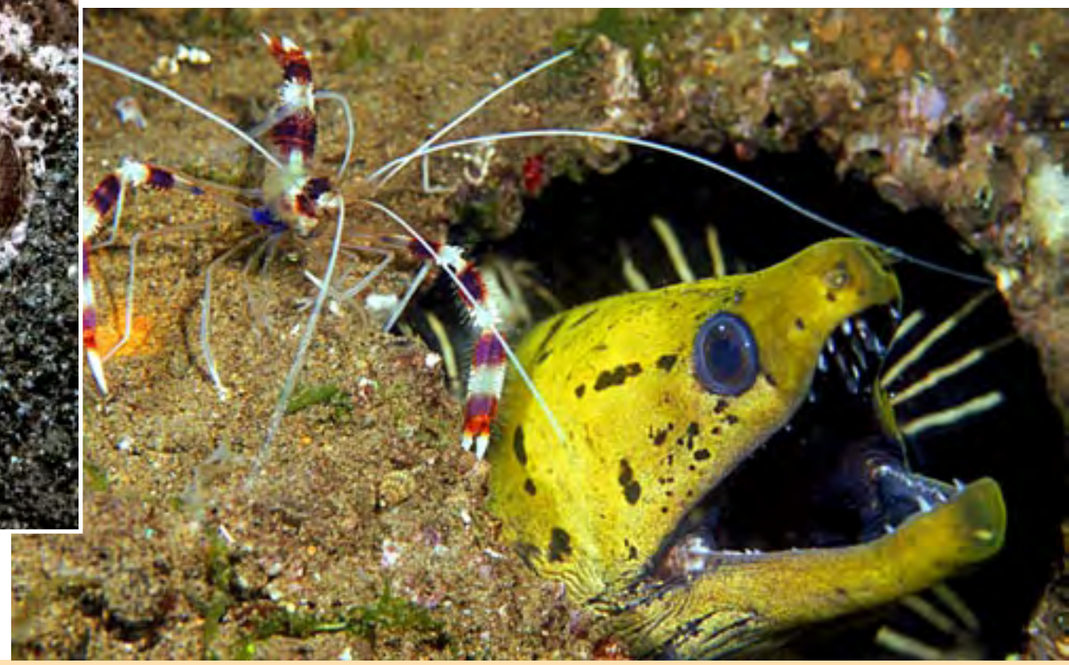
The remainder of the site, consisting of a sandy slope with intermittent weedy patches, is an utterly superb muck diving site. The substrate of volcanic sand and variety of critters present are indeed reminiscent of Lembeh in Indonesia.

Although diving is good during the day, it really comes alive at night. A shore entry and a short swim down the slope leads to the banca resting at a depth of 12m. Currents here aren't usually a problem.

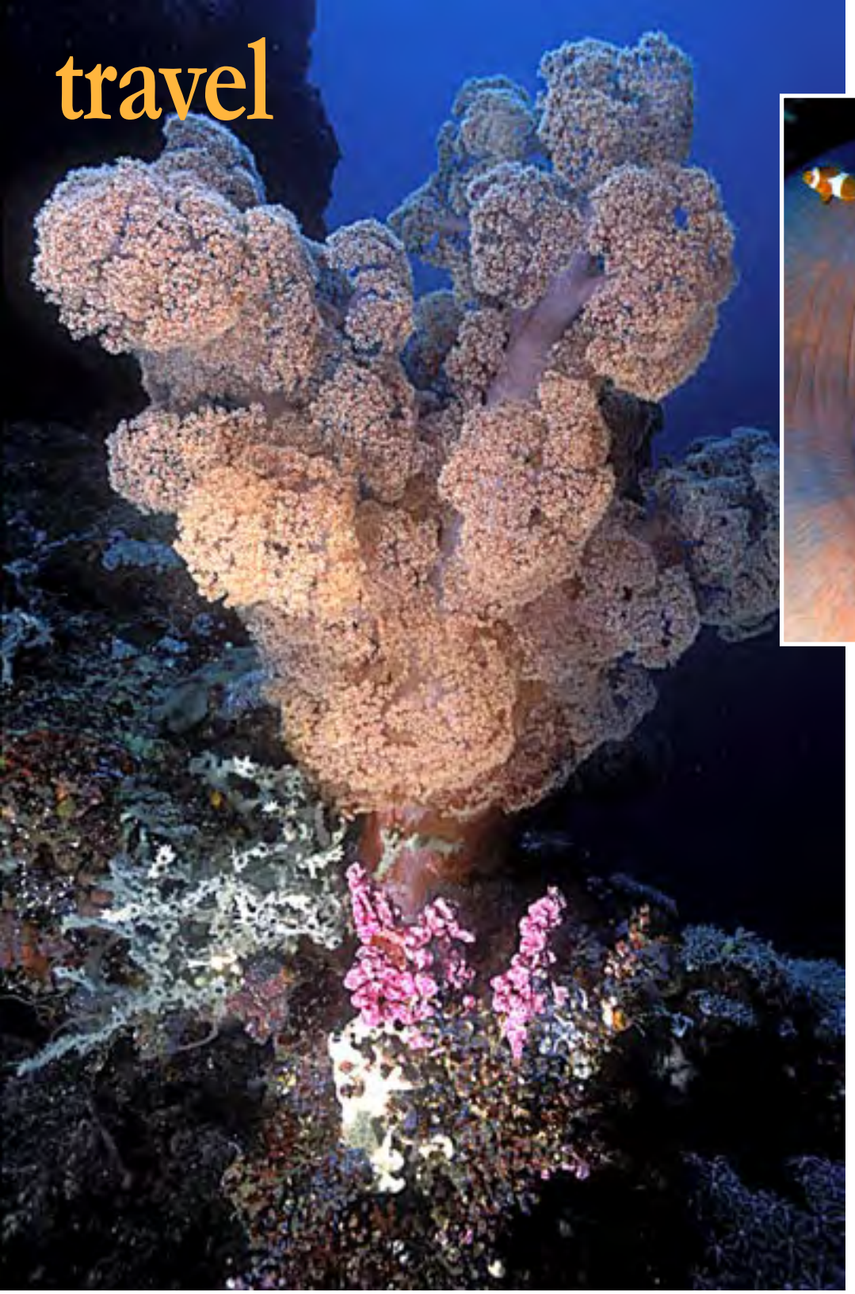
My first dive here was during a full moon, and the current around the wreck was very strong. One unhappy me member of our group aborted the dive within a few minutes, but the rest of us pressed on. Photography was nearly impossible, as the current pushed one diver into another, creating a domino effect.

Generally though, the current is usually slight. Crabs can often be found peering out from the underside of the wreck, while the numerous recesses in the side provide a home for numerous scorpionfish.

A number of large and very friendly lionfish make their home within the wreck. At night, they will often utilize your torch illumination to hunt unwary prey.



CLOCKWISE FROM LEFT: Squat lobster, Bethlehem; Kabira Phyllodesmium, Sarah's Place; Frogfish, Bethlehem; Cleaner shrimp and Moray Eel, Bethlehem; Stargazer



were bound together and sunk. In less than a year, the tanks have already been colonized by a noticeable amount of marine life. A large moray has taken up residence in one, sharing his abode with boxer shrimp and a small school of juvenile striped catfish. Further on up the slope, the volcanic sand yields bobbit worms, devil scorpionfish, finger dragonets, crocodile snake eels, bristle-worms, giant mantis shrimp and hairy frogfish. It's truly a paradise for macro enthusiasts. Film users will run out of film long before their air! It's also quite shallow, making it an ideal last dive if you have to catch a flight the next day. Look out Lembeh; you've got some competition!

ABOVE:
Cauliflower Soft Coral, Chapel Point, Apo Island

INSET;
Anemone and Clownfish, Sanctuary, Apo Island

Divers must be vigilant and watch their surroundings at all times. The overly friendly lionfish have a very bad habit of swimming around and under the legs of unsuspecting divers.

A wide variety of critters, including crabs, nudibranchs, pipefish, scorpionfish, frogfish and feather stars housing tiny squat lobsters can be found on and around the wreck.

Nearby at 14m a cluster of three scuba tanks

Masaplod

A 10-minute boat ride from Pura Vida is the small but beautiful sanctuary of Masaplod. Although only covering six hectares, the sanctuary features large areas of hard coral, with beds of seagrass in the shallows. With a maximum depth of 18m, this small but diverse reef is ideal for beginners and advanced divers alike. Being a protected area, the boundaries are surrounded with maker buoys and boats aren't permitted to enter.

After being dropped off at the boundary, a brief swim across the seagrass leads to the reef. If you are a photographer, the biggest hazard here is trying to decide which lens to use, wide-angle or macro! With many species of fish in large numbers, it's very easy to overlook the smaller but no less interesting residents, such as mantis shrimp, ringed pipefish, double ended pipefish and nudibranchs. Along with the schools of big snappers and sweetlips, a very large turtle often puts in an appearance. Blue-spotted stingrays can be observed in the sandy areas.

The beach facing the site is very popular with locals, who congregate here on weekends. A large

Fan Coral, Sanctuary, Apo Island

Dumaguete

LEFT: Porcelain crab in anemonem El Dorado Reef

CENTER: Unusual green Ghost Pipefish hiding among sea grass

BELOW: Blenny hiding in sea coral

BOTTOM RIGHT: Harlequin crabe hiding in tube worm

beach hut is used for picnics and family get-togethers, which aren't complete without the ubiquitous portable karaoke machine. Both my shore entry and exit were accentuated with some truly painful renditions of popular songs!

Dauin

At Dauin Beach, a five-minute boat ride from resort, lays another banca wreck, albeit bigger and deeper. Lying on its side at a maximum depth of 30m, the boat has slowly become colonized with a varied assortment of marine life. The interior is home to a congregation of extremely large lionfish, while various nudibranchs are to be found outside.

However, the special attraction is the pipefish, of which several species are often present. Ornate ghost pipefish, in both red and black colour phases, are commonly seen around the wreck, as are banded pipefish. During my last visit, I spotted an unusual green ghost pipefish, with a body similar to a robust, but with a fan-shaped tail. I still haven't been able to identify it in any guidebook.

The seemingly barren slope adjacent to the wreck is anything but! An ascent to 7m reveals a lone anemone, home to a small colony of saddleback clownfish, glass shrimps and porcelain crabs. Small, but possessing heaps of attitude, the clownfish prize their tiny piece of real estate and defend it vigorously.

On one occasion, I was a short distance away just looking in their general direction. Within moments a feisty pair of clownfish propelled themselves at me like two miniature torpedoes.

Scattered about the immediate area are small isolated patches of coral, each a tiny microcosm of life with humbugs, reticulated damselfish, sponges, urchins, seahorses and ghost pipefish. At the top of the slope, an extensive bed of seagrass can be found at a depth of depth of 3-5m. A careful eye may reveal robust ghost pipefish, as well as various species of snails, nudibranchs, pygmy pipehorses, razor wrasse, juvenile ribbon sweetlips and sharpsnout eels.

A mere 100m from the

Dumaguete

CLOCKWISE FROM LEFT:
Fronds of yellow Featherstars decorate the reef at Rock Point East, Apo Island; Hairy Frogfish, Bethlehem; Celestial Phyllidia Pair, Sarah's Place: Leopard flounder, Banca Wreck.

Banca Wreck, surrounded by debris, sits are the Car Wrecks. Although the area may be small, the variety of creatures to be found here more than makes up for it.

The copious nooks and crannies are crammed with a wide variety of critters: Banded boxer shrimp, Durban hinge-beak shrimp, ornate ghost pipefish, frogfish, blue-spotted stingrays and various species of nudibranchs are just some of the residents to be founding and around the wrecks.

Each dive will reveal something totally different. Make sure to keep an eye on your computer though, as your deco time will vanish in no time. A short swim back up the slope leads to the Seagrass. If the sea is too rough, the site can be reached by road from the resort and an easy shore dive. Unfortunately, due to the depth, both sites can't be done on the same dive. No matter—you'll want to repeat them both!

Sarah's Place

Located adjacent to the Atlantis Resort, Sarah's Place consists of a sandy bottom punctuated with a large artificial reef. The shallows are characterized by beds of sea grass and small clusters of coral, ideal for novices and macro photographers alike. Moving deeper you will reveal large areas of stag horn and other hard corals. On one dive, a giant frogfish was found perched upside-down under a rocky overhang.

After examining the developed slide, I realized it had a tiny goby clinging to the side of its face. Up to a half dozen species of nudibranchs add a splash of colour, while blue-spotted stingrays can be found hiding in the sand. A blue ribbon eel, continuously twitching spasmodically, allowed an extremely close

approach before finally ducking into his burrow in the sandy bottom. I also managed to spot an elusive crab-eyed goby—the first time I had seen this species in the Philippines. Be sure to make a sunset dive here to see the mating mandarinfish.

As this is a sanctuary, diving is not permitted after sunset. As tempting as it may be, try not to linger too long; I heard the story of one hapless dive guide who had his gear confiscated after being caught by a local official.

Apo Island

A thirty-minute banca ride southwest from Pura Vida is Apo Island, one of the crown jewels of the Visayas. This small rugged island in the Philippine Sea offers superb hard coral gardens and outstanding drift dives. A dozen different dive sites can be found around the island. One of the country's most successful marine reserves, the entire island, as well as the surrounding sea, was granted full protection status in 1995. The islanders themselves now manage the reserve and sanctuary. Mooring buoys have been set up to prevent damage from the frequent boat traffic.

The island is completely surrounded by fringing reefs adorned with healthy populations of both hard and soft corals. In the shallows, Acropora, lettuce, brain, table and elkhorn corals grow in dense profusion. Equally prolific is the fish life, with a multi-coloured array of butterflyfish, damselfish, squirrelfish, anthias, groupers, Napolean wrasse, triggerfish, and several species parrotfish.

Dramatic cliffs and overhangs characterize Chapel Pt. A cave harbours copper sweepers and a resident ribbon eel, while elephant ear sponges and cauliflower soft corals adorn the steep walls. Out in the deep water, the strong currents attract an impressive array of tuna, mackerel and barracuda. At Mamsa Point, in the sanctuary, a large school of jacks are regularly encountered. Mamsa means jack fish in the local Visayan dialect. Currents can be quite strong, especially around the full moon.

Between dives, the boats usually

RIGHT: A sea turtle cruises over the reef
LEFT: Apo Island boasts picturesque bays and pristine white beaches

Dumaguete

LEFT; Hermit crab
BELOW: Mating Dusky Nembrothas,
El Dorado House Reef

put ashore, where battalions of eager t-shirt and sarong vendors descend upon the hapless arrivals. On one occasion, they were patiently waiting ON the dive boat at the conclusion of our dive! Once escaping the cheerful but persistent sales tactics, pleasant strolls can be made around the village and surrounding rocky coastline. Now, the biggest threat to the island is its own popularity. As a result, a 15 diver per day limit has been imposed for the Sanctuary dive site, so be sure to get there early! Accommodation is available on the island if you don't want to take any chances.

El Dorado House Reef

Located in front of the El Dorado Resort, the El Dorado House Reef is another terrific site. An artificial reef was set up some years ago and is thriving. Giant frogfish can usually be seen sitting on a couple of sunken tires. Anemones are abundant, with several species of anenomefish to be found hiding amongst their waving tentacles. Nearby, a large concrete block was home to a small black frogfish that contentedly posed for photographs as well as a perpetually smiling tube worm blenny, which played hide and seek with me as I tried to snap its picture. Devil scorpionfish, dwarf lionfish, ghost pipefish, tubeworms housing tiny harlequin crabs and tiny squat shrimp, spotfin lionfish and a host of other species are easily observed.

Alas, the site has been declared a marine sanctuary, so night diving is no longer permitted. This is a pity, as it is one of my favourite night dives anywhere. Hopefully, diving will be allowed again in the future.

Sumilon Island

Situated 12 km northeast of Dumaguete and just off Cebu's Southern tip, Sumilon Island is home to the country's first marine sanctuary, established in 1974 by Siliman University. The abundant marine life and splendid coral gardens provided a living laboratory for the university's marine biologists.

Unfortunately, spear and dynamite fisherman moved in and the once prolific reef was decimated, ruining years of patient conservation work. In recent years however, the reef has been showing signs of recover, most notably along the walls. The clear waters surrounding the island provide exceptional visibility, especially during the summer months between December and May. Sea snakes, turtles, mantas, barracudas, schools of jacks and even whale sharks have been spotted here.

Pura Vida

While there aren't huge numbers of them, Dauin boasts several higher-end resorts stretched out along the beach. The newest is Pura Vida, owned and operated by Sea Explorers. Opened in late 2004, this is the first resort to be built by the company, run by Swiss-born Chris

Heim. This resort was built by divers for divers and it shows. The resort's eagle-eyed dive guides are experts in finding even the tiniest of creatures.

The comfortable cottages sit on beautifully landscaped grounds surrounding a central pool. Every palm tree is original, with the resort being built around the already existing trees. The poolside bar is open 24 hours and is a great place to relax and have a drink after an eventful day of diving.

Dumaguete

Negros Oriental offers a wealth of attractions, ranging from historical sites to both man-made and natural attractions. Dumaguete, the province's laid-back capital, is renowned for its warm and friendly people. This pleasant city is the region's centre of shopping, business and nightlife. It is also the home of Siliman University, the country's premier marine biology institute. The attractive tree-lined esplanade along the water is a pleasant place to take a stroll. Be sure to pay a visit to the weekly Wednesday market in Malatapay.

Approximately 25km west of the city are the twin lakes, which are very popular with hikers. Also popular are dolphin and whale watching cruises. These depart Dumagete and venture out to the deep waters of the Tañon Strait and Bais Bay, where dolphins and pygmy sperm whales can be observed in their natural habitat. A bit further a field is Kanlaon Volcano, located within the Kanlaon Nature Park. One of the tallest peaks in the Visayas, it towers 8,085 ft. above sea level and is quite active, often spewing plumes of gray ash skyward.

This 25,000-hectare reserve is popular with hikers, but it is strongly advised to avoid the summit. While only 165km from Dumaguete, an all day trip is required to get there and is best done as an overnight trip. The helpful staff at Pura Vida can arrange any of these excursions.

captions

Dumaguete

THIS PAGE: Scenes from Pura Vida Resort and the city life of Dumagete

Getting There

Dumaguete is easily accessible by land, sea and air. The Ocean Jet fast ferry from Cebu makes the trip to in just over three hours, including a stop in Tagbilaran in Bohol. Direct flights from Manila are available daily on both Philippine Airlines and Cebu Pacific. Flying time is approximately one hour and 15 minutes. Cebu is serviced by flights from many cities throughout the Philippines, as well as direct flights from Hong Kong, Singapore, Taiwan and Japan. From Dumaguete's airport, Sea Explorers provides free transfers to and from the resort.

When he isn't applying his creative skills to one of the animation projects he's working on, Canadian Scott Bennett can frequently be found behind the lens of a camera. While on an extended business trip in the Philippines, a passion for diving was rekindled while succumbing to the lure of underwater photography. His hobby soon developed into a passion, and Scott seizes every opportunity capturing Southeast Asia's beauty, both on land and under water. He makes his home in Toronto, Canada. ■

Ligpo Island

Reefs of Stunning Sea Slugs & Flatworms

Text and photos by Nonoy Tan

Divers love Ligpo for its magnificent drop-offs. On its south and west sides, huge coral fans stretch out against the water current. One hundred feet below, divers encounter seasonal pelagics; Ligpo is a popular destination for wall and recreational deep diving. Not known to many, however, it is also a place to see strange but beautiful critters that photographers dream about.

A pair of mating *Risbecia tryoni*. Each individual is both male and female, but lay eggs separately

Ligpo Island

CLOCKWISE FROM LEFT: A pair of *Chromodoris geometrica* finds home on a discarded soda can; a flatworm preparing to launch itself into the water column; a *Hypselodoris krakatoa* feasting of fish eggs

It is 10 o'clock in the evening; I have just completed my second night dive. Although it has been an exhausting day, I exit the shore with a usual smile of delight. Again, the waters of Ligpo Island have not disappointed me. Ligpo always presents me with something new to discover.

Located 100 kilometers south of the Philippine capital of Metro Manila, Ligpo Island can be reached by a two-hour land travel and a short boat ride from the famous Anilao, birthplace of scuba diving in the Philippines.

The waters on the north and east sides of the island are shallow (from 10 to 40 feet). In this area lives a circus of small creatures. It is home to the ghost pipefish, blue-ring octopus, spearer mantis shrimp, orangutan crab, frogfish, crocodile snake eel, flamboyant cuttlefish, seamoth, dragonet, squat lobsters, just to name a few. Among all the critters, however, the sea slugs and flatworms dominate.

I have done several hundred dives during the last five years, but I am amazed at how Ligpo still gives me the thrill of discover-

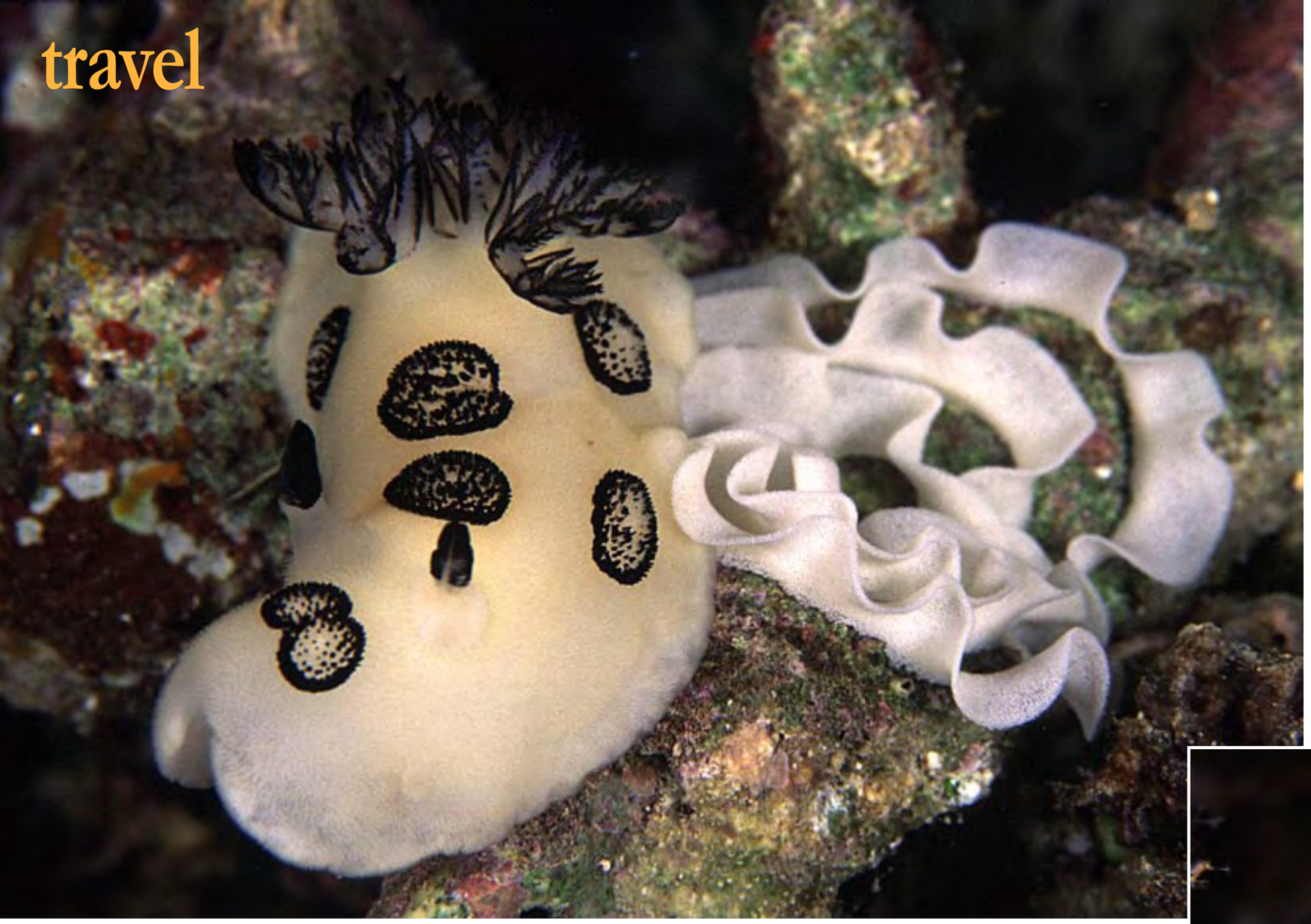
Ligpo Island

CLOCKWISE FROM LEFT: Entwined pair of mating *Pteraeolidia ianthina*; Unlike other sea slugs, the body of the *Micromelo undatus* possesses a shell, which is possibly a remnant of its evolutionary past; a camouflaged flatworm emerges from within a sea squirt

ing new shapes, patterns and colors of the sea slugs.

A dive is not complete without a sea slug photo opportunity. Even at night, it is common to encounter the Spanish dancer with its commensal emperor shrimp, or a green flatworm emerging from a sea squirt. Sometimes, the evening reveals strange species of sea slugs or flatworms that I haven't identified up to now. With such a good number of sea slug population, Ligpo is one of the best places to observe these critters – feeding, resting, laying eggs, competing, courting, and mating.

Although sea slugs are hermaphrodites, they normally need a partner to mate successfully. By chemoreception, they are able to recognize a potential partner. When the pair meets, the process of courtship proceeds with body contact. At this point, the genitalia located at the right side of their necks are readily stretched out. The courtship process usually doesn't last long, and the act of copulation begins when the genitalia are engaged. I have seen a pair of Nembrotha that were so "hot" that they immediately began mating without any noticeable courtship ritual. Mating can go on for several



LEFT: A *Jonnura funebris* laying a ribbon of eggs. BELOW: This Nembrotha *lineolata stretches* to reach its food

Ligpo Island

hours.

On several occasions, I have observed a Chromodoris subsequently mating with at least two partners, especially when they are in a group of three or more. Orgies are a common pastime in Ligpo (I mean, the sea slugs). I have also witnessed a pair of Pteraeolidia ianthina in an intensely aggressive courtship behavior – more like a rape attempt. Having sensed a potential mate, the aggressor chased the potential victim, who was obviously disinterested as it tried to push back the assailant using its anterior.

In an apparent show of desperation, the attacker started to pounce its mouth against the defender. The struggle persisted until they reached a ledge and fell separately. After observing what had happened, I felt that I had witnessed a crime.

Subsequent to receiving a reciprocal exchange of sperm, each individual will produce a "ribbon" of eggs that come in different patterns and colors, depending on the species.

Then, the eggs are left to develop on their own as most adults proceed with their regular activities. However, Pteraeolidia ianthina parents tend to stay with the eggs while other adults accompany them. Thus, wherever there is a brooding parent, then there must be more individuals in the vicinity. And since they prefer to stay in the same locations throughout the year, I am able to find them consistently.

The feeding preferences of sea slugs are diverse. Some like to eat algae, sponges, ascidians, or even fish eggs! Sea squirts seem to be the favorite food of the Nembrotha as they are often seen sucking within them in absolute pleasure. In another instance, a Hypselodoris was enjoying a buffet of fish eggs so plenty that it seemed like food paradise. In Ligpo, I learned that each sea slug species could be found near its particular food source.

The amount of time I spend with the sea slugs provides me the opportunity to observe and learn more about their behavior and at the same time capture rare images. With a lot of available subjects getting these images is uncomplicated. I merely concentrate on critter hunting and image composition. Moreover, at the usual shallow depths of around 15 to 25 feet within an area of 500 square meters, I don't even have to care about decompression or about getting lost! Dives that last for at least 90 minutes is the norm.

Ligpo Island can be reached from resorts located in Anilao, Batangas. Among these are Dive n Trek Resort (**www.diven-trek.com**) and Club Ocellaris (**www.clubocellaris.com**). Both offer excellent dive guides, food and a variety of accommodation.

Nonoy Tan was born in Manila, Philippines. His photo¬graphs of marine life behaviour and underwater crit¬ters have been published in various print and web magazines circulated worldwide. By profession, Tan is a development worker, who spends most of his time, when he isn't underwater, in the poor, rural communities of Asia and Africa. Order prints and images, email: ***nonoy@hotmail.com*** ■

White sands, magnificent wrecks & macro heaven...

Malapascua

Text by Scott Bennett.
Photos by Scott Bennet and Stewart L. Sy

Anchored off the extreme northern tip of the island of Cebu, one of the principal islands of the Visayas, the tiny island of Malapascua is one of the gems of Philippines diving. Boasting a dazzling sugar-white beach fringed with coconut palms, it's the perfect vision of a tropical paradise. Although famous for its thresher sharks, Malapascua and its environs offer world-class macro life.

SCOTT BENNETT

Malapascua

SCOTT BENNETT

Malapascua, also known as Logon by some of the older locals, is a very relaxing place to stay. There's a wide variety of accommodation to suit every budget, from simple huts to resorts. The idyllic beach is every bit as beautiful as that of the more famous Boracay, but without the crowds. It's possible to relax on the beach without being hassled by persistent souvenir vendors.

The island is fairly compact, being only several kilometres in length. A lattice of paths and tracks envelop the island's verdant interior, leading to sleepy fishing villages and picturesque, deserted coves. The only traffic encountered is the odd bicycle, as there are no cars on the island. A lighthouse at the northern end provides striking views over the entire island and the surrounding Visayan Sea.

Malapascua's signature dive site is Monad Shoal, a sunken island rising from the abyssal depths of the Visayan Sea. The top of the plateau rests at a depth of 15-25m, with steep walls plunging down to more than 200m. The star attraction is the thresher sharks. Easily distinguished by their bullet- shaped bodies and long sweeping tails, these graceful creatures come here often to visit a cleaning station on the top of the plateau. There are two primary dive sites here, Shark Point and The Hole. The best chance to see them is between 5:00 and 9:00 in the morning. Try to get here really early and avoid the inevitable boatloads of other divers. Despite their large size, the sharks are quite shy and can be easily frightened off.

Spotting the threshers can be very hit and miss. Although not as plentiful as in recent years, the sharks are still around. After spending 50 minutes waiting on one dive without any luck, we reluctantly swam back to the mooring line. All of a sudden, my guide gestured frantically towards the blue. I looked just in time to see the massive tail of a thresher go by. In the blink of an eye, it had vanished into the murky depths. It turned out that I was the only one of our group to see one that day. Back on the boat, my guide related a story. Two weeks earlier, he had taken a group of five German divers to the site. They came to within three metres of a large specimen being attended to by a number of cleaner wrasses. One diver, unnerved by being so close, had to back away. Wouldn't you know it, not one of them had a camera! As well as

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LEFT TO RIGHT:
Malapascua at dawn; seaside lounge on the beach; False Clownfish hiding in anemone

Malapascua

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the threshers, hammerheads can sometimes be seen, while from May to January, mantas are known to put in an appearance.

In addition to the magnificent sea life, a number of impressive shipwrecks can also be found in the area. The most famous is the Dona Marilyn, a passenger ferry that sunk during a typhoon in 1984. Lying on her starboard side at a depth of 35m, this 100m long wreck is cloaked with a wide variety of hard and soft corals. Experienced divers can penetrate the wreck in several places. Big black spotted rays can usually be found on the seafloor surrounding the wreck. Even deeper is the Pioneer, a Japanese vessel sunk during World War 11. Standing upright with the bow at a depth of 54m, the wreck is reached via a blue-water descent down a mooring line. The anchor and propellers are still plainly visible. Encrusted with corals and sponges, the wreck is home to a number of large stonefish and scorpionfish. Sometimes, large groupers and barracuda can be spotted. Unfortunately, bottom time is quite limited due to the depth. Nevertheless, it's a fascinating wreck to explore.

Visible on the horizon to the northwest and a 40-minute banca ride from Malapascua, is Gato Island. Translated as "cat" in the local dialect, the island is a fully protected marine sanctuary. A lonely little cabin, perched on bare rock, provides a home for the guards. Surrounding the island is a number of spectacular caves and rock formations. In some places, soft corals in radiant hues of red, orange, yellow and purple adorn the steep walls. Caves and crevices around the island harbour a variety of sleeping sharks, such as white-tips and coral cat sharks.

One of the most remarkable features is a tunnel running underneath the northern half of the island. From the entrance on the west

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LEFT TO RIGHT:
Coral gardens of Gato Island reef walls; Gato Island bare rock caves; Stonefish

Malapascua

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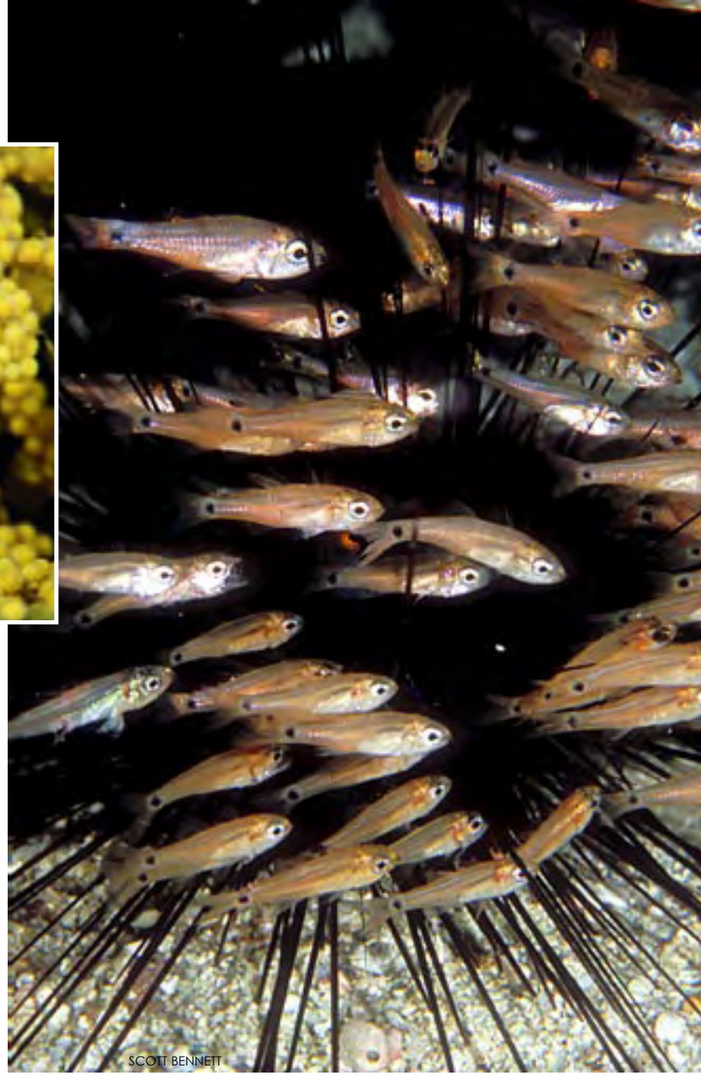

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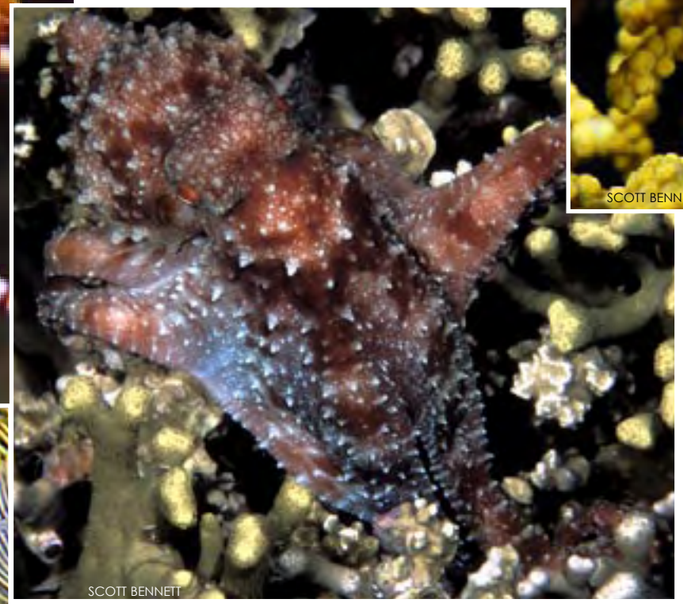

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LEFT TO RIGHT:
Commensal Shrimp
Black Ghost Pipefish
Nudibranch
Leteus Octoppus
Yellow Pigmy Seahorse
Cardinal fish with Urchin
Red Ornate Ghost Pipefish

STEWART L. SY

side, the tunnel descends from 5m to 14m at the exit on the east side. Swimming through the snaking, 80m long tunnel was alternately eerie and fascinating.

Despite my initial reluctance of entering, the tunnel is actually quite wide and will comfortably fit several divers at once. Illuminated by torch beams were numerous crustaceans, ranging from minute skeleton shrimps to football-sized sponge crabs. From time to time, whitetip sharks and sea snakes can be found sleeping in the tunnel. It's definitely not for the claustrophobic!

Outside the entrance during my visit was a colossal school of orange cardinalfish. So big, in fact, you could swim right into the school and be totally engulfed by the billowing mass of fish! Our guide estimated there were probably a million of them.

The island is a treasure-trove for the macro photographer, with great subjects to be found at every corner. Just inside the cave entrance, a large number of Spanish dancers could be found concealed in rocky crevices. On one dive, our guide found seven of them in a few square metres. Nearby, a brilliant yellow tigertail seahorse was found hiding underneath a rocky overhang.

Gato is also a haven for pipefish, as both black and red ornate ghost pipefish are commonly seen hiding amongst feather stars. Despite their vibrant decorations, these delicate creatures can be quite difficult to spot.

Equally colourful are the wide variety of frogfish that can be found around the island. These masters of camouflage perfectly mimic the colour and texture of the sponges on which they sit. I was thrilled to find a vivid orange specimen and photographed it from various angles. After the dive, I was told that a pair of frogfish, one white, the other hairy and striped, were sitting side-by-side no more than four metres away!

The bottom surrounding the island is reasonably flat, with sandy areas interspersed with clusters of large boulders. At a depth of 24m, a pair of large purple and yellow seafans sat almost side by side.

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ABOVE: Crab
RIGHT: Red Pigmy Seahorse
FAR RIGHT: Striped catfish
BELOW: Black Seahorse

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Malapascua

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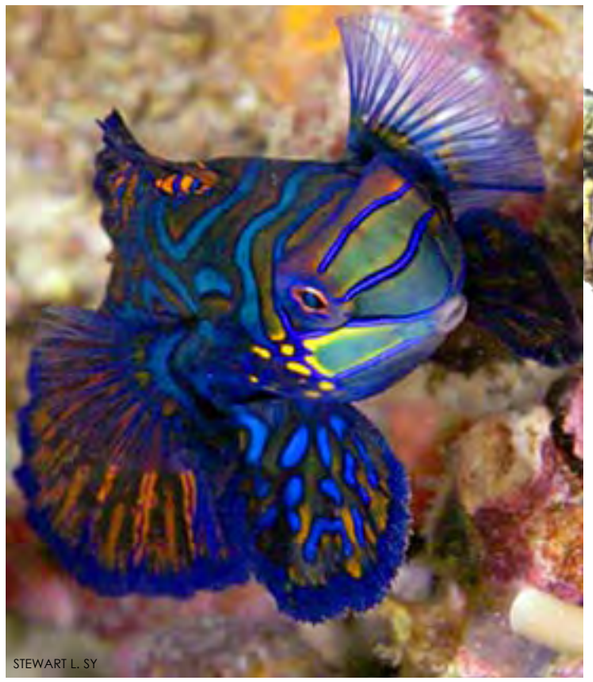
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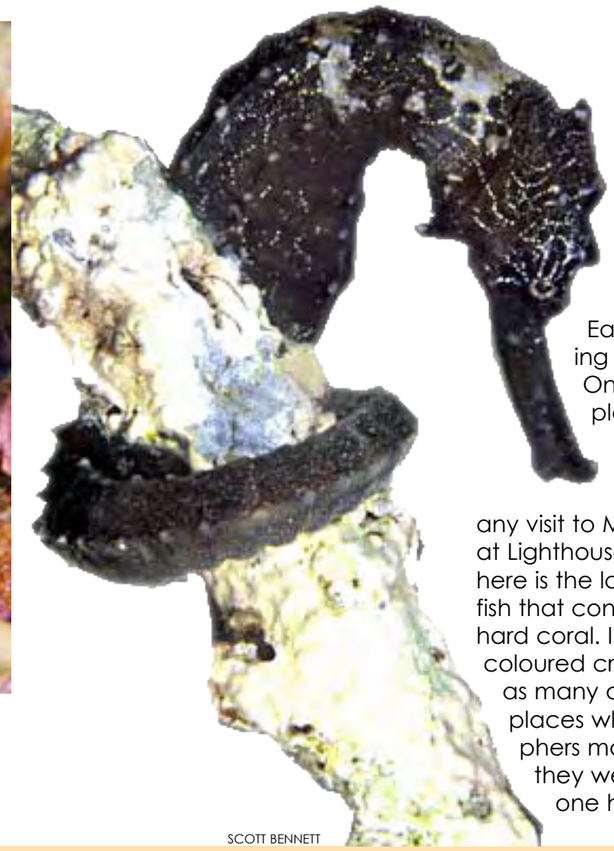
TOP LEFT: Red Leteus Octopus
BOTTOM: Mandarin fish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Each one had its corresponding resident pygmy seahorses. On one dive, a very out-of-place yellow tigertail seahorse was discovered sitting on the purple fan!

One of the highlights of any visit to Malapascua is a dusk dive at Lighthouse Point. The star attraction here is the large number of mandarin fish that congregate in the patches of hard coral. I've seen these flamboyantly coloured creatures before, but never as many as I saw here. Unlike other places where a crowd of photographers mob one hapless pair of fish, they were so numerous that everyone had their own pair to photograph.

Once the mandarins were finished with their amorous displays, there were plenty of other subjects to attract the photographer's eye. Seahorses are quite common here as are a large variety of cephalopods. Red leteus octopus, bobtail squid, pygmy cuttlefish, bigfin reef squid and, on occasion, blue-ring octopus can be seen.

The best part is that depths don't usually exceed 3m, so your film will run out long before your air! Digital shooters will definitely have an advantage.

Another fine site is the Malapascua Exotic House Reef. Lying just offshore from the resort, owner Dik DeBoer created this artificial reef only a few years ago. What started out as barren sand now is an eclectic assortment of artificial reef structures, ranging from a pyramid of blocks, clusters of tires and metal poles tied together, to a couple of sunken jeepneys. Even if you miss out seeing a thresher at Monad, you'll see one here, albeit made of concrete!

In

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CLOCKWISE FROM LEFT: Malapascua at dawn; concrete Thresher shark; Beach kids; Flambouyant Cuttlefish

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just a few short years, life on the reef has blossomed. The jeepneys' interiors provide a home for a school of cardinalfish and assorted lionfish, while a large number of batfish can usually be found swimming by. Nearby, a large pole structure is encrusted with tunicates, ascidians and urchins as well as providing shelter for a school of painted sweetlips and a large resident cuttlefish.

There are plenty of subjects to appease the macro enthusiast. You'll almost certainly run into the resident flamboyant cuttlefish as he makes his rounds along the sandy bottom.

At night, however, the reef really comes alive. Innumerable pleurobranchs, nudibranchs, flatworms and crabs can be found in profusion. A pile of bicycle tires provides a home for a huge tawny-coloured moray with a body thicker than a man's forearm.

Watch out for those petite urchins carpeting the bottom. They appear innocent enough, but their little spines are sharp. After being repeatedly impaled by the little pests, I got my revenge when I spied a crab devouring one.

This once out-of-the-way tropical jewel is now quite easy to reach. The jumping off point is Cebu City, gateway to the Visayas region and second-largest city in the Philippines. A number of international flights arrive here from various cities in South-East Asia, allowing travellers to avoid flying into Manila.

For first-time visitors, Cebu City, despite a population approaching two million, is a lot more manageable than the country's chaotic capital. From here, buses depart for the three to four hour journey to the little town of Maya, at the northern tip of the island. From here, it's a 30-minute trip to the island by banca, the ubiquitous pumpboat found throughout the country.

These elongated craft, with bamboo outriggers bound to cross struts on both sides, are the workhorses of inter-island transport and diving in the Philippines. Passengers have the option of taking the public ferry or chartering their own banca for the trip to the island. When the tide is out, the larger boats can't come close to shore, so passengers must be ferried out to them by smaller vessels.

Malapascua, with its winning combination of superlative diving, fabulous beaches and laid-back charm, is a destination to cherish time and time again. Maybe next time I'll find that elusive pair of frogfish! ■

Malapascua

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Denizens of Dauin

Text and photos by Nonoy Tan

The tranquil town of Dauin appears typical. Each morning, the men ride their small bancas to catch fish, while the women are busy cooking, cleaning and looking after the children. Just before dawn, the kids come out to play and frolic on the beach. During this time, the fishermen return with their catch, and soon afterwards retire for the day. The same pattern of activities is repeated the next day.

But the daily routine of Dauin has been changing, in fact. Now, larger boats that display a red flag with a white diagonal stripe regularly visit its shores. They carry strangers to the area. They are dive boats that bring divers from all over the world. Everyday, their passengers come here to see the critters that hide below the water's surface.

Dauin's popularity as a muck dive destination has grown tremendously. Declared as a marine sanctuary, it has become an integral component of the local tourism industry. Also, Dauin's obvious potential has attracted both local and foreign investments. Such are the development of several resorts. Among them, is the Swiss run Pura Vida Resort. This place just opened and the native-inspired cottages provide com-

LEFT: Arrow crab
ABOVE: Short-pouch Pigmy Pipefish

INSET: Frogfish

ABOVE: A pair of Thorny Seahorses

fortable and exotic dwellings.

Although new, the management and staff are by no means inexperienced. Pura Vida is fully owned and operated by the Sea Explorers (www.sea-explorers.com), with whom I have been diving for the last five years. The well-trained local dive guides are probably among the best in the country. They have the knack for spotting any critter no matter how well camouflaged or miniscule. Nothing escapes their vision.

In a recent trip, I was once again accompanied by one of the expert guides. As usual, I had great expectations. In fact, I had brought two sets of underwater cameras, expecting that each dive would be photographically intense.

Past dives at Dauin have provided me with such optimism, and I was not disappointed this time either. By the end of three days, I had consumed 16 rolls of 36-exposure film.

Macro heaven

At Dauin, I was overwhelmed with the array of macro subjects. In fact, frogfishes were so common that I soon started to ignore them. Furthermore, my interest on the thorny seahorses, dragonets, elegant squat lobsters and ghost pipefishes had similarly diminished. They become secondary choices as I soon realized they were not so uncommon at Dauin.

Consequently, the abundant macro opportunities made me more ambitious. I began to seek the oddball and hard-to-find critters. To my surprise, that did not prove to be too difficult to accomplish either.

It didn't take long, for example, for my guide to find for me a short-pouch pygmy pipehorse *(Acentronura breviperula*). In fact, we discovered three individuals in a matter of minutes.

We also came across several unexpected finds, such as a Flying gurnard, Pegasus seamoth, Arrow crab and a tiny Commensal crab that resided on a Fire urchin. The discovery of a rock lobster in

Black-pitted Snake Eel

Dauin

full daylight was also a pleasant surprise. It was seeking refuge among the debris of a small boat wreck.

My favorite subject, however, was the sighting of a Velvet fish (*Paraploactis intonsa*). Measuring a length of about one and a half inches (38mm), I watched as it "walked" with its pectoral fins and dragged its disproportionately long body across the sandy bottom. It was clumsy but beautiful nonetheless.

Another memorable moment was an encounter with a pair of shrimp gobies. In all other places where I have dived, I have never been able to get near and take a decent photograph of a shrimp goby. Before I ever got into position, the subject goby would have scampered inside a burrow. Because of these previous disappointments, I stopped taking goby photos.

However, I became inspired during my dives at Dauin to try again and try my luck one more time. After spotting a pair of shrimp gobies, I began to inch myself slowly towards the couple. Interestingly, they allowed me to

CLOCKWISE FROM TOP LEFT:
Pipefish
Pegasus Seamoth
Rock Lobster
Dragonette

get very close. Even as my strobes flashed, the barrage didn't seem to bother them. After several shots, I left them undisturbed. I can only speculate the reason for their seemingly careless attitude. Maybe they were as curious about me as I was of them.

Night dive

The best was yet to come. By nightfall, the reef in front of the Pura Vida Resort became host to a critter extravaganza. Aside from the crabs, cuttlefishes and octopuses, I also encountered several exciting finds like a Flying gurnard, a Black-pitted snake eel and a Red crocodile snake eel. As usual, I exhausted both camera films within a single dive.

After a few days of diving at Dauin, I started to encounter rare critters that I had never seen before. Despite my jubilation and sense of accomplishment in those moments, I felt that I had witnessed only the tip of the iceberg. So, I will most likely be spending more time at Dauin in the years to come. Needless to say, I am hopeful that the denizens of Dauin will continue to be there to greet me.

Resort and Travel Information

Dauin is a small town located on the island of Negros, central Philippines. From the capital city of Manila, one-hour flights are provided by Air Philippines to Dumaguete City Airport which is only 15 minutes away from Dauin. Pura Vida Resort provides transfers between Dumaguete City Airport and Dauin. **www.airphils.com**

Facilities include native-inspired rooms, swimming pool, bar, restaurant, communication facilities, spectacular house reef and excellent food. Pura Vida Resort is managed by Sea Explorers, which also operates a PADI Gold Palm IDC center and dive facility at Dauin and other fabulous locations in central Philippines.
www.sea-explorers.com ■

ABOVE: Crockadile Snake Eel

RIGHT: Velvet fish

FAR RIGHT: Flying Gurnard

fact file

The Philippines

Map of The Philippines

History During the 16th century, the Philippine Islands became a Spanish colony; In 1898, they were ceded to the US following the Spanish-American War. The Philippines became a self-governing commonwealth in 1935 under elected President Manuel QUEZON who had to prepare the country for independence after a 10-year transition. The islands fell under Japanese occupation in 1942 during WWII. US and Filipino forces fought together to regain control from 1944-45. July 4, 1946 marks Philippino independence. A widespread rebellion of the people forced President Ferdinand MARCOS into exile after 21 years of rule in 1986 when Corazon AQUINO was installed as president. During her presidency, there were several coup attempts, which affected political stability and economic development. In 1992, Fidel RAMOS was elected president who enjoyed a presidency marked by greater stability and progress on economic reforms. The US closed its last military bases on the islands in 1992. President Joseph ESTRADA, elected in 1998, was impeached on corruption charges and was succeeded by his vice-president, Gloria MACAPAGAL-ARROYO who was elected to a six-year term in May 2004. Armed communist insurgencies and Muslim separatists in the south continue to threaten The Philippine Government. Government: Republic; Capital: Manila

Currency Philippine peso (PHP); Exchange rate: 53 peso per US dollar; 63 peso per Euro

Geography Southeastern Asia, archipelago between the Philippine Sea and the South China Sea, east of Vietnam, mostly mountains with narrow to extensive coastal lowlands; Coastline: 36,289 km; Elevation: lowest point: Philippine Sea 0 m; highest point: Mount Apo 2,954 m Agriculture: rice, coconuts, corn, sugarcane, bananas, pineapples, mangoes, pork, eggs, beef, fish Natural resources: timber, petroleum, nickel, cobalt, silver, gold, salt, copper.

Climate Tropical marine; northeast monsoon (November to April); southwest monsoon (May to October).Environmental issues: Uncontrolled deforestation especially in watershed areas; soil erosion; air and water pollution in major urban centers; coral reef degradation; increasing pollution of coastal mangrove swamps that are important fish breeding grounds.

Population 86,241,697. Percent of population below poverty line: 40%, Ethnic groups: Christian Malay 91.5%, Muslim Malay 4%, Chinese 1.5%, other 3%. Religions: Roman Catholic 83%, Protestant 9%, Muslim 5%, Buddhist

Language Filipino and English

Decompression chambers

Cebu City Recompression Chamber Camp Lapu-Lapu Lahug . Dr Memerto Ortega. (032) 310-709 or (032) 312-325 (032) 746-652 loc. 2625

Manila (Quezon City):
AFP Medical Center at V. Luna Hospital, V. Luna Road, Quezon City
Dr. Jojo R. Bernardo
Phone: 920 7183
921 1801 loc. 8991

Dive Travel The best time to visit the Philippines is during the period from November to June. Precipitaion is lowest during April and May. Temperatures are cooler during December to February (26-27°) and warmer between March and May (29°)

Web sites

Club Ocellaris
www.clubocellaris.com
Dive N Trek
www.diventrek.com
Sea Explorers Dive Center
www.sea-explorers.com
Pura Vida Resort
www.pura-vida.ph
Philippines Department of Tourism
www.wowphilippines.com.ph

Dive info

PADI Dive Guide
www.padidiveguides.com
Starfish
www.starfish.ch
Dive Sites of the Philippines
by Jack Jackson
www.amazon.com ■

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POINT & CLICK
ON BOLD LINKS

Got the goods

Equipment

Demon

Mares new Black Passion Demon Scuba Mask has a wide field of vision, and a great new look. Limited release of the Black Passion Demon Scuba Mask is making this a very sought after item.

www.mares.com

10 Watt HID

Amphibico proudly presents their compact 10 Watt Discovery HID light. A fully aluminum compact light which will mount on any Amphibico video housing to provide a clean and natural light source. Compatible with all Amphibico Housings the features of this compact all in one design include a 15" adjustable Loc-Line Extension Arm, a 10 Watt HID Metal Halide Bulb, Positive ON/OFF Switch , Dual O-Ring Sea, Wide Angle Reflector and Video Glass Diffuser.

www.amphibico.com

Barrier

The all-new Barrier wetsuit line from Scubapro Uwatec provides unprecedented protection against the cold. EverFlex inserts combined with extraordinary insulation and heat retention capabilities provide you with all over comfort.Barrier features Sun Orange Heliospan interior material on the inside of the chest and upper back. This is a highly technical, sponge-like fabric, which resembles very fine micro plush. It soaks up water which is then contained by the nylon neoprene layer and glide-skin on the outside

www.Scubapro-Uwatec.com

Dive-Logs Pocket Stamps

The next time you get asked to sign a logbook, make a real impression with your own personal log book stamp. The pocket stamps are small and neat, self inking, and are totally designed by you. Text, font, images, and quotes in your choice of red, green, blue, and violet ink. There are 4 styles of pocket stamps available in the range and you can design yours on-line. Worldwide shipping is free. Prices from £20 / $32 / €30 .

www.dive-logs.com

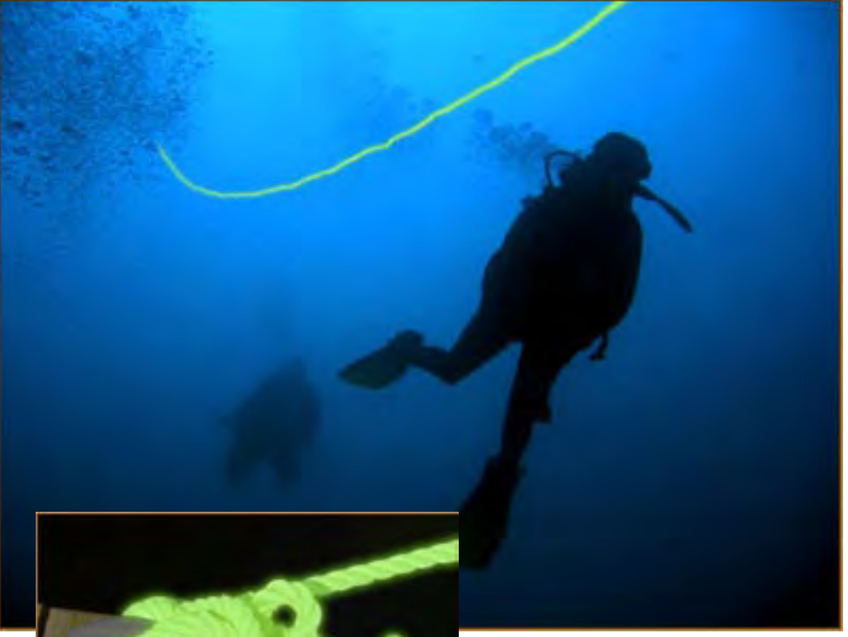
Call home

The PING MKII Mobile dive-phone sets a new standard for wireless underwater communications. While Intended for INTERSPIRO's full face masks adapters are available for other mask. The unit is wireless, has excellent speech quality, is push-to-talk operated, has a water resistant microphone and a high-quality bone-conduction earphone. **www.pingmarine.com**

IONIAN

Leading manufacturer in thermal protection for divers Fourth Element's latest women's design is a lighter weight hoodym the Ionian Ladies Sweatshirt. The enzyme washed fabric has a lived in look, and the design, high up on the left shoulder, is eyecatching yet understated. For more information or to find a stockist check out

www.fourthelement.com



A Bright Idea

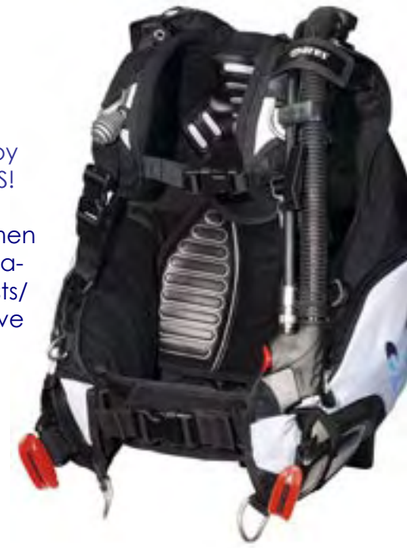
Glow rope, the name and the images tell it all Did you have troubles locating the down line on your last night dive? Well, now days may be over. Our guess is that the new glowing ropes from North Dakota based inventor Fire Works Unlimited will become a future standard added safety measure on not only for the casual night divers but in particular for cave and wreck penetration dives. The Glow ropes come in a variety of specifications and types, including on that flows

www.letsglowcamping.com

She Dives!

It has been said sooo many times before. The vast majority of dive equipment is designed for men, by men. Not any more. Mares Introduces: SHE DIVES! Inspired by Women - Designed by Women - Dedicated to Women. SHE DIVES allows women to dive more comfortably and more fashionably. "We have listened to the many requests/ demands from female consumers and dive shop owners", states Phil Mintz, Director of Sales and Marketing, Mares Diving Division of Head USA. "SHE DIVES makes perfect sense considering the large percentage of female divers throughout the world".

www.mares.com



HUD on CCR?

Or, for the abbreviationally challenged, a Head Up Display on your Closed Circuit Rebreather. CCRs are popular with photographers because of the lack of bubbles. Trouble is having to check handsets regularly forcing the diver to take focus and hands off the photoequipment. Enter the RB Guardinan HUD whioh is designed to be used instead of $pp0_2$ gauges for normal operation modes. **www.underwaterexperiences.com**

Progressive Streeeeetch

Bare Wetsuits recently launched a interesting new series of full strecth wetsuits for both men and women . The Progressive Stretch is the combination of 3 material types, all with different characteristics. PS1 is the highest stretch fabric component. Its primary function is to produce the required 4-way elongation with the least amount of force. This is placed where mobility is critical and the least amount of restriction is desired. PS2 is a unique mechanical 4-way stretch material that is placed in zones requiring more durability, shape retention and compression resistance. PS3 is a 2-way stretch material placed in zones that require maximum durability and shape retention.

www.bare-wetsuits.com

Nautilus dive planner

The Nautilus dive planning and decompression software program is special because it gives the diver the choice of not one, but five different decompression models including the Hamilton Research algorithm, which makes this package unique. Hamilton's tables (DCAP) are the ones that have been used by the majority of the deep diving expeditions over the years, due to their high level of reliability. Until now, with the advent of Nautilus dive planner, only those who were able to afford the services of Hamilton Research were able to use these highly sought tables.

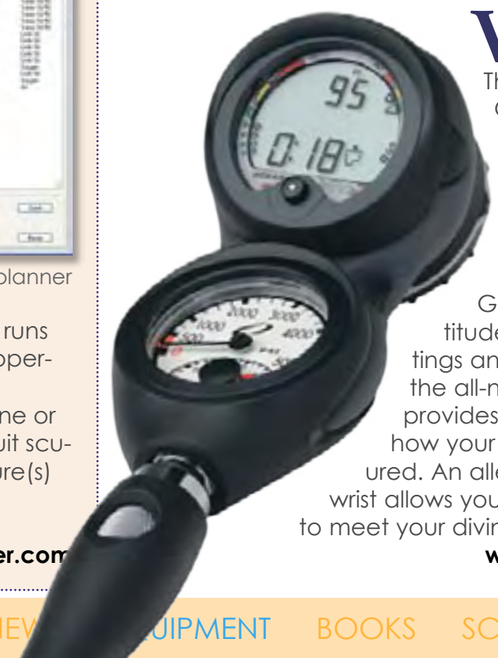
"Making Nautilus available for both Windows, Macintosh and Unix systems was critical to the development of this product", stated Dan Nafe, Lead Developer of Nautilus. "Users who have invested in Macintosh and Linux systems can now have the best decompression program without having to use PC emulators on their machines as Nautilus runs on Windows, Macintosh and Linux operating systems.

Screenshot from Nautilus dive planner

Divers running Nautilus may use one or multiple gases, open or closed circuit scuba or any combination of gas mixture(s) and scuba types.

www.nautilusdiveplanner.com

Veo 250



The new Veo 250 from Oceanic boasts the latest features in an extraordinarily user-friendly PDC, offering precisely what you need for any adventure. Air, Nitrox and Gauge Modes and a multitude of advanced user settings and options Seen here with the all-new SWIV Console which provides complete flexibility over how your instruments are configured. An allen key and a twist of the wrist allows you to position your gauges to meet your diving style.

www.oceanicworldwide.com

ID-MY-GEAR

One of the most talked about new products since the recent DEMA show. Originally designed to personalise and identify diving equipment, this 3D paint marking system D-MY-GEAR™ is a tough water-based, non toxic, high polymer which becomes dramatically visible on any colour contrasting surface!

www.idmygear.co.uk

Aeris

New Rio Wetsuits

The Rio suit line provides a technologically advanced fit for improved sizing, added warmth and protection that will make any tropical trip more comfortable. Reeflex Super-Stretch Panels allow better fit and flexibility in critical areas: mens' suits have more room in shoulders and lower back, women's suits have a more comfortable fit in waist, hip and chest panels.

The RIo suits comes in varieties down to 2 mm but if you still want full protection from the sun and from any scrapes with coral, sand or dive gear, the Rio .5 jumpsuit (left) will allow you total freedom, flexibility, comfort, and protection.

www.diveaeris.com

Three New BCD Models from Mares to Be Available in Early 2006

The DRAGON available in AIRTRIM and ERGO Inflator styles for Men and the KAILA for Women as part of the SHE DIVES Collection use a new exclusive DRAGON bladder design. All three BC's incorporate a New MRS Plus weight release system that comes with a new buckle design for easy/secure placement of the weights and allows an easy one pull movement to release your weights. BPS Plus, Mares patented Back Protection System now also has the added benefit of a dual position lumbar pad which can be used for increased lumbar support or it can be extended down for increased padding length.

www.mares.com

$H_2$0dyssey Fathom 55

The Fathom 55 computer from H20 is manufactured with Cochran technology and is rated at 100m . The memory stores up to 256 dives and the profiles are downloadable with optional download kit. It can be upgraded to use with 21-50% Nitrox. The conservatism of the decompression model is adjustable by the user. Model is shown with an optional retractor mount. **www.h2odyssey.com**

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Guadalupe's Great White Wonders

Text and photos by Barb Roy

My first shark appeared head-on in the distance slowly swaying from side to side. With elegant grace and composure it continued towards the cage with mouth opened just enough to boast a healthy set of triangular teeth. Like the star of a grand performance, the shark held everyone in awe as it turned slightly just in front of the cage to examine an offering of tuna. It was a huge 14-foot (4m), 2175 pound (987kg) female. Her body was sleek and muscular, capable of high speeds if necessary. She ignored the bait and gave the caged divers a once over then slowly swam away, never changing her pace. Author, Peter Benchley, sure pegged it correctly when he referred to these creatures as “natural perfection”.

ABOVE: A photographer waits in the shark cage for the right moment to capture an image of the Great White

Guadelupe Sharks

It was late September when I joined 17 others on the 116-foot (34.8m) live-aboard dive vessel, *Nautilus Explorer,* for an expedition to Isla de Guadalupe.

We departed San Diego, California for the 220-mile (354km) journey organized by Doc Anes of San Diego Shark Diving Expeditions, a pioneer in the field of recreational shark encounters. During this time, we learned that Guadalupe is home to countless sea birds and colonies of elephant seals, California sea lions and the endemic Guadalupe fur seal.

Guadelupe conservation

In 1925, the island was originally established as a Nature Preserve and recently granted overall protection as a Biosphere Reserve in April of 2005, limiting human exposure.

Rebecca Kobelkowsky, a representative from the Mexican government, was also on board, assigned with the task of evaluating and setting new regulations for both commercial shark expeditions and sport fishing charters around Guadalupe.

The next day, Jessie Harper, one of Doc's shark wranglers for five years, filled us in on a white shark photo identification project she began four years ago.

Within the last two years, the archival venture has evolved into a large binder identifying and naming over 50 individuals. Photo images are collected from visiting underwater photographers and catalogued, using scars, color patterns, dorsal and tail markings for identification. Jessie has since turned the project over to Pfleger Institute of Environmental Research in Oceanside, California, but continues to collect images for identification.

"We are seeing the same individuals year after year," comments Doc. "Their personalities are as unique as their markings and they appear to be extremely intelligent by remembering

Rebecca Kobelkowsky

For as long as I can remember, I have always been intrigued with great white sharks. They appeared in my school reports and as sketches within my art portfolios. When the "Jaws" movie was released, it only succeeded in adding to my curiosity of these fascinating apex predators, spurring an in-depth research into their existence.

Once I became a scuba diver though, I was under the impression the only place to see this shark was in South Australia or South Africa. Unfortunately, visibility at both locations can often be poor for photography, usually ending in huge travel expenditures for mediocre shots.

True, the sight of these huge sharks hurling themselves out of the water in South Africa can be exhilarating. Yet, it's one of those instances when everything needs to be perfect. The right location, time of day and camera settings must be precise in every way to be able to capture the true moment.

It wasn't until I heard about the small volcanic island of Guadalupe,150 miles (241km) out from Mexico's Baja Peninsula, that I realized a diver could have crystal clear visibility and comfortable warm water in which to clearly see and photograph great white sharks.

RIGHT: Photographers get briefed about Great Whites on the way to the dive site

Guadelupe Sharks

failed attempts at getting the bait we set out to attract them with. When one direction doesn't work, they try another and keep on trying until a different angle works."

"Sneaky Pete will actually sneak up on you," adds Jessie. "Flash just flies by when he shows up and Bruce, like *Finding Nemo*'s Bruce, is very big in girth! You can't miss this guy. He also looks like he is smiling."

Many of the sharks have also been tagged, transmitting important data back to the institute via satellites telling of their location and other essential facts. The sharks appearing around Guadalupe have been tracked as far away as the Farallon Islands off California and to Maui, Hawaii.

"When hunting, these sharks will usually go after prey about one-third their length," states Bob Gladden, a videographer for Doc's Shark Expeditions. "That makes me about one-third the length of an 18-footer, a creature which weighs over 3500 pounds!"

With this in mind, I went to examine the three heavy-duty marine-grade aluminum cages on board. Two cages were 10 feet (3m) long by 7.6 feet (2m) tall and 38 inches (1m) wide, holding four divers while floating at the surface. The third, smaller cage was also along for shark observation at depth.

A huge freezer held a supply of frozen whole Blue-fin tuna and numerous frozen one-gallon (4 liter) jugs of "cow" blood. The tuna will be cut in half, tied to a rope, which looks like bailing twine, and thrown into the water by shark wranglers to encourage excitement. Live bait is also brought on board for fishing while enroute to and from the island.

I'm sure sharks were on everyone's mind as they retired for the evening, in hopes of seeing "Bruce" the next day.

We awoke to find the remote island of Guadalupe gleaming in the morning sun with hues of bronze, red and gold gleaming in the rocky cliff face. I could only imagine how nice diving might be, but no one had any thoughts of jumping in to find out, that is, until the cages were lowered into the clear blue water.

With water temperatures of 70° F (21° C), I was grateful to have on my dry suit; 5-7mm full-body wet suits

CLOCKWISE FROM LEFT: The *Nautilus Explorer* anchored by the rocky cliffs of Isla Guadelupe; Lowering the shark cage into the water; Jessie Harper prepares tuna bate to lure Great White Sharks; Indigenous Guadelupe Fur Seals lounge on the beach

also worked. There were even a few who braved 3mm suits and others who jumped in for ten-minute intervals donning only a swimsuit. My thin warm-water cap worked very well, along with 3mm gloves.

Doc and Jessie set everyone up with DUI harness-style weight and trim systems, each containing about 40 pounds (18.1kg) so we could easily stand in the cages.

Diving with Great Whites

Entry was effortless, stepping from the back of the boat into the large cage opening. Four surface-supplied hookah regulators provided an unlimited supply of air, but we took one-hour rotation turns so everyone could have different locations to capture images from every angle.

Whenever my camera was handed down, there was always the initial adrenalin rush while waiting for the sharks to materialize as we hung in 200 feet (61m) of water with a mild warm oceanic current flowing by. I kept expecting the soundtrack from "Jaws" to be piped into the water to fuel our anxiety.

Although the cages were floating at the surface behind the boat, which was anchored, I wondered if a shark head or at least a few teeth might fit through one of the large camera openings. I always seemed to be hanging out of one of these openings.

Millions of yellow and white scad mackerel continually bore down on the bait, often running for cover behind the cages when the sharks showed up.

As if cued, white sharks began to appear as soon as the first diver jumped into a cage. Usually, they were alone when they passed by, but occasionally there were two traveling together, one following the other. As Doc mentioned earlier, they tried all angles of approach when interested in the bait. Their interest peeked mainly late in the afternoons. The sharks put on quite the action show both above and below the water.

We were like excited school kids. Every time a shark passed by our cage everyone would give a "thumbs up" and yell into their mouthpieces, especially when the sharks outwitted the wranglers and nabbed the bait.

Just as I would regain my wits, another shark would appear. It only took minutes to blow through 36 exposures in a film camera, making the digital system a real asset when a one or two gigabyte memory card was added. Most of the time I was able to set my Nikon D70 on automatic settings with

Guadelupe Sharks

PHOTOS THIS PAGE: Scenes from Doc's Shark Expedition dives with Great White Sharks

Guadelupe Sharks

excellent results. Before I knew it, I was on my fifth one-hour in-water shift and had already filled one of my three 1GB cards during the first day.

"I never imagined there would be so many sharks," exclaimed Mike Lever, owner/operator of the *Nautilus Explorer*. "I thought there would be sparse sightings throughout the day—not a shark every five to ten minutes, all day long…"

Needless to say, I think fatigue hit us all that evening at dinner. As usual, food on the *Nautilus* was excellent and Mike's crew was incredible. I'm sure we all went to sleep that night seeing nothing but sharks.

Day two

Not as much eagerness from the divers the next morning, probably because we saw 6-8 different individuals making numerous passes yesterday. This allowed a few of us die-hard photographers a chance to spend hours on end in the cages, photographing, filming and studying the sharks.

I was even able to focus on something other than sharks, like the pelagic realm of gelatinous critters all around. Thousands of tiny undulating iridescent life forms floating by made me crave a macro lens.

Later that day I accompanied Rebeca on her first cage dive and great white encounter. Rebecca wanted to see and experience first hand why so many people were attracted to the island and what the big deal was about this species of shark.

Nautilus crewmember, Bob Crawford, donned his 1940 Morse abalone hardhat and suit, to join us. His boots weighed 17 pounds (7.7 kilograms) each; his weight belt was 80 pounds (36 kilograms) and the helmet – 45 pounds (20 kilograms)!

The way the sharks kept closely passing by, it appeared they were very curious and responded to noises like recycling strobes and the clanking sound of Bob's boots. I was actually able to get several of the sharks to individually circle back 3-5 times each by manually recycling my strobe! As with everyone before her, Rebeca was amazed at the beauty and sheer dominant presence of the sharks. What an awesome first underwater experience for anyone.

"You don't have to be a certified diver to jump in the cages," explains Doc, "Everything is safe and the air is on demand."

To take advantage of the early morning soft light, we took the skiff and cruised the shoreline early the next morning. Cute tiny Guadalupe fur seal pups cried for their mothers on a northern boulder covered beach near Spanish Bay. Farther down the beach juvenile elephant seals practiced their fighting techniques. Although these are the white shark's natural food, they weren't actively hunting them at this time. A working unmanned light station, the remains of an old fishing shack and what was left of a church from an abandoned prison was also seen.

ABOVE: A crew member from *Nautilus Explorer*, Bob Crawford, wears a hardhat and suit. Sharks responded to the metallic clanking sounds of the suit

iNSET: Sunsets on the *Nautilus Explorer* at Isle Guadelupe

FAR LEFT: A Great White Shark is trailed by a school of smaller fish waiting for scraps to fall from the shark's feasting

feature Guadelupe Sharks

Afterthoughts

Overall the trip was quite rewarding. Videographers acquired breathtaking footage and still-photographers went home with hundreds of excellent action shots. Rebeca, Mike and Doc worked out alternative methods to using cow's blood and all are keen on finding ways to work with Guadalupe's residents for eco-friendly future tours.

"Conservation on Guadalupe Island is a huge issue for us," explains Mike. We are working on a plan to build a school for resident kids and improve the island's airstrip because there is a 95% certainty that we will be offering "fly-in" trips to Guadalupe for 2006, offering seven trips. Regardless of whether we offer fly-in or ocean passages, we will be taking 22 divers in 4 cages. Each cage will be 9' long and accommodate 3 guests with bi-level wraparound camera ports (so you can shoot either standing up or kneeling). Two of the cages will trail from over-side booms and have a 360-foot view. I can confirm that one feels awfully vulnerable hanging out there! The other two cages will trail from the transom. There is a possibility of a 5th cage suspended at 20 feet." ■

Map of the Western Coastline of North and Central America

FOR MORE INFORMATION

Nautilus Explorer, 604-657-7614
www.nautilusexplorer.com

San Diego Shark Diving Expeditions, Inc.
888-SD-SHARK
www.sdsharkdiving.com

Rebeca's info (Spanish)
www.conanp.gob.mx

Island Conservation
Guadalupe Island Restoration Project
www.islandconservation.org/guadalupe.html

White Shark Information
prepared by Ian K. Fergusson
www.zoo.co.uk/~z9015043/gws_conserv.html

San Diego Convention & Visitors Bureau
www.sandiego.org

Pfleger Institute of Environmental Research
www.pier.org

Shark Research Committee
www.sharkresearchcommitte.com

Reef Quest Centre For Shark Research
www.elasmo-research.org

BOOKS

Field Guide to the Great White Shark
by R. Aidan Martin, published by Reef Quest Centre For Shark Research, Vancouver, Canada

Sharks
by Doug Perrine, published by Voyageur Press, Osceola, Wisconsin, USA **www.voyageurpress.com**

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Email: cts@oneocean.com

Leigh Cunningham and Mark Andrews make diving history
INSET: Divers on the descent

Two Brits in Egypt

World's Deepest Wreck Dive

Yolanda December 2005

Text by Mark Andrews
Photos by Adam Butler

I checked in at Gatwick Airport on Saturday, the third of December, with three very large dive bags containing all the necessary equipment to make a descent, hopefully, to the deepest wreck ever dived.

Astraeus flights and Red Sea.com were more than helpful with this project and made sure that my check in went as smoothly as possible. Considering that one of the bags contained a Farralon ride-on scooter, this was a great relief.

I arrived at Sharm El Sheikh airport to be met by my deep diving buddy, Leigh Cunningham, who drove me to my hotel. Leigh was describing to me how the last two weeks prior to my arrival had seen perfect conditions for diving *Yolanda* reef with very little wind and smooth seas. Of course, with the luck we had been having with this project, it was bound to all change.

I cast my mind back to May when we started the project. All went well until I received a dose of Pharaoh's revenge and spent the last part of the week wrapped up in bed while Leigh discovered the bow of the wreck in 145m.

After a good night's sleep, I travelled down to Trafco jetty to meet the dive boat supplied for the project by Seamus and Anna of Colona Dive Centre. They had also supplied the boat last time.

The team was already aboard busy preparing equipment and making ready for Leigh and myself. The team consisted of multinational technical divers from Sharm El Sheikh and Dahab, Most of them I had worked with in the past and some were new to me. All shared a common interest and a passion for technical diving. It would assure that this week would be a success.

The weather was holding out for us, and we steamed out into flat blue seas with little to no wind.

The first day was spent at a local dive site making the deep dive rigs and ensuring that all the equipment was working as it should.

I decided to use my triple 300-bar Worthington carbon/steel combination cylinders for this dive. This would allow me to wear one less cylinder than Leigh and offer a less dramatic profile in the water.

Leigh decided to wear his trademark dive rig of twin twenty litre cylinders with a twelve litre strapped to either side and two fifteen litre tanks as stages, thus making a six-tank configuration. The problem I had with

PETER SYMES

Yolanda

LEFT TO RIGHT: View from above of Leigh preparing himself and his gear for the dive; Ras Mohammad can be seen on the horizon behind the team on the *Colona*; Sunglasses reflect a confident Leigh; The Plunge

my rig was that there was nowhere in the Sinai that had a 300-bar compressor system... That is, until now.

Chad Clarke, a familiar face in Sharm, has opened an all new pumping and gas blending station next to Trafco jetty (Ocean Tec) and agreed especially for this project to install a 300-bar system. How's that for service? You are a star Chad!

Leigh and myself spent the first day tinkering with the dive rigs. The team took the opportunity to study the rigs and fully familiarise themselves with their operation. They wiere going to be responsible for ensuring that we had all the right equipment in the right place prior to each dive. Later in the day, we made a 100m dive to ensure all was well—both with us and the rigs.

The second day, we were out to the dive site itself and made another 100m dive. This time, we had the full dive team in the water simulating the big dive itself.

Apart from diving to over 200m, the hardest part of this dive was that it was all done with no shot lines—free descent and free ascent being the order of the day. The safety divers needed to be experienced in blue water diving with no visual reference of lines or reefs.

Both Leigh and I decided not to have safety divers deeper than 30m on the big dive itself due to the fact that we would be carrying all necessary gas for the entire dive and would prefer to be alone during the busier parts of the ascent, which required great concentration of ascent speed and gas switches. The idea was to deploy DSMB's at 30m. Each of us would have two support divers

descend down the line to greet us with spare gas, if needed, and in-water hydration packs.

We made an additionsl day's diving on the site again to 100m with the whole team. Everything was going very well. The weather was holding, the team was exceptional, and Leigh and I were both in great condition for the dive.

Tuesday the 6th, after the last air dive, saw us in the gas blending station, Ocean Tec at Trafco, preparing for the first mixed gas dive the following morning.

We hit a major problem within minutes of starting. Although we had a 300-bar compressor, we had overlooked the fact that we

Yolanda

needed a 300-bar decanting whip for the blending panel.

The mood changed as we tried everything we could to mate various parts lying around the centre to make a workable whip. Just as despair was setting in, Chad came to the rescue and called a local engineer who came down to the centre. We showed him a 300-bar spin tube and the high pressure decanting hose and simply stated that we needed "this bit to fit onto this bit". This was met with a little scratch of the head followed by "no problem, two hours". It was 8pm in the evening. Can you imagine this situation in the UK?

We decided to have a break and went to dinner. An hour later, we received a call from Chad saying that the part was there. We paid the bill and hurried back to the centre. I must admit, I had my doubts, as the fitting needed an odd coupling to ensure a good fit. We put it together, and it worked a treat—not even a slight leak.

The following morning, we headed out to "Yolanda Reef". Again the weather and sea were perfect. This time, we had left the dive plan with Doctors Adel and Ahmed at the Sharm Hyperbaric facility that would follow our progress and support the project with medical assistance. We agreed in return for this service that we would visit the chamber after each dive and undergo some tests for their studies.

We also had the Sharm Search and Rescue centre supporting us with a rescue boat and paramedic staff. All these guys provided their services for free to us, and we are deeply in their debt. Many thanks.

The plan for the day was a dive to 150m to relocate the bow of the wreck and plot the position with GPS to make ready for the big dive. We already had a good idea where we needed to drop, and Vern, our GPS man, was ready when we dropped off the back of the boat. Snorkelers entered the water and checked our dive rigs for leaks. Once completed, we descended into the blue on our 45/12 travel/intermediate decompression gas. At 10m, we gave each other the gas switch signal and switched to our back gas of 9/57. We both settled into

CLOCKWISE FROM TOP LEFT:
Leigh cruises over *Yolanda's* cargo of porcelain toilets

Leigh's bumper sticker message, 'Follow Me'

Mark and Leigh confer at a station check point

A support diver arrives with the Farallon scooter

ABOVE: Mark and Leigh float weightless under the sun

RIGHT: The team of safety support divers meet up with Mark and Leigh on the multi-stage ascent to the surface

Yolanda

the descent and enjoyed the ride.

We reached 100m, and there was still no sign of the reef wall— just dark water all around, I turned on my Metal Sub 200W HID and pointed it in all directions, but there was nothing. Then at 120m, the light picked up the funnel of the wreck lying off to one side on the steep reef wall.

We had landed about 50m to the right of the main wreckage. We made the swim across and down to 150m to meet the bow of the wreck. The Metal Sub lit up the wreckage like it was in a football stadium, and we could clearly see the debris scattered all around the steep reef wall.

I shone my dive light down the length of the wreck and watched as she seemed to go on forever down the steep slope. We had no idea how far down she would reach.

We were both amazed at how entrenched in sand she had become. The bow was merely a few feet proud of the sea bed being covered in years of sand fall delivered from the strong currents that run between the two reef plates high above the wreck.

Our bottom time soon ran out. We both gave the up signal and waved goodbye to the wreck. As we ascended, the reef quickly disappeared from view and we were back in the blue.

We reached our first gas switch depth at 75m (17/25), and signalled each other to assure we both made the switch. Ascending in the blue can give some divers severe vertigo and should not be contemplated without a good deal of experience in shallow water first. It requires a lot of concentration and discipline, and you can easily find yourself in violation of ascent speeds and run times.

At 30m, we made our next switch (45/12) and deployed our DSMBs to show the surface support our position in the water.

As mentioned, the currents can be very strong here, and we are never sure just where we will be when we deploy the DSMBs. A lookout is always scanning the sea from the dive boat at the time we state on the dive plan to deploy.

Within 5 minutes, we were joined by two safety divers each. One carried the Farallon scooter to help us get back to the reef wall for a more pleasant decompression phase. The safety team kept a careful eye on us as we made our final gas switch to 80% Nitrox.

After just over two hours in the water, we reached the

Leigh and Mark shake hands over the success of reaching the goal
INSET; The team aboard the *Colona*

surface and were helped back to the dive boat *Colona*.

Upon reaching Trafco jetty, we left the team and went over to see Dr Adel and Ahmed in the Sharm Hyperbaric facility, so that they could run some tests. They had a new machine called a *slit scanner* that can detect minute bubble formation in the tear film on the diver's eyes. We were both given a clean bill of health and returned to Ocean Tec blending station to give a hand pumping all the gas for the big dive on Friday.

Thursday offered a chance to relax a little, and we spent the day on the *Colona* dive boat tinkering with the dive rigs and analysing all the gas mixes. We made a final dive plan and briefed the team to each person's responsibilities.

Friday morning saw yet another perfect day with the sun shining brightly and the sea barely rippling. As we arrived at the dive site, the search and rescue team arrived and moored up alongside the *Colona* dive boat. These guys offered us a fantastic service and a speedy evacuation should the worst happen.

Once prepared, we positioned the dive boat over what we believed to be the correct position based on the previous 150m dive. The horn sounded, and we dropped into the water. One of the safety divers performed a quick but thorough leak check on our dive rigs. We signalled each other to descend and slipped below the calm blue water.

We descended the initial 20m on our travel/lean deco mix of 52/15 before signalling each other to switch to our bottom mix of 7/66. Once switched, we relaxed and descended at a steady 50m per minute until reaching 120m where we slowed to 30m. This reduction in speed helps lessen the risk of high pressure nervous syndrome (HPNS) bought on by rapid pressurisation of helium (fast descent).

The drop was perfect. The bow of the wreck came into view at 130m, and we descended onto the wreck itself slowly swimming down along the length of its remains. As I reached 195m, a large bang went off behind my left ear, and my dry suit inflator stopped working. I came to a halt at 205m as measured on our dive computers, a Suunto D9 and a Nitek 3.

As we levelled, we could see that we were just under the stern of the wreck, and that the ship was perched on a ledge roughly 40m wide. Beyond this, a vertical wall descended into the abyss. The wreck had slid down the reef walls and slammed into this small ledge stern first. The rest of the wreck crumpled under the force. There she rests to this day slowly filling with sand.

As we swam under the stern my pressure gauge imploded on my intermediate Trimix (16/43). Luckily no leaks occurred, and it just filled with water. One of Leigh's computers imploded squashing the LCD screen (Vytec).

We finished the bottom time by swimming up the other side of the wreck and surveyed all the scattered wreckage that lay around the site. We gave each other the up signal after a bottom time on the wreck of 5.5 minutes and slowly rose back into the dark blue water. As we did so, we got a fantastic view of the wreck.

During the initial ascent, we prepared our intermediate Trimix (16/43) for the gas switch, but my regulator was not responding. I tried to purge but had no response. I maintained a steady 10m per minute ascent rate as I mulled over the thought of having to miss all my deep stops and ascend to the point at which I could switch to my lean Trimix decompression gas. This was not a good option and would almost certainly result in a long stint in the chamber.

Safety divers watch and support Leigh carefully on his return to the surface

Yolanda

LEIGH AND MARK WOULD LIKE TO THANK THE FOLLOWING PEOPLE:

PROJECT FINANCIER
ELENA KONSTANTINOU

DIVE BOAT SUPPLIERS
SEAMUS AND ANNA (COLONA DIVE CENTRE)

GAS SUPPLIER & CO-ORDINATOR
CHAD "THE GAS MAN" CLARK

LOGISTICS CO-ORDINATOR & DEEP SUPPORT
PAUL "DOOZER" CLOSE

DEEP/INTERMEDIATE SUPPORT
JOHN KEAN
RAYMOND HERMANS
CHRISTIAN CAUWE

INTERMEDIATE/SHALLOW SUPPORT
JIMMY JEWEL
TIM PICKARD
DAVE SUMMERFIELD
JOHAN NILSSON

PHOTOGRAPHERS
ADAM BUTLER
LOUISA RUSSELL

BLENDING/DIVE SITE PLOTTER/SHALLOW SUPPORT
VERN MAUCH

BLENDING/SHALLOW SUPPORT
TOM HODGESON

CYLINDER SPONSOR
CHRISTOPHER "JUNIOR" HRYNCZYSZYN

BOAT CREW
YASSIR, MAHAMOUD AND SHARIFF

RESCUE BOAT
OSSAMA AND TEAM

CELEBRATION PARTY (Thanks guys)
CHARLEY AND MONTY (TAVERN BAR)

DIVE EQUIPMENT SPECIFICS:

MARK
TRIPPLE SET OF 3 X 12L 300 BAR CYLINDERS
2 X 15L ALLOY STAGES

LEIGH
TWIN 20L 232 BAR CYLINDERS
2 X 12L 232 BAR
2 X 15L 232 BAR

Mark Andrews and Leigh Cunningham are both Instructor trainers for the Professional Scuba Association and teach a range of technical diving in the Red Sea. They can be contacted at:

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Yolanda

ABOVE: Mark and Leigh celebrate with the team

BELOW: The cake the photographer, Louise, made for the team

We had plenty of spare gas on the dive boat, but this was of no help as I ascended toward the gas switch. As I approached 100m, I again purged the regulator, and to my amazement, a little air escaped from the mouthpiece followed by a loud gushing sound. Then, everything was operational again. I safely made my gas switch at 84m along with Leigh and enjoyed a large sigh of relief.

We both ascended following the decompression schedule precisely and deployed our DSMBs at the forty-second minute as planned from a depth of 30m. We were soon joined by the safety divers who were eager to know if the dive was a success. A big OK and large smiles from Leigh and myself confirmed the successful mission.

We ascended to 27m for the next gas switch of 50/15, which could not come soon enough for me, as the pressure gauge on my 16/43 was still reading 300-bar after the implosion.

The Farallon scooter arrived, and we slowly made our way back towards the reef wall to continue the decompression. We made our final switch onto our 80% Nitrox and completed the 205 minutes of decompression with no further problems.

Once back on the dive boat, we compared broken bits of kit and discussed the truly awesome dive we had just undertaken. The boat was alive with happy smiling faces and everyone shaking hands. Louise, one of the photographers, made us a chocolate cake to celebrate the dive, and all the team and crew tucked in for the return to shore.

Once at the jetty, Leigh and I went back over to the chamber for further tests and were again given a clean bill of health.

Back at Ocean Tec, we rejoined the dive team for the official team photographs and thanked everyone for their support.

The team is often overlooked in these projects, but Leigh and I are honoured to have worked with the finest support team that we could ever hope to have. We cannot thank them enough. Without them, the success of this dive could not have been achieved. ■

Nova Scotia

Ocean Playground of Canada...

Text by Svetlana Murashkina, PhD
Photos by Andrey Bizyukin, PhD, Ingo Volmer and Svetlanda Murashkina

I can not stop feeling, that I am at the White Sea in the northern part of Russia. Mirror of blue water, islands and islets, bays and small bays. Clear water, birches along the shores. The difference becomes clear when you step out to the road. Good asphalt, bright yellow marking lines. What else strikes my eyes – everywhere ashore there are placed, as if by a landscape designer, dry tree sculptures, decorated with algae. I can not understand, why there are so many dry trees? Then, the reason comes to my mind: nobody makes a camp fire here on shore at this time of year, that's why dry branches are of no use. Environmental rules are very strict, and caution is at a high level. Nobody will do harm to the lobsters underwater, and licenses for lobsters take into account every claw. Meadows with fields of flowers and lots of strawberries are everywhere…

Where did you dive this summer? If a person is satisfied with the brief answer, "In Canada," that means the person probably missed all his or her grade school geography lessons. Canada is a country of real contrasts. It is bath a densely inhabited strip of land along the US border with huge metropolitan centers such as Montreal and Toronto, where there are sky-scrapers and big businesses, as well as a vast country of wilderness territories in the north stretching out along the coastline.

ABOVE: A diver explores a wreck on the coast of Nova Scotia
LEFT: Cape Breton, Nova Scotia, Canada

Nova Scotia

Vollmer's Island Paradise Resort

The target of our trip is New Scotland, Cape Breton and Janvrin Island near Isle Madame.

"Vollmer's Paradise", a modest name given by its owners to their "estate", is about a three-hour drive from the province's capital, Halifax, where the international shipping port and airport are situated.

Nova Scotia is one of ten Canadian provinces. Every territory, like Quebec or Newfoundland, is a separate state with its own specific nature, history and culture, "national features", flag and slogan. Nova Scotia's slogan is "Canadian Ocean Playground". Here, all the life is connected with the ocean.

The history of New Scotland is a history of British-French interaction and foreign relations. The British and French heritage is reflected in the traditions, music, art and cuisine of the area. It is the place where Acadiens settled, Canadian French. It is here, at Cape Breton, that the World Acadian Festival took place this summer.

But the dive center we are aiming for is, in fact, German. By all accounts, it really is, "Alles in ordnung", which in English means "everything is in order", and it's great.

Creature comforts

Suddenly, I open my eyes in the darkness of my room. And see… stars. Various thoughts come: Did I dive too much? Is the roof broken? And only after staring at the darkness and getting used to it did I realize that the stars were fluorescent pieces of smooth material stuck just over my cosy wooden bed.

In each house of the resort, everything is handmade for human comfort by a man. And the name of the man is Arthur Vollmer.

The stars are also made by Arthur who created this hospitable resort on a glorious plot of land with his own hands. Reaching 75 this spring, Arthur is an energetic German carpenter, collector and inventor. His family settled here in Nova Scotia in 1988. Before they moved to the area permanently, the famly came to spend their vacations in Nova Scotia and fell in love with the nature, the lifestyle, which was different from the European way of life, even though there was no time to be bored especially during the summer high season.

Six family houses are situated on the territory, hidden behind the trees, so you would scarcely see them until you came across them. Everything is placed very rationally in the resort.

The fishman's house is on the shore. There is a club-house, dive center, repair shop and a small restaurant where Maria, Arthur's wife, will serve you with yellow-like sun-pumpkin soup, or grilled fresh trout. Your salad plate will certainly be decorated with big strawberries.

In the houses, which can host up to 17 people at a time, there are all the modern conveniences arranged within a setting that gives one the illusion that one is deep in a forest.

LEFT: The beautiful coastline of Nova Scotia
TOP RIGHT: A moose crossing

A diver is eveloped by thick fronds of seaweed

TOP RIGHT; Speedy transport for divers
INSET: Divers prepare for a dive on location
BOTTOM RIGHT:Top speed in a rib

Nova Scotia

There are two beds, a shower, a toilet and a small kitchen. In the club house, there is a round table, a home library with lots of underwater books and literature, and a screen.

Our hosts are pro-active. In the beginning of the 90s, upon Arthur Vollmer's initiative, a local organization working for pollution control was created. The group declared that their mission was to clean the island. Then, they collected waste, rubbish and organized its removal for recycling. They promoted the use of cotton shopping bags instead of plastic ones. They got waste containers for sorting rubbish (paper, soft plastics and metals) placed in the center of the community.

For all their hard work, the organization received recognition and approval from the public and governmental environmental agencies. Now, all this positive energy the group generates is being directed mainly in creating and maintaining a real paradise for nature lovers and divers in this corner of the world.

The dive center

The dive center is the beloved child of Ingo Vollmer. He heads the technical dive school, ANDI Germany, and is the owner of the dive center in Marlin. Ingo spends all his summer seasons in Canada organizing dive tours in Nova Scotia and research expeditions to remote places on the Eastern shores of Canada.

I am strongly convinced that the main asset in every business, dive centers included, is atmosphere. It is created by the hosts, first of all, and the guests, that very often become regular customers.

Here, everything is punctual and accurate in the traditional German manner.

A diver explores an open hatch of a wreck

Soft corals and sea lilies decorate the surfaces of a wreck

Divers investigate a wreck site off the shores of Nova Scotia

If we plan to start at 9:00 am, we start at 9:00 am, and not at 9:05. Dinner is at 7:00—that means exactly at 7:00. Such accuracy on the part of the hosts is very attractive to tourists and guests visit this place many times.

Canadians and Americans, driving their own or rented cars, like to be on the road, spend 2-3 days in a spot, dive several times, and drive on to the next location. Europeans also visit the area. They stay for 2-3 weeks, enjoying both diving and nature walking tours, as an escape from city stress.

Mobile phones do not work on every spot of the territory, only in the open sea. So, in the evenings, the club house is a hub of multi-national companies meeting, speaking different languages.

We were at the dive resort at the same time as the editor-in-chief of *Tauchen*, the largest German dive magazine, and this man's choice is known to be reliable. We're talking about his choice in diving, of course.

Diving

We head out to sea on the dive boat *Tury*. *Tury* is a work horse, hosting 12 passengers a trip, averaging a speed of 8 knots with a maximum speed of 12 knots. There are two tanks for everyone on board as well as a portable compressor, which is brought along so we can reach the far islands and stay overnight there.

The dive center also has a speed boat, a rib with a huge engine, getting up to 30 knots. It is Ingo's favorite toy. The rib brings divers to the most remote dive sites within 40 minutes.

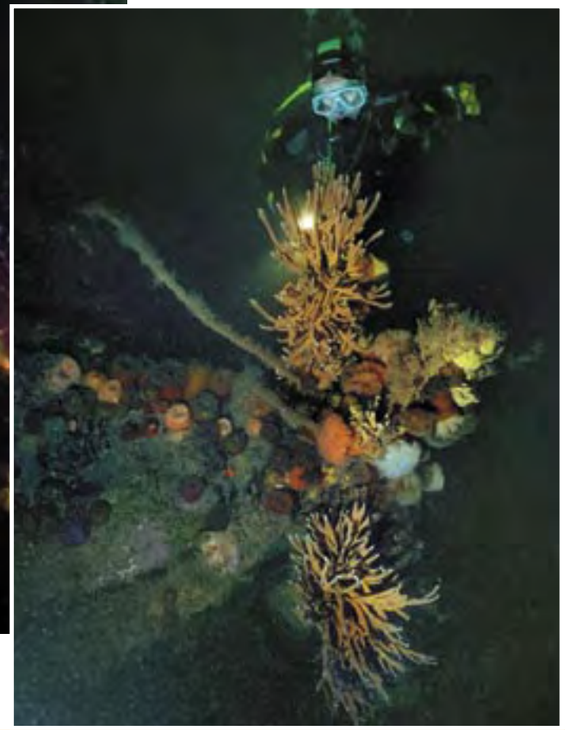
We reach the site. When the engine stops, nothing artificial breaks the silence: only the splash of waves and the sounds of birds. We can see a spray of water from time to time port side. It is a whale passing by on its journey to favourite feeding grounds. Now, the whale shows the curve of a large back. At starboard, a huge well-fed gull sits observing.

The main impression I got from the dive was a strong affiliation with nature. Walls reach down to deep depths. They are covered with soft corals, bold free lobsters and crabs, and sea stars of various sizes, shapes and colors.

The water is cold, 5-10˚ C. In the middle of summer, water temperatures warm to 13-15 degrees, but this benefit is accompanied by a decline in visibility. So, it is not the worse place for dry-suit diving.

I descend to the bottom. At about 20 meters, everything is as usual, green calming water, brown kelp forest. Suddenly, a 1.5m seal takes wing just under my feet. He is gray, with dark spots, a nice face and a moustache. I have never ever seen seals underwater

Nova Scotia



THIS PAGE: Scenes from a wreck dive where fish are bold and coral life is abundant

before this moment.

My cameramen is occupied with his lenses… I am certain that the animal will go away, and we will miss the opportunity to capture images of the seal. Gone. Suddenly, the seal returns and curiously models just in front of the camera. He makes one round after another.

In the near distance is a female seal with her baby. They are not that curious, staying safely aside, but the father-seal looks right into the camera lense. I watch the seal and cameraman eyeing one another. They look like twin-brothers.

Our hosts listen to my delightful story about the first seal in my life with patience; seals are common here, so I am sure it's not the first time they've heard a seal story from an excited diver.

There are wrecks here too. The Liberian tanker, *Arrow*, which sunk in 1970, and the Norwegian cargo ship, *Balein*. They were covered with algae and soft corals, and inhabited by numerous small fishes, each one trying to get a look at me, coming right up to my mask.

Wilderness with a humane face

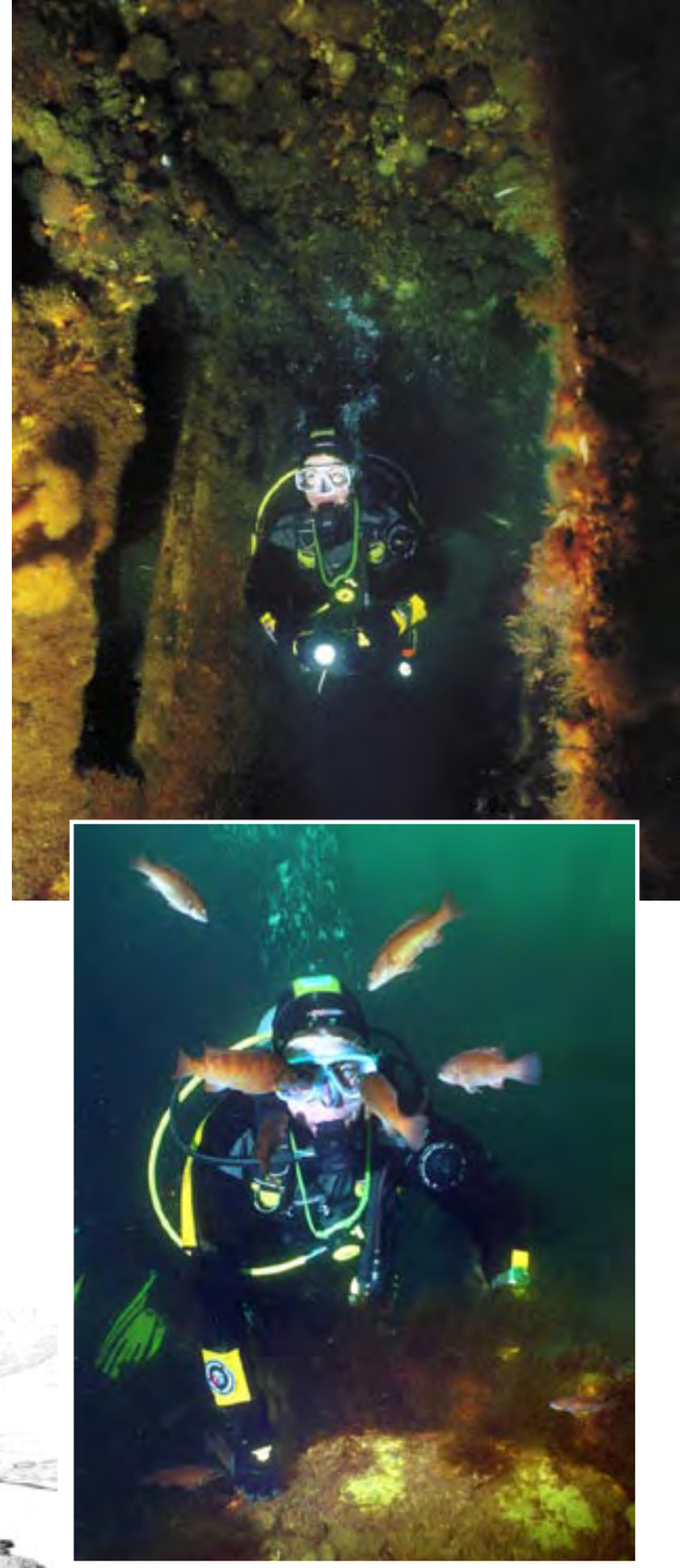
Canadians are very proud of their "wilderness" and natural environment, and they should be. A must-see side trip for tourists traveling across Nova Scotia is Cabot Trail,a scenic road that lies in the territory of Cape Breton National Park.

Here, you will see moose and deer, red fox, proud white-headed eagles, and Canadian geese. You can watch whales from the shore. Throughout Nova Scotia flow clean salmon rivers. All this is maintained in a natural state. Nature is preserved and protected by the state.

Trails for hikers are marked with special signs identifying scenic views and benches for rest and picturesque bridges over streams. Perhaps, this is the right way to treat nature.

So, when you go to Nova Scotia, bring along a good dry suit and good underwaer, and don't forget your hiking boots!

For more information about Vollmer's Island Paradise in Cape Breton, Nova Scotia, Canada, please visit: **www.vipilodge.com** ■



LEFT: Gray seal. Image courtesy of NOAA Image Library

fact file

Nova Scotia,Canada

History Canada is a country of rich natural resources and vast distances. In 1867, Canada became a self-governing territory while retaining its relationship with the British crown. The country has developed economically and technologically in parallel with its southen neighbor along an unfortified border, the United States. After a decade of budget cuts, the country's greatest political issues are improving education and health care services. Recently, the issue of reconciling Quebec's francophone heritage with the rest of the country's population which is anglophone, has receded after a referendum held by the Quebec government failed to pass in 1995.

Government A parliamentary democracy and a federation that is also a constitutional monarchy

Geography Located on the northern half of the North American continent, Canada is bordered by three oceans: the North Atlantic Ocean on the east and the North Pacific Ocean on the west, as well as the Artic Ocean to the north. After Russia, Canada is the second largest country in the world. It has a strategic position between Russia and the US on the north polar route; about 90% of Canadian are concentrated in the area within 160 km of the border with the US. Terrain: wide plains with mountains in the west and lowlands in the southeast; Natural resources: iron ore, nickel, zinc, copper, gold, lead, molybdenum, potash, diamonds, silver, fish, timber, wildlife, coal, petroleum, natural gas, hydropower; Natural hazards: continuous permafrost in north is a serious obstacle to development; as a result of the mixing of air masses from the Arctic, Pacific, and North American interior, cyclonic storms form east of the Rocky Mountains and produce most of the country's rain and snow east of the mountains.

Economy Canada closely resembles the US in its market-oriented economic system, pattern of production, and high living standards. It is an affluent, high-tech industrial society. Agriculture: wheat, barley, oilseed, tobacco, fruits, vegetables; dairy products; forest products; fish; Industries: transportation equipment, chemicals, processed and unprocessed minerals, food products; wood and paper products; fish products, petroleum and natural gas.

Climate Varies from temperate in the south to subarctic and arctic in the north

Population 32,507,874 (July 2004 est.) Ethnicity: British Isles origin 28%, French origin 23%, other European 15%, Amerindian 2%, other, mostly Asian, African, Arab 6%, mixed background 26%; Religions: Roman Catholic 46%, Protestant 36%, other 18%

Currency Canadian dollar (CAD) Exchange rate: 1 CAD = $ .82 USD / € .63 EURO

Language English 59.3% (official), French 23.2% (official), other 17.5%

Web sites
Cape Breton National Park
www.pc.gc.ca
Vollmers Island Paradise Resort
vipilodge.com
Nova Scotia Tourism
novascotia.com

Deco Chamber
Queen Elizabeth II Health Sciences Centre

Victoria General Site
1278 Tower Road, Victoria
Nova Scotia, B3H 2Y9
(902)473-2220 or (902)473-2251 ■

NAUI WORLDWIDE
DIVE SAFETY THROUGH EDUCATION

NAUI Products and Services Featured in International Dive Shows

Also Participating in Regional Shows Throughout United States

NAUI announced that its award-winning product line and new services will be featured in international dive shows throughout 2006. Along with NAUI's full line of training products and materials, show visitors can learn about the many ways NAUI can help expand your dive operations through business development programs, quality customer support and a comprehensive range of training programs.

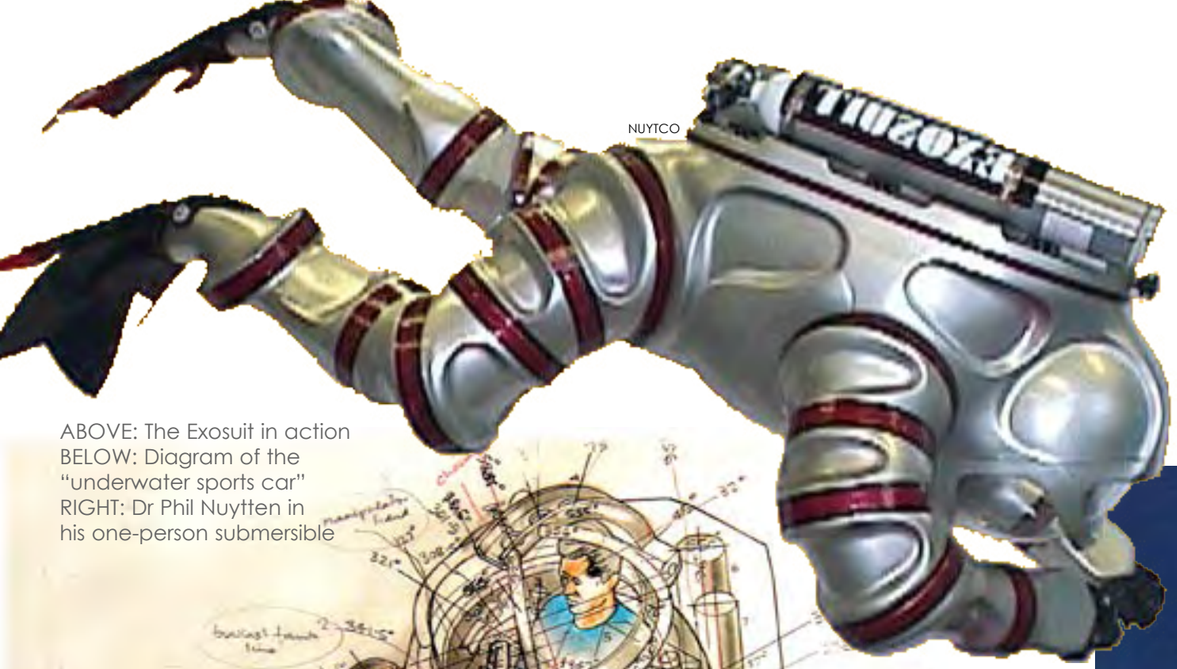
NAUI has or will participate in the following events in 2006:

Paris Dive Show - Paris, France (13–16 January)
Düsseldorf Boat Show - Düsseldorf, Germany (21 - 29 January)
Duikvaker - Utrecht, Netherlands (3-5 February)
Moscow Global Expo 2006 - Moscow, Russia (16-19 February)
EudiShow - Genoa, Italy (10-13 March)
London International Dive Show - London, UK (1-2 April)
Asian Dive Expo 2006 - Singapore (21-23 April)
National Boat Show - Johannesburg, South Africa (18-20 August)
China Dive Expo 2006 - Shanghai, China (September)
Dive 2006 - Birmingham, UK (14-15 October)
DEMA Show 2006 - Orlando, FL (8-11 November)

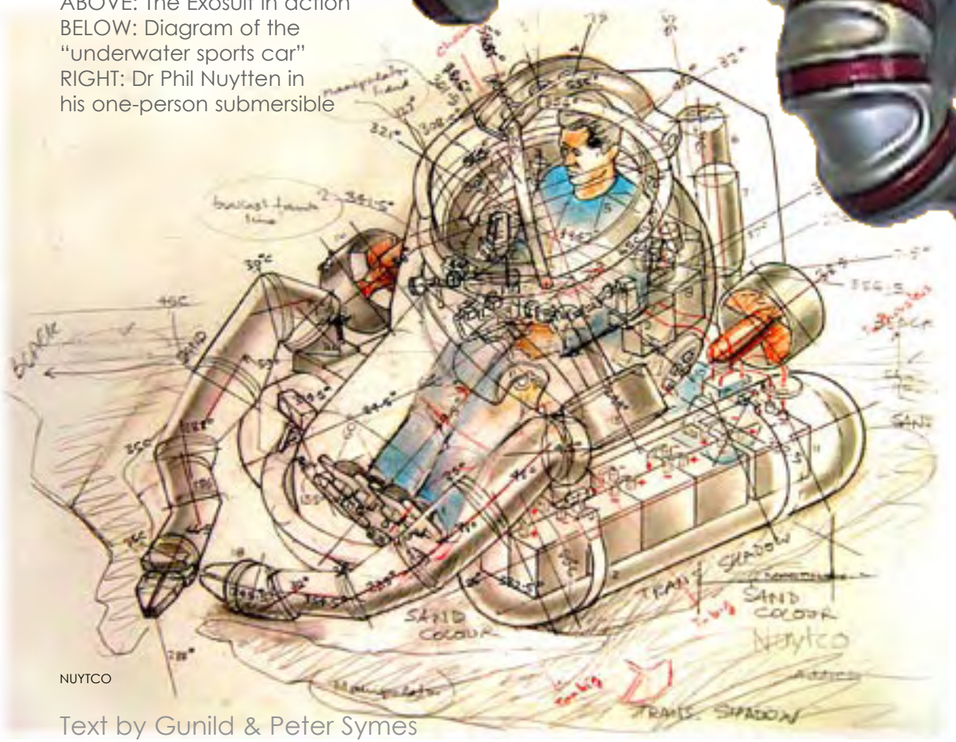
NAUI will also be participating in many U.S. regional trade and consumer shows throughout the year, including:

Our World Underwater - Chicago, IL (24-26 February)
Boston Sea Rovers – Boston, MA (4-6 March)
Beneath The Sea - Secaucus, NJ (24-26 March)
Ocean Fest - Ft. Lauderdale, FL (21-23 April)
Northwest Treasure Hunt – Tacoma, WA (13 May)
Scuba Show 2006 - Long Beach, CA (24-25 June)

Plan to visit the booth at each of these shows to catch up on the latest news, view new products, get together with your fellow members or join the NAUI team!



ABOVE: The Exosuit in action
BELOW: Diagram of the "underwater sports car"
RIGHT: Dr Phil Nuytten in his one-person submersible



Sub Sea Pioneer
Phil Nuytten

Text by Gunild & Peter Symes
Photos by Gunild Symes and Nuytco Research

"If you think about it, the space between the highest mountain peak which is seven miles high and our lowest point in the ocean which is about seven miles deep… that's just 14 miles of space in which all life, our lives, can exist. Our naked bodies cannot survive outside this small zone on the planet, which actually appears like a smooth ball with a few stains on it from outer space. So why build these suits? Why go so deep? Well, if we are not going to go there, why build the suits? There's no point. The reason why we make these suits is to eventually be able to go to the places we cannot reach today.

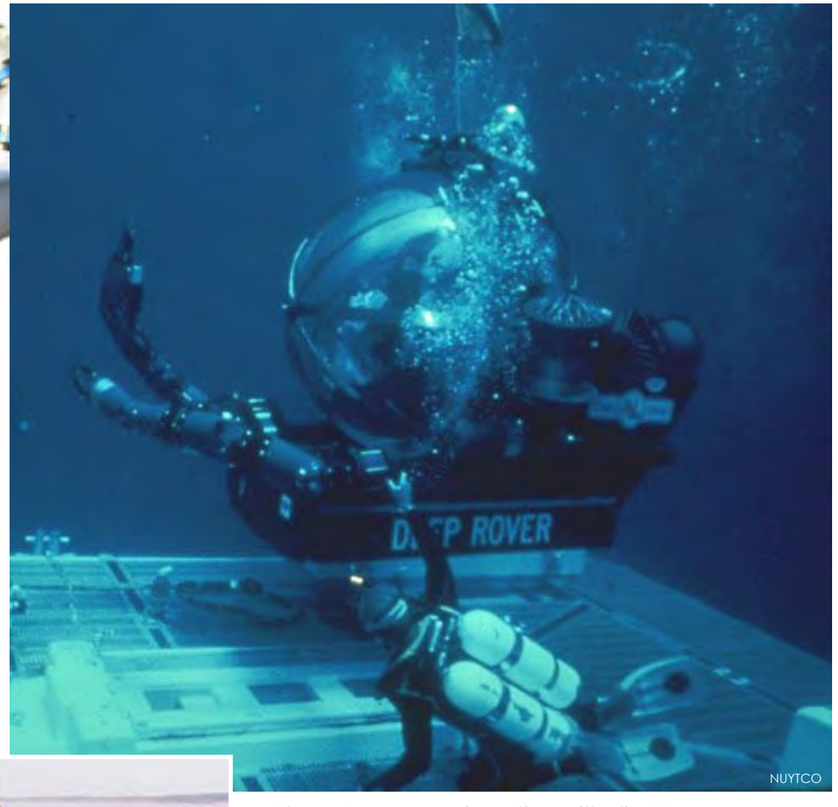
Dr Phil Nuytten

NUYTCO

LEFT: The two-person submersible, Dual DeepWorker NewtSub, allows for a pilot and an observer

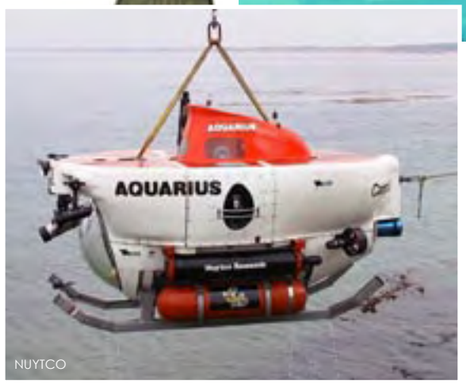
RIGHT: Nuytco's Exosuit was designed to protect the diver from pressure and hold internal pressure much like the exoskeleton of a crab

INSET: The three-person submersible, Aquarius, is lowered into the sea



NUYTCO

ABOVE: Deep Rover in action with diver



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Close-up of the one-person DeepWorker used by National Geographic

Close-up detail of the arm of the Exosuit. Reduced volume is accomplished by the cut-outs in each segment

"Some say we should just send robots and submarine robots to these extreme depths. But if we are not eventually going there ourselves, why bother at all? The point is that we are going to go there eventually, like we are going to go to the moon or to Mars. We are eventually going to be there, and these suits and technologies are going to go with us and help us get there."

So says Dr Phil Nuytten, inventor of sub sea submersibles and the NewtSuit, a deep-sea hard suit employing break through technology that allow scientists to walk the bottom of the ocean in one-bar atmosphere with a freedom and range of movement unsurpassed by other devices. With over 40 years devoted to sub sea technology, Phil is fulfilling his goal to provide scientific, military, technical and sport divers unlimited access to continental shelf depths without decompression hazards. In this way, he hopes humanity can explore, investigate and ultimately become better guardians of our oceans.

When rays meet newts

X-RAY MAG visited Phil at his workshop in Vancouver and received a tour of the facility and his inventions by the man himself. Famous rigs that have done incredible things are lying around the place like lounge lizards…. rigs such as the micro-submersible Deep Worker, the revolutionary deep-diving system that transports scientists from National Geographic programs and deep sea explorer, Dr Sylvia Earle, for her Sustainable Seas programs, to the bottom of the sea to investigate environmental impact in the deep ocean. The unit has been affectionately tagged the "underwater sports car" and was used in a contract to recover the Space Shuttle booster rockets for NASA from the sea floor.

Then there were Deep Rover, Deep Flyer, Aquarius, Sea Otter and the revolutionary Exosuit, which stood in the front office welcoming us to the fantastic world of all things Nuytten. Exosuit, introduced by Nuytco in 2000, is a radical concept in lightweight atmospheric dive suits. The team is now investigating whether it can serve as submarine escape device for the Canadian Department of National Defence.

What was the most interesting part of the conversation with Phil was what he said about the fragility of the human body, which can only exist in the small slice of the biosphere, and how we need all these prosthesis, such as airplanes and underground tunnels, to exist in other areas.

NUYTCO

Dr Phil Nuytten

The human being is like a jellyfish with sticks in it.

—Dr Phil Nuytten

Early version of a one-atmosphere armored diving suit

Nuytten creates totem woodcarvings in the Northwest Coastal Native American tradition

G.P. SYMES

The second most interesting point was how Phil would like to make these suits economically available to private individuals for around US$25,000.00—the price of a nice car. About our bodies, Phil said, "The human being is like a jellyfish with sticks in it." It needs extreme protection in extreme environments.

Dr Phil

A native Canadian, born and raised in Vancouver, Phil was just 12-13 years old when he began diving. He opened the first diving shop in western Canada when he was 15, where he would work after school. There were so few divers back then, he said. But by the time he was 16, he was making more money than his teachers.

Phil was a commercial diver for many years and co-founded Oceaneering International Inc., which has become one of the largest underwater contractors in the world doing work in the fields of marine construction, offshore production, and even work with NASA in outer space! Phil has logged hundreds of hours on experimental deep diving and testing of decompression tables. He is regarded as a pioneer of the modern commercial diving industry and a driving force behind revolutionary sub sea technology.

Nowadays, Phil is

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ABOVE: Nuytten discusses specs of the Deep Rover

LEFT TO RIGHT: Dr Nuytten with a NewtSuit prototype; looking under the hood of his submersible; the latest work in progress submersible

Dr Phil Nuytten

ABOVE: The latest version of the NewtSub, the Dual Deepworker for two

LEFT: A family of deep-sea micro-submersibles

BELOW: Phil discusses the new prototype with X-RAY editor-in-chief Peter Symes

The two-person Dual DeepWorker NewtSub submersible is lowered into the sea

leading the world in the development of sub sea technology. He is the genius behind Nuytco Research Ltd. based in Vancouver, an entity that has brought the world deep-sea submersibles and ground breaking atmospheric diving suits.

Can-Dive has reduced quite a bit now since its glory days of being the major contractor in North America, said Phil. It is now just a small part of the Nuytten Empire, which now focuses mainly on submarines and the suits, which are now in their sixth or seventh generation, and the arms of the suits, which are in their third or fourth version. Right now, the benefit of reduced volume in the NewSuit is accomplished by the cut outs in each segment. Phil said that they are currently working on a new arm that has no moving parts but works in a package of liquid, so as the arm moves, the liquid revolves around itself.

Phil said that, ultimately, glass is the best material to use for deep-sea inventions because it can sustain under high compression as long it has equal pressure all around it. If it is held together by another substance it can withstand any amount of compression. Ideally, he said, one should use an underwater suit out of glass and titanium, or what Phil said was "unobtainium" because it is not yet available—a combination, or composite, of glass and titanium.

A man of many hats

In the meantime, Phil continues to work on several projects at the same time. He is planning to open a museum of diving history in Canada with all the diving artefacts he has collected over the years. "We have some two or three storage rooms filled up to the ceiling with this stuff," he said. Phil is an avid dive historian and has some unique insights into the development of dive technology. Phil said, "Jacques Cousteau is often credited as the sole inventor of the 'Aqua-lung', although he himself never made such a claim. Cousteau was certainly

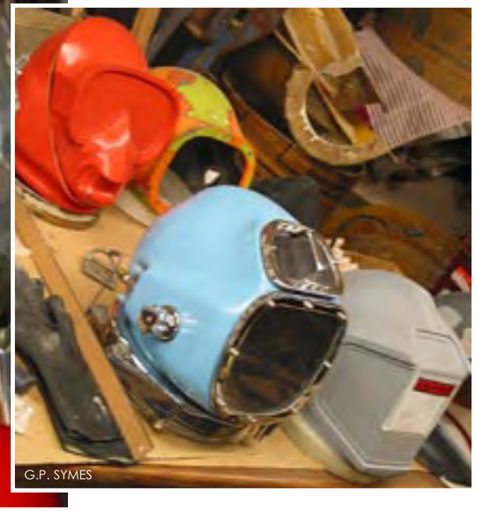
PETER SYMES

LEFT: Dr Phil Nuytten in his office decked out with posters from Hollywood movies he and his team at Nuytco have been involved with over the years

RIGHT & INSET: Prototypes of the helmets Nuytco designed for various Hollywood films of which some posters are shown below

Dr Phil Nuytten

NUYTCO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the driving force behind the original development, but the actual mechanical invention was done by a French engineer named Emile Gagnan (pronounced 'Gan-yon'). Gagnan immigrated to Canada in the mid-1940's and all the early Aqua-lungs that were sold in the US came from Montreal, Canada, or from the parent company in France."

Indeed, taking a look around Phil's workshop, every nook and cranny is stuffed to the ceiling with vintage dive gear, equipment, the early prototypes of rebreathers and regulators, underwater cameras and housings, ancient air tanks and twin sets, a plethora of masks and fins, snorkels and BCDs, some that look like something out of *Robocop* or *The Rocket Man*.

NUYTCO

The helmet Nuytco designed for the BBC's "Blue Planet" series

Deep in Hollywood

Which brings us to the subject of movies. Phil and Nuytco have been involved in over 114 movies including *Titanic, The Abyss* and *Sphere* with Samuel L. Jackson. Phil's office is plastered with the posters made for all the films for which his work was contracted. He has also done work for television including BBC's renowned epic "Blue Planet" series.

In addition to collecting old dive gear and working with Hollywood, Phil also collects old 50s sound equipment that is in mint condition still used to make clean recordings of original songs he has acquired from record companies and private collectors that go out of business. He takes the original master tapes—in some cases more than 40 years old—and drives off the absorbed moisture with an electronically-controlled sampling/heating system (that he developed) so that the tapes may be safely played on the original reel to reel devices on which they were recorded. The analog sound is then digitally recorded to a virtually permanent hard disk system with all the 24 individual instrument and vocal tracks complete and as an almost perfect clone of the original. If the degraded original master tapes were played without processing, the recording could be irretrievably damaged. With a baking process the tape becomes more durable, Phil said. The song is then transferred to disc, and it is just as good if not better than the original recording.

Native son

Being the multi-facetted man that he is, Phil is also dedicated to Northwest coast Native art and culture. Indeed, his interest in native culture is understandable, since he is descended from the Métis (pronounced 'May-tee') people—an aboriginal group

NUYTCO

Nuytco Research's new Exosuit is a revolutionary idea in deep-sea suit technology

Dr Phil Nuytten

that inhabits the Canadian provinces of Manitoba and Saskatchewan. Native tradition is in his blood and he carves totem poles, masks, jewelry and full sized canoes. He began carving as a child mentored by a native artist who taught him the craft. Phil said that he produces native long boats in wood and in fibreglass. They are beautiful, graceful structures that glide through the water like knives parting butter. Phil has even written a book about native wood-carving entitled, *The Totem Carvers*, which documents the lives of three prominent Native American carvers and their efforts to preserve traditional totemic art.

Phil continues to promote the art of the First Peoples of British Columbia and keeps a repatriation program going for art works of significant historical importance, which are donated to museums in his province. Although his native heritage is from central Canada, Phil has been formally adopted into the Kwak'wak'wakw Nation of British Columbia, where he has a number of formal 'Potlatch' names —but his 'everyday' name is 'Tlox- sum' , which means 'Red Snapper' in the native language.

For more information or to contact Dr Phil Nuytten, visit the website below:
www.nuytco.com ■

Deep-sea helmet developed by Nuytco

THIS PAGE: Scenes from Nuytten's workshop and warehouse which is filled with diving artifacts to be displayed in a museum of diving history in Canada

ABOVE: Drawing plans for a new flexible fin

LOWER LEFT: Dr Nuytten explains the process by which he takes original recordings of musical classics from the 50s and creates new recordings that can then be placed onto disc

CENTER INSET: Sound recording equipment from the 1950s. "It still works just fine," says Dr Nuytten

ALL PHOTOS THIS PAGE BY G.P. SYMES

Edited by
Gunild Pak Symes

Valentines

A Love Story...

Geoff Lancaster and Maureen Snow

A candlelit restaurant, on the beach under the stars, in the middle of a stadium during half-time... and a jewelry booth at a dive show? Yes, the list of romantic places to get down on one knee to propose just got longer. It now includes the UK Dive Show 2005.

Dive buddies get engaged at UK dive show

Diver Geoff Lancaster popped the question to diver Maureen Snow at the Reef Jewelry stand in October. Dive jewelry designer, Peter Barbarovich, said that the company always loved attending the dive show, but this year was something special. Two of their customers got engaged at their stand.

Apparently, Lancaster sent an email to Reef Jewelry in the beginning of October asking about the Bubble Ring design which Barbarovich designed. Lancaster asked if there was a matching engagement ring. He wanted to surprise his true love with the ring.

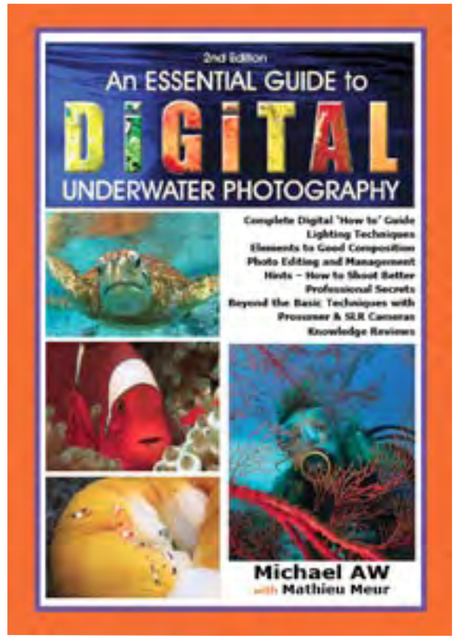
Barbarovich said he'd been wanting to create an engagement ring for sometime and this was the perfect excuse to do so. The jeweler looked forward to meeting the couple and finding out what Ms. Snow thought of the new ring design.

He added, "However, what amazed us was that when Maureen walked into the NEC on the Saturday morning, she had no idea that Geoff was going to propose to her at the dive show. We've never had anyone get engaged next to our stand before, and it was all highly emotional. Though what made my day was that the ring fitted and Maureen loved it, as I take enormous pride in designing and producing my hand made jewellery... I am still smiling about it! You know most ladies come to the show to buy a BCD or a computer, not to go home with a fiancée."

So, ladies, you just never know. The next dive show you attend might be your lucky day.

For more information on Reef Jewelry or to order the Platinum Bubble Ring Engagement Set, visit: **www.reefjewelry.com**

Advertisement



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I am already stocking your digital photography book, I think it's excellent and I will also recommend it on my U/W image capture classes. I also teach a 3 week photography course at James Cook University, Cairns twice a year. Students are taught on Nikonos & Nikon Coolpix systems. I will introduce your book to these students every class as well. Your book is really good timing and much needed, well done! - Kevin Deacon, Dive 2000 Pty Ltd

This book is an absolute Essential Guide for those who want to shoot beautiful digital pictures underwater. The modules are well thought-out giving detailed descriptions and explanations about using digital cameras underwater, exposure, use of light and shooting techniques for macro and wide-angle imagery. Includes tutorials on photo editing, colour correction and file management. A generous number of colourful graphics and photographs are used to illustrate the techniques and key points of underwater photography. This guide shares with you the fine art of composition and other secrets for taking great underwater photographs.

ORDER NOW – Email **one@michaelaw.com** for details; trade enquires welcome: **www.michaelaw.com**

Edited by
Gunild Pak Symes

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ON BOLD LINKS

Valentines

Gifts for the special diver in your life...

Music for the Romantic

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From the Sea with Love

Ecologically collected red coral made into beautiful and elegant jewelry in France are lovely Valentines gifts from the sea. Browse the whole collection at the Corail Rouge online gallery.
www.corailrouge.com

PHOTOS COURTESY OF CORAIL ROUGE

Valentines ...Gifts

Edited by
Gunild Pak Symes

Gold & Diamond Nautilus Shell

This extra large, 14 kt gold and diamond nautilus shell pendant holds a total diamond weight of 69 points of diamonds. The diamonds are set to accent the natural curves and lines of the nautilus. The shell is also curved so that the diamonds can be seen from all angles. An enhancer clasp is placed on the back so that the jewelry may be worn with all sizes of chain as well as with many sizes of string pearls. Price US$4220.75. **www.lloydslimited.com**

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Like an ocean breeze, this perfume is a perfectly balanced fresh clean fragrance. Hand sculpted by Kathryn J. Hardy, a Bottlenose Dolphin sits atop a frosted white bottle. The vessel is molded in the shape of a circular wave and holds the ocean blue fragrance that reflects the color of the sea. 2.5 oz Eau De Parfum Bottle US$36.00. Special! US$30.00. **justdolphins.safeshopper.com**

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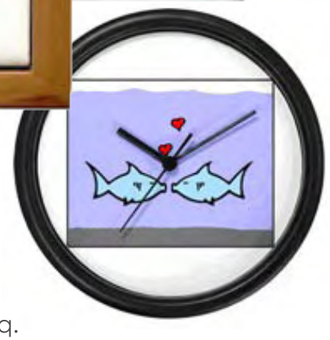

Love Love Love's Kissing Fish

An original love design by a Love Love Love artist is featured on this solid laquered Alderwood tile box. The box is perfect for storing diving knick-knacks, ocean jewelry or any precious keepsake. Measures 5.25" sq. x 2.13" (13 x 13 x 5cm) with a 4.25" (11cm) tile and hinged lid. Price US$24.99. The kissing fish design also comes in t-shirts, wall clocks, tote bags, magnets and mousepads. **www.cafepress.com**

Chocolate from the Deep!

Does your Valentine love the creatures of the sea? Does your sweetheart love chocolate? How about giving both? From a farm in Cornwall, England, which is one of the few remaining traditional confectioners around, you can purchase online marine life forms made from fine milk, dark and white chocolate. Price GB £6.95. **www.buttermilkfudge.co.uk**

Love Stories

The legends of mermaids, who are born without souls, are often tragic love tales of water spirits falling hopelessly in love with mortal men in order to find a soul. Prints of masterpieces inspired by these legends and myths by John Willam Waterhouse, Warwick Goble, Jessica Fries and Howard Pyle are available at **www.mermaid.net** or **www.artinaclick.com** or **www.art.com**

Valentines ...Gifts

Edited by
Gunild Pak Symes

Gold Octopus on Hayseed Chain

Embrace your Valentine with eight golden arms. This beautifully crafted satin finished pendant Octopus designed by Peter Barbarovich of Reef Jewelry looks stunning on any occasion. It will take your lover's breath away. Solid 9ct Gold. Approximately 3cm x 3.5cm. Standard Chain Length: 406mm (16"). Complies to British Hallmark Standard. A percentage of each purchase is donated by Reef Jewelry to the Shark Trust. Price: GB£255.00. **www.reefjewelry.com**

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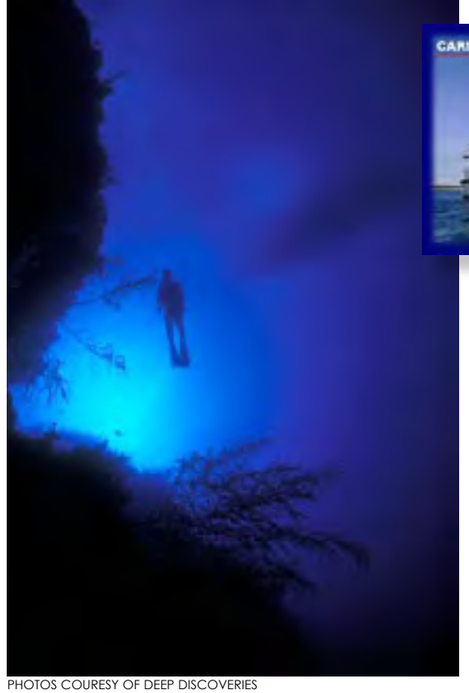
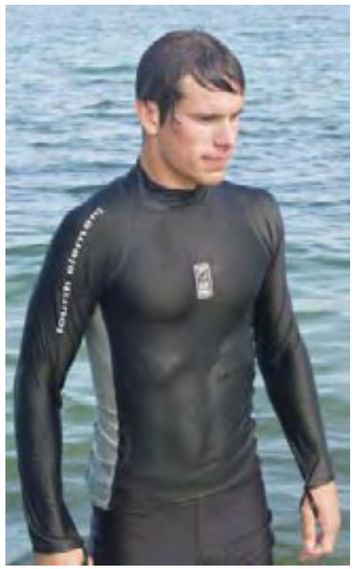
*(See related love story on page **???**)*



PHOTOS COURESY OF DEEP DISCOVERIES

Love in the Bahamas

Deep Discoveries of North America is offering dive travel specials for Febrary—a very special Valentine's Day package on a new Bahamas Liveaboard, *Caribbean Explorer I*. Book the *Caribbean Explorer I* before 31 March 2006 and receive FREE NITROX (a US$150 value). The special is valid for travel from 1 February-30 April 2006. Since 1993, Deep Discoveries has been providing divers with complete travel packages to dive destinations around the world. They specialize in unique and exotic locations such as Borneo, Malaysia, Sulawesi, Indonesia, Costa Rica, The Bay Islands of Honduras, The Sea of Cortez, Baja, Fiji and Galapagos Islands. These are destinations with excellent diving and fascinating land touring. For more information or to book the dive special, call 1.800.677.5362 or visit: **www.deep-discoveries.com**



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PHOTOS COURESY OF REGAL DIVE

Photography

Edited by Jason Heller & Daniel Beecham

PHOTOS AND GRAPHICS: PETER SYMES

Tips of the trade

Travelling with cameras, selecting a photo-friendly operator

Its important to remember that only when you are relaxed, happy, and comfortable can you shoot well

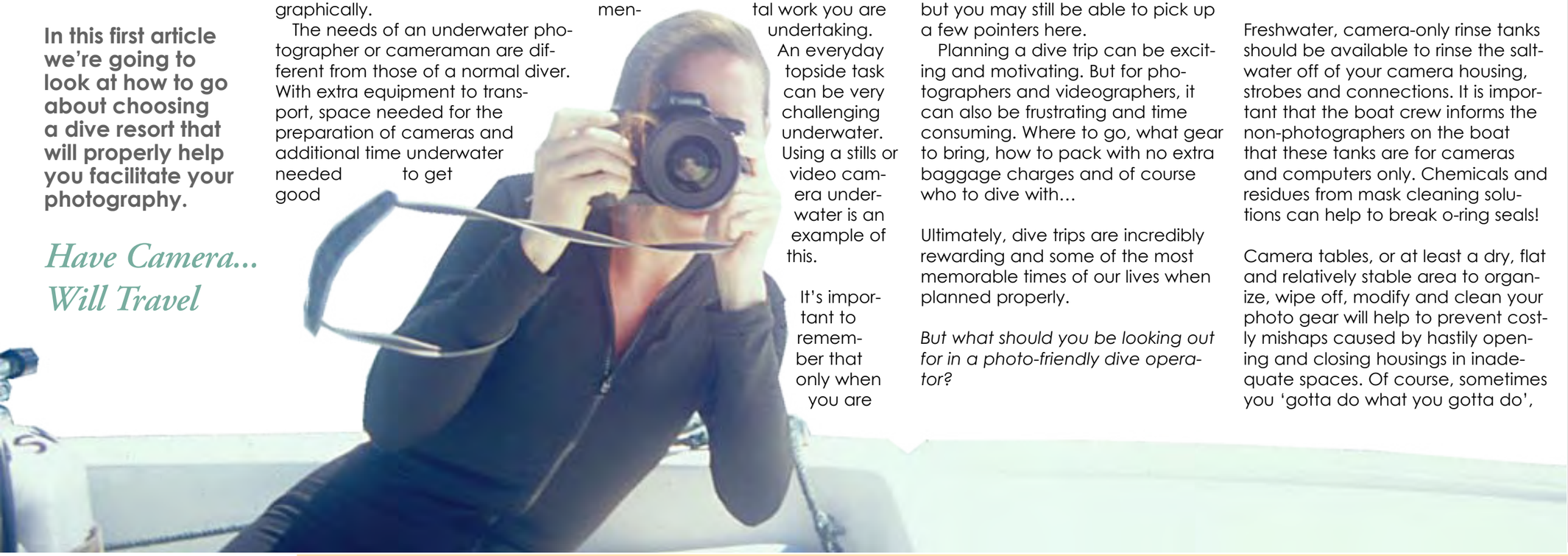
Over the next few issues we will be taking you through some tips of the trade for making your dive travel easier, cheaper, and less stressful.

In this first article we're going to look at how to go about choosing a dive resort that will properly help you facilitate your photography.

Have Camera... Will Travel

Through trial and error, as well as a significant investment in time and money, we feel we have found how to improve your underwater photography through travelling a certain way and properly configuring your dive equipment. These simple tips could prove to make your diving and dive travel more enjoyable, as well as more productive photographically.

The needs of an underwater photographer or cameraman are different from those of a normal diver. With extra equipment to transport, space needed for the preparation of cameras and additional time underwater needed to get good images, it's important to travel to the right resorts and dive from the right boats with the right people.



Relax

Once you descend into the water with the purpose of more than just getting wet, equipment configuration and ergonomics become more vital due to the extra physical and mental work you are undertaking. An everyday topside task can be very challenging underwater. Using a stills or video camera underwater is an example of this.

It's important to remember that only when you are relaxed, happy, and comfortable can you shoot well.

For those veterans out there, who may no longer be able to remember what it was like to be a novice diver or photographer, you may already have your regular dive destinations mapped out and your optimum equipment configuration set, but you may still be able to pick up a few pointers here.

Planning a dive trip can be exciting and motivating. But for photographers and videographers, it can also be frustrating and time consuming. Where to go, what gear to bring, how to pack with no extra baggage charges and of course who to dive with...

Ultimately, dive trips are incredibly rewarding and some of the most memorable times of our lives when planned properly.

But what should you be looking out for in a photo-friendly dive operator?

On-Board Facilities

Let's face it... electronics and water don't mix! When the difference between a great dive trip with memorable photos and a ruined trip due to a flooded camera can be something as simple as a few grains of dried sea salt or a piece of hair, the importance of the right facilities must not be overlooked.

Freshwater, camera-only rinse tanks should be available to rinse the saltwater off of your camera housing, strobes and connections. It is important that the boat crew informs the non-photographers on the boat that these tanks are for cameras and computers only. Chemicals and residues from mask cleaning solutions can help to break o-ring seals!

Camera tables, or at least a dry, flat and relatively stable area to organize, wipe off, modify and clean your photo gear will help to prevent costly mishaps caused by hastily opening and closing housings in inadequate spaces. Of course, sometimes you 'gotta do what you gotta do',

future meets classic

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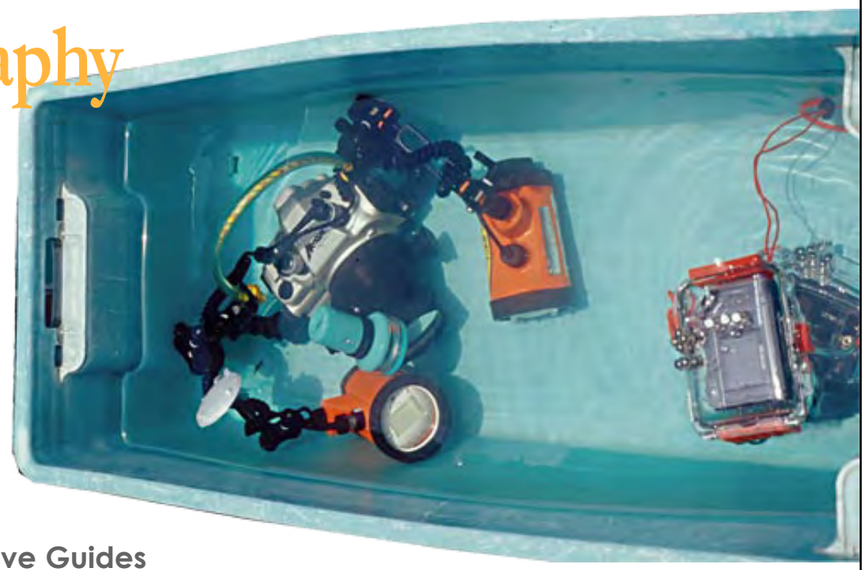

Freshwater, camera-only rinse tanks should be available to rinse the saltwater off of your camera housing, strobes and connections

to dive when and where you want, and sometimes the facilities just aren't available. Keep in mind that leaving your camera in saltwater, or even wrapped in a wet towel, is better than allowing it to dry prior to a freshwater rinse.

On-Resort Facilities

Many land-based and live-aboard operators offer dedicated camera charging areas, digital workstations, accessories for sale, rentals and photo processing. Having a library of marine life ID books also helps to identify the creatures and corals that you have shot and may want to shoot during a trip. Photographers who understand the habitats in which they are diving and the behaviour of the inhabitants, will usually come home with better and more varied images.

Dive Guides

An experienced dive guide with local experience is invaluable. They know the reefs and the tides, and understand the behavioural patterns of the local marine life sometimes with impeccable accuracy. Four eyes are always better than two, especially when two of the eyes watch these reefs day in and day out. Having dive guides who are also photographers or videographers can be an additional plus. Beyond pointing out great photo opportunities, on-staff photo pros sometimes offer workshops and lessons.

Environmental Responsibility

As divers, we are all ambassadors of the sea. We should support dive operators who demonstrate environmental responsibility and support local conservation efforts, and patronize resorts and live-aboards who use biodegradable soap and detergents. Dive operators can also help support the local economies by employing locals and even training them as dive guides, which in some regions results in less fishing pressure on the reefs. Long term, as a community of travelling divers, we must support the local communities, directly or indirectly, who we need in order to support the reefs that we love (and as a world, need) so much. By diving with operators who are environmen-

Yam Magazine and www.idive.co.il
announce the second international underwater photography competition.
The competition is open to all photographers, amateurs and professionals alike, shooting either film or digital images.

$10,000 - First Prize
for the best 5 images
1,000 bottles of beer
for the best singular entry
$3000 - First prize
for the best color print
$3000 - First prize
for the best 5 slides

For more information
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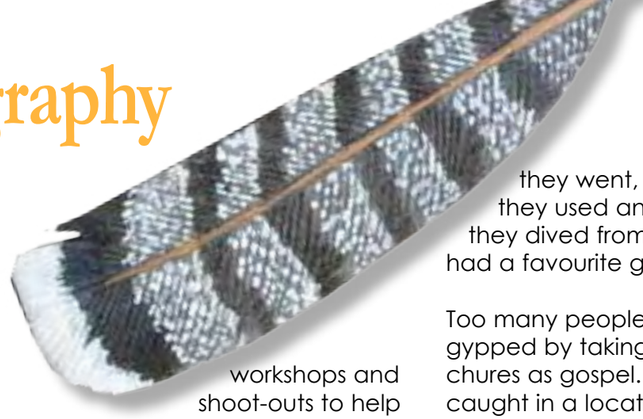


tally responsible and better yet, involved in conservation efforts, you are supporting these communities and the reefs.

Safety

The number one consideration on any dive trip should always be safety. In order to come home with great pictures, you need to come home in one piece!

Some of the basics include oxygen and first aid on board, a working radio and an able crew with local experience. If you're diving in a more remote destination, you will want to inquire about the closest recompression chamber and emergency procedures. You may even want to inquire about back-up engines and boat maintenance.

Birds of a Feather…

Some photographers choose to dive only on special photography-oriented group trips often guided by a professional photographer. Many of these trips include workshops and shoot-outs to help participants learn new techniques and approaches to their photography. Other trips simply offer the luxury of diving freedom for photographers with very specific interests. Usually the resorts or liveaboards that host these trips are very photo friendly.

And Finally…

Lets face it, we've all been caught out once or twice by wise talking sales people; don't believe everything you read about the destination in the brochure or everything you are told by the travel agent. Do your homework and travel to the right locations at the right time.

If you can, speak to photographers who are familiar with the destination you are planning to visit, find out what time of year they went, what operator they used and what boat they dived from—find out if they had a favourite guide there too.

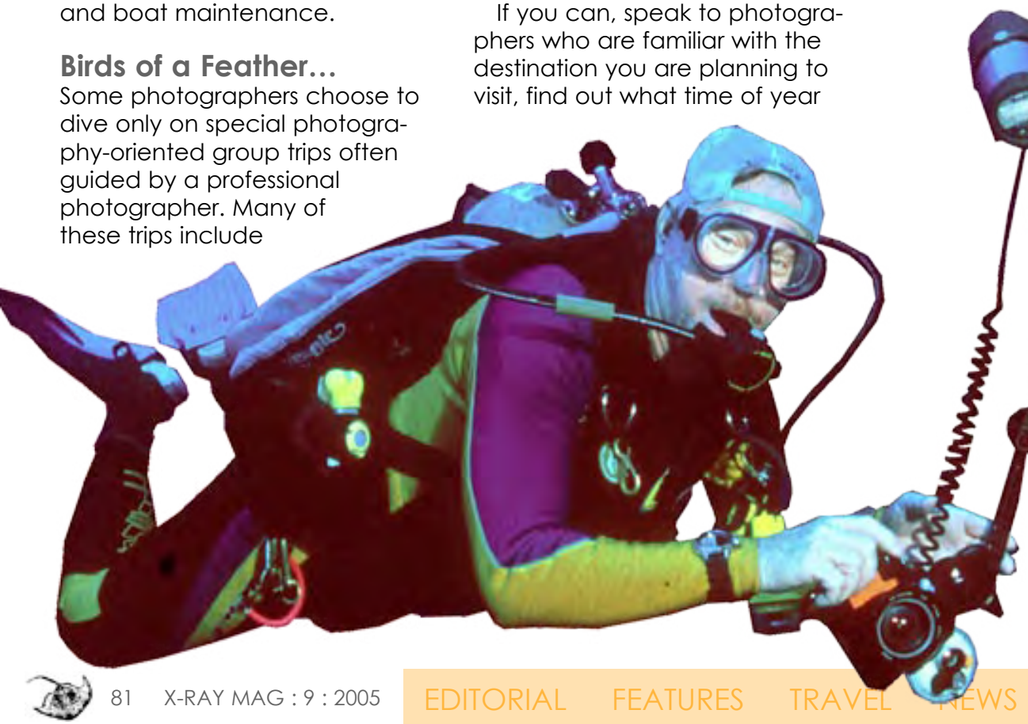
Too many people have been gypped by taking travel brochures as gospel. Don't get caught in a location during monsoon season after the reef has been plundered by local fishermen, when you were told you were visiting somewhere with year round sunshine and prolific marine life!

It's also worth bearing in mind that you can quickly build a rapport with a dive operator or guide with whom you could get discounts on future trips for diving frequently with one operator, or you could get special treatment from your guide and crew.

In most popular destinations, there is a dive operator to suit everybody's needs. However, we don't always get to plan the exact trip we want. You may need to combine your photo dive trip with a family dive trip, or a business trip.

Next time you're planning a trip, use this as a list of criteria alongside any other special requirements you have, and you'll soon be able to narrow your options down to the most photo-friendly operators.

Good luck and happy shooting!



Divers & Photographers —Ambassadors of the Sea

By Jason Heller

The inhabitants of the sea are unable to protect themselves—unable to cry for help—unable to call attention to the atrocities of man. They need representatives who can share the evidence of the silent destruction that is occurring daily in the world's oceans.

While recently diving on world famous Wolf Island in the Galapagos, home of schooling Hammerheads, White Tips, Galapagos Sharks, Turtles, Mantas, Eagle Rays and more, we found this long line fishing hook. A little research and help from photographer, Michael Aw, confirmed that this was indeed a long line tuna hook. (**www.tunahook.com/products/longline/accessories1.php3**)

Enforcement in these remote areas is difficult, and from the apparent lack of sharks at Darwin's Arch, ineffective. We as divers and photographers can do our part to help. Document your findings, report any evidence of illegal fishing or reef destruction to the proper local authorities and to international groups who may be able to help.

In the interim, anyone with images of long lining, illegal fishing, shark finning or sea cucumber harvesting in the Galapagos, please contact me directly at **Jason@divephotoguide.com.**

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.

Feb. 1
Subios – (Seychelles)
► www.subios.com/en/competitions

Feb. 1
UW Images 2006 (USA)
► www.uwimages.org/2006/index.htm

Feb. 3
First Annual Wetpixel.com & DivePhotoGuide.com International Photo Competition (USA)
► www.divephotoguide.com/contest06

Feb. 15th
EPIC Photo Contest (USA)
► www.epicphotocontest.org

Feb. 25th
Fete De L'Image.Sous Marine (France)
► http://fete.image.s.marine.free.fr

March 31st
Wildlife Photographer of the Year Competition (UK)
► www.nhm.ac.uk/visit-us/whats-on/temporary-exhibitions/wpy/comp-index.html

March 31st
Asian Diver & ADEX 2006 Ocean Odyssey II (Singapore)
► www.asiandiver.com/contest/ocean_odyssey_2.pdf

media

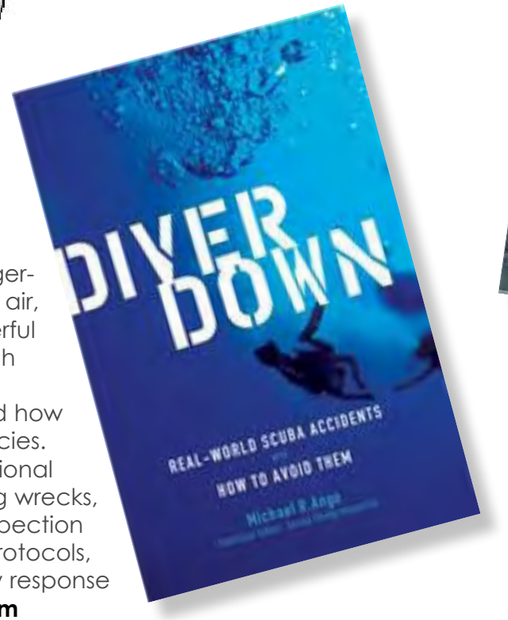
Books Film DVDs CDs

Edited by Peter Symes
& Gunild Pak Symes

POINT & CLICK ON BOLD LINKS

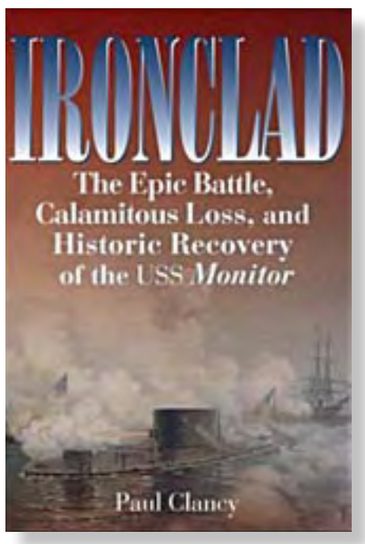
Diver Down

By Michael R. Ange
Paperback: 192 pages
Publisher: International Marine/ Ragged Mountain Press. 2006
ISBN: 0071445722
Price: US$15.95
Real life true stories of divers in dangerous situations such as running out of air, paralysis and being towed by powerful currents is covered in this book which analysises each tale, how the things went wrong, what to see, avoid and how to respond to underwater emergencies. It is a survival guide for both recreational divers and technical divers exploring wrecks, caves and deep depths. Covers inspection and maintenance of dear, safety protocols, training and practice of emergency response under duress. **books.mcgraw-hill.com**



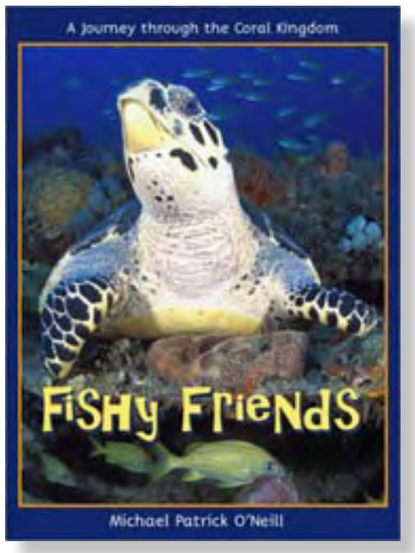
Rum Runners, U-Boats & Hurricanes

By Bryan Galecki
Perfect bound softcover: 310 pages
Publisher: Pine Belt Publishing
ISBN 0-9769223-0-4
Price US$19.95
A complete history of the 125-ft (42m) Coast Guard Cutters *Bedloe* and *Jackson* lost in the Great Atlantic Hurricane of 1944 off the coast of North Carolina, USA, while attempting to rescue the passengers of a liberty ship. Includes previously unpublished illustrations and photographs as well as a thoroughly researched history of these vessels by former diver and author, Bryan Galecki, who recounts the vessels' harrowing three-day struggle for survival and loss of 48 crewmen, record setting dive expeditions in the Great Lakes, the perils of U-boat warfare at the end of World War II from the Chesapeake Bay to the Caribbean, the vessels' roles in confronting smugglers in the 1920s off the New England coast and rum running days of Prohibition. **www.pinebeltpublishing.com**



Ironclad: Loss of the USS Monitor

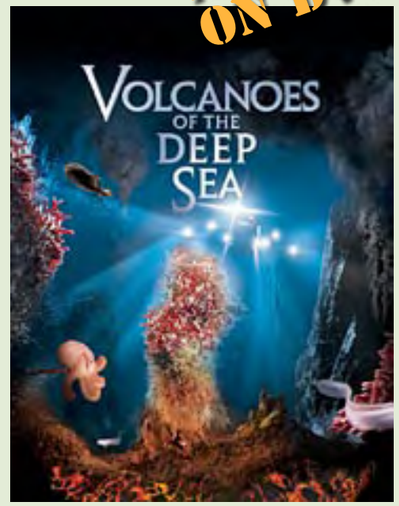
By Paul Clancy
Hardcover: 288 pages
Publisher: International Marine Publishing Company. 2005
ISBN: 0071431322
Price: US$16.47
On December 31st, 1862, The USS Monitor went down off Cape Hatteras, Virginia. Sixteen men died that day. By investigating salvaging accounts of the revolving gun turret 140 years later, author Paul Clancy raises questions about the captain's statement that there were only three men left on the ailing vessel—those that refused to come down from the gun turret, the ship's highest point. After searching through newpaper accounts and interviewing experts in coastal oceanography, Clancy adds new details and insights into the final voyage of the Monitor whose great battle with the Virginia ended in a draw and changed naval warfare by making wooden warships obsolete. **www.amazon.com** or **www.amazon.co.uk**



Fishy Friends Childrens Book

By Michael Patrick O'Neill
Hardcover: 64 pages
Publisher: Batfish Books. 2003
ISBN: 0972865306
Reading level: Ages 9-12
Price: US$13.57
Sure to please young readers, *Fishy Friends* is an entertaining and well-humoured tale of marine life brought to you by Charlie the Crab, the endearing narrator of a book by award winning photographer and writer Michael Patrick O'Neill. The book has been given strong endorsements by the editors of Ranger Rick, Smithsonian and BBC Wildlife Magazine. **www.amazon.com**

Movies NOW ON DVD



IMAX Movie: Volcanoes of the Deep Sea

Directed by Stephen Low
Narrated by Ed Harris
Written by Alex and Stephen Low
Executive Producer: J. Cameron
Studio: Image Entertainment
Run Time: 60 minutes
Genre: Short / Documentary
Few places on Earth remain veiled in mystery like the depths of the ocean where very few have seen life and even fewer visited the depths. Now, you can be there, 12,000 feet (4,000m) below the surface with Alvin, a deep-sea submersible, which makes a voyage to the Azores to explore the ever-erupting volcanic rift between North America and Europe. Visit a strange undersea world once thought not to support life, now revealed to be teaming with life... strange creatures and dramatic landscapes. State of the art lighting technology gives the film visual superiority to anything shot before. Now playing in an IMAX theatre near you, or buy the DVD. Features include various language tracks in English and French, educational video, behind-the-scenes video film facts and trivia quiz. DVD Price: US$19.99 **www.amazon.com**

media

Books Film DVDs CDs

Dive Destinations DVD

Price GB£6.95

What a package deal: *The Ultimate Dive Destinations* guide book and *Red Sea Odyssey: The Ultimate Red Sea Guide* DVD together, brought to you by BBC newsman John McIntyre in conjunction with Sport Diver UK magazine with contributions from colleagues Miranda Krestiovnikoff of Wreck Detectives and renowned underwater photographers Tony White and Lawson Wood. This year's edition covers 56 of the world's best dive sites with amaing 3D graphics and the best dive locations in the Egyptian Red Sea including Ras Mohamed, The Brothers, Zabargad, Rocky Island, Daedelus, St John's and Elphinstone. The guide captures the dramatic walls, diverse and prolific marine life, glorious turtles, rays and sharks. **www.divedestinations.co.uk**

Return of the Plankton: The Seasons Underwater in Puget Sound DVD

Produced by Still Hope Productions

Price US$30.00

Discover and identify creatures of the Pacific Northwest marine ecosystems with this 27 minute video and over 150 photographs of each creature in the film, labeled with common name, scientific name, habitat and diet. Includes supplementary study aids for instructional use. **store.nauiservicesgroup.com**

REVIEW

By Peter Symes

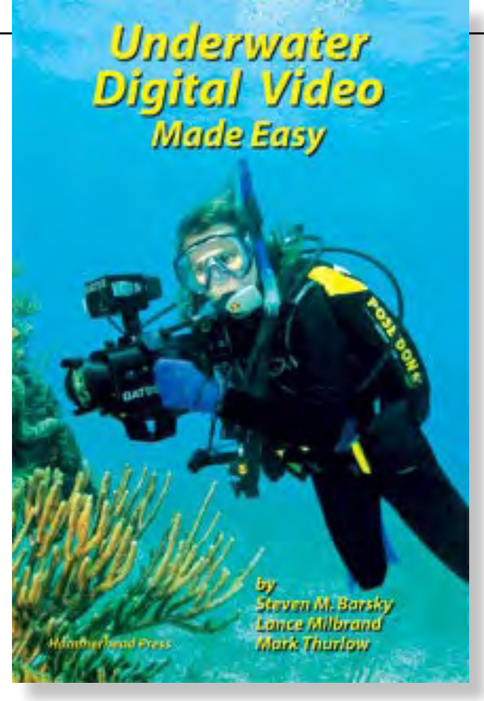
Underwater Digital Video Made Easy

By Steven M. Barsky, Lance Milbrand, and Mark Thurlow

Paperback: 192 pages, over 150 photographs and illustrations

ISBN Number: 0-9674305-5-0

Price: US$23.95



I am not an underwater videographer, but this book made me want to become one, and that speaks volumes of its qualities. It really is a high art form to write a clear, yet comprehensive "How-to" guide book without resorting to complex language or a huge volume of intricate words and technical phrases. This book is a good example of how well it can be done. There is sufficient detail, precisely balanced with brevity, presented in a pleasant flow with ease of navigation.

This guide starts at the beginning with the considerations that surround the purchase of a camera and housing, then takes the reader through a natural progression of chapters leading up to the last chapter, which addresses what you do with your finished masterpiece when you are ready to distribute it. The nine other chapters that lie in between could almost pass for a self study course textbook in underwater photography, or at least serve as a very handy reference.

Authored by the accomplished writer, videographer and commercial diver, Steve Barsky, who is the main author, with fellow dive professionals Lance Milbrand and Mark Thurlow, decades of experience are packed into the book's 190 pages including all those very valuable small tips that only come from working many years in the field. From selecting your equipment, making a story board to topside shooting, travelling tips, setting up your gear and performing a shoot with available light or setting up your own lighting, to maintenance of equipment and editing and distribution... everything you will need is here and then some. I don't quite know if I fully agree with the title of the book. Videography, it seems, as is the case with u/w photography, requires a fair bit of diligence and dedication, so can it really be made 'easy'? In any case, semantics aside, this book on underwater digital video certainly lowers the bar. ■ **www.hammerheadpress.com**

The daily journal of life in and around water
UnderwaterTimes.com

Movies *Coming Soon...*

IMAX Movie: Deep Sea 3D

Director by Howard Hall

Narrated by Johnny Depp and Kate Winslet

Score by Danny Elfman

Producers: T. Myers, M. Hall

Studio: Warner Bros. Pictures

Genre: Documentary

Release Date: March 3, 2006

Loaded with breathtaking shots of the underwater world designed specifically for the IMAX theater, *Deep Sea 3D*, is a spectacular underwater adventure from the filmmakers behind the first IMAX 3D film, *Nascar*, which grossed nearly US$23 million around the world. It is the first IMAX movie to be co-narrated by Johnny Depp and Kate Winslet with a score by award-winning composer Danny Elfman (Spiderman, Men in Black, Chicago). Directed by world-renowned underwater cinematographer, Howard Hall, the film will take you down below the ocean surface to swim with some amazing creatures ranging from the rainbow nudibranch to the giant Pacific octupus. Witness their often humorous, threatening or peculiar ways of survival. **www.imax.com**

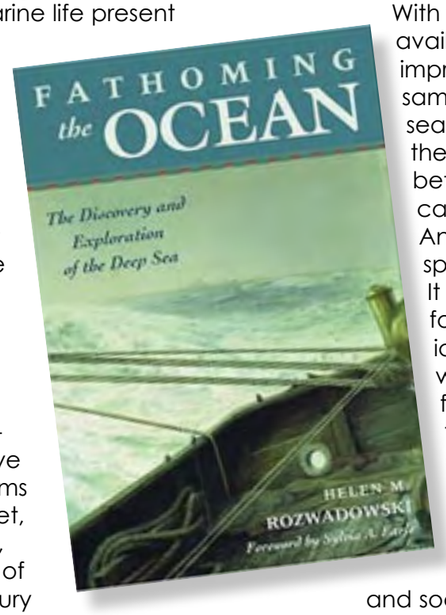
Fathoming The Ocean

The Discovery & Exploration of the Deep Sea

By Helen Rozwasowski
Hardcover: 352 page
Publisher: The Belknap Press
ISBN: 0674016912
Amazon price: GB£16.95

Reviewed by Michael Symes

Today, thanks to the efforts of Alvin and similar vessels, we know something about the wonderful marine life present in the ocean depths. At the beginning of the 19th century, some naturalists believed that they did have evidence of life at great depths. For example, Sir John Ross reported finding worms alive at 1000 fathoms (6000 feet). Yet, in spite of this, in the middle of the 19th century nearly all naturalists thought that, due to the extreme physical conditions, life reached a zero at some 300 fathoms (1800 feet) depth. Naturalists resisted in believing in life at great depths largely because no specimens surfaced to support them.



However, all this was changed when it became practically possible to dredge the oceans at great depths. One of the prime reasons behind this was the need to explore the ocean bed in order to lay telegraph cables between Europe and America. With the money available to improve the sampling of the sea bed came the spin-off of better biological sampling. And what a spin-off it was. It changed forever our idea of the world in fundemental ways; it affected not only the scientific world but also the cultural and social world.

This book describes the history of the oceans in the broadest cultural sense, and therefore for anyone who is interested in the history of exploration of the ocean depths this book has much to recommend it.
www.amazon.com ■

Sneed B Collards books for kids on life and research in the seas

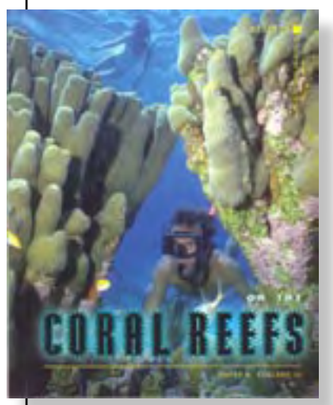
Reviewed by Michael Arvedlund, PhD

The American author Sneed B. Collard has written more than fifty books for young people, on subjects of the sea, animals and animals in the sea and how life science researchers work. His books *The Forest in the Clouds* and *Beaks!* Were both named Teacher's Choices by the international Reading Association. In the spring of 2005, Sneed was awarded the prestigious Lud Browman Award from the Friends of the University of Montana library for his lifetime achievement in science writing. Sneed is unique in his work by his research methods, which also ensures a very high level of quality in his books. Sneed says, "Unlike many other authors, I like to gather the information for my books by talking to the experts. I especially love to travel into the field with scientists to see first-hand how they work, where they work, and what they are discovering. In the past ten years alone, I've taken some unforgettable journeys to some of the world's most exotic, fabulous places."

Our Wet World

Publisher: Charlesbridge Publishing
MA, USA. 1998
Hardcover: 31 Pages
Reading level: Ages 5-10

Our Wet World introduces aquatic habitats in an excellent way for children 5 and up. The accompanying watercolor paintings are large and beautifully done and show many different aquatic habitats. This book is very suitable for the first introduction to wet habitats for children. **www.amazon.com** ■



On the Coral Reefs

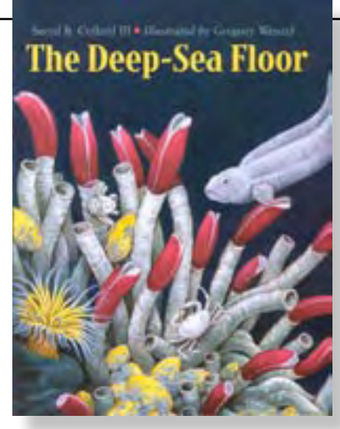
Publisher: Marshall Cavendish Publishing.
New York. USA. 2006
Hardcover: 43 Pages
Reading level: Ages 6-12

The book tells about reefs in an easy and interesting way for children, accompanied by colour photos of life on the coral reef and tells how a leading international coral reef researcher works. The foreword to the book says the following: "Every year, millions of scuba divers flock to coral reefs to explore their beauty and wonder. Scientists, too, are fascinated by coral reefs, especially with the way so many different species in the reefs depend on one another to survive. *On the Coral Reefs* takes a close look at a coral reef relationships through the eyes of Dr. Alexandra Grutter who has dedicated her career to understanding cleaner fish and their unusual relationship to the fish they clean. Her research, along with the work of other scientists, has broadened our understanding of coral reefs and increased our appreciation of these remarkable underwater ecosystems." **www.amazon.com** ■

The Deep Sea Floor

Publisher: Charlesbridge Publishing. MA, USA. 2003
Hardcover: 32 Pages
Reading level: Ages 6-12

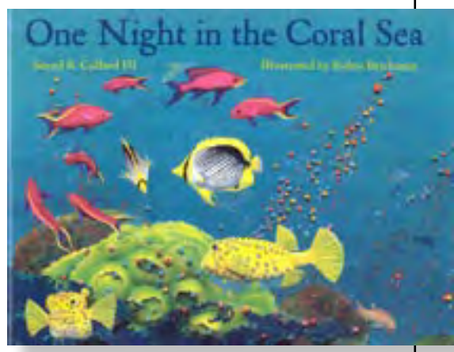
Booklist wrote the following about Collard's book about the deep sea: "One of the great frontiers of scientific discovery in recent years has been the deep-sea floor. In a brief, lucid account illustrated with many watercolor paintings, Collard explains the basics of oceanic geology, including crustal plates, abyssal plains, and trenches; the sonar technology and deep-sea submersibles that have made exploration possible; and the sometimes exotic-looking varieties of wildlife that have been observed. The short section on deep-sea vents and cold seeps offers a simple explanation of chemosynthesis and points out that not all life on Earth relies on photosynthesis. This section is a good example of highlighting a change in scientific knowledge that contradicts statements made in many older books that are still in classrooms and libraries. Wenzel's watercolors are equally effective in picturing the strange, deep-sea environment and in illustrating the specifics of geology, biology, and technology referred to in Collard's informative text. A list of recommended books and web sites will lead children to more about this alien, undersea world. A glossary is appended.
www.amazon.com ■



One Night in the Coral Sea

Sneed B. Collard,
Robin Brickman (Illustrator)
Publisher: Charlesbridge Publishing, 2005
Hardcover: 32 pages
Reading level. Ages 6-12

Children's Bookwatch wrote the following: Superbly pictured in marvellous and colorful detail by Robin Brickman's cut-paper illustrations, *One Night In The Coral Sea* by science writer Sneed B. Collard III brings Australia's Great Barrier Reef to life for young readers ages 6 to 11. It is a night in the late spring just after the full moon and something is occurring that only happens once a year. Dozens of coral species simultaneously release thousands, millions, trillions of eggs and sperm into the sea. These then form new coral polyps that will settle onto the coral reef and form new colonies, extending the reach of the reef along the Australian coast. Enthusiastically recommended for both school and community library collections, *One Night In The Coral Sea* is an entertaining as it is informative.
www.amazon.com ■

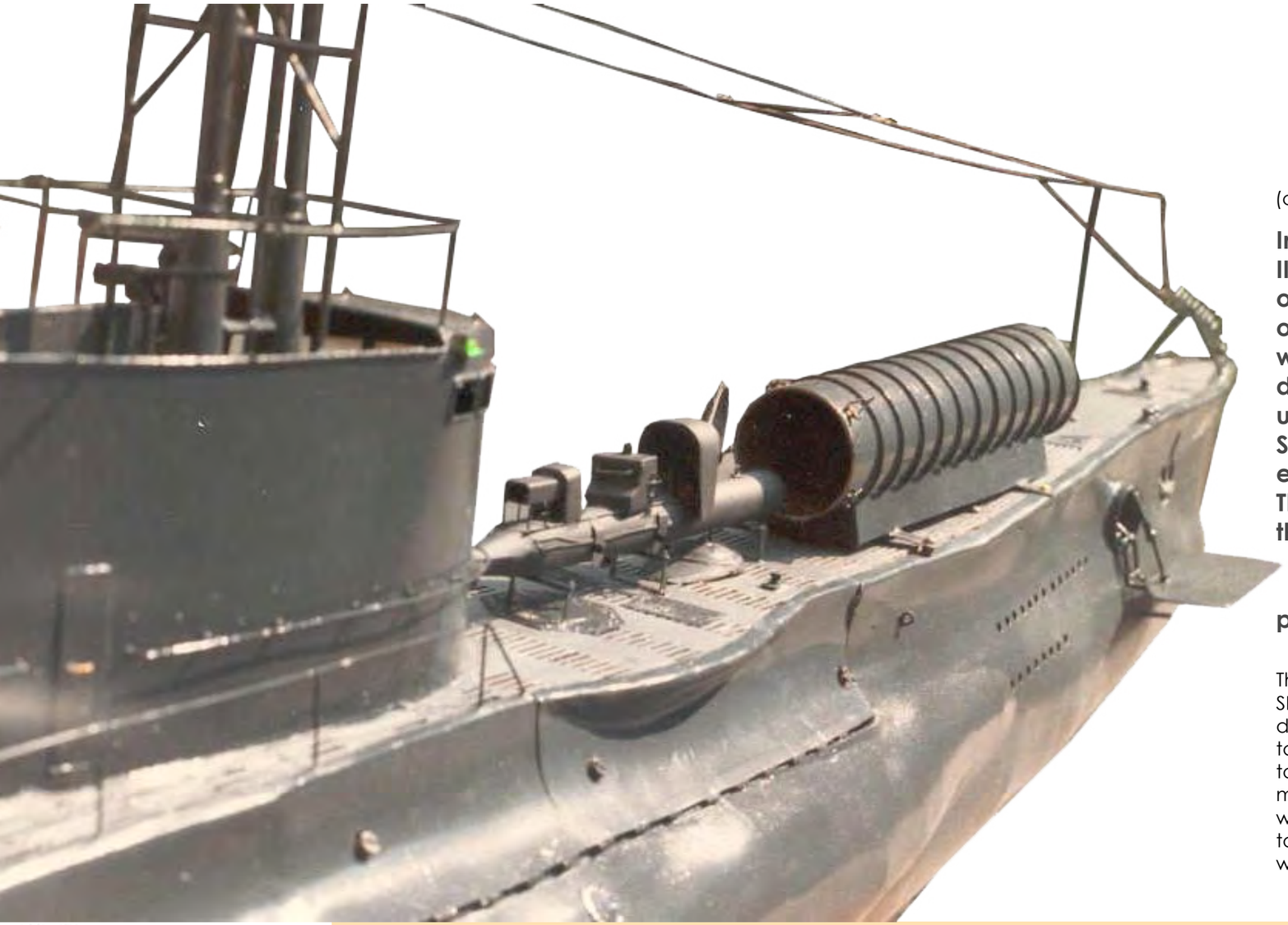


The First Frogmen 2

By Sven Erik Jørgensen - The Danish Society of Diving History

Naval operations with the SLC

(SLC: Siluro a Lenta Corsa, 'slowmoving torpedo")



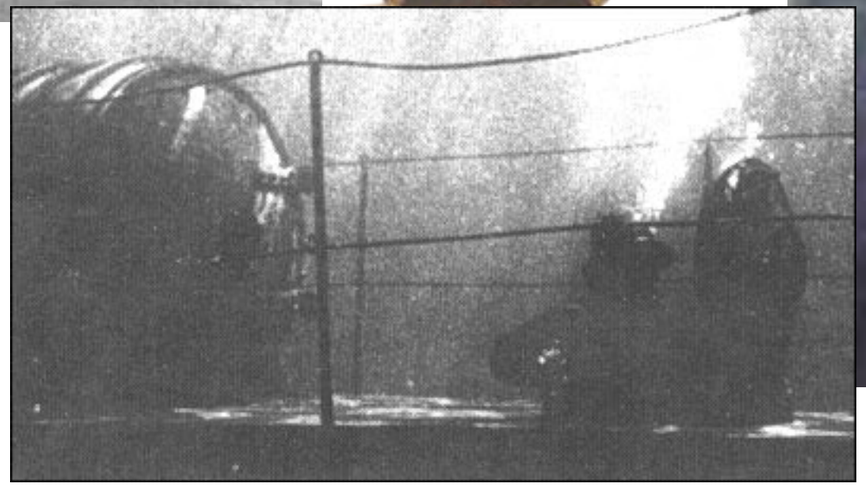
(continued and concluded from issue #7)

In the years prior to World War II, the Italian fleet had developed a new underwater weapon, the SLC, a slow torpedo which was manned by two divers. Submerged, and thereby unseen, the frogmen on the SLC could get close in to the enemy ships and mine them. The frogmen trained in attacking their own ships, and after many excercises developed a procedure for approach and placing mines under the ships.

The submarine, which transported the SLC in pressurised containers on the deck, sailed as close as possible to the target. One could then choose either to release the frogmen while the submarine was lying on the seabed or, if it were possible without being discovered, to let the submarine float to the surface with only its tower appearing above the water. As soon as the submarine was in position, and the frogmen were out, the containers were opened and the SLC drawn out. The frogmen then tested all the functions of the SLC before setting out for the target. The first part of the trip took place on the surface, when only the heads of the frogmen were above the surface. The frogmen had full face masks on but breathed through a valve in the mouthpiece out to the air in order not to deplete the oxygen stores.

The harbours were generally barred by submarine nets which the frogmen had to pass either under or over. They could also cut their way through using wire-cutters. Free from the nets and into the harbour, the frogmen picked out the chosen target by its silhouette because

The SLC sailing at the surface. To conserve breathing gas this was mode of the initial approach to the target



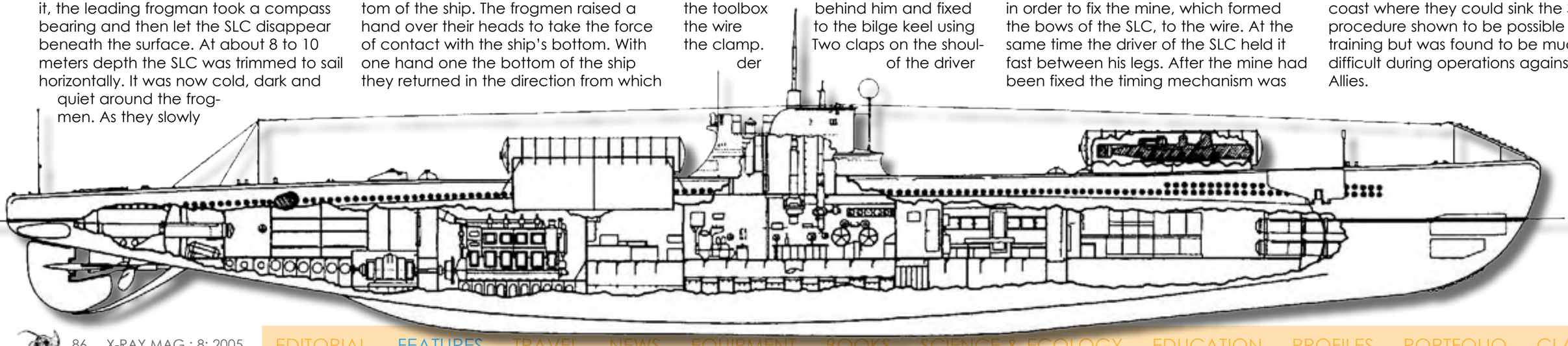
Painting by Rudolf Claudus, depicting the Italian frogmen mounting a mine on the stabilising keel of an enemy ship

the attacks took place at night. They had to get so close to the target that they could often hear and see the watch crew on the deck. During the last part of the trip on the surface the sternmost frogman lowered his head beneath the surface and breathed using his oxygen apparatus, so that there was as little as possible to be seen by any watchmen on the ships. The leading frogman then also went over to breathing using his oxygen apparatus and was ready to release the air from the tank of the SLC. In that way could they quickly disappear from the surface if it happened, for example, that a searchlight could get close and illuminate them.

Acquiring the target

When the target had been identified, and at a distance of ca 30 meters from it, the leading frogman took a compass bearing and then let the SLC disappear beneath the surface. At about 8 to 10 meters depth the SLC was trimmed to sail horizontally. It was now cold, dark and quiet around the frogmen. As they slowly sailed towards the target the frogmen kept an eye on the remaining light filtering down from the surface.

When the light disappeared they knew that they were beneath the ship. The SLC was stopped and a little air was released into the tank between the frogmen so that the SLC now had a slight positive buoyancy causing it to rise up to the bottom of the ship. The frogmen raised a hand over their heads to take the force of contact with the ship's bottom. With one hand one the bottom of the ship they returned in the direction from which they had come until the stern-most frogman felt the bilge keel. The bilge keel is a thick piece of sheet-iron which runs along both sides of the hull in order to stabilise the ship against rolling. With a clap on the shoulder of the driver the stern-most frogman told the driver that he had found the bilge keel. He quickly took a clamp and a steel wire from the toolbox behind him and fixed the wire to the bilge keel using the clamp. Two claps on the shoulder of the driver informed him that the wire was now fixed in place, and the SLC was now sailed over to the other side of the hull where the procedure was repeated. There was now a wire stretched out beneath the ship. Holding the wire the frogmen now pulled themselves to under the middle of the ship. The stern-most frogman now left his seat and crept past the driver in order to fix the mine, which formed the bows of the SLC, to the wire. At the same time the driver of the SLC held it fast between his legs. After the mine had been fixed the timing mechanism was activated. This would cause the mine to explode 2½ hours later. He then released the SLC from the mine and crept back to his seat. Three claps on the shoulder of the driver told him that the task was completed, and that it was now time to get away. It was impossible to find a way back to the submarine and the frogmen, if possible, had to try and reach a neutral coast where they could sink the SLC. This procedure shown to be possible during training but was found to be much more difficult during operations against the Allies.



Line drawing of the Scire with SLC containers on aft and fore decks

Attacking the British

On the 10th June, 1940 Italy declared war against England and France. It was now that the SLC could show what it could do. The first attack was planned for the night between the 25th and 26th August, 1940. The target was the English fleet in Alexandria. The submarine Iride took the frogmen from La Spezia to Bomba west of Tobruk, where Iride met the torpedoboat Calipso, which carried four SLC. This method of transporting the SLC was chosen in order to avoid damage to them should the submarine be forced into deep water.

On the morning of the 21st August, when the SLC were being transferred to Iride, and the submarine refuelled - ready to carry out a test dive – three English torpedo planes appeared on the horizon. They flew low over the sea and opened fire against Iride. A torpedo hit the submarine amidships and it immediately sank in 15 meters of water.

The first attack on the British naval stronghold of Alexandria was planned for August 25-26, 1940 with the support of the submarine Iride

Rescue

Calipso immediately sailed to where Iride had sunk. They found that the frogmen and some of the crew had escaped from the wreck. Without oxygen equipment – it was in the Iride - the frogmen dived down to the submarine and connected a buoy to it. A message was sent to Tobruk asking for help, and after some time a diver arrived with some diving equipment. The frogmen and the diver made contact with the survivors in the submarine using knocking signal. The crew of the submarine signalled that the external hatch of the sluice could not be opened from inside.

The hatch was stuck tightly in the hatch frame by the explosion. However, the frogmen and the diver succeeded in opening the hatch but it was damaged and could not be closed tightly. The frogmen signalled to the crew of the submarine that they should open the second hatch into the hull and attempt to reach the surface. The order was discussed in the submarine but they thought that the crew preferred to remain in the submarine. It was signalled from outside to the trapped crew that they should come out within half an hour or they would be left to their fate. There was no answer.

From the deck of the Calipso the frogmen maintained a watch on the sea and hoped that the crew in the submarine would take a chance rather than await the inevitable. After some time a large amount of air was released from the submarine – the hatch had been opened – and the survivors appeared one by one on the surface after being trapped for 24 hours on the bottom of the sea.

"Enemy ship 800 meters"

The next attempt was made in September 1940. The Italians would attack two English fleet-bases simultaneously – Alexandria and Gibraltar. The submarine Gondar sailed for Alexandria and Scire for Gibraltar. After 9 days at sea the Gondar reached Alexandria on 29th September. At the time intended for the operations to start Gondar received a radio message from Rome: "The English fleet has left harbour – return to Tobruk". The disappointment was great, so close and so had the fleet left harbour. They were very close to the naval-base and probably a watch at the base had observed the submarine and raised the alarm. After just a few minutes sailing the alarm sounded on the submarine: "Enemy ship 800 meters". Gondar dived immediately, and a hunt now began during which Gondar was under constant bombardment by depth-charges, causing it to dive deeper and deeper. The hunt continued all night, and in the morning at 8 o'clock the Gondar could not take it any more and began to sink uncontrollably. All the air was blown into the tanks in order to stop the dive. It succeeded, and the Gondar stopped at 155 meters, but now an uncontrolled rise to the surface began with an ever increasing speed. The crew got ready to abandon the submarine as soon as it had reached the surface. Gondar floated on the surface for only a few minutes before it again sank. In spite of this, all the crew excepting one managed to escape from the wreck. The attacking destroyer collected up the surviving frogmen and submarine crew, among them Toschi who spent the rest of the war as a prisoner.

Depth charges being launched from British frigate

The Sinking of the Gondar. On the deck the containers for the SLCs are just visible

Attack on Gibraltar

Scire reached Gibraltar at the same time as Gondar reached Alexandria. Just 50 miles from Gibraltar and 4 hours prior to the planned attack Scire received a radio message: "The fleet has left harbour – return to La Maddalena". This time was not a success either. The English had apparently detected one of the submarines but didn't know its intentions.

They were ready for yet another attack on Gibraltar in October 1940. Under the command of Valerio Borghese the Scire would transport three SLC to Gibraltar, where they would attack the English battleships. The frogmen were the same as were recalled from the previous mission. This time the frogmen were with the Scire the whole way from La Spezia to Gibraltar. The Scire reached the Straits of Gibraltar on the 27th October. Two days later the Scire, submerged and against the strong current, succeeded in entering the Strait. Outside the Bay of Algiceras, where the fleetbase was situated, the Scire waited 70 meters down on the rocky bottom to await the coming night. Sounds could clearly be heard in the submarine from the shipping traf-

fic. In the evening the Scire sailed slowly into the bay. Only the most absolutely necessary equipment was in operation, and the crew avoided any unnecessary noise in order not to be detected. They constantly heard the noise from the screws of the patrol boats passing over them. Around midnight they were in position 3 miles from the fleet-base, and the submarine rose to the surface in order to launch the frogmen. Here they received the latest messages which stated that there were two battleships in the harbour. All was now ready, and after a short time on the surface the Scire dived again and crept out of the bay. The frogmen were now on their own. After they had completed their operation they should aim for the Spanish coast where an Italian agent awaited them and who would ensure their transport back to Italy.

Equipment breakdown

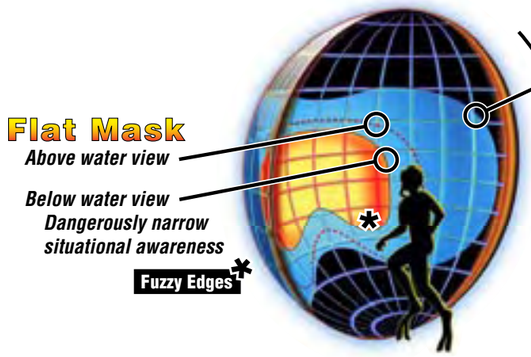
The SLC of De La Penne and Bianchi was the first to fail. After sailing for about 20 minutes De La Penne dived to avoid a searchlight. At a depth of 15 meters the engine stopped and the SLC dropped to the bottom at 40 meters. It proved impossible to restart the motor, so the frogmen swam to the surface, got rid of their oxygen equipment and began swimming towards the Spanish coast.

Tesei and Pedretti got right in to the north mole of the naval base, only to discover that one of the oxygen apparatuses was filled with water and the other had other malfunctions. The reserve apparatus also proved to be unusable. Furthermore, it was not possible to trim the SLC which was sloping downwards towards the stern. The frogmen decided to call off the operation. They dropped the explosive charge and sailed off towards the Spanish coast.

Attack on HMS Barham

Birindelli and Paccagnini also had problems in trimming the SLC. One of the oxygen apparatuses was filled with water but was substituted by the reserve. Soon after there were problems with the motor, which could only function at low revolutions. The SLC became heavier and heavier, probably because water was getting in. In spite of this, they managed to continue with the bows above the water, keeping the SLC floating. But the SLC was so inclined in the water that the sternmost frogman was beneath the surface and had to use his oxygen apparatus. In the entrance to the harbour they had to be on the surface and get past some floating barriers densely covered with iron spikes. After passing the second barrier they found the battleship Barham just 250 meters in front of them. They took at compass bearing on the battleship and let the SLC sink to the bottom 14 meters below. However, the oxygen in the sternmost frogman's apparatus was now exhausted and he had to rise to the surface. Birindelli continued along the sea bottom but the motor soon gave up. Birindelli ascended to the surface and found that he was just about 70 meters from the Barham. He immediately let himself sink to the bottom and attempted to manoeuvre the SLC under the battleship. After half an hour's hard work he was totally exhausted and his oxygen used up. He activated the fuse and ascended to the surface. He got rid of his apparatus and suit, and climed up on to the mole where he managed for a short while to keep himself hidden.. However, he was discovered and handed over to the English. Shortly afterwards the charge exploded without damaging the Barham. The rest of the frogmen reached Spain and returned from there to Italy, but Birindelli and Paccagnini were held as prisoners for the rest of the war.

Stop Tunnel-Vision!



Underwater vision perfected by the engineers NASA hired to fix the once-fuzzy Hubble Space Telescope.

"Looking in the wrong direction, lads?" HMAS Perth in Alexandria Harbour, Egypt, 1941. Source: Australian Government

HMS Barham

The submarine Scire crept into the bottom of the bay of Algeciras, where the Frogmen was dropped

10th flottila

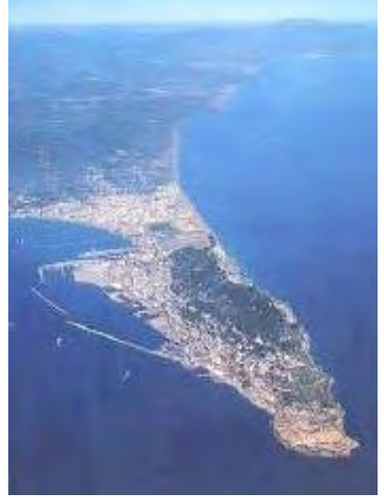
No more attempts were made with the SLC that year, and on the 15th March 1941 the 1st Light flotilla, to which the frogmen belonged, was reorganised and given the cover-name Decima Flottiglia MAS (10th Light Flotilla).

The long submarine trip was not good for the physical condition of the frogmen during the operations, and so another solution was found. In Cadiz on the coast of Spain, only 70 sea miles from Gibraltar, lay the interned Italian freighter Falcon. The frogmen were flown from Italy to Spain and billeted on the Falcon. Under cover of the night the Scire fetched the frogmen from the Falcon.

On the 25th May 1941, Valerio Borghese again sailed the Scire into the Bay of Algeciras and launched three SLCs. One of the SLC was sunk immediately, as the motor would not start. The two other SLCs now continued with three frogmen on each, but both sank close to their targets. All six frogmen reached the Spanish coast and returned to Italy. During the operation the harbour area was constantly bombarded with depth charges from patrol boats - the English had taken their precautions.

Heavy losses

Simultaneously with the underwater operations a number of surface operations with the MTM-boats were also carried out. Two SLCs took part in one of these operations, the attack against Valletta Harbour on Malta the 26th July, 1941. During this attack, which ended in a fiasco, Tesei and Pedretti were killed when they probably suicidally used their SLC to break through a steel net that was barring the way for the attack of the



Aerial view of Gibraltar

MTM-boats on the harbour. Among the many victims of the operations was also Moccagatta – the head of Decima Mas. His position as chief was temporarily filled by Valerio Borghese.

The many fiascos didn't discourage the Italians. The operations had revealed faults in the SLCs and under the leadership of Valerio Borghese the SLC underwent several modifications. The new SLCs were, however, not ready for the next operation that against Gibraltar.

After fetching the frogmen in Cadiz, Valerio Borghese again sailed the Scire into Gibraltar. Just after midnight on 20th September, 1941, the Scire surfaced and launched three SLC. They had been informed from Rome that, among others, there was a battleship and an aircraft carrier in the harbour. Vesco and Zozzolli should attack the battleship which was anchored in the harbour itself, but had to give up entering the harbour. Several times during the passage they noticed pressure-waves from depth-charges that were being dropped for their sakes. So, instead they chose another target, a freighter. The mine was suspended, and after the charge had been activated the SLC was sunk. The frogmen swam to the Spanish coast from where they could see the explosion which ripped the 2440 ton English tanker Fiona Shell into two halves.

Catalano and Giannoni were pursued by a patrol-ship and had to hide on the bottom. When the danger had finally gone the time to enter the harbour had passed, and they suspended the mine instead under a freighter. After sinking the SLC they, too, swam to the coast and from here experienced the violent explosion. The ship began to sink at the stern, but four tugs arrived and towed it aground. The ship was the armoured freighter Durham of 10,900 tons.

The SLCs had at last proved their worth, but Tesei had been killed and Toschi taken prisoner.

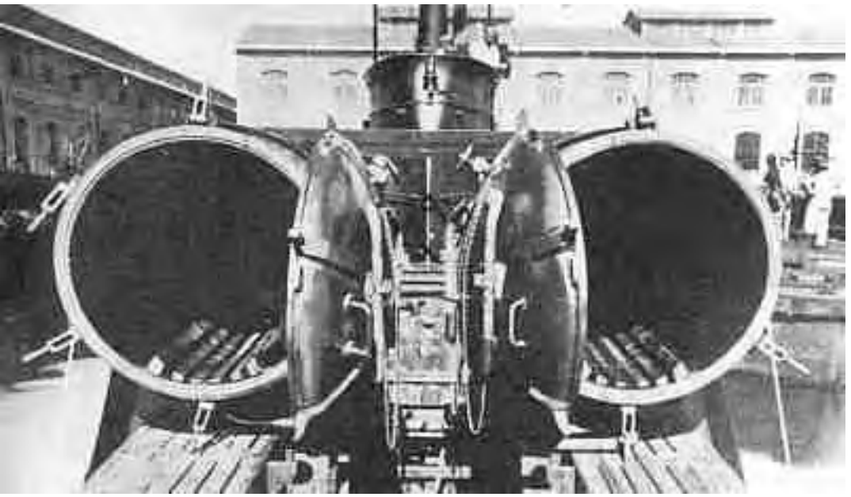
Visintini and Magro also had to dive to avoid being detected by a patrol boat. They moved towards the entrance to the harbour and passed three strong steel-wires which were probably part of the barrier to the entrance.

In spite of the constant explosions from the depth-charges at the barrier they got into the harbour where they saw a light-cruiser and four large tankers. As the cruiser lay close to the harbour entrance they gave up this as a target because of the depth-charges. Instead, they attacked one of the tankers and hoped that the consequent discharge of oil would set some of the harbour on fire. They placed the bomb under the fleet-tanker Denby Dale of 15,893 tons. From the Spanish coast they heard first a large explosion and thereafter four to five small ones. In addition to the Denby Dale, a smaller tanker, which was moored to the side of the Denby Dale, sank.

The SLCs had at last proved their worth, but Tesei had been killed and Toschi taken prisoner.

It was round about this time that Decima Mas began to train free-swimming frogmen who, in tight-fitting black rubber suits, with blackened faces behind their masks, and wearing fins on their feet, would swim in to the enemy ships and mine them. They decided on this because they saw that sinking a cargo ship with 300 kg of explosive was equivalent to using a sledge-hammer to crack a nut. A program for training gammamen was established. The best swimmers were chosen from all units and given a hard training. The gammamen would later prove their worth.

the frogmen on the Greek island of Leros, and after having passed through a minefield outside the harbour. The frogmen dressed themselves in rubber suits and oxygen equipment, and just before midnight Valerio Borghese took the Scire to the surface.



The SLC containers on Scire open

18. December 1941

The Italians were now ready for another attempt to get into the English naval base at Alexandria. The attack was carefully planned and once again it was Scire that would transport the frogmen.

The English now knew about the frogmen and had reinforced the defences of the base. As in the case with Gibraltar, depth-charges were constantly dropped at the barriers and in the harbour. On the 18th of December, 1941, Scire lay on the bottom outside Alexandria after having fetched

The containers were quickly opened, the SLC pulled out, and the Scire dived again. In the Scire's hydrophones the crew could hear that everyone was on the way to Alexandria. The night was dark and the sea calm, and about 500 meters from the mole the frogmen could see and hear people on the mole. Just as they came to the net which barred the entrance to the harbour it was opened to permit the passage of three English destroyers. The frogmen were quick, increased their speed and slipped into the harbour together with the destroyers.

Valiant

De La Penne and Bianchi should attack the 32,000 ton English battleship Valiant. The battleship was an enormous shadow in front of them. About 30 meters from the Valiant they sailed into a torpedo net, which caused the SLC to list. De La Penne was feeling the cold dreadfully, his suit was leaking and he was soaked through. Unseen, they sailed towards the battleship and right up against the side of the ship they let the SLC sink to the bottom. However, the SLC sank uncontrollably and left De La Penne on the surface.

HMS Valiant in Gibraltar

Painting by Rudolf Claudus

De La Penne dived to the bottom 17 meters down and found the SLC. He discovered that Bianchi was gone. He attempted to start the SLC but had to give up when a wire became tangled in the screw. The hard work now began of pulling the SLC in under the middle of the battleship. De La Penne could hear noise from the ship above him, and expected at any moment to be depth-charged when the English caught sight of Bianchi who must be on the surface some where or other.

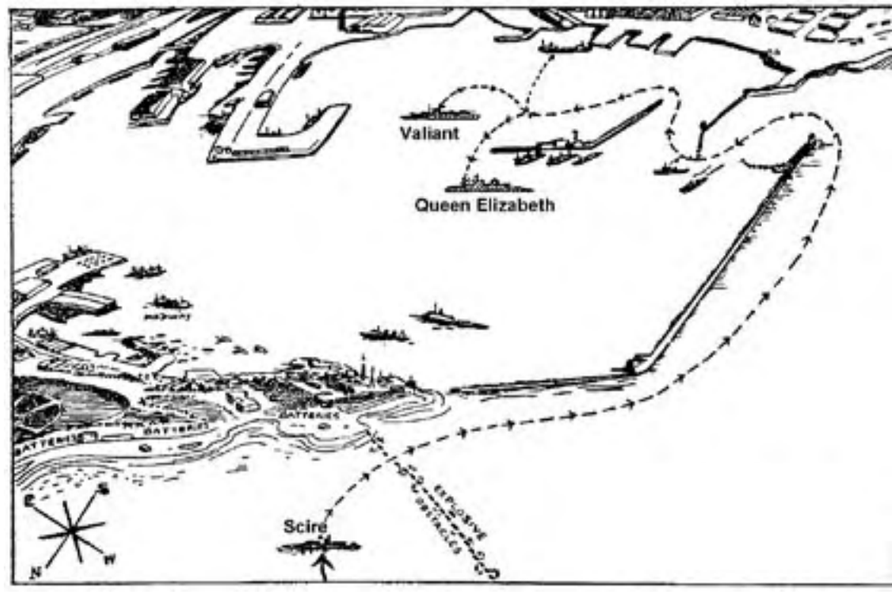
After about half an hour's work he banged his head against the bottom of the ship. He was exhausted and thought that the SLC was now well positioned. The charge was activated and he swam to the surface. Here he tore off his mask and enjoyed the fresh air. De La Penne swam immediately to a nearby buoy and found that Bianchi had had the same idea. Before he reached the buoy, however, he was caught in the beam from a search-light. A salvo from a machine-gun made him stop, and shortly afterwards both frogmen were taken up by a motorboat and brought to the Valiant. The English were quite clear about what the frogmen had been doing, and demanded to know where the charge had been placed - they received no answer. The frogmen were taken to land, and in the meantime a steel wire was dragged along the bottom of the Valiant, but to no avail because the mine lay on the sea bottom. On land it had proved impossible to get anything out of the frogmen, so it was decided to sail them back again to the Valiant, where they were interrogated by Captain Morgan. The result was the same. In an attempt to make them change their minds they were locked in a cabin below the water-line.

The English were quite clear about what the frogmen had been doing

"All men on deck"

De La Penne had kept his waterproof watch on, and as there was now 10 minutes to the explosion, he asked to speak to the Captain. He explained to Captain Morgan that the ship would be blown up in a few minutes and recommended that all men be sent on deck. As Morgan could obtain no information about where the mine was placed De La Penne was again locked in beneath the waterline. From his 'cell' De La Penne could hear the alarm and the command: "All men on deck". The explosion was violent, De La Penne was knocked off his feet, the light went out, the cell became filled with smoke, and the ship began to heel to port. He succeeded in finding a way out and got to the deck, where he met Bianchi and Captain Morgan. From the deck he could keep an eye on the other battleship, the Queen Elizabeth, which Marceglia and Schergat had intended to attack. The ship lay some 500 meters away, and he could clearly see the crew on deck. Suddenly the sea rose up around the Queen Elizabeth. Shrapnel and oil rained down over the Valiant. Marceglia and Schergat had suspended their mine directly beneath the middle of the ship. An English officer wanted to know if there were more mines under the ship – and received no answer.

The attack on Port of Alexandria Dec. 18 1941



Succes at last

Shortly afterwards, the harbour was shaken by yet another explosion; it was a 10,000 ton tanker that, together with a smaller tanker laying beside it, was sent to the bottom. Martellotta and Marinos' attack had also succeeded. The last four frogmen made for the land where, one after the other, they were discovered and arrested. They spent the rest had been the success that the Italians had been longing for – two battleships and two tankers sunk without loss of Italian life.

The submarine Ambra later carried out yet another attack against Alexandria with three SLCs. However, the operation failed, and all the frogmen spent the rest of the war as prisoners.

An English officer wanted to know if there were more mines under the ship – and received no answer

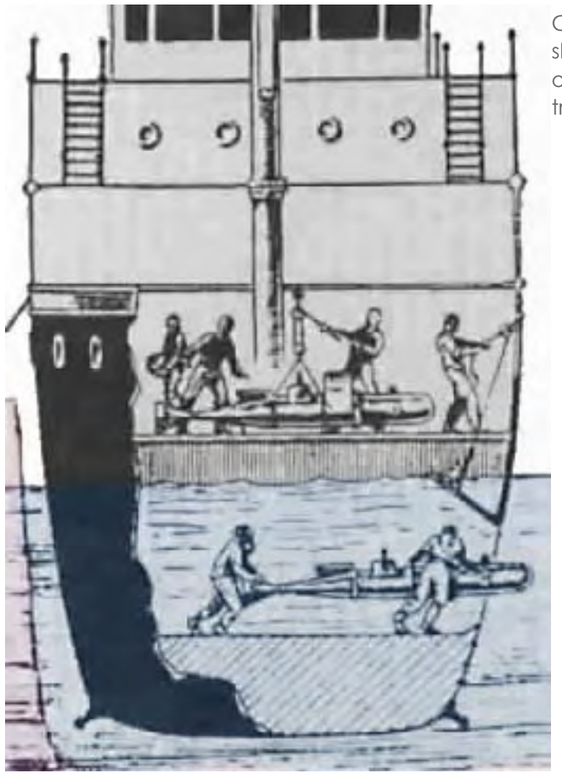
HMS Queen Elisabeth

Across bay of Algeciras

At the same time, the attacks against the allied ships in Gibraltar continued. Transport of the frogmen into the target area by submarine became more and more risky as the English increased their armaments in the Mediterranean. The Italians devised a plan.

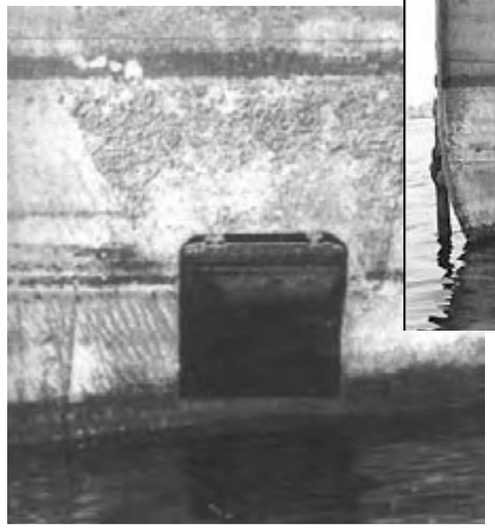
This plan concerned Antonio Ramognino, who was an officer in Decima Mas and married to the Spanish girl Signora Conchita. Claiming that Signora Conchita's poor health required fresh sea air, the pair rented a house, Villa Carmela, in the Bay of Algeciras.

From Villa Carmela there was a good view of all the allied ships anchored in the bay, and a swim of only 500 – 2,000 meters to them. For the first operation twelve gammamen were smuggled by different routes into Spain in July, 1942. On the night between the 13th and 14th July, 1942, all the gammamen were gathered together in Villa Carmela. Here they put on their suits and were equipped with oxygen apparatuses and the mines which they would fasten to the ships. Hidden by the darkness, and without being discovered by



Cutaway drawing showing the interior of the Olterra, "the trojan horse"

The hatch was below the water line



English spies, of which there were many in the area, they crept down to the coast and swam individually out to the ships. At a safe distance from the targets they utilised their oxygen equipment, and disappeared from the surface to swim in under the ships and here fix the mines. Two of the frogmen found their way back to Villa Carmela. Seven were discovered and arrested by the Spanish police when they reached the coast. The remaining three reached the coast in different places without being discovered. The arrested frogmen were, however, soon released on certain conditions agreed between the Spanish and Italian authorities. However, they didn't get off completely scotfree. One of them was hit in the foot by the screw of an English patrol boat, and another was injured by a depth-charge that exploded close to him. Even though all the mines had been placed on the targets the damage to the ships was limited. Several of the mines did not explode, and those that did explode didn't cause more damage than the English could manage to ground the ships. Four ships of in all 9,500 tons were damaged and grounded.

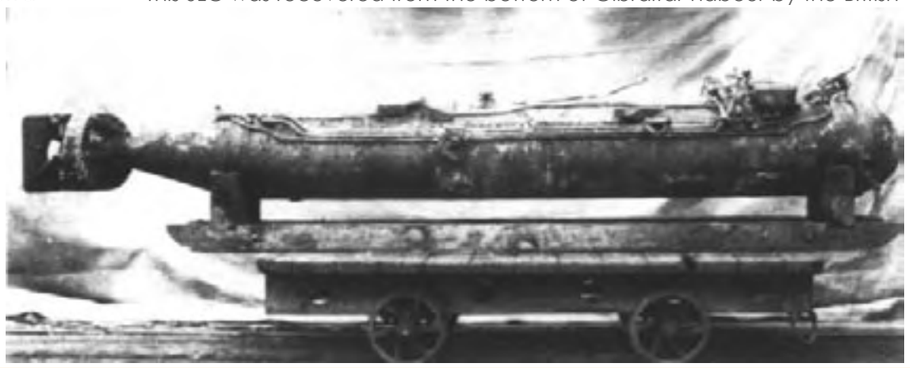
In August 1942, it was intended that the submarine Scire, which had successfully carried out several operations with the SLC, should transport eight gammamen to Haifa, where they would swim into the harbour and place mines under allied ships. The operation ended in a catastrophe for the Scire and all its crew. On the 10th August 1942, the submarine was detected outside Haifa and sunk by the English torpedo boat Islay.

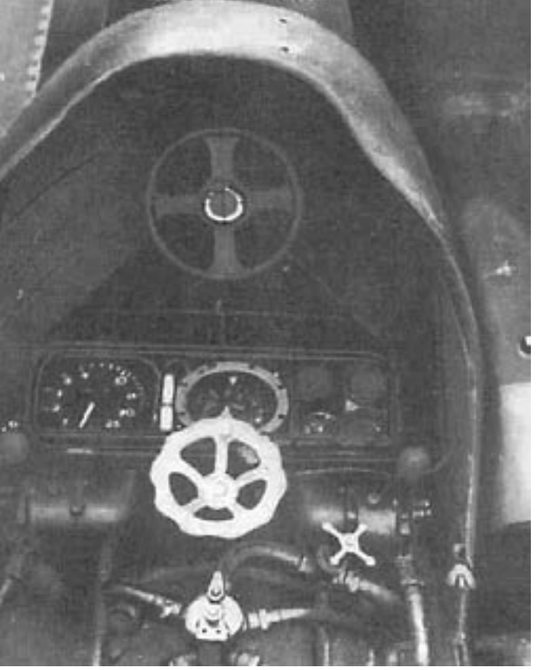
The trojan horse

Immediately across from the English naval base lay Algeciras, where the Italian freighter Olterra lay moored to the mole. At the outbreak of the war the ship had been sunk in shallow water by its Italian crew. A Spanish salvaging company had later raised the ship, and it was now laying inside the mole with a strong list and several water-filled compartments. Aboard the Olterra were Spanish guards together with a maintenance crew from the owners of the ship who, as far as possible, maintained the ship. Decima Mas saw several possibilities in the wreck, and a plan for its utilisation as a base began to take shape. Lieutenant Licio Visintini from Decima Mas was chosen to carry out the plan. Visintini hand-picked technicians and seamen from Decima Mas, and arranged for them to replace the maintenance personnel aboard the Olterra. Under Visintini's direction the Olterra was now secretly rebuilt to function as an observation post, and to house the gammamen and the SLC. Workshops were established for servicing the SLCs and re-charging of the batteries. A hatch was built under the waterline in the side of the ship, into one of the flooded compartments. The gammamen and the SLC could now leave the Olterra through this hatch, and at the end of an operation could return again unseen.

While these preparations were being made the gammamen continued their attacks from Villa Carmela. The gammamen and SLC frogmen arrived in Algeciras under the guise of being seamen , and several completely split-up SLCs were transported by car from La Spezia to Algeciras. The first operation from Olterra was carried out on 14th September,1942, by three gammamen, who swam out from the Olterra at 23:30. One of them was carried away by the current and had to land on, what was for him, an unknown coast, where he was arrested by the Spanish police. He was later returned to Villa Carmela. The two others returned to the Olterra after accidentally mining the same ship. This ship was the 1.787 ton Ravens Point. It sank at its moorings on the morning of 15th September.
The SLCs which had arrived from Italy were re-assembled and tested in the Olterra. Three of these were used in an attack on the 7th December, 1942. On one of the SLCs the frogmen ran out of oxygen in an attempt to avoid patrol boats and depth-charges. They decided to break off the operation and return to the Olterra, but when the SLC reached the Olterra there was only one frogman aboard it. The one at the stern had been lost. The second SLC penetrated right in to the mole but was detected and shot at. Although rather dazed

This SLC was recovered from the bottom of Gibraltar habour by the British





by the depth-charges, the frogmen succeeded in sinking the SLC and crawling aboard an American merchant ship. They were interrogated but didn't give away Olterra's secret. The third SLC made its way through the barriers and into the harbour but was detected and shot at. Both frogmen died. Several more, and more successful, operations followed from the Olterra. Among them was a successful attempt on 8th May, 1943, by three SLCs, to sink three ships of, in all, 19.000 tons, and return safely to the Olterra.

English minedivers

Under leadership of the English Lieutenant Lionel "Buster" Crabbe the English had established an "Underwater Working Party", who, equipped with Davis-vests, examined the ships for mines. The team succeeded in finding and removing several mines. The English knew what was going on but not where the frogmen were coming from. It was first after the capitulation of Italy on 8th September, 1943, when the English examined the Olterra, that the secret was exposed.

In December 1942 a combined operation with gammamen and SLC was carried out against Allied shipping outside Algiers. The submarine Ambra departed with three SLC and ten gammamen.

On the 10th December 1942 the Ambra lay on the bottom outside Algiers. In this operation a frogman was released, via a sluice, from the submarine with a lifeline and telephone cable in order to direct the submarine to the right position. After the submarine had been manoeuvered into place the frogman was again taken aboard through the sluice. The idea was that after the operation this observer should lead the frogmen back to the Ambra. The observer heard the frogmen but could not see them, and the Ambra had to leave the area at dawn without them. The frogmen swam into the coast where all sixteen were arrested. From 5 o'clock until 7 o'clock the following morning the harbour echoed to several explosions. And when the day was over two ships of a total of 8,667 tons lay on the bottom, and two ships of a total of 11,628 tons were badly damaged..

Turkey

Also in the Turkish harbour of Alexandretta the English ships, which were to carry chromium ore to England, were attacked by the gammamen. Luigi Farraro, a very good swimmer, was chosen for the operation. Farraro was equipped with diplomatic papers and four very heavy cases. Farraro arrived in the middle of June and introduced himself to the collective diplomatic corps in Alexandretta. On the evening of the 30th June 1943 he went down to the beach, crawled into the suit, put on the oxygen apparatus, tied two limpet mines to his belt and swam out to 7 000 tons freighter Orion, which lay in the basin. He fixed the mines to the ship and swam unseen back to land. The mines were of that type which were first armed and exploded after the ship had reached a certain speed and sailed a given distance. On the 9th July and the 1st August the ships Kaituna and Fernplant, of 4917 and 7000 tons respectively, were mined. Orion and Fernplant were sunk in open water, without any suspicion of a frogman attack. Regarding Kaituna, only one mine exploded, and the ship was run aground on Cyprus. During examination by divers the second mine was discovered.

The attacks continued until the final collapse on the 8th September 1943, when the Italian forces surrendered to the Allies or went north to join Mussolini. Together with English frogmen some of the Italian frogmen who surrendered to the Allies carried out underwater operations against the German forces. By that time the frogmen had sunk allied shipping to a total of some 200 000 tons, and they had fully proven the effectivity of the new weapon. Inspired by the Italian frogmen, the English had already established corresponding units in 1942 and built "Chariots" modelled on the Italian SLC. After the war many nations supplemented their armed forces with frogmen units.

I 1944, after De La Penne and the other frogmen had been released from captivity and sent back to Italy, De La Penne and Bianchi were decorated with a gold medal for courage under the attack on the Valiant. The man that pinned the medals to their breasts was none other than Captain Morgan who they had met a couple of years previously. He was now an Admiral and head of the Allied Naval Forces in Italy.

Today, Luigi Farraro is Honorary President for the Italian Historical Diving Society.

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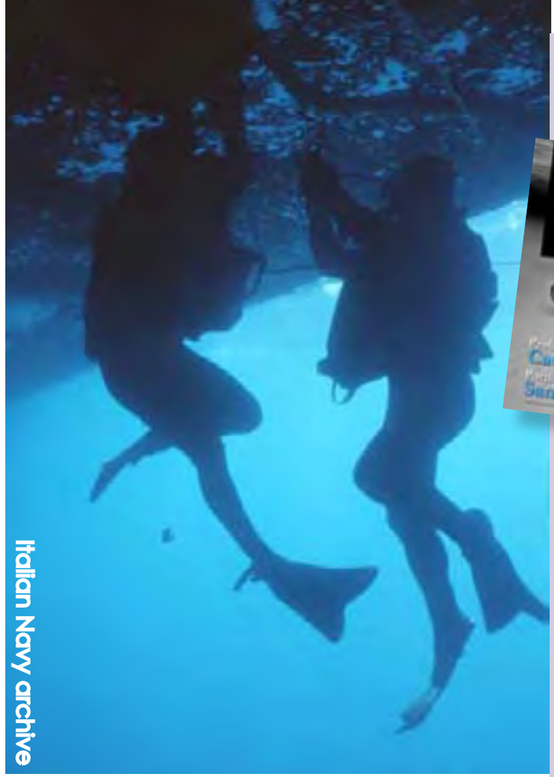
Spertini, Marco and Bagnasco, Ermino - I Mezzi D'assalto Delle X Flottiglia MAS 1940-1945, Genova 1991. Kemp, Paul - Underwater Warriors, London 1996



Today the modern Italian Navy's special forces owes it legacy to the WW2 Frogmen, the Decima Mas

Post Sciptum: In memory of

Dr. Luigi Ferraro

While this article was in production, Dr. Luigi Ferraro, one of the great Italian war heroes mentioned in this article and founder of Technisub passed away. First part of this article was published in X-Ray 7 as was a portrait of Technisub.

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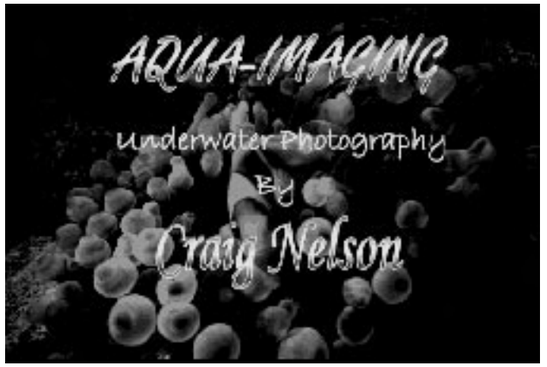
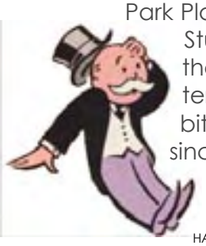


Monopoly money in the pool?

Ever tried playing Monopoly underwater? Well, a group of high school kids in Connecticut, USA,did. With the help of their science teacher, a revised game board and playing cards made for underwater conditions, members of the Plainville High School scuba club spent five hours at the bottom of their school's swimming pool playing for Boardwalk and Park Place.


HASBRO

Students said that the game underwater proved to be a bit more challenging since players can't talk with each other. "You never know what they're thinking," said Nichol Coggins, president of the school's scuba club, to the AP. Coined "Underwater Scub-Opoly" by the scuba club, the game was played by five teams taking 30 minutes each at the bottom using hand signals they learned topside to buy, sell and trade property.

Teachers of the science department said that playing the game helps students build confidence, learn about diving safely and how to work together. According to participants, the project took a lot of time and planning. Divers played with custom-made brass dice, laminated property deeds, painted washers instead of paper money and a 4 x 4 ft Plexiglas game board designed by one of the students in the scuba club. Students took the opportunity to rename some of the game's landmarks to famous Caribbean dive locations and change expressions such as "Go to Jail" to "Go to the Recompression Chamber". The Plainville High School scuba club is one of only a handful in the country that play underwater Monopoly. ■

BOB CHILD, AP

New Champion Emerges in Extreme Underwater Poker

Making poker history in December, Juha Helppi outwitted opponents to win the first ever underwater poker tournament 30 feet (10m) below sea level off the coast of St. Kitts. InterPoker.com Extreme Poker Champion Helppi defeated the professional likes of Phil Laak and Kenna James as well as Louis H., an Internet qualifier from Denmark, and Peter Marcus, InterPoker.com spokesperson.

"After Juha's amazing performance today, I challenge anyone to argue that poker is not a sport, and that Extreme Underwater Poker should not be admitted into the Olympic games," said Marcus to All Headline News.

The champ said the tournament was one of the most challenging in which he has participated not only because of competing against top players such as Laak and James, but also because he had to battle distractions such as stingrays and a leaky mask. The players met on the sea floor over a submerged weighted poker table and played with waterproof cards and traditional chips. Tournament spectators, including WSOP champs Kathy Liebert and Todd Whiteles, watched silently while snorkelling on the surface. ■

Wet & Weird

News edited by Gunild Symes

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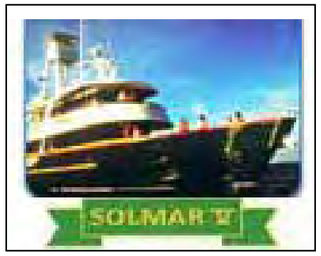
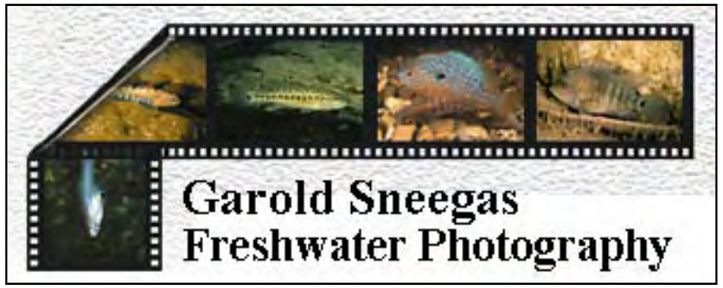
OceanCollege

EAGLEHAWK DIVE CENTRE





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Wet & Weird

News edited by Gunild Symes

Trawling for whiskey?

Off the coast of England, three separate shrimp boats netted more than shrimp with their catch—Carolans Irish Cream Liqueur showed up on their decks. About 8000 packs of the fancy spirits from Kilkeel in County Down and Clogherhead in County Louth came with two serving glasses per packet.

Worth close to GB£128,000, C & C International, which makes the liqueur, said to BBC News that they were delighted to hear that the liqueur gift packs had been recovered preserved and intact after nearly a month in the sea. Apparently, a 40ft container of the products fell off the deck of cargo ship during a storm in the Bay of Biscay. The items were bound for market in Spain for the Christmas season but were swept away instead by the current to the area off the west coast of England called "The Smalls". Made in the heart of Irish cow country, Carolans Irish Cream is named after Ireland's renowned 17th century harpist, Turlough O'Carolan, and is said to be the world's second most popular Irish cream liqueur. ■

C&C

NOAA

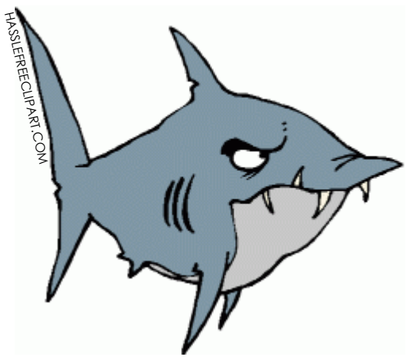
Deep Sea Water Bar to open in Waikiki

Yes, you heard right. They are bottling sea water now, desalinated, of course. MaHaLo Deep Sea Water is selling the first commercially available bottled, desalinated ocean water in the United States. Already a hot item in Japan selling for up to US$6.00 per bottle, the company sells 500ml bottles at $2 a pop, $4.50 for a 1.5 liter bottle, and for a dollar more, you can have the water made into coffee or tea at the bar, so that you can notice the difference in taste. The company, Koyo USA Corporation, claims that the taste is better and the water, which is collected from a depth of over 3,000 feet (1000m) off the coast of Kona, Hawaii, is some of the purest one can find on the planet. Other virtues include minerals and nutrients in proportions similar to those found in the human body's blood, hence aborbed more readily according to the company website. Koyo has obtained clearance to sell the product in the US from the Food and Drug Administration. ■

WWW.HAWAIIDEEPSEAWATER.COM

What's next: Underwater traffic lights?

The two notorious cold war rivals, Russia and the US, whose governments were suspected to have spied upon one another with secret subs and other vessels in each other's waters for decades, are now coming together to discuss underwater seafaring in order to prevent accidents at sea and in airspace. The Russian navy headquarters told Interfax that significant negotiations were made on intergovernmental agreements in the regulation of underwater travel and navigation in November. ■



COP ILLUSTRATION BY GUNILD PAK SYMES

Ray Troll

Text by Gunild Pak Symes
Images by Ray Troll

Freshwater Riches of the Amazon

"In the fall of 1997, I travelled a thousand miles down the Amazon River on assignment for Natural History Magazine with my buddy and co-conspirator Brad Matsen. Dr Kirk Johnson of the Denver Museum of Natural History arranged the river trip and filled the boat with several of his pals.

I was so inspired by the incredible diversity of fishes and the experience that I wanted to do the main magazine illustration mural-sized. I stretched up a piece of canvas 7 feet by 15 feet and started painting."

— Ray Troll

Portfolio

Ray Troll

TOP: *Angel Sharks*
BOTTOM: *Iniopterygians*

TOP: *Cookiecutter Sharks*
BOTTOM: *River Rays*

TOP: *Scissortooth Sharks*
BOTTOM: *Kidney Headed Sharks*

Ray Troll, 51, was born in Corning, New York State, USA. His father was in the US Air Force, so his family moved quite frequently, perhaps eleven times as Ray grew up. His father moved the family to live in Japan and Puerto Rico. It was in Puerto Rico that Ray fell in love with the ocean.

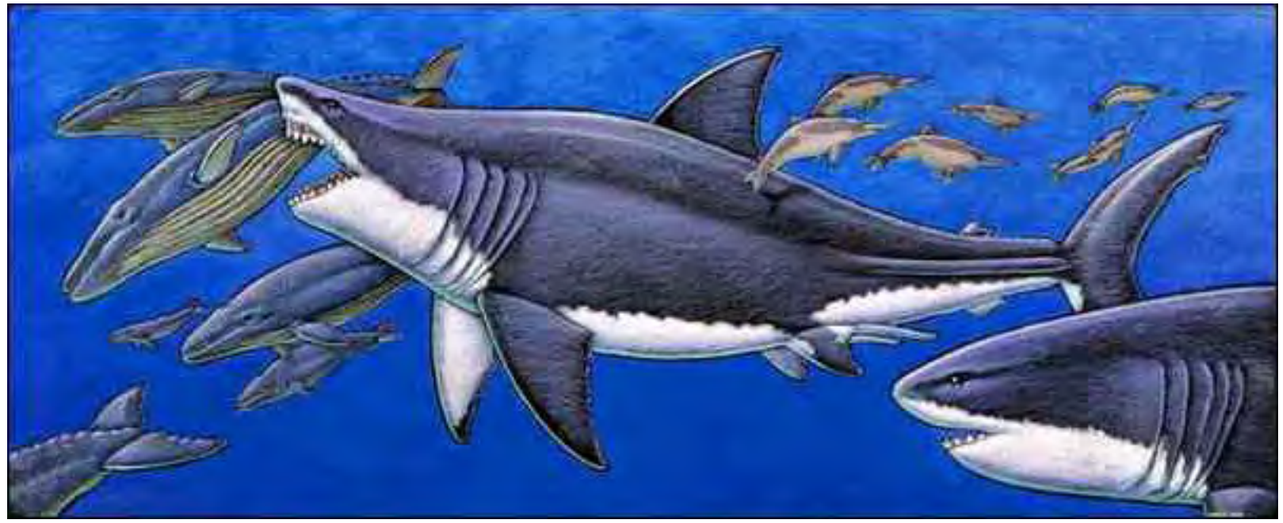
"I was 10-13 years old, when we moved there from Pennsylvania and plunked down in a tropical island," said Ray, "We lived in a house on a cliff right above the ocean. I'd hop over the fence and hike down to the beach, look at the tide pools and poke around at the fish."

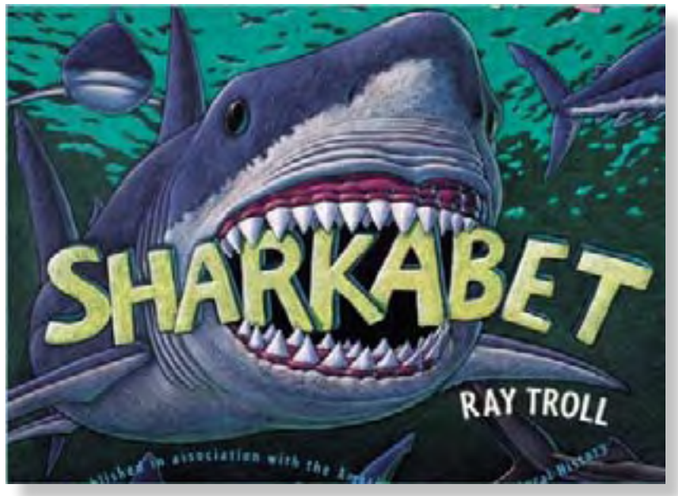
Ray always knew he would become an artist when he grew up. His art career started at age four or five when he would make his own creations with whatever materials laid around the house. He graduated from high school and college in Kansas and finished his graduate education in studio art and painting at Washington State University. Now, he works primarily with drawing materials, a lot of coloured pencil. Ray said, "It's faster and easier to think with pencil." But he likes to change medium now and then, switching from linoleum block prints to acrylics and back to drawing materials.

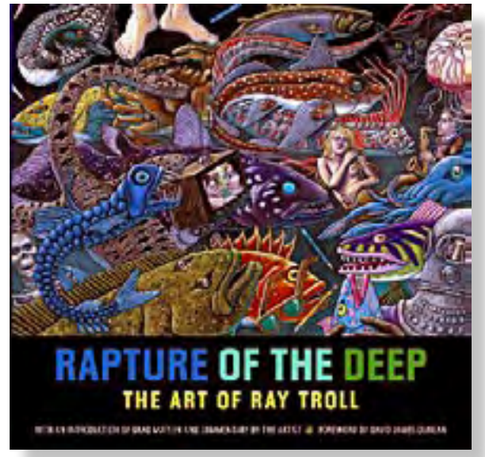
In 1983, Ray went to Alaska to work at his sister's fish store on the dock for the summer. As he sold fish and handled them all day long, he started observing them carefully. Fish had always appeared in his artwork, but in a lesser role and rendered very stylistically. As the artist looked closer and closer at the fish he handled, the more interesting they became to him. And so did Alaska, where he still lives to this day.

Ancient fish

Ray said his first love in life was dinosaurs, like any five-year-old boy at the time. When he became interested in fish, he quickly realized that the material in books about ancient fish was minimal. So, Ray visited museums and unexplored niches to find out







CLOCKWISE FROM TOP LEFT:
Heliocoprion Shark
Megalodon Shark
Ray Troll with shark jaws

Book cover: *Rapture of the Deep: The Art of Ray Troll*
Planet Ocean
Book cover: *Sharkabet: A Sea of Sharks from A to Z*
To order the book, go to the following link:
www.trollart.com

more about old fish. Ray said, "I followed the trail that others had who studied these animals." Soon, he was talking to leading experts and researchers in the field to get more information about certain extinct fish species.

In Ray's investigation of ancient fishes, the *Helicoprion*, or Whorl Tooth Shark, captured his imagination. Ray said, "I thought the spiral of the mouth of this shark was beautiful." He pursued the trail of this ancient fish to Dr Svend Erik Bendix-Almgreen, a Danish researcher who is one of the foremost experts on the species. Ray realized that not many people knew very much about this ancient shark species and decided to put a face on the fossil record. Once created, he sent it to Dr Bendix-Almgreen who approved of the rendering. Even though all science has is the head of the fossil, Ray was able to put a relatively realistic body to the face with research on similar species.

Ray's fascination for sharks, ancient and present-day, led to a children's book and museum exhibit entitled *Sharkabet: A sea of sharks from A to Z*, which was on display in 2005 at the Miami Museum of Science in Florida, USA, and eight other museum venues in the United Sates over 5 years.

Rapture of the Deep: The Art of Ray Troll
To order the book, go to the following link:
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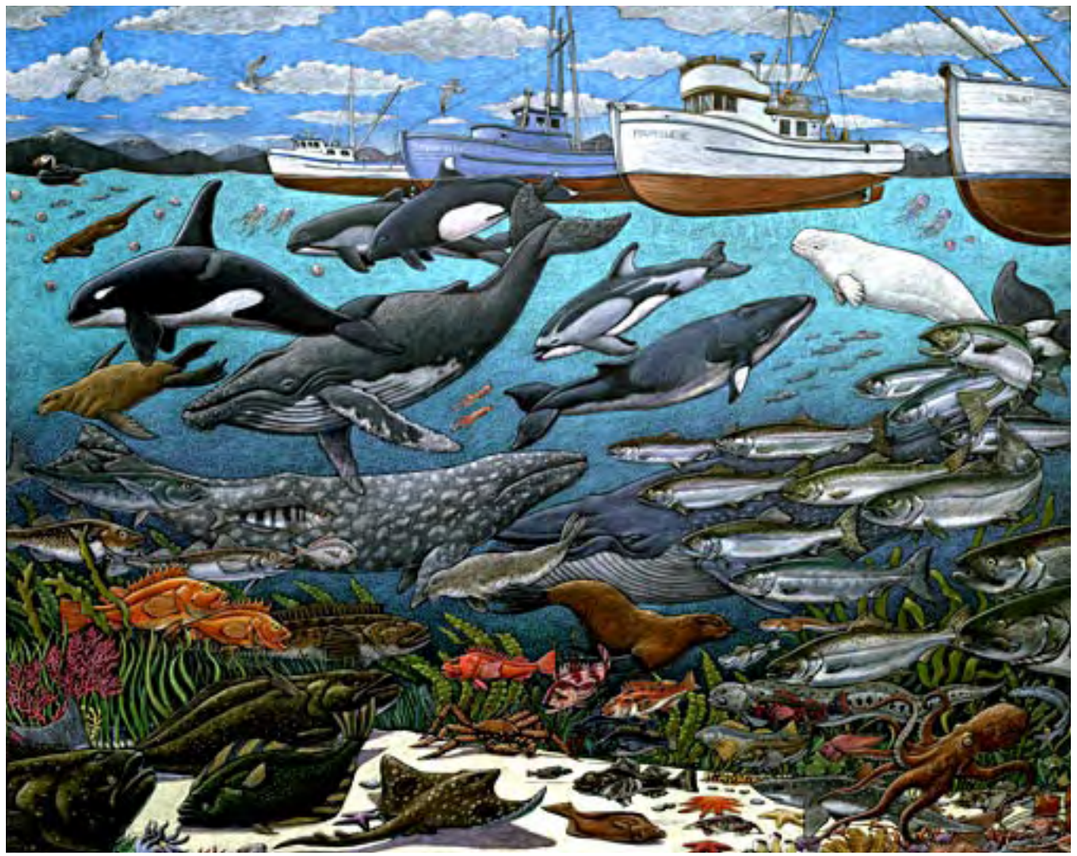
Ray Troll

A MOONLIT NIGHT SOMEWHERE NEAR THE TOWN OF KREMMLING, COLORADO SEVENTY THREE MILLION YEARS AGO



Going under

Ray does some snorkelling to get a better look at the fish. He wanted to learn scuba diving, but his ears prevented him from continuing down that road. Now, he hopes to get the chance to get inside a submersible, so he can study up close and personal, the fantastic underwater life that fasci-

CLOCKWISE FROM TOP LEFT:
Night of the Ammonites
Ray Troll with shark jaws
I've Been Walking on the Whale Road
North Pacific Marine Life

TROLL'S T-SHIRTS

www.trollart.com

ABOVE:
Careful What You Fish For
Dark Heather t-shirt for adults and kids, S, M, L sizes. Price US$18-27

LEFT:
A Whale of a Time
Ash t-shirt for kids, S, M, L sizes. Price US$18

BELOW:
A Woman Needs a Man Like a Fish Needs a Bicycle. Jewel neck white t-shirt for women, S-XL Price US$20

Find these t-shirts and many other styles for men, women and children at Ray Troll's online store where you can buy prints, posters, books, caps, tote bags, stickers, shark game cards and mugs directly from the artist.

www.trollart.com

Ray Troll

nates him without risking the health of his ears.

In 1997, Ray got a chance to see a whole other world of underwater life in Brazil. There, he found a great variety of new fish to gawk at and study for future paintings. Ray said, "The water is red. It's like snorkelling in red wine. Very surreal-looking. The red comes from the tannin from the bark of the trees. What's so amazing is there are different colour waters in each tributary. The Rio Negro is the clear part, but at other points, it is deep, deep brown, super bright red, with white sandy beaches, or there are places where the bottom is covered with leaves like a big leaf bank."

Ray was there three times for about two and half weeks each. Ray found interesting and dangerous critters to study. Electric eels were some. "They like the clear water too. It's just so beautiful. But wait a minute, there are electric eels!" said Ray. He had a close encounter with an electric eel. "No, I wasn't hurt, but you tend to swim away very quickly."

Ray and his team took early morning snorkelling dives where he found armoured catfish. "There are so many variations of them. They look very ancient. They almost look like a trilobites. They are not the fastest fish around, so it is easy to get a good look at them," said Ray.

ABOVE:
D is for Dogfish

LEFT TO RIGHT:
Ocean Planet
Rockfish

A Fish called Troll?

In 2002, Ray had the dubious honour of having a ratfish species named after him by Dr Dominique Didier Dagit.

"Every now and then you come across a fish that just doesn't look like the rest. And so you just trust the visual sense. I am pretty drawn to that. It's just different. When I first caught one, I thought to myself, 'What the heck is that?' said Ray. The research trail led Ray to the expert on ratfish, 'Dr Dominique', who is the world expert on chimeras. "I got to be friends with her and we ended up doing rap songs about ratfish," Ray said.

Through researching the ratfish, which is a distant relative of the shark, Ray found out that the ratfish dates back 350 million years. "And they're still around!" exclaimed Ray.

Swimming With The Tetras, Amazon Voyage

He spread the word and images of ratfish to anyone who would look or listen. "So, to reward me for raising awareness about ratfish around the world, she named a species after me," said Ray. Dr Dominique named the ratfish, *Hydrolagus trolli*, which is unique for its lavender colour and longer than average nose according to the expert. It was found 3,000 feet (1000m) off the coasts of New Caledonia and New Zealand.

"What's cool about ratfish is that they look like a science experiment gone wrong," said Ray. He is fascinated with how old the species really is. He said that most fish are recent arrivals in comparison, even the shark, which most people consider very old indeed, actually evolved after the dinosaurs, but ratfish, well, they have been around a lot longer. "Ratfish are virtually unchanged," said Ray, "They are like visitors from another world."

About the art

"I always love working from first hand experience. I am somewhat limited, and I would like to get into a submersible someday. I snorkel and I fish where I live here in Ketchikan. I am looking at the Pacific from here right now where I sit. But through my relationships with scientists and commercial fishermen, I am able to learn more about the deep. The fascination with the unknown is what drives us on. What about this and what about that.. Following your nose, as we say…

"While I respect really good scientific illustration, I like to bring a message into my work and engage my emotions and bring other things to it. A little bit of philosophy and mystery makes the image that you glance at make you want to know more. That is what good art does. It asks the questions and makes you look at it more closely and think about it," said Ray.

What's next?

Ray is off to the Florida Keys to swim with hammerheads. He was invited by Dr Jose Castro to seek out the creatures and learn more about them. Ray said if he lives through the experience, he'll have more to say about the sharks he loves and share images to capture the imagination as well. ■

IN OUR NEXT ISSUE

Diving in Norway
Wrecks of Japan
Crossing the Atlantic

ARNE ERIKSON

SCOTT BENNETT

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