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Jan-Feb 2011
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California
Channel Islands

Russia
Kamchatka

Bahamas
Nassau

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**Shooting
Under
Decks**

Wrecks
Kwajalein

Portfolio
Alex Vanzetti

MEDITERRANEAN

GOZO Island

DIRECTORY

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COVER PHOTO: *Giant Kelp (Macrocystis pyrifera)*,
Santa Catalina Island, California, by Matthew Meier

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Pair of orcas, Komchatka, Russia. Photo by Andrey Bizyukin



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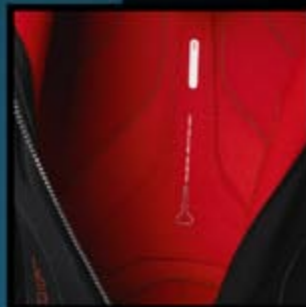
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Grandma's Wisdom

—Dress Right for the Occasion

Editorial

"Out you go," my grandmother said as she shooed me out the door to play in the snow. "There is no such thing as bad weather, only bad clothing." The resurgence of icy winters with plenty of snow in these parts have brought back memories of a childhood where sledding and skating and having all sorts of fun in the snow and on the ice was as natural as playing ball in the yard during the summer.

"What does all this have to do with diving?" the attentive reader may ask. The job of editing this digital magazine—and before that, a print magazine—has, over the years, taken me to countless dive expos in Europe, America and Asia as well as on some dive trips that have given me some unique and unforgettable experiences. On many of these trips—as I get into conversations with fellow travelers and they find out what I do for a living—I invariably get asked about my opinion on this and that and, in particular, what my favourite dive destination is.

It is an obvious question to ask but one I always find nearly impossible to answer. It's like asking me whether I like sushi better

than ice cream. I like both, but for different occasions and different moods. I feel the same way about dive trips and locations.

There are, fortunately, so many unique and beautiful places on this planet. We can only hope to sample a variety of them.

And variety is what it is all about for me, so I enjoy cold water diving as much, perhaps even a

"There is no such thing as bad weather, only bad clothing."

little bit more, than warm water diving—a little bit more perhaps... because when I go diving here in my native Scandinavia, I can better relate to the surrounding nature. It may not be as colourful or diverse as Raja Ampat or the west coast of Norway, but I see marine life with which I have been familiar since I was a child, when fish species such as cod and flounder were frequently on the dinner table (alas, not any more thanks to overfishing and depletion of fish stocks).

But when I speak about the virtues of cold water diving, especially when I have such conversations in places with a warm climate, I am often met with this somewhat perplexed or mildly sceptical look. "Oh, that is too

cold for me," they say. Well, you would not go skiing wearing just shorts and a t-shirt, would you now?

In actuality, I am never cold when I go cold water diving. Even with ice flows drifting around, I am usually toasty and happy as a clam, because I wear a drysuit with proper insulation underneath. In fact, it often makes me feel like a seal with blubber. By contrast, I often get chilled where I am somewhere tropical, and I have to resort to a flimsy rental wetsuit or shortie.

No climate zone, not even the polar regions—which, by the way, were recently prominently featured in issue #37—is too cold for diving. It is only a matter of having the proper equipment, or as my grandmother might have put it, "There's no such thing as water too cold to dive, only inadequate equipment."

So, what my recommendation boils down to is, do not let the lack of equipment stand in the way of going to places and having experiences that will enrich your life and broaden your horizons.

— Peter Symes, Editor-in-Chief



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Valentines from the Sea

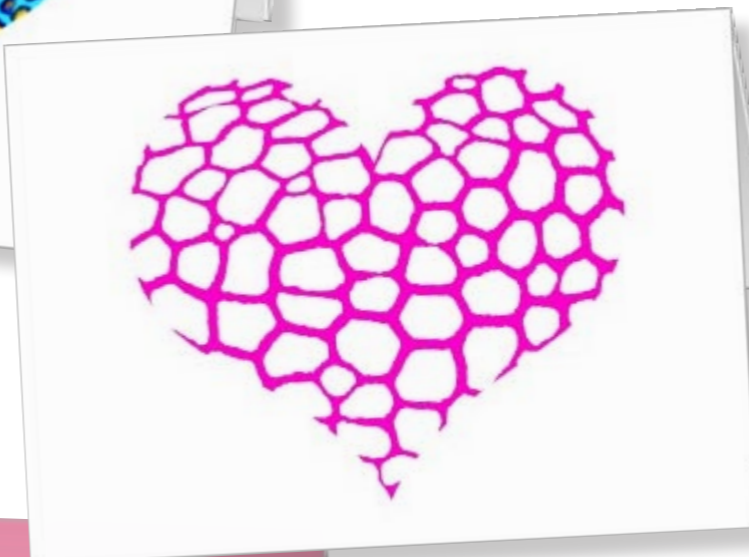


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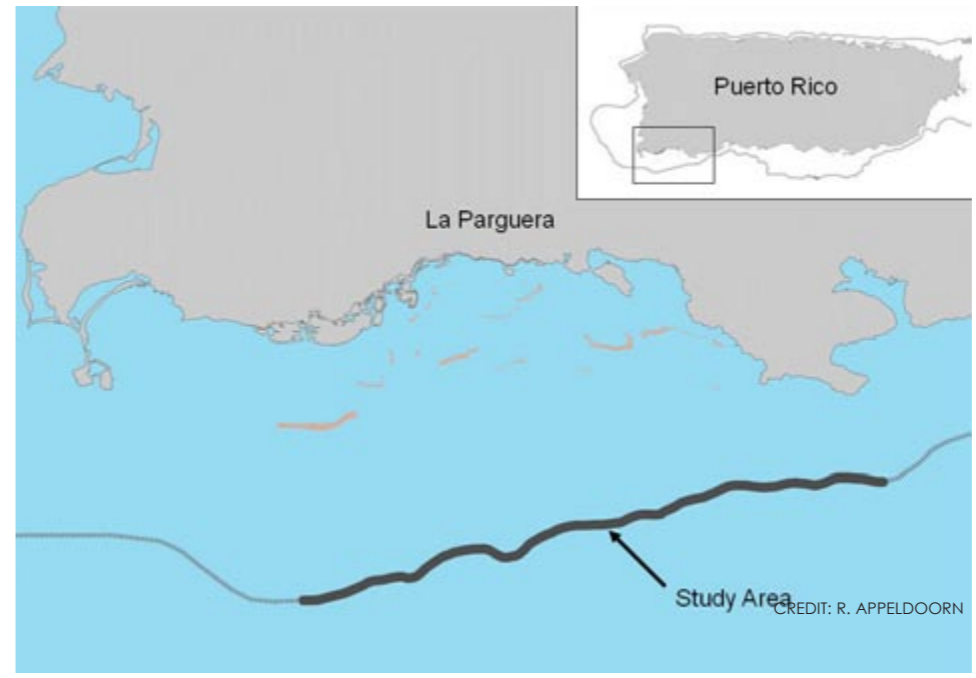
News edited by Peter Symes & Scott Bennett

Egads! NEWS



Bright blue ascidians, known as sea squirts, are found thriving at 50 meters (164 feet) among corals, light green algae (Lobophora), and red, orange, and brown sponges

Thriving 'middle light' reefs found in Puerto Rico



Map of the southwestern coast of Puerto Rico showing the study area (dark gray line) where extensive mesophotic coral ecosystems were found. Light gray line represents the Puerto Rico Virgin Islands shelf. Scientists suspect that mesophotic corals may exist along other portions of this shelf

NOAA-funded scientists have found extensive and biologically diverse coral ecosystems occurring at depths between 100-500 feet within a 12 mile span off the southwestern coast of Puerto Rico. With the overall health of shallow coral reefs and the abundance of reef fish in Puerto Rico in decline, this finding brings hope that deeper fish stocks may help to replenish stocks on shallower reefs.

These mesophotic ecosystems—*meso* for middle and *photoc* for light—are the deepest of the light-dependent coral reefs. Too deep for exploration with traditional scuba gear, these reefs have until recently remained largely unexplored because of the cost and technical difficulty of reaching them. Advances in diving techniques allowed scientists to safely dive and conduct this pioneering survey.

"We had no idea how extensive, vibrant and diverse these mesophotic coral ecosystems are off La Parguera," said Richard Appeldoorn,

lead principal investigator at the University of Puerto Rico, Mayaguez.

At mesophotic depths in Puerto Rico, scientists are seeing fish species that were once common inhabitants of shallow reefs such as groupers, snappers and reef sharks," said Kimberly Puglise with NOAA's Center for Sponsored Coastal Ocean Research, which funded the study. "These reefs stand in stark contrast to declining shallow water reefs in the same area."

Because of the potential of mesophotic reefs to restore depleted fish stocks, local manag-



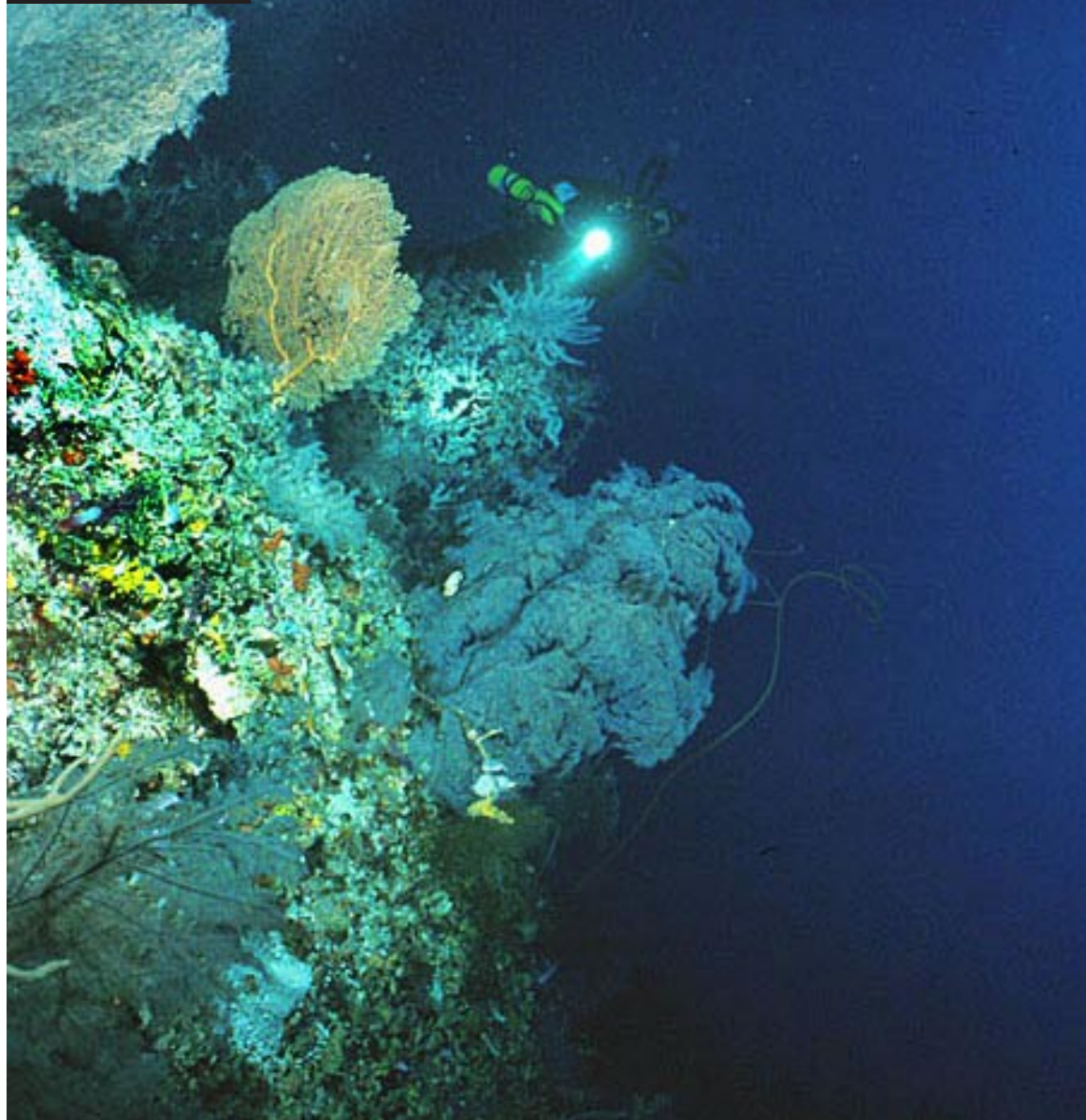
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RICHARD PYLE

Conserving these corals may offer hope for shallower, degraded reefs

Mesophotic coral ecosystems (MCEs) are characterized by the presence of light-dependent corals and associated communities that are typically found at depths ranging from 30 to 40m and extending to over 150m in tropical and subtropical regions. The dominant communities providing structural habitat in the mesophotic zone can be comprised of coral, sponge, and algal species. Because working in this depth range is constrained by traditional SCUBA limits, less is known about corals and associated organisms there compared to shallower coral communities.

Rebreather diver explores a highly diverse mesophotic coral ecosystem at 120m in Fiji

ers are looking carefully at adding protections for these coral ecosystems.

"We recognize the need to extend protections to mesophotic coral ecosystems in Puerto Rico, and the information being provided by this research is key to making that happen," said Ernesto Diaz, director of Puerto Rico's

Coastal Zone Management Program.

This study, conducted by a team of scientists and students from the University of Puerto Rico and the Caribbean Coral Reef Institute, in collaboration with the University of North Carolina Wilmington, is a companion to a similar mesophotic coral ecosystem research

program in Hawaii where these mostly uncharted ecosystems exist in the Pacific.

More information on mesophotic coral ecosystems, as well as a NOAA-sponsored international workshop on mesophotic coral ecosystems, was published in the **June 2010 edition** of the journal *Coral Reefs*. ■

go quietly, amid the noise and haste...

[3 hours @ 20m - no deco]



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Image by Ray van Eeden of Prodivers, Kuredu, Maldives

“We saw almost no oil here”

—Panhandle dive operators puts the media at fault

Text and photos
by Peter Symes

I had over 600 miles, or about 1,000km, of driving ahead of me, as I turned out of the driveway in front of our office in Fort Lauderdale and headed north. I was going up to the Florida panhandle. It truly is a big state, but I was determined to see for myself what the consequences of the oil spill in the Gulf of Mexico were, particularly for the local dive centers. I was in for a bit of surprise.

That media is often driven by sensationalism is nothing new and hardly comes as a shock to most people, but one would like to think that good ol' fashioned journalistic virtues and balanced reporting still have their place in the spectrum.

As I was driving through some spectacular wetlands and marshes along the Gulf Coast, my mind drifted back to the months of news reports following the Deepwater Horizon oil disaster. I recalled the ongoing drama—how one attempt failed after another in the prolonged efforts to cap the gushing oil wells on the ocean floor a mile below the surface. I remembered the images of reporters standing on beaches smeared with oil, interviewing solemn local residents who were typically fishermen, or representatives from other affected industries such as tourism. But what would the region look like today, I wondered, and how would residents

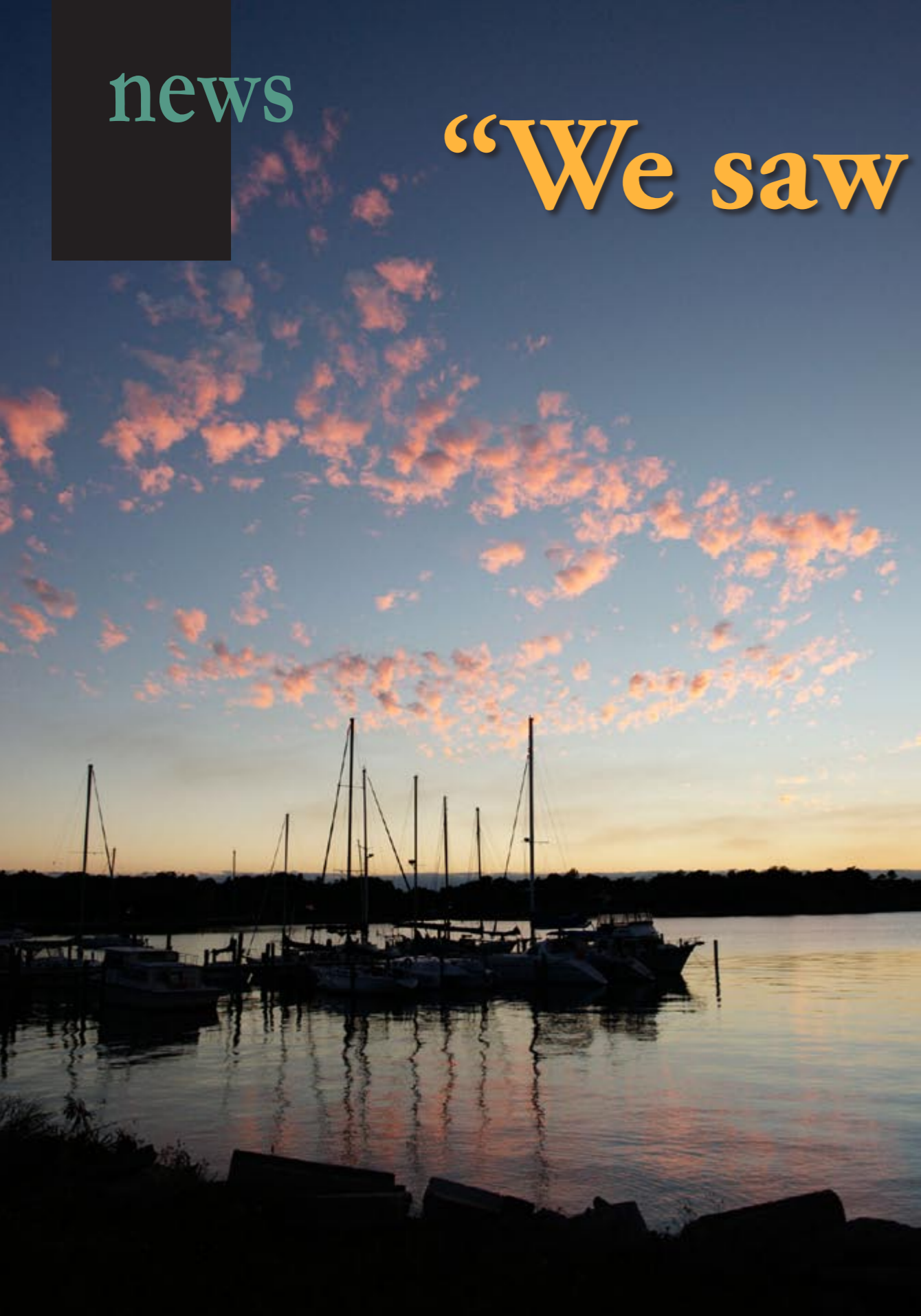


respond now, months after the media glitz had abated and the press corps had gone from the area in their relentless pursuit of the next sensation?

The sun was setting when I finally made it to Pensacola and pulled over at the Bay Breeze Aquatics Dive Center in Gulf Breeze just across the bay from the city. The air was balmy, and I went to sit by the waterside to watch the glowing red sundisk sink into the ocean.

Everything seemed so normal. Anglers were fishing off the pier, couples sat in cars sharing a romantic evening, and kids, who probably should be in bed,

were happily skateboarding. Was this the same place we saw on international news only a few months ago? From where I was sitting, I could see no oil, nor did anything further out on the horizon seem out of the ordinary, but then



CLOCKWISE FROM LEFT: Gulf Breeze, just outside Pensacola. Not really dive-related, but ain't that some sunset; MTB Divers in Pensacola. Owner Jim Philips (on left); Dive shops, in the case of Bay Breeze Aquatics Dive Center, are indeed open for business

again, I had only been here for ten minutes.

Local knowledge

The next morning, I had a long conversation with Don, a local dive instructor who originated from the Keys. I asked him how the oil spill had affected their business.

"It killed our business for one thing. We had high hopes for last summer and were thinking that the season was going to be good, but when the summer started, the oil spill happened, and it more or less took our business to zero. People just did not come. We never missed a day of diving, but there was no tourism, and that is what we make our money on," he said.

"So the diving was not affected?" I asked.

"I am not saying that we did not see any oil at all. We went out, and we did see some oil, but it was only a few oils slicks on the top here and there, but we never missed a day of diving because of it. I think we saw it on one charter going out on the ocean and one day at the beach where we dived off the shore, but the media took it out of context and made up a picture that there was oil everywhere and that was what hurt," said Don.

"Are you saying that media distorted the picture?" I asked.

"We were diving out at Fort Pickens, and there was just reporters everywhere poking microphones in your face asking for statements and asking if we have seen any oil, but they all just wanted to hear one thing. But as I said before, we did see a little oil here and there, but never missed a day of diving, but the press pumped it up and made it sound like there was oil everywhere. And people just stopped coming," said Don.

"So, you saw an effect on your bookings?" I asked.

"Oh, yes, almost immediately," exclaimed Don. "People who had just booked with us would call in a week later and cancel saying that they saw on CNN that there was oil everywhere. That happened many times," said Don.

"Weren't you able to explain to them that this was not the case?" I asked.

"No," said Don. "I did, but people did not believe me when I said the diving was okay. They believed only what they saw on TV. That went on all summer," he said.

"And now it has been four months since they plugged the oil well. Has business picked up since then?" I asked.

"We can dive all year," said Don, "but diving is seasonable with far more people coming down when the weather is warm. Summer is our primetime, so we lost that whole season."

"Aside from the now famous *Oriskany*, what are some of the dive attractions around here?" I asked.

"We had lots of great dives sites that many visitors came down to see even before the *Oriskany* was sunk," said Don, "but she has now become the main attraction, which people come from afar to visit. In particular, we got lots of wrecks. Perhaps, we do not have so many reefs, although there are some fine limestone formations. There are some 50 good sites within a few miles that we go out to, and many of the wrecks lie in the 50-60ft range, which most divers can easily cope with. But if you go further out, you can find diving to match all skill levels. It only depends on your experience, but even the deeper sites are not overly technical. *Oriskany* is 25 miles out, and there are 130 feet to her deck. It takes a couple of hours to get out to her, so it is a full day excursion."

"How do think the Panhandle

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compares to other Florida dive locations, such as the Keys?" I asked.

"Obviously, the Keys have warmer water," said Don, "and most of the time, better viz, but I came up here from the Keys to seek new opportunities and experiences, and I enjoy going to work every single day. Off



At Dive Pros business is now also picking up (above); Eileen Beard, Scuba Shack downtown Pensacola



The wildlife did not seem bothered

shore, there is a tremendous amount of sharks, and that has really surprised me."

"A lot of people come here to dive the *Oriskany*," said Don, "and a couple of other wrecks, and then they go down to the Keys so you can do both."

"What kind of itinerary can you suggest to someone like me who is from out of town?" I asked.

"Let's-go-diving!" said Don. "We have shallow diving, deep diving, shore diving, wreck diving, diving for tekkies, photographers and what else. And you can often bring your family out snorkelling if the weather is not rough. There are just so many options."

Downtown

Downtown Pensacola and very conveniently located right along the dockside, I managed to locate Scuba Shack, which apparently is the oldest dive center in town. Inside, I found the owner, Eilene Beard, busy unpacking an incoming shipment of wares, a somewhat reassuring sign that business was getting on. Looking back, she too spoke of a very tough season where customers just did not show up.

The oil disaster affected everybody working with tourism, she told me, and the whole community took a bad hit, as the local hospitality industry was reeling. She said that they just had to find ways of handling the situation and

get through it. Business carried on in large part thanks to the local divers who kept coming, she said, because they knew perfectly well what the situation was in actuality, and it was not like what was presented in the media.

But the reports in the mainstream media did cost them most of the bookings from tourists that either cancelled or did not manifest, she said. Once again, it seemed to me that most of the blame was put—not on BP or the government—but on the media for aggravating an already grave and tenous situation.

Also for Dive Pros and MTB Divers, it was the local divers who kept business running while tourists stopped coming.

The terms West Florida and Northwest Florida are generally synonymous with the Panhandle. Emerald Coast, a marketing term, refers specifically to the beaches and coastal resorts from Pensacola to Port St. Joe but is sometimes used to refer, by extension, to the Panhandle as a whole, especially west of the Apalachicola



NASA

As I came into the Dive Pro's roomy premises on the western outskirts of town, Merrick van Landingham, the general manager, was busy helping a couple of customers who quickly volunteered



their opinions on the whole matter once the discussion got under way. Merrick substantiated what was said elsewhere. In no uncertain terms, I was told, the press had blown matters out of proportion.

"There was some oil on the beaches," these gentlemen told me, "but it only came ashore in quite limited amounts, which they cleaned up pretty fast. We never skipped a day of diving because of it. The few days we did miss were because of rough weather."

Where does that leave us?

Clearly, these fine people have their livelihoods to defend, and who would not try to tone matters down a bit in the face of disaster? That's just human nature. But I do see their point. It was a catastrophe of unprecedented magnitude—no one is denying that—and who knows what the longterm effects on the region will be or where all that oil really went. But diving was only sporadically affected, even at the peak of the disaster, and the dive industry was disproportionately penalized—an issue that DEMA, the Diving Equipment and Marketing Association, did try to rectify at the time.

I arrived in the Panhandle expecting that anger would mostly be directed towards the oil industry and the gov-

ernment, but I found it was the press that was blamed. I was left feeling sorry, ashamed and upset that the mainstream media did such a sloppy job of balancing their reports.

What does it take to get to the bottom of these matters and put in a little more effort into investigative journalism

to get the facts right? The press is so often referred to as the fourth power and granted a special status in free societies of which we pride ourselves of being members, because it is supposed to and expected to dig down behind the scenes and find the truth. In this case, it clearly failed—miserably—to fulfill its duty and obligation.

Heading out of Pensacola, I noticed a variety of billboards from law offices offering their services in regards to claims related to oil spill damage. One man's food is another man's fodder, I suppose. I also passed a couple of BP gas stations on my way out, and they did not look vandalized.

As far as I am concerned, I will be back. I've got some very interesting diving to try out. ■

Weathered and battered perhaps but make no mistake, the colors are still flying high



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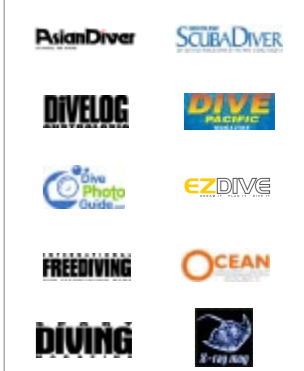
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A customer walks into a Florida diveshop with bags of captured lionfish

PETER SYMES

If You Can't beat 'Em, Eat 'Em

Due to a combination of prolific breeding habits and a lack of natural predators, lionfish populations in the Caribbean, Gulf of Mexico and eastern United States have risen exponentially since their accidental introduction in the early 1990s. Native to the Indo-Pacific region, lionfish are the first non-native marine fish to successfully invade Atlantic waters. The Reef Environmental Education Foundation (REEF) has announced a unique strategy to combat this ever-increasing threat: *The Lionfish Cookbook*. Authored by chef Tricia Ferguson and REEF's Director of Special Projects, Lad Akins, the cookbook

features a compilation of 45 mouth-watering recipes encouraging the removal and consumption of the unwelcome interloper. Boasting a delicate, mild-flavored white flesh, the fish are considered a delicacy and have already started to appear on the region's menus.

"Many countries are encouraging consumption of lionfish to create demand and incentive for lionfish removals," said Lad Akins of REEF. "*The Lionfish Cookbook* makes a great gift because it not only offers great recipes, but also gives detailed information on the background of the invasion, lionfish biology/ecology and impacts,

and how to effectively collect and handle lionfish."

A non-profit marine conservation organization based in Key Largo, Florida, REEF's mission is to conserve marine ecosystems by educating, enlisting and enabling divers and other marine enthusiasts to become active stewards and citizen scientists. REEF links the diving community with scientists, resource managers and conservationists through marine life data collection and related activities. At a cost of only US\$16.95, the cookbook can be purchased online at Reef.org. ■



The invasive lionfish species in the Atlantic are now the Caribbean's new delicacy

Marine Protected Areas coming to Southern California



In December after two years of meetings and public comment, the California State Fish and Game Commission voted 3-2 to approve a network of Marine Protected Areas (MPA) for the Southern California coastline.

The new MPA's will stretch from Santa Barbara County down to the Mexican border and will protect sea life and habitats at biodiversity hot spots, while leaving nearly 90 percent of the coast open for fishing.

The process involved thousands of concerned organizations including commercial fishermen and environmental groups. The final MPA location designations were in the Integrated Preferred Alternative (IPA), which was a compromise plan that included parts of various MPA proposals from fishermen, conservationists, scientists and divers. The IPA was unanimously recommended to the Fish and Game Commission by a Blue Ribbon Task Force of policy experts.

California enacted the Marine Life Protection Act (MLPA) in 1999 and in accordance with this law had previously created MPA's in Northern and Central California through a similar process. The act requires the state to restrict fishing and other activities in underwater areas off the California coastline. ■

Sea Urchins Make Coral Reefs Grow Faster

An 18-year study of Kenya's coral reefs by the Wildlife Conservation Society and the University of California at Santa Cruz has found that over-fished reef systems have more sea urchins, organisms that in turn eat coral algae that build tropical reef systems.

By contrast, reef systems closed to fishing have fewer sea urchins—the result of predatory fish keeping urchins under control—and reefs with higher growth rates and more structure.

The paper appears in the December issue of the scientific journal *Ecology*. The authors include Jennifer O'Leary of the University of California at Santa Cruz and Tim McClanahan of the Wildlife Conservation Society.

The authors found that reefs with large numbers of grazing sea urchins reduced the abundance of crustose coralline algae, a species of algae that produce calcium carbonate. Coralline algae contribute to reef growth, specifically the kind of massive flat reefs that fringe most of the tropical reef systems of the world.

Edited by Matt Meier

Unique species rediscovered in Bay of Bengal

A trio of unique marine organisms, the deep sea smoky batfish, grooved razorfish and frog crab, have been rediscovered in Indian waters after a gap of more than a century.

Researchers aboard the vessel, *Sagar Sampda*, in the Bay of Bengal yielded the species, which were collected off the Andhra Pradesh coast between August and September 2009. According to scientists of the Central Marine Fisheries Research Institute, it took over a year for the identification of the species to be validated.

The batfish was first described in 1894 by Alfred William Alcock, following surveys conducted in the Bay of Bengal aboard the Royal Indian Marine Survey Ship, *Investigator*. The samples were obtained from a depth ranging from 265 metres to 457 metres. According to scientists, E.

Vivekanandan and R. Jeyabaskaran, the samples were collected off Tamarapatnam at a depth of 100 metres, some 116 years after their initial identification. Of the world's nine bat fish species available worldwide, four have been reported from Indian waters. Feeding primarily on molluscs, marine worms, small crustaceans and small fishes, bat fishes occur in the Indo-West Pacific, South Africa, Vietnam, Malaysia, the Philippines, Indonesia, Australia, Taiwan and China.

The grooved razorfish was first reported from the Gulf of Mannar by fisheries expert Francis Day in 1878. The recent discovery was from the area off Singarayakonda at a depth of 30 metres. Their presence may be an indication of coral reefs, a habitat the species is known to frequent.

Found in both the Indian and Pacific Oceans, only two species are known to science. Nearly transparent and flattened from side to side, the body is silvery in colour with a dark lateral band from head to tail. They have long snouts and sharp-edged bellies. Generally frequenting muddy bottoms, they often seek refuge among coral branches or the spines of long-spined sea urchins, researchers said. ■



Australia monitoring the Great Barrier Reef after Queensland floods

The impacts on the local marine environment of the current flood events in Central and South East Queensland are just beginning to be assessed. The plumes of sediment and debris generated by flooding on this scale can have a wide range of impacts on marine habitats and species. These range from

entanglement of marine life in debris such as plastic bags to the smothering effects of large amounts of deposited sediments on sensitive habitats like seagrass meadows and coral reefs. The Queensland Department of Environment and Resource Management is leading the assessment of envi-

ronmental impacts of the flooding in South East Queensland flood events. Reefs close to the mouths of rivers discharging floodwater are obviously at greatest risk. As the floodwater spreads further from land, it dissipates in the seas but can still have major consequences. ■

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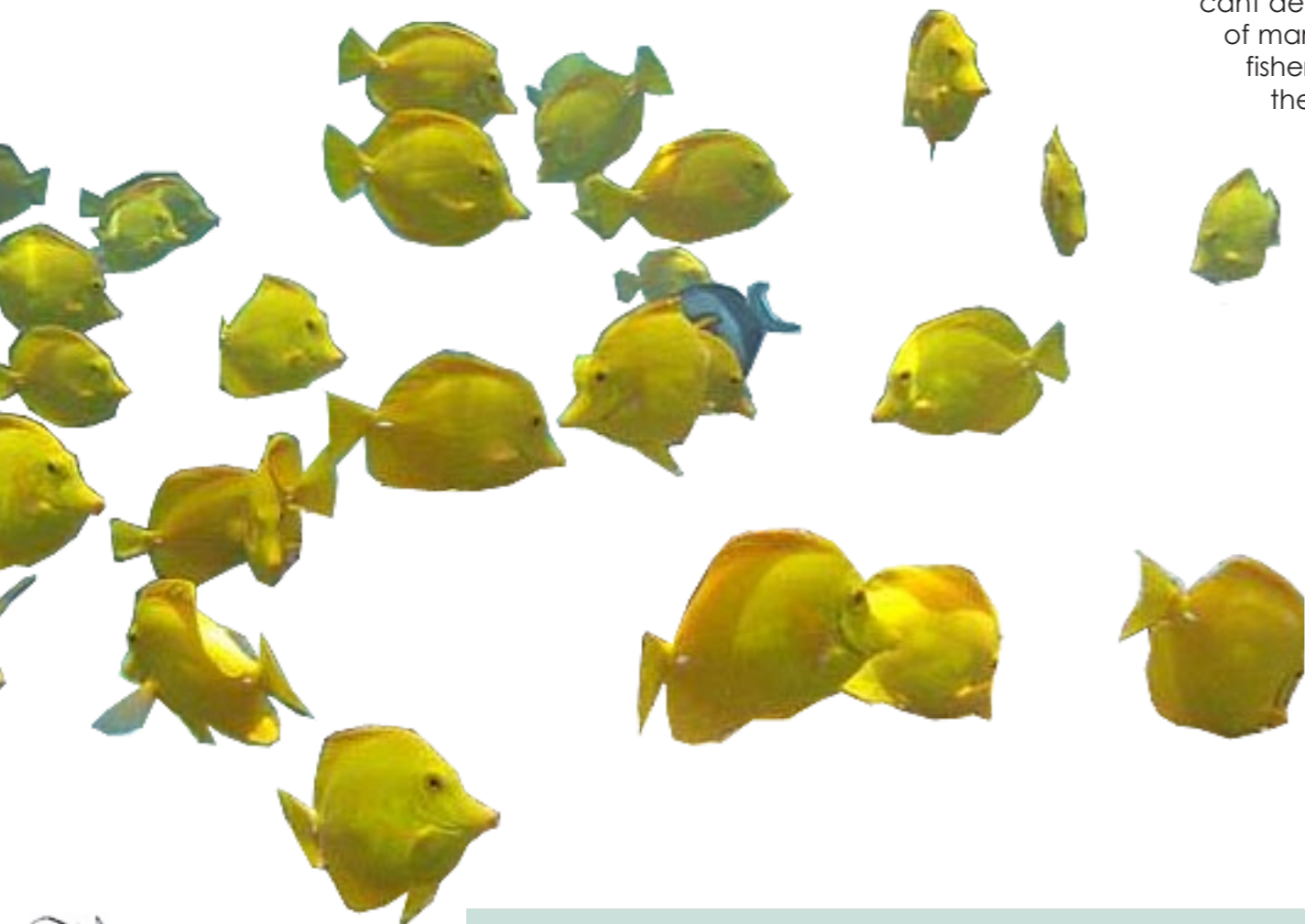
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Drifting fish larvae allow marine reserves to rebuild

Ecologists have shown that tiny fish larvae can drift with ocean currents and “re-seed” fish stocks significant distances away.

The study also provides a significant demonstration of the ability of marine reserves to rebuild fishery stocks in areas outside the reserves.

“We already know that marine reserves will grow larger fish and

some of them will leave that specific area, what we call spillover,” said Mark Hixon, a professor of marine biology at Oregon State University. “Now we’ve clearly shown that fish larvae that were spawned inside marine reserves can drift with currents and replenish fished areas long distances away.

“This is a direct observation, not just a model, that successful marine reserves can sustain fisheries beyond their borders,” he said. “That’s an important result that should help resolve some skepticism about reserves. And the life cycle of our study fish is very similar to many species of marine fish, including

rockfishes and other species off Oregon. The results are highly relevant to other regions.”

The findings were based on the creation in 1999 of nine marine protected areas on the west coast of the “big island” of Hawaii. They were set up in the face of serious declines of a beautiful tropical fish called yellow tang, which formed the basis for an important trade in the aquarium industry.

“This fishery was facing collapse about ten years ago,” Hixon said. “Now, after the creation of marine reserves, the fishery is doing well.” ■

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Why are Bonaire's coral reefs so unusually resilient?

Scientists are closely examining the reefs of the island just north of Venezuela to determine why it has escaped the devastation that wiped out 85 percent of the Caribbean's corals since the 1970s.

Andrew Bruckner, chief scientist of the Washington-based Khaled bin Sultan Living Oceans Foundation, explained what he found on a recent research trip to Bonaire's taylor Made: "What we're seeing here is a reef that's suffered from disease and bleaching, but the new corals tell us the reef is rebounding fast."

That's because there are still enough algae-eating fish around to keep the surface of the dead corals clean. It helps that there's very little rain here and that hurricanes, which damage reefs, are rare. In the rest of the Caribbean, dead coral soon are covered with algae, and the coral larvae have nowhere to settle, so after a hurricane, very little grows back. But in Bonaire, Bruckner said that far less degradation had occurred since 2005—when he last surveyed the island's reef—than in the rest of the Caribbean in the same period.

Fishermen and polluters are only the most tangible killers of corals. But as the Earth gets warmer, hot-water spells wipe out entire reefs. The first major temperature spike came in 1998, and most Caribbean reefs never recovered. This year promises to be the hottest since 1998 in the Caribbean, and some coral die-offs have already been observed.

Yet Bruckner remains cautiously optimistic. "The historical record shows corals are pretty adaptable. If we can restrict fishing and pollution and create more marine reserves, I think we can save some of the Caribbean's coral reefs. But even if we don't, in places like the remote Pacific islands, I think the more vulnerable coral species will die off and be replaced by tougher ones." ■

SOURCE: CARIBBEAN360

"I just don't see them dying off completely"

JP Bresser

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ADEX 2011 news release (for immediate release)

Asia Dive Expo 2011: A round-up of all highlights



SEVENTEEN years ago, Asian Diver initiated and launched the ever first dive show in Asia. And last year, ADEX 2010 saw a big success, with more than 21,000 visitors from around the world, and over 100 exhibitors representing various dive entities from across the industry.

This year, Asian Diver is pleased to announce that the Asia Dive Expo, ADEX 2011, will be held from 22-24 April 2011 at the Suntec City Convention Centre in Singapore. Organised "by divers, for divers", ADEX is the region's longest-running dive show and a must-attend event for all divers and underwater photography, videography enthusiasts

In keeping with previous years, ADEX 2011 provides dive and underwater lovers with opportunities to test out the latest dive equipment, discover new dive destinations and marine hotspots and find out about all the best offers on resorts and hotels in the region as well as great deals on dive and travel equipment.

In addition to special deals on equipment, photographers and videographers can fine-tune their skills with some of the most highly regarded names in underwater photography and marine conservation by participating in photography workshops and seminars. These talks will be complemented by screenings of inspirational underwater videos and photography displays.

ADEX has been working with many renowned underwater personalities. Last year, the show was dedicated to sharks. Legendary filmmaker Stan Waterman and award-winning photographer John A. Scarlett attended the event and spoke about the urgent need to conserve these apex predators, whose numbers are decimated by the inhumane practice of shark finning.

In 2011, ADEX will be celebrating and supporting the much loved and enigmatic creature of the oceans – the turtle.

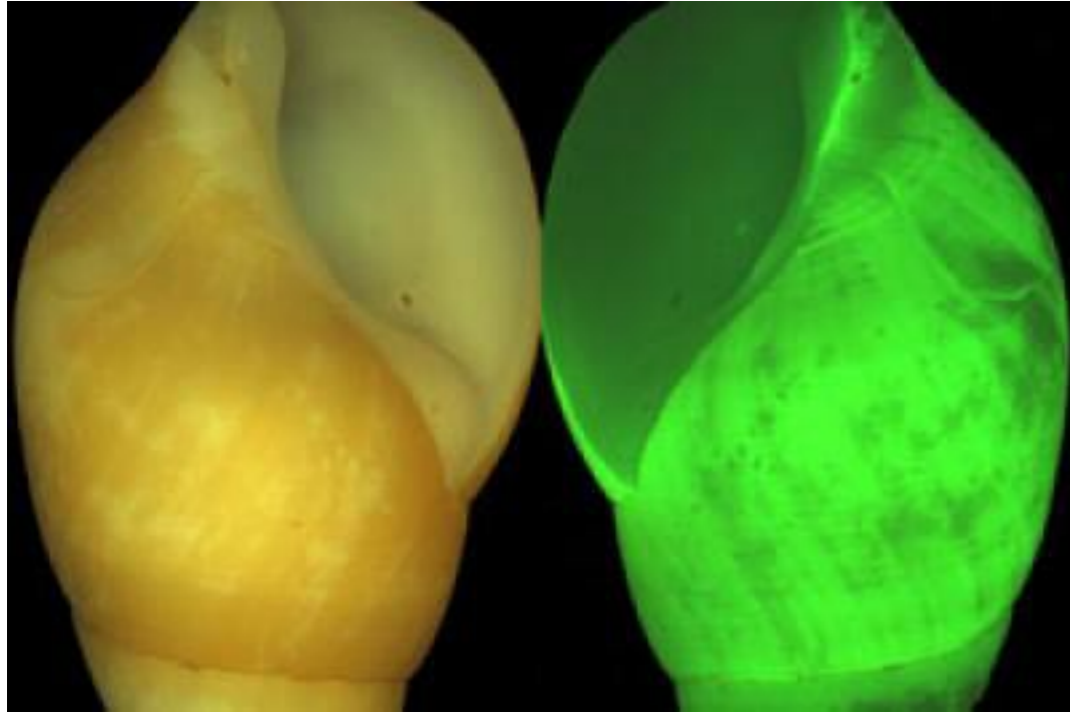
Again it will feature our best ever line up of big name speakers, including:

- **Brian Skerry**, one of the world's leading underwater photo-journalists. *National Geographic* lists him among their "legendary" undersea photographers. In addition to special assignments for National Geographic, Skerry has also worked with Jacques Cousteau's organisation and published a book, "Successful Underwater Photography".

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Edited by Scott Bennett

Luminous snails



Research uncovers secrets of strange mollusk and its use of light as a possible defense mechanism.

The discovery involves a species of clusterwink snail, an obscure creature that bunches together on rocky shorelines. The snail is bioluminescent, meaning that it can produce light. Scientists were aware of that. But they thought the snail sent out a single beam of light, like a flashlight. But researchers, Dimitri Deheyn and Nerida Wilson, found that "the animal uses its shell to scatter and spread bright green bioluminescent light in all directions," said a Scripps news release.

These snails were known to produce light, but the researchers discovered that rather than emit-

ting a focused beam of light, the animal uses its shell to scatter and spread bright green bioluminescent light in all directions.

The marine snail *Hinea brasiliana* species produces a luminous display in response to mechanical stimulation caused by encounters with other motile organisms. The light is produced from discrete areas on the snail's body beneath the snail's shell, and must thus overcome this structural barrier to be viewed by an external receiver.

The diffusion and transmission efficiency of the shell is greater than a commercial diffuser reference material. Most strikingly, the

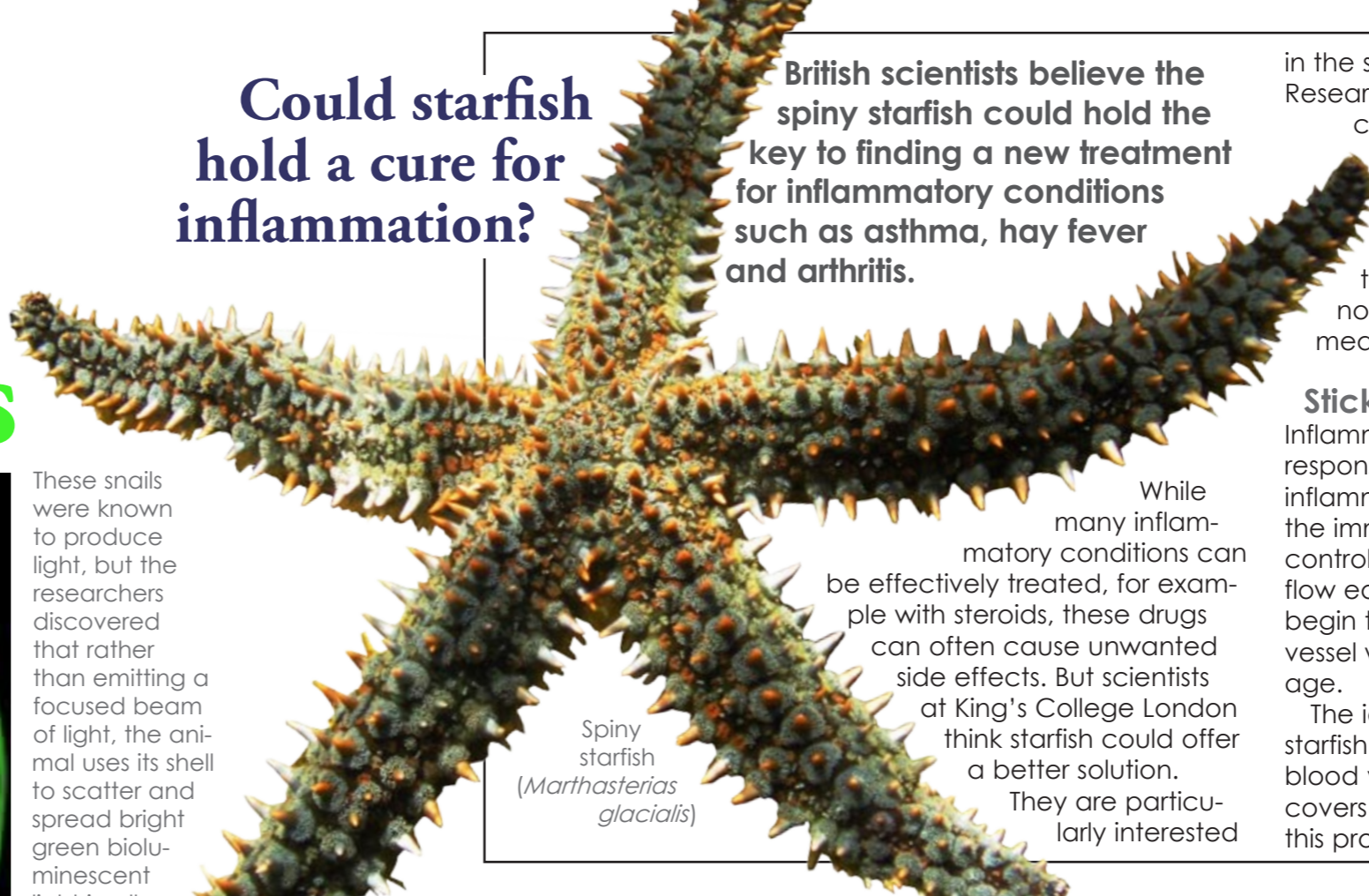
These snails were known to produce light, but the researchers discovered that rather than emitting a focused beam of light, the animal uses its shell to scatter and spread bright green bioluminescent light in all directions

shell, although opaque and pigmented, selectively diffuses the blue-green wavelength of the species bioluminescence.

Defence mechanism

The luminous displays of *Hinea brasiliana* could be a deterrent to ward off potential predators by using diffused bioluminescent light to create an illusion of a larger animal. Its unusual shell allows spatially amplified outward transmission of light communication signals from the snail, while allowing the animal to remain safely inside its hard protective shell. ■

Could starfish hold a cure for inflammation?



Spiny starfish (*Marthasterias glacialis*)

British scientists believe the spiny starfish could hold the key to finding a new treatment for inflammatory conditions such as asthma, hay fever and arthritis.

While many inflammatory conditions can be effectively treated, for example with steroids, these drugs can often cause unwanted side effects. But scientists at King's College London think starfish could offer a better solution. They are particularly interested

in the slimy goo that covers the body. Researchers say chemicals in this coating could inspire new medicines. While most man-made structures that are placed in the water rapidly get caked with a mixture of marine life, starfish manage to keep their surface clear. It is this non-stick property that has grabbed medical scientists' attention.

Sticky issue

Inflammation is the body's natural response to an injury or infection, but inflammatory conditions are caused when the immune system begins to rage out of control. White blood cells, which normally flow easily through our blood vessels, begin to build up and stick to the blood vessel wall, and this can cause tissue damage.

The idea is that a treatment based on starfish slime could effectively coat our blood vessels in the same way the goo covers the marine creature, and prevent this problem. ■ SOURCE: BBC

For more info on diving in British Columbia contact DIABC

www.diveindustrybc.com



Flying fish glide as well as some birds

The flying fish's most striking feature is its pectoral fins, which are unusually large and enable the fish to hide and escape from predators by leaping out of the water, taking short gliding flights through the air just above the water's surface. Its glides are typically around 50 metres (160 ft).

When researchers placed the fish—caught in the wild, killed and stuffed with foam—in a wind tunnel, they found that their fins achieved better lift and less drag than the wings of many insects, and did just as well as some birds, like hawks and wood ducks.

In order to glide upward out of the water, a flying fish moves its tail up to 70 times per second. It then spreads its pectoral fins and tilts them slightly upward to provide lift. At the end of a glide, it

folds its pectoral fins to reenter the sea or drops its tail into the water to push against the water to lift itself for another glide, possibly changing direction.

Aerofoil

The curved profile of the "wing" has an aerodynamic shape that is comparable to that of a bird wing. The fish is able to increase its time in the air by flying straight into, or at an angle to, the direction of updrafts created by a combination of air and ocean currents. ■

Same but different



—Cattfish study reveals importance of being "similar but different"

Examine any South American rain-forest stream and you may observe a school of similar-looking miniature catfish. Looks may be deceiving, however, as they may not all be the same species.

An extensive study of the Corydoras catfish from South America revealed that catfish communities with fish displaying virtually identical colours and patterns might in fact contain three or more different species.

For the first time, it has been revealed that many species are mimetic, evolving the same colour patterns for mutual benefit. Although adopting similar colour patterns, each individual commu-

nity of similar looking fish is comprised species belonging to different genetic lineages.

This discovery suggests that the number of Corydoras catfish species may be higher than previously realized. This increases the challenge for conservationists working to conserve these species at a time when many South American rivers are experiencing large scale development involving dam building.

"Although appearing identical in terms of colour pattern, our in-depth assessments of genetic relationships, diet, body shape and colour patterns of the fish revealed that 92 percent of the communities we sampled comprised species that do not compete for resources," stated doctoral student Markos Alexandrou of Bangor University

in Wales and one of the paper's authors.

Dr Martin Taylor, project leader at the University's School of Biological Sciences said: "This research highlights the hidden diversity and complexity found within neotropical freshwater ecosystems. Unfortunately, these habitats are also under extreme pressure from human activities."

Claudio Oliveira of project partners, (UNESP, Botucatu, Brazil) added: "Besides the unknown biodiversity and interesting evolutionary system revealed by this study, it reinforces the urgent need to preserve and manage South American environments to avoid the loss of many species yet to be discovered and described." ■

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Celebrity Chef Gordon Ramsay held at gunpoint by shark finning gangsters

Going to Costa Rica anytime soon? If so, be sure you put away your camera and try not to discuss the fin trade with the locals.

Gordon Ramsey, world famous British chef had to find this out the hard way while filming an episode of *The Big Fish Fight*, a United Kingdom mini-series focusing on sustainable fishing practices around the world.

"It is a multibillion dollar industry, completely unregulated," Ramsay said to the *Daily Mail*. "We traced some of the biggest culprits to Costa Rica."

Despite a governmental crackdown in 2000, the country's trade in shark fins is thought to be one of the most important in the world. One port in

Costa Rica alone is thought to receive three ship loads of fins every week and globally the trade is worth up to US\$1 billion a year. A single pound of shark fin can sell in the United Kingdom for more than GB£150.

"These gangs operate from places that are like forts, with barbed-wire perimeters and gun towers," Ramsey continued. "At one point, I managed to shake off the people who were keeping us away, ran up some stairs to a rooftop and looked down to see thousands and thousands of fins, drying on rooftops as far as the eye could see. When I got back downstairs they tipped a barrel of petrol over me. Then these cars with blacked out windows suddenly appeared from nowhere, trying to block us in. We dived into the car and peeled off."

Later in the trip he and the film crew managed to talk their way onto one of the fishing boats involved in illegal shark fin trading.



Chef Gordon Ramsay

ALLAN WARREN / CREATIVE COMMONS

He said: "In a quiet moment I dived from the boat to swim with marlin. I swam under the keel and saw this sack tied to it. I opened it and it was full of shark fins. The minute I threw this bag on deck, everyone started screaming and shouting."

"Back at the wharf, there were people pointing rifles at us to stop us filming. A van pulled up and these seedy characters made us stand against the wall. The police came and advised us to leave the country."

Biologist Jorge Ballesterro, of the Marine Turtle Restoration Program (PRETOMA), says he also barely got away from five or six hostile fisherman after he tried to film shark fins drying at a central market.

"I escaped a beating, but the police officers treated me as if I did something wrong," Ballesterro said. "They asked for my identification, but they didn't ask the people chasing me for anything."

The message from Costa Rica is clear: there's big money in the shark finning, and the groups controlling the trade are going to do whatever they have to in order to protect it. ■

SOURCE: THE DAILY MAIL, THE GUARDIAN

Welcome to Papua New Guinea



Papua New Guinea is located in the coral triangle of marine biodiversity with the highest diversity of tropical fish and coral in the world.

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FILE PHOTO: A NOAA agent counts confiscated shark fins



matteogavanna/istockphoto.com - illustrazione Alessandro Gattardo

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New PADI Regional Headquarters Delivers Expanded Benefits to Members

Launch of new office will increase product and customer support offerings for local members.

Via **Press Release** — PADI members in Europe, the Middle East and Africa will enjoy a higher level of customer service and support as PADI International Ltd., PADI Europe and PADI Nordic prepare to combine forces in 2011. The new regional headquarters, PADI EMEA (PADI Europe, Middle East and Africa), unites the talent and resources of the three offices to provide PADI members with an unparalleled level of support, services and products.



“Trends in the dive market are changing, so the PADI offices are responding to meet changing member needs,” said PADI Europe Executive Director, Jean-Claude Monachon. “The goal of the new regional headquarters is to move PADI members ahead as

market leaders through a broader range of products and services than currently available and by leveraging resources to make it easier and more convenient to access products, services and support through PADI EMEA.”

Largest regional HQ

PADI EMEA will be the largest PADI regional headquarters and serve more than 2,000

retail and resort members and 57,500 individual members, who in turn certify more than 380,000 divers annually. To meet the demands of this culturally diverse membership, PADI EMEA will extend its service hours, centralize its phone system, expand online services and provide customer support in more than 20 languages. The centralization of services will allow for faster member and diver certification processing, consistent marketing campaigns, enhanced PADI eLearning® support, simplified pricing, broader job search and placement options, easier instructor mobility and more. In addition, the regional headquarters size will significantly increase its ability to interact with and influence media, government and industry relations.

“The size and scope of PADI EMEA creates tremendous bargaining leverage on behalf of PADI members and opens the door to new partnerships and exciting opportunities for attracting new divers,” said PADI president and chief operating officer, Drew Richardson. “PADI EMEA’s reach will help bring new people into diving—potentially in unprecedented numbers.”

Mark Caney, vice president of training, education and memberships at PADI International Ltd, emphasized the value in pooling the talent of the three offices: “We are excited about the expansion of capabili-

ties PADI EMEA represents for our members. Among the staff of the new office we will have an extraordinary range of talents, with specialists who have run thousands of Discover Scuba sessions in the Maldives or those who have conducted tech diving courses in the frozen Baltic Sea. The breadth of diving experience and language support now available to PADI professionals is unmatched in the industry.”

PADI EMEA will lead the regional dive industry in customer service, sales, business education, marketing and training consultancy. To ensure a smooth transition and uninterrupted member support and customer service, the three offices will inte-

The goal of the new regional headquarters is to move PADI Members ahead as market leaders through a broader range of products and services than currently available.

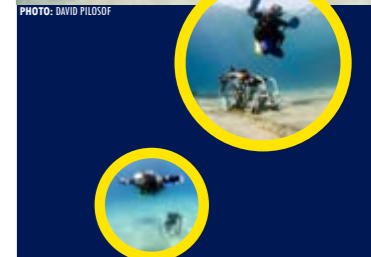
—Jean-Claude Monachon, PADI Europe Executive Director

grate their services in stages throughout 2011, with full integration scheduled by 2012.

For more information regarding PADI EMEA, please contact Jean-Claude Monachon, tel: +41 52 304 14 14, email: jcm@padi.com or Mark Caney, tel: +44 117 300 7309, email: mark.caney@padi.co.uk. ■



Mark Caney



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KARL SHREEVES

Diveheart celebrates ten year anniversary

Text by Kelly LaClaire
 Photos courtesy of Diveheart.org

—Celebrating ten years helping the most unlikely divers find purpose and joy
 While attending DEMA 2010, I was fortunate enough to be introduced to the activities of Diveheart, a non-profit with the mission of helping the disabled shed their above ground limitations by teaching them to snorkel and SCUBA dive.
 Founded in 2001 by Jim Elliot, whose own daughter was born blind, Diveheart has continued to flourish and now trains more instructors, dive buddies and disabled divers than anyone in the world. But Elliot has even bigger plans for the organization's tenth anniversary.

"We think it's time to offer the opportunity for teams we train around the world to become a Diveheart Chapter." This makes sense as its outreach programs now extend as far as Haifa, Israel; China; Australia; the

Caribbean; and more and more people are jumping on board and diving in.

In fact, to keep up with the demand for their services, Diveheart is currently looking to expand even further by building a state of the art facility to provide research, rehabilitation, educa-

tion, as well as training and vocational opportunities for people with disabilities.

People like Robert Sargartz, a 23-year-old who suffered a stroke and has a severe spinal cord injury. "On land I don't walk, but underwater I fly," said Sagartz. "I never considered it [SCUBA] before I found out about Diveheart. I mean, I always loved swimming, but I never thought about actually becoming a diver."

Ashley Hoffman, a Diveheart member for three years now is 22 years old and afflicted with cerebral palsy. "It just makes me feel like I'm not trapped inside my body anymore, like I've been freed from a cage and that I'm equal and I can. I'm just like everybody else—I don't see my disability. I don't see the things I can't do when I'm underwater."

Check Diveheart's website and you'll find testimonials like these in the hundreds—pages and pages of children and vets filled with gratitude and overflowing with emotion for this program that is actually saving lives.

After a traumatic brain injury left him nearly fully incapacitated, U.S. Marine Sergeant Greg Rodriguez felt "useless" and "good for nothing." Then he was put in contact with Elliot and things began to change.

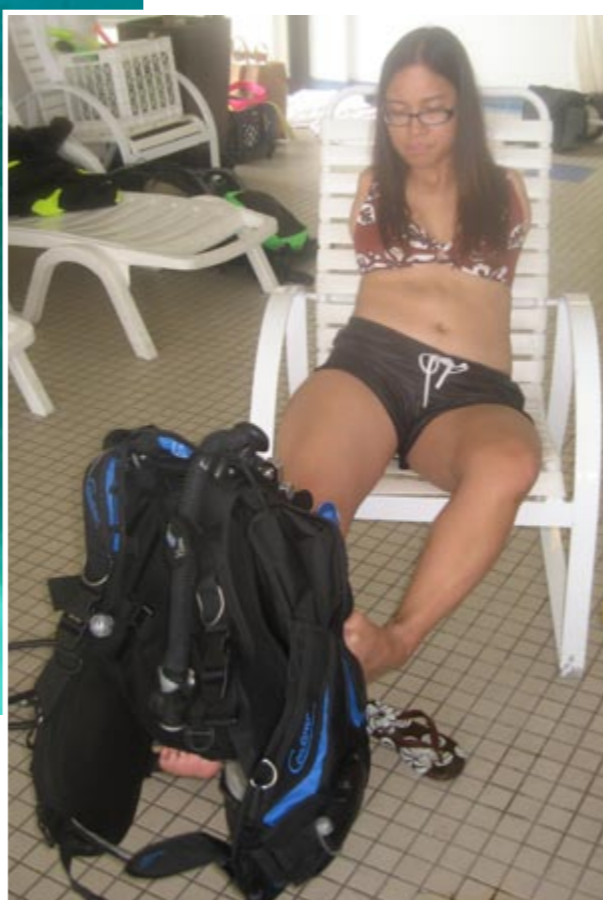
"We get them in the water, get them out of the wheel chairs and teach them how to fly.



What happens then is people start looking at them differently. They are like rock stars!"

Sergeant Rodriguez doesn't feel 'useless' anymore. "I feel like I could dive across the world, around the world and back."

Hearing stories like that, non-disabled divers often have many questions about the program and how they can get involved. If you're asking yourself that question right now, you can visit www.diveheart.org and take a look at their amazingly inspiration photos, videos and testimonials. After seeing these, I guarantee your only question will be, "Where do I sign up?" ■



THIS PAGE: Children and adults can experience the joys of diving and the liberating feeling of weightlessness underwater with the help of specialists who are trained in adaptive scuba diving techniques and education as well as specialized equipment that supports the diver with unique needs and challenges

Diveheart founder and director, Jim Elliott, assists a participant with disabilities into the pool for an educational session in adaptive scuba diving



It's Valentines! Show support of Diveheart's activities for divers with these cute heart-shaped silver earrings designed by DiveSilver especially for Diveheart at: Divesilver.com

Diveheart founder to receive award

Diveheart founder and president, Jim Elliott, will receive the Glenn McIntyre Heritage Award at the Aquarium of the Pacific's 8th Annual Festival of Human Abilities on January 30. Honoring Elliott's work with children, adults and veterans with disabilities, the award highlights the contribution of his organization's efforts to teach and offer opportunities for people to participate in adaptive SCUBA diving and SCUBA therapy around the world.

The Festival of Human Abilities, to be held January 29-30 at the Aquarium of the Pacific in Long Beach, California, USA, showcases innovative adaptive skills taught by experts with disabilities.

"I am very honored to be receiving this award. It is especially meaningful as we are celebrating Diveheart's tenth anniversary," said Elliott to the Chicago Tribune. "I will accept the Glenn McIntyre Heritage

Award not for personal achievements, but for Diveheart's body of work to date, achieved by the thousands of Diveheart volunteers, participants,

friends and donors who have made Diveheart a leader in the world of adaptive SCUBA diving."

Any child or adult who wishes to experience the underwater world through SCUBA diving or snorkeling can do so with the help of Diveheart, which provides and supports educational

experience programs in hopes that the freedom from limitations felt under the waves can provide both physical and psychological therapeutic value, making a positive difference in individuals' lives.

"SCUBA diving is the only gravity-free activity in the world that is also inherently hyperbaric, and one that provides physical and emotional therapeutic value to the participant. Because of this, we have found that it is one of the most powerful activities in the world for children, adults and veterans with any type of disability," said Elliott in a recent

press release about the award. A

non-profit tax exempt 501 (C) (3) national organization, Diveheart Foundation is chartered in the state of Illinois. For further information visit Diveheart.org ■

SCUBA diving is the only gravity-free activity in the world that is also inherently hyperbaric, and one that provides physical and emotional therapeutic value to the participant. Because of this, we have found that it is one of the most powerful activities in the world for children, adults and veterans with any type of disability.

—Jim Elliott, Diveheart founder and director

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News edited
by Millis Keegan



Kittiwake's final journey

LAWSON WOOD

Click on image to link to video of the sinking posted on our website (Requires active connection to the internet)

The former *USS Kittiwake* becomes the first artificial reef to be created in the Americas in 2011.

The newest artificial reef in the Caribbean has a very exciting history. Her first assignment in 1946 based her close to the Panama Canal as a submarine rescue ship with Submarine Squadron 6. Her duties among others were to monitor diving operations and to recover practice torpedoes.

She only stayed there for a few years before she was sent on one mission after another. In 1950, she was part of the daunting task to get the battleship *Missouri* off the Thimble Shoals tidal banks of Virginia, where the vessel was grounded. Later, she supported the "Silent Service" ships in the Atlantic Ocean and Caribbean.

In 1960, stationed in Cape Canaveral, Florida, there was the *USS Kittiwake's* assist of the very first Polaris Ballistic Missiles ever fired from a submarine submerged. After that, she cruised around Europe and back to the Caribbean where she rescued a bunch of Cuban refugees.

Her saddest moment in service might have been the recovery of the space shuttle *Challenger*.

Most submarine rescue vessels have an exciting life; it kind of comes with the territory. *USS Kittiwake* will continue having one for years to come.

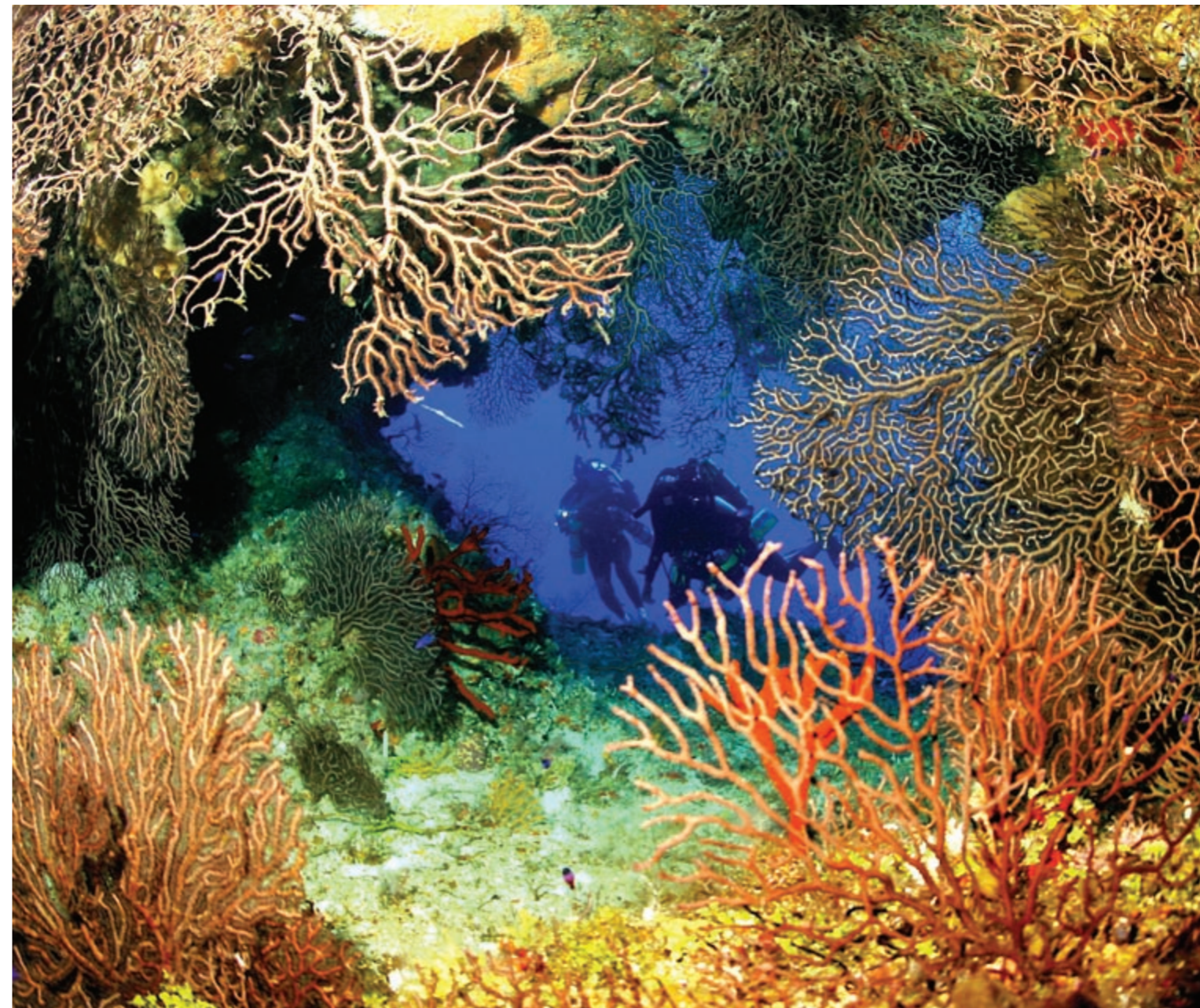
She was taken out of commission about 16 years ago and sold to Cayman Islands in 2008 with the intent to sink her as an artificial reef. Another two years passed and two tries later, she is now happily sunk off the Seven Mile Beach of Grand Cayman.

The Sinking

As with any sinking, the aim was for the wreck to settle upright. That was achieved by compartmentalizing the ship, punching holes in the hull and then slowly filling the ship with seawater. The method proved quite successful, and the old dignified military servant went down in an orgy of bubbles, as the assigned crew flooded the ship. ■

Dive Site:	Seven Mile Beach, Grand Cayman
Sunk:	5 January 2011
Depth:	62ft / 20m
Height:	47ft / 14m
Description:	Artificial Reef, wreck after <i>USS Kittiwake</i> ; Stands upright on sandy bottom; Length: 251ft / 77m

www.kittiwakecayman.com/blog



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Five Wisconsin shipwrecks slated for protected status

It's not an easy task to become part of a trail that already has 32 shipwrecks to its name, so if a wreck could feel pride, it should do so if selected. The new additions represent a cross-section of wrecks with historical significance in Lake Michigan: *EMBA*, an early self-loading ship

that was sunk in 1932 outside the city of Milwaukee's main harbour; a three-masted freight boat near Kewaunee that sank in 1880; and *Floretta*, an iron ore schooner that went down off Manitowoc in

1885. The selection also includes a steamer from the beginning of last century and the car ferry, *S.S. Milwaukee*, which sank in 1929, killing everyone onboard.

A grant of US\$170,000 was given to the Wisconsin Historical Society in November 2010 by the Federal Highway Administration Transportation Enhancement. Already this summer a team of archaeologists will start surveying the five wrecks with the help of this money. In turn, the documentation that comes out of their work will nominate the wrecks to the National Register of Historic Places, which is an important step. Acceptance gives the wrecks legal protection, and as part of the trail, there will be buoys placed for safe mooring. A list of all wrecks can be found on www.wisconsinshipwrecks.org ■



The *SS Milwaukee* was a train ferry that served on Lake Michigan. It was launched in 1902 and sank with all hands off Milwaukee on 22 October 1929. Fifty-two men were lost with the vessel

Exciting news for the U.S. Great Lakes—five additional shipwrecks could be added to Wisconsin's Maritime Trails system.

Wreck of *USS Revenge* found near Rhode Island by divers

A team of divers say they've discovered the remains of the *USS Revenge*, a ship commanded by U.S. Navy hero, Oliver Hazard Perry, and wrecked off Rhode Island in 1811.

Divers from Connecticut, including Charles Buffam, one of the distant relatives of Oliver Perry, on board the *Blue Moon*, first found what they all believed were a number of 1,000 pound cannons, on the deck of the *USS Revenge*, in ten to 15 feet of water.

The divers claim to have found other relics that fit the time period from when the ship sank—cannons, an anchor and other metal

objects—but have yet to find anything that definitely identifies the ship as the *USS Revenge*—such as the ship's bell.

Salvage

The ship will either be salvaged by the Navy, which has first rights to its shipwrecks, or it could possibly be salvaged privately and its artifacts put on display in a museum.

Symbol of the Navy

Perry is known for defeating the British in the 1813 Battle of Lake Erie off the shores of Ohio, Michigan and Ontario in the War of 1812—and for the line, "We have met the enemy and they are ours". His battle flag bore the phrase, "Don't give up the ship", and to this day is a symbol of the Navy. ■



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Bow view of a PBM-3R on the lagoon bottom. Notice that the engines were removed prior to it being scuttled after the war in 1945. This aircraft was discovered in 2007

Text and photos by Bill Remick
Supplemental photos courtesy
of Dan Farnham and the U.S.
Army and Navy

Kwajalein. The name sort of rolls out of the back of your tongue and usually has folks asking, “What did you say?” Kwajalein is well known in the wreck diving community for the many Japanese ships that were sunk there during World War II, and as the resting place of the historic German cruiser, *Prinz Eugen*, which sank there after the atomic bomb tests at Bikini Atoll in 1946. Until recently, it was not known that a large number of aircraft were also sunk at Kwajalein. There are no commercial dive operations on the atoll. Kwajalein is a military facility, and people who want to visit and dive there must have an on-island resident sponsor them.

Kwajalein, or Kwaj as it is known locally, is the world's largest atoll and lies some 2,200 miles west of Hawaii about nine degrees north of the equator in the Marshall Islands. While the Republic of the Marshall Islands is now an independent country, the Marshall Islands have been controlled over the past 400 years by the Spanish, Germans,

Japanese and the Americans. During World War II, Kwajalein and other atolls in the Marshalls were fortified by the Japanese.

The United States had anticipated a possible war with Japan as far back as the early 1920s and had drawn up a plan to deal with that eventuality—Plan

Orange. The plan called for the capture of central Pacific bases in a march to the Philippines and eventually Japan.

Kwajalein, and its large anchorage, was a key target in the central Pacific campaign. After the large number of U.S. casualties in the capture of Tarawa in November 1943, the U.S. Navy was

determined to do it right in the assault of Kwajalein. They exceeded their wildest imaginations, and captured the entire atoll with its three major bases in only six days, incurring very small losses. The assault of Kwajalein was textbook in its execution, and that has led to the battle being less well known than Tarawa and

subsequent invasions.

After the atoll was secured, Army engineer and Navy Seabee battalions began the reconstruction of the islands to be able to carry the battle forward to the enemy. Kwajalein, Roi and Ebeye were essentially bulldozed flat and built anew into a formidable set of bases. In the first



Kwajalein

The Hunt for the Missing Mariners



Sunset at Kwajalein Atoll (above), A damaged PBM-3D is pulled up a ramp at Ebeye in 1945 (top right); The image of a complete PBM-3R appeared during the sidescan survey (right)



Aerial view of Kwajalein Atoll

weeks following capture of the atoll, there were no runways available for high-priority war items, and seaplanes were pressed into transport and force projection duties. These included PB2Ys, PBYS and PBMs. These were all operated out of Ebeye, which had been a Japanese seaplane base before its capture. In time, a few of these aircraft were lost to landing and maneuvering accidents.

Additionally, after the war ended, the Navy decided that many of the aircraft based at Kwajalein were war weary and would not be returned to the United States. These aircraft were stricken, stripped and deliberately sunk in the lagoon where they lay undisturbed and largely forgotten until the 1990s.

Discovery

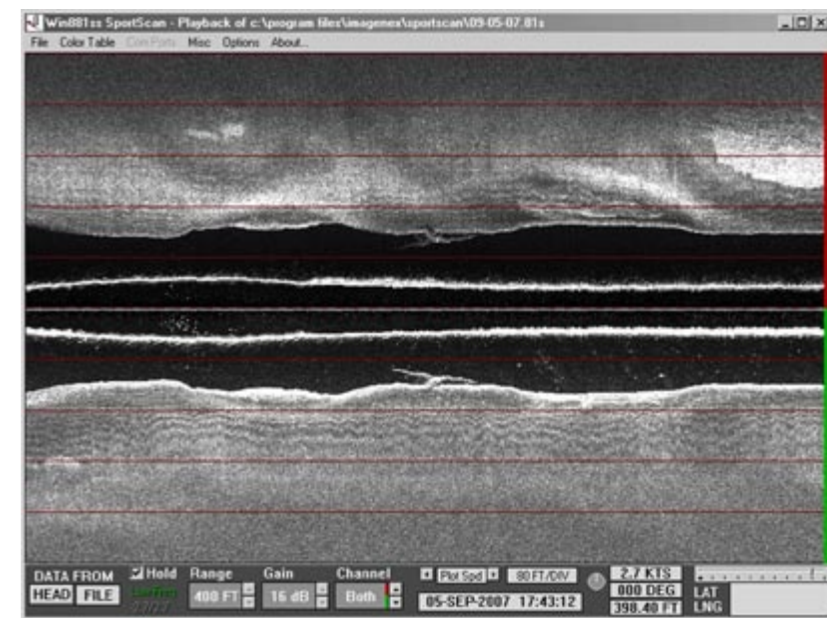
As a kid, I had lived on Kwajalein with my parents in the 1960s and completed a NAUI certification while I was there. Diving on the Japanese freighters in the lagoon was great fun. My father and I found the wreck of an airplane on the reef and salvaged the guns

off it. It was subsequently identified as a PBM-5. There was also a Japanese F1M2 Pete next to one of the ships, but we had no idea there were large American planes sunk in the lagoon.

In 1993, I was in Washington, DC, doing research on Kwajalein, Truk and Palau with author Dan Bailey. I discovered references to the loss of a PBM-3D from VP-202 that crashed at night, killing five of the 11-man crew.

When I next returned to Kwajalein in 1995, I told my dive buddies about my research. They surprised me by producing a copy of a sidescan image from a survey company the U.S. Army had hired that showed what could be a PBM on the lagoon bottom. The hunt was on.

Working with just a fish finder, we searched long and hard but didn't find anything during my stay. As fate would have it, they found a PBM-3D a few weeks after I left. However, this one was stripped and had not



crashed, so it wasn't the one we were looking for. Also the sidescan image showed the plane on a smooth lagoon bottom and this one was on a coral head, so we knew there was another plane out there somewhere.

Search

Over the next five years I traveled to Kwaj four times and each time we continued the



A diver swims past an engine and prop from a PBM that drifted onto the reef in December 1945 after breaking a mooring line at night. Much debris is scattered over about 100 yards

search for the missing plane without success. I didn't return to Kwaj again until 2007 after a trip to Palau where I was introduced to handling a sidescan while we looked for airplanes, again without success. I was able to convince my good friend Hank Heinz to loan me his sidescan unit, and I arranged a trip to Kwaj that June.

Gordon Jones and Dennis Baker had been my sponsors and benefactors on previous trips to Kwaj, and we had, as they put it, cheated death together many times. I managed to get the sidescan and computer set up on their boat and waited while the wives and kids piled in. I had not been solely responsible for setting up and running the sidescan before, so this was a new experience for

me. Despite a boatload of kids who wanted to go swimming and running around on the beach, we took off on our initial search.

Gordon had been advised by a long-time resident and diver that he had repeatedly seen a bump on his fishfinder when boating along a particular bearing, so Gordon wanted to investigate that first. In the beginning I had a lot of things set up on the sidescan incorrectly, but despite that within a few minutes we had a fuzzy bump and shadow on the screen. The wives and kids had had enough of us holding up their fun in the sun, so I noted the location and we took them off to play.

In the meantime, I logged onto the Internet and contacted the sidescan manufacturer for advice.

They got back to me the next day and were very helpful, so I applied all their suggestions. The next trip out, we went over the coordinates for the bump we found and got a good return on the fishfinder, so we anchored and jumped in.

Diving the wreck

On the bottom appeared a complete PBM, but it was quickly apparent that this wreck had also been stripped and deliberately scuttled. To add to our confusion, this seemed to be a transport model of the aircraft. While it seemed like it had accommodations for guns in the waist doors, there were no turrets on it at all. This would make it a PBM-3R. This was quite a surprise, as we had no prior knowledge of any such aircraft lost

LEFT: Tail turret on crashed PBM-3D BuNo 48182 from VP-202.

Kwajalein

BELOW: A PBM-3R is rolled out at Norfolk after conversion from a PBM-3 in 1944

or disposed of at Kwajalein.

I shot off an email to Bruce Barth, an historian and expert on PBMs. He got back to me quickly, asked a bunch of questions and said he had to make some phone calls. A couple of days later, he wrote back saying he had discovered that a rescue or Dumbo squadron, VH-5, had been based at Ebeye in 1945. They had disposed of their six remaining planes in the lagoon at the end of the war when they were replaced with newer models.

We resumed the search for the rest of the planes, and armed with the hints from the sidescan manufacturer on setup and operation, we were getting a great look at the lagoon bottom. We hadn't been out for more than an hour when the sidescan quit transmitting. Nothing seemed to be able to revive it, so we had to pull it up and head back into the marina. The post-mortem on the unit was that the wire junction between the towing cable and the whip to the sonar head had parted,



U.S. NAVY



CLOCKWISE FROM ABOVE: A cut-up center section of a PBM lies upside down on the bottom. The tail and nose sections associated with this piece were discovered in the vicinity identifying the wreckage as a PBM-3D from VP-202 that was damaged beyond local repair in a non-operational accident during the war. It was cut up and disposed of in the lagoon to deny the enemy any access to it; Tail view of a PBM-3D, showing the mount for the twin 50-caliber turret; Overview of the fuselage section of PBM-3D BuNo 48182.

NEXT PAGE: Observation deck on the tail of PBM-3R BuNo 6495

and there was no way to affect a repair with the material on hand. This was not the only casualty this trip. The strobe mount for my Nikonos had broken (yeah, I still shoot film) and I had to struggle to take pictures with the camera in one hand and the strobe in the other. Isn't life grand?

Further exploration

On my return to the states, I placed an order for a new cable and started making plans to travel back to Kwajalein the following month. On arrival, I set up the sidescan again, and we got right to work. Now that we had found a new type of plane, and were assured there were more of them sunk in the lagoon, we started to search a

large area in a regular pattern. On television, they call this "mowing the lawn", and it is an apt description. Within a couple of days we had located another PBM-3R that had also been stripped.

Both the airplanes found so far were lying upright on the bottom, and looked to be in very good condition. We were excited by this second find and hoped to find the rest of the scuttled planes and our missing crashed plane quickly.

We would get the boat in the water each day after work and tow the sidescan around for a couple of hours, as well as most of the day on the weekends. We were having throttle problems with the boat, and as a result most of the time we had to tow the fish at

about four knots, about at the upper range of the manufacturer's recommendations. In spite of that, we were turning up all kinds of small objects. Most looked like cylinders, and some looked like irregular piles of stuff, but not much looked like an airplane with a 118-foot wingspan.

The effort grew into a sort of tedium...tow west for a mile, turn, stand off a ways and tow east for a mile. By the end of the trip, this had amounted to a grid of about 150 miles of towing lines on about 400-foot centers that covered nearly eight square miles of the lagoon. All this data was recorded and would be analyzed in detail later. To fill this dead time while towing, we started killing ants. Since the boat was stored



wreck
rap



Kwajalein



Could this be the crashed PBM-3D we had been looking for since 1995? It was over a mile from where we expected to find it, but it seemed as though it must be that plane.



The cut-up remains of another center section of an unknown PBM. This piece was discovered in 2007, no other pieces of the aircraft have been found

gested we try to nail down a couple of promising targets.

We worked the first one for an hour or so; making north south and east west passes over it until we boxed a good location. We anchored and got in the water. The visibility in this area was so-so and probably less than 50 feet that day—not very good by Kwajalein standards, but adequate.

As we neared the bottom, off to our right was a patch of lagoon bottom that looked a bit darker than the surrounding area. We swam over and saw the twin tails and fuselage of an airplane. We quickly saw that this was part of a PBM. It had a tail turret, a ragged break at the front of the fuselage, was upside down, and the waist hatches were shut. Could this be the crashed PBM-3D we had been looking for since 1995? It was over a mile from where we expected to find it, but it seemed as though it must be that plane.

With the help of Bruce Barth again, we were able to open the waist hatch and stick our heads in. Since there were five people killed on

on the island most of the time, it had become infested with ants. To better amuse ourselves, we started keeping score. I firmly believe this is the first step to what Pacific veterans of WWII called “going Asiatic”. At any rate, it helped pass the time.

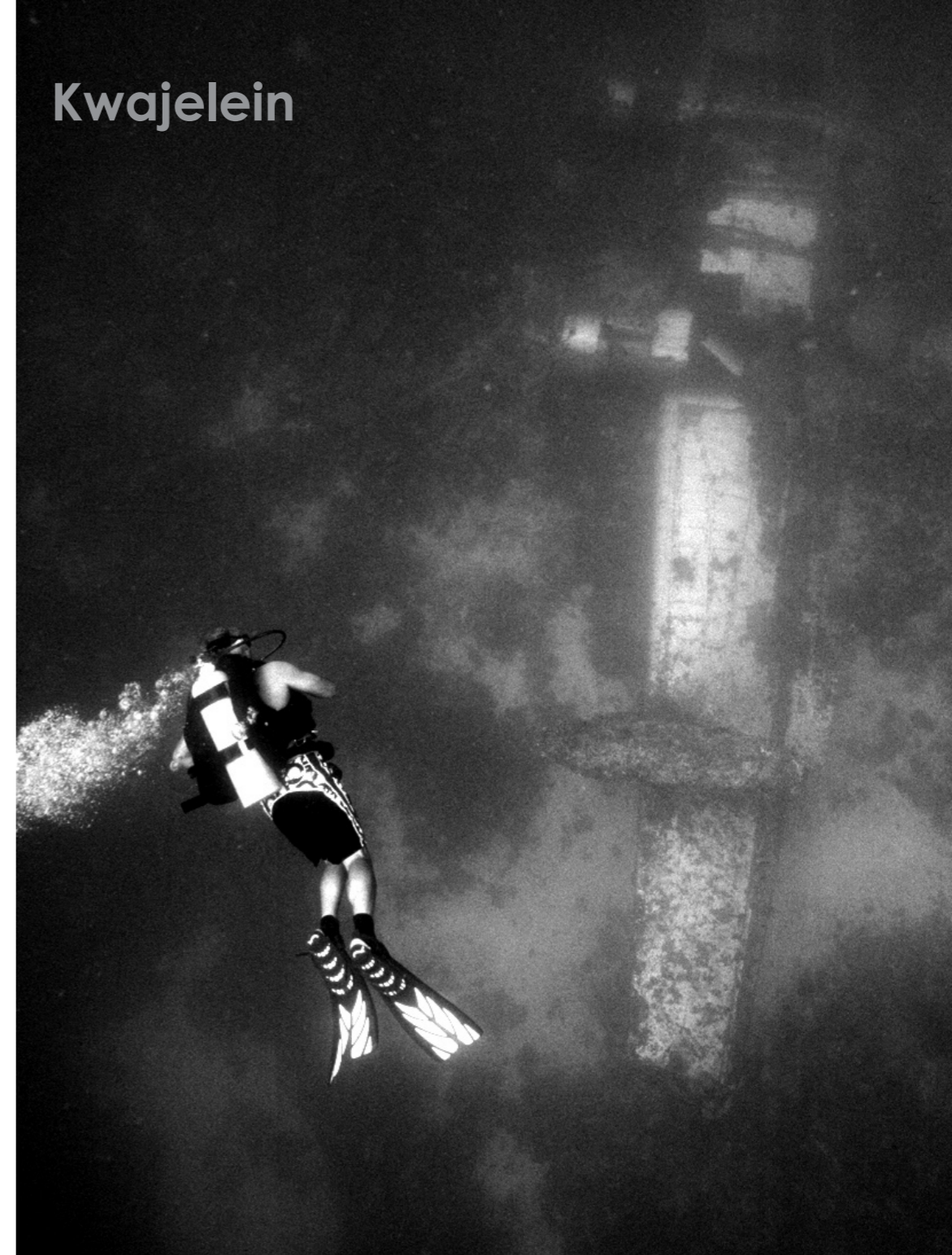
Making an occasional dive on the odd object we turned up on the sidescan also broke the boredom. One of these objects turned out to be the wing root and fuselage section of a PBM that had been cut into pieces before being dumped in the lagoon. In keeping with a personal tradition of camera problems, I flooded mine on this dive, forcing me to use my old Nikons II I keep as a back up. We had a couple of interesting targets that we tried prosecuting, but I ran out of time and had to head back to the states.

Bingo

My next opportunity to return to Kwaj wasn't until August 2009. Gordon had moved back to the states, so Dennis and I took up the hunt for the missing planes. I had the opportunity to review much of the 2007 sonar data and sug-



Kwajalein



An overhead view of the wing section of PBM-3D BuNo 48182

An overhead view shows the heavily damaged nose section of PBM-3D BuNo 48182. The entire bottom half of this part of the aircraft was torn off by the force of the crash, and lies about 100 feet away. Photo by Dan Farnham

this crash, we wanted to make certain there were no remains in the aircraft. There weren't any. Bruce later turned up information that four of the crew were killed in action (KIA), and one crewmember was missing in action (MIA) in the incident. The MIA was the pilot, and he would not have been in this part of the plane at the time of the crash.

In the next week, we found two more major



Flight deck of PBM-3R BuNo 6495 looking forward. This aircraft is one of 12 original PBM-3Rs built by the Glenn L. Martin Aircraft Company. All the other PBM-3Rs were modifications of existing aircraft



parts of the airplane—the wing and what remained of the nose section. The wing was remarkably complete. The engines were still attached, as were the floats. Like the fuselage section, it too lay upside down. The nose section was heavily damaged as it took the brunt of the impact. The nose turret was ripped off and was nowhere to be found. Also the bottom half of the nose was missing below the flight deck.

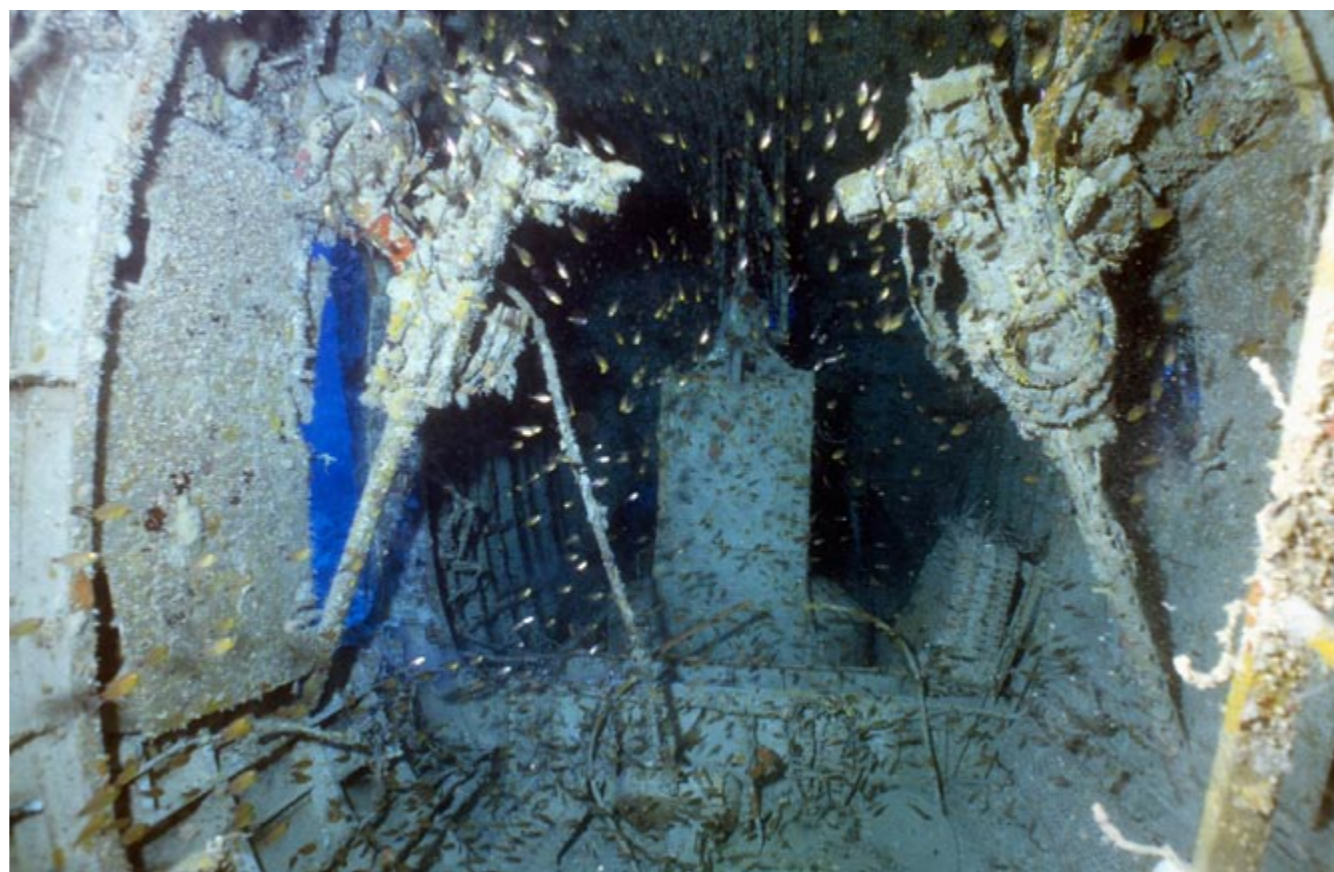
A careful inspection the flight deck area revealed no obvious human remains. Also, the flight deck was very clean and seemed to have accumulated very little sediment.

The navigator was on the flight deck at the time of the crash and

survived to write the accident report. The nose section after the crash would have had very little buoyancy and must have sunk rapidly.

Because of the damage from the crash, the only way out of the plane is what remains today, a small area over the flight engineer's panel at the rear of the flight deck. I suggest that the navigator and the others who were on the flight deck managed to get out through this opening, but most of them drowned.

I took one dive to brush away some of the sediment at the rear of the flight deck, the only place with enough sand to cover any remains. I didn't find any, so I have



Two MK-2 .50-caliber waist machine guns (above) are still in their stowed positions in the VP-202 PBM-3D, BuNo 48182 that crashed on landing off Ebeye the night of 14 February 1944. Five of the 11-man crew died in the crash, six survived. Note the dorsal turret and ammunition feed in the background. This piece of the wreck lies upside down; Cockpit of PBM-3D BuNo 48182 (left). Undisturbed for 65 years, everything remains as it was at the time of the crash

Pieces of Eight



Silver Treasure Coins of the 1622 Shipwrecks
Nuestra Señera de Atcocha
Santa Margarita
& the Portuguese Carrack *São José*

by Carol Tedesco

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wreck rap



to assume the missing pilot escaped the flight deck and drowned, but was not recovered with the other KIAs.

We located and dove on another cut-up PBM, finding three pieces of what we thought was a single airplane spread out over about 300 feet. As things tend to go with these expeditions, I ran out of time and had to cycle back to the States. The stage was set now for next year.

Hunting PBM's

In 2010, Hal Parker and his wife, LeAnn, were kind enough to sponsor me and put me up in their home as well. It couldn't have been better. Dennis was still there, but he had sold his boat, so we were forced into the pool of public rental boats. Without a doubt, these boats are far superior to the boats I had access to in the 1960s, but they couldn't hold a candle to Dennis' former boat. So we just

RIGHT: Bent propeller blades attest to the violent impact of the crash of PBM-3D BuNo 48182

BELOW: Nose turret and some of the remains of the galley deck of PBM-3D BuNo 48182. The two machine guns are pointed straight down into the sand



Kwajalein

had to make do, and the boats weren't always available when we wanted them.

We joined forces with Dan Farnham, who single-handedly is promoting wreck diving on airplanes through his articles in the local Kwajalein newspaper. The four of us set out to investigate targets that I had identified recently and to re-photograph as much of the planes as we could.

Aside from the usual kinds of junk that turns up in these surveys, floating docks, piles of scrap steel and the occasional Japanese landing craft, we were able to locate and dive on some previously unknown PBM parts. First we dove on the cut-up PBM we had found just before I left in 2009.

A more thoughtful analysis of the sidescan data showed that I had mis-read a direction of tow, and while we thought parts of the plane were to the south,

they turned out to be to the north. This complex of a center section, tail, nose and fuselage section was originally thought to be from one aircraft, a PBM-3D, as the tail and nose section were equipped for turrets, and the turret was still in the nose section.

One of the last dives I made on this trip was on the fuselage section at this site. I discovered that it had dorsal cargo doors on it, so it was not part of the same aircraft as the rest of the debris at this site. So we had actually found a piece of yet another PBM.

We also located the final piece of airframe from the VP-202 PBM-3D that had crashed—the nose turret and galley deck. The turret is intact, but the aluminum parts of the airplane are demolished almost beyond recognition. It lies about 100 feet from the rest of the nose section.

As a result of these four trips

to Kwajalein, the PBM-3D discovered in 1995 and the identification of the wreck on the reef my father and I discovered in 1967, we have located the remains and parts of eight PBMs of varying types in the lagoon of Kwajalein. Records indicate that there are two more PBM-3R conversions that were disposed of in 1945, and there are also parts of two PB2Ys that crashed in the lagoon in 1944 and 1945.

The area of the lagoon to search isn't getting any smaller, but I am sure there are intrepid divers who will eventually make the effort and locate these rare aircraft. ■

Bill Remick is an avid wreck diver and historian of World War II in the central Pacific. Most of his diving and research efforts are centered on events at Kwajalein Atoll. For more information, email uss.perry@cox.net.

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Opening and closing of Sharm El-Sheikh's beaches cause confusion

In the wake of recent Red Sea shark attacks, Egyptian authorities declared the city's beaches closed, reopened and closed again. To explain the ever-fluctuating situation, the South Sinai Hotels Chamber recently organised a meeting including top tour operators, tourist officials and South Sinai governorate officials. South Sinai Governor Major General Mohamed Abdel Fadeel Shousha declared that all of Sharm's beaches were open for swimming. However, snorkelling would be banned in the area north of Neama Bay until Ras Nosrani.

Feeding banned

"This situation will continue until all

technical studies, topographic surveys of the area and surveys of the sea bottom are executed by the researchers of the Suez Canal Authority. These experts from several fields are examining ways to secure the area in order that snorkelling can resume."

Shousha declared that procedures and penalties would be applied to ensure visitor safety, including banning the disposal of waste into the sea and of fish feeding adjacent to dive centres and hotels. Fines for violations could reach US\$50,000 for hotels and diving centres while tourists could be fined up to \$15,000. The penalty for dive boats throwing waste into the sea or allowing clients to feed the fish would

range from suspending their business from a month to six months. In the case of reoccurring violations, licenses could be withdrawn entirely.

Feeding to blame?

Foreign experts brought in by the Ministry of Tourism to investigate the attacks have revealed that the sharks were lured to shore by fish-feeding tourists. "For that reason, snorkelling and not diving was forbidden in some of the beaches, as there is a possibility of feeding the fish. Also, most of the beaches that were closed are the ones that have coral reefs," stated Hisham Zazou, first assistant to the minister of tourism.

Building awareness

Sharm El-Sheikh's hotels are now working to raise tourist awareness of regulations and etiquette preserving the marine environment. Some 200,000 posters have been distributed amongst hotels rooms and reception areas highlighting the negative impact of feeding fish and the importance of conserving the marine environment. Zazou believes that the negative impact of the attacks on tourism will be temporary, adding that he doesn't think domestic tourism will be affected as Egyptians, for the most part, do not take to the water in winter. ■

Can we go in now, please?
The opening and closing of Sharm El-Sheikh's beaches cause confusion for tour operators, tourists and domestic travellers alike

Lufthansa Announces Biofuel Flights

Officials for the German Airline have announced that a 50-50 mix of biofuel and traditional kerosene will soon power commercial flights.

In April, the airline will commence a six-month, 6.6 million Euro bio-fuel experiment with commercial flights on its Hamburg-Frankfurt-Hamburg route. The project's primary purpose is to study long-term effects of biofuel on engine life and maintenance.

During the trial period, Lufthansa will save around 1,500 tonnes of CO₂ emissions, according to airline chief, Wolfgang Mayrhuber. In addition to recording fuel efficiency in its commercial jets, Lufthansa must also tackle the challenge of finding biofuel in sufficient volume and the complex logistics of arranging fuel-ups without wasting time.

"Our fuel is sustainable. No rain forest will be deforested for Lufthansa biofuel," said Mayrhuber. "In the procurement of biofuel, we ensure it originates from a sustainable supply and production process. Our licensed suppliers must provide proof of the sustainability of their processes."

Although Lufthansa's experiment is significant, it's not the first major European airline committing to a reduced carbon footprint. In 2010, British Airways unveiled plans to establish Europe's first 'sustainable' jet fuel plant, which will produce aviation fuel from plasma gasification of biomass into BioSynGas. ■

Dive operator plans "carbon neutral" trips

Blue Planet Scuba, a new scuba diving organization in Washington, DC, announced the first program of "carbon neutral" scuba travel opportunities for DC, Maryland, and Virginia divers.

The company plans to make all its trips "carbon neutral" by sponsoring clean energy and carbon reduction projects resulting in a measurable reduction in carbon emissions. Carbon dioxide produced by the air travel, hotels and scuba for each trip is "offset" by farm power, landfill gas capture and wind energy projects. As carbon dioxide is the leading cause of global climate change, Blue Planet is offering these "offsets" as an important step toward sustainable travel.

"We're really excited to bring divers from the DC metro area to experience the diversity and thrill of the underwater world and to see firsthand what makes the ocean environment so unique. But in doing so, we believe it's our responsibility to limit our travel programs' impact on these same environments," said Heather Tallent, Blue Planet's co-owner and director of outreach. "Our focus is combining education, conservation and adventure in a way that helps scuba divers become the best advocates and allies for life in our oceans.

"Offsets are ultimately just one small step and must be combined with a broader effort to reduce our carbon footprints—we hope other businesses will follow," added Tallent. The first of these trips will be to Cozumel, Mexico, February 18-22, with four days of scuba diving combined with opportunities to learn about local marine life. ■



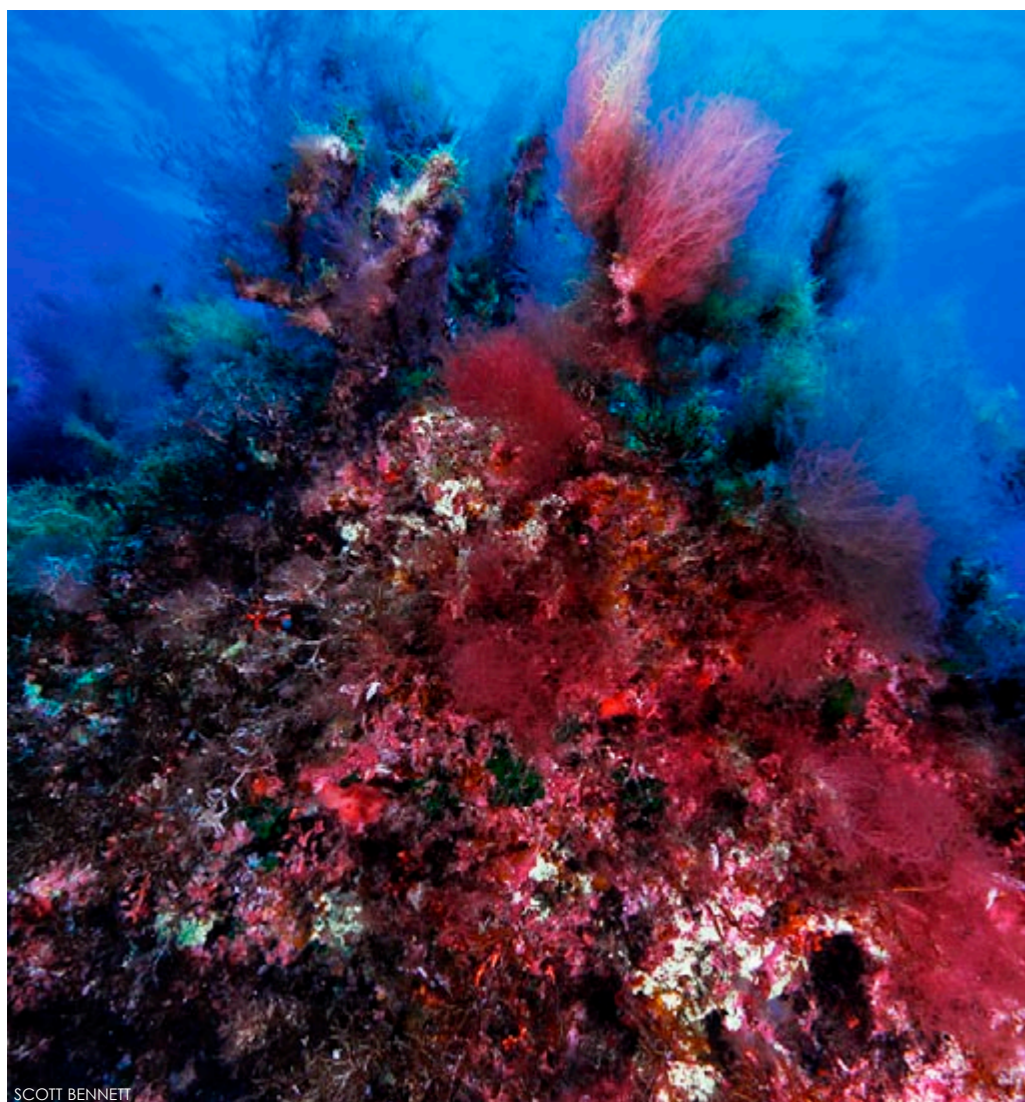


Malta's **GOZO Island**

— *Ancient Oasis of the Mediterranean*

Text by Scott Bennett. Photos by
Scott Bennett, Peter Symes & Gunild Symes

“Somehow, I can’t imagine lawnmowers being a high selling item here,” was one of my first thoughts while traversing the Maltese countryside. Dry and stark, the rocky landscape couldn’t be more different than the soft green of Denmark we had left behind a mere four hours earlier. However, it was instantly appealing and quite unlike anything I had seen before. In every direction, the sense of history was palpable. Age-old walls of stone criss-crossed the hills while the limestone buildings appeared to meld with the landscape instead of being separate from it. The rays of the setting sun burnished the entire scene radiant orange, creating a timeless scene like something out of North Africa or the Middle East. I immediately knew a remarkable week was in store. And there was going to be diving, too!



CLOCKWISE FROM ABOVE: The Azure Window is Gozo's most photographed natural attraction; A five-spotted wrasse peers from an eelgrass cluster in Xlendi Bay; Comino Island's colourful reef. PREVIOUS PAGE: Underwater photographer at a richly decorated wall of the dive site, Inland Sea

To be honest, Malta as a holiday destination, let alone a diving one, had never even crossed my mind. However, when X-RAY MAG's very own Peter and Gunild Symes announced a weeklong dive trip and asked me along, I was immediately intrigued. Having never visited Europe outside of the United Kingdom and eager to experience something new, I agreed in a heartbeat. Besides, who in their right mind could refuse the Mediterranean? In the end, Malta proved to be one of the

most pleasant and unexpected travel experiences that I've ever had.

Comprised of the primary islands of Malta, Gozo and Comino, the Maltese Archipelago is located in the Mediterranean 93km south of Sicily and 288km north of Africa. Occupying a strategic position on the trading route between Europe and Africa. Malta has been conquered and occupied by numerous civilizations during its 7,000-year history, from Bronze Age Neolithic peoples



SCOTT BENNETT

CLOCKWISE FROM ABOVE: Panoramic view of Xlendi Bay from the St. Patrick's Hotel's rooftop patio; Xlendi Bay's scenic walkway at sunset; Happy cappuccino and biscotti at the Xlendi Bay promenade

us to one of the furthest outposts of the European Union. My guidebook certainly wasn't kidding; Malta is small. While descending for the final approach, I could easily discern the entire archipelago from my window without even craning my neck.

From the airport, it was then an hour transfer by road to the ferry terminal at Cirkkenwa where we boarded an inter-island ferry to Gozo. Our home for the week was the St. Patrick's Hotel, located in the small resort town of Xlendi. By the time we checked in and had a change of clothes, it was already 9:30pm. I initially thought we were out of luck dinner-wise, but this was Europe. Unlike at home in Toronto, dinner hours hold no bounds and all the restaurants were open. Not surprisingly, Maltese cuisine has a definite Italian influence, a result of its close proximity to Sicily. After a delectable meal of seafood marinara and Gozo wine, the 'Med' had officially won me over!

Still on Canadian time, I arose early the next morning and went up to the hotel's rooftop patio to get my bearings. The view was spectacular!

Occupying a magnificent position at the end of a long, narrow bay hemmed in by imposing limestone cliffs, Xlendi passed the Three Bears test: not too big, not too small. Just right!

After breakfast and a much-needed jolt of cappuccino, we headed over to the St. Andrews Dive Centre to sort out our gear. The shop was already a hive of activity, with a multitude of people readying themselves for the morning dive. On hand to meet us was manager Mark Busuttil, who quickly gave us the rundown on our week's activities. As we had arrived so late the previous evening, none of our camera gear was ready, so we opted out of the morning dive. I think Mark was somewhat relieved!

Diving

When I discovered we would only be doing two dives a day, I was initially disappointed. However, Gozo soon proved to be a dive destination unlike any I'd experienced before; part of the adventure was just getting to the dive sites! While a number of

the island's 54 sites can be reached by boat, the majority are shore dives accessible by road. With up to ten divers or more per trip requiring several vehicles for transport, some serious co-ordination is required. Fortunately, the island's compact size ensures dive sites are never more than a 20-minute drive or boat ride away.

As the effects of recent unsettled weather were still hampering conditions, Mark decided our afternoon dive would be at neighbouring Comino Island. Piling into Mark's car, we then headed to the marina at Mgarr Harbour, our arrival point by ferry the previous evening. Here, we boarded a speedboat for the short trip over to



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to the Phoenicians, Arabs, Turks, French and British. Brimming with history, the islands showcase an eclectic fusion of cultural, culinary and linguistic elements to create a distinctive character all its own.

From Copenhagen, a leisurely three and a half hour flight delivered

Malta's Gozo

CLOCKWISE FROM FAR LEFT: Reef scene at Comino Island; Dino (inset), our affable dive guide; Comino Island's Blue Lagoon is a favourite destination for day-trippers; Eager for a handout, swarms of fish engulf divers outside the Comino Caves; A mosaic of pastel-hued algae at Comino Island; The network of caves at Comino Island make for a fascinating dive. All images this page by Scott Bennett



entered a large cave at 16m and ascended a chimney through the limestone plateau. Fortunately, the

prospects dicey, but we loaded our gear in a battered land rover, which soon proved to be the Maltese equivalent of the Energizer Bunny.



(L-Irqiqa), situated off the island's southwest corner. From the anchor

tunnel was wide enough for divers to maneuver without touching the sides. I was already eager for more!

Back in Xlendi, we met up had a pre-sunset walk down the narrow path leading to the old watchtower guarding the bay's entrance. The light was superb, with a multitude of photo ops at each and every turn. We didn't make it all the way to the tower, but the sunset was truly spectacular, igniting the clouds and rugged cliffs with glorious colour.

The following morning at the dive centre, Mark introduced us introduced Dino, who was to be our guide and driver for the remainder of the week. An affable Chilean boasting a broad smile and flowing silvery hair, he suggested the Blue Hole for day's first dive site. Menacing overcast skies made

point, we descended to a low rocky shelf at 6m. Happily, my 2mm suit was more than comfortable in the 25-degree water. I was immediately struck by the reef's appearance, which was quite different than anything I'd seen in the tropics. Stubby corals and lush green vegetation carpeted the slopes, resembling grassy terrestrial hills. Mirroring the rugged coastline above, a series of imposing boulders have created a network of huge caverns and swim throughs made for a contorted albeit fascinating dive. Near the end, we

Comino. By the time everyone was geared up and aboard, I could see why there were only two dives a day.

Wedged between Malta and Gozo, tiny Comino Island boasts a permanent population of four. Ringed by cliffs, it is home to the dazzling Blue Lagoon, where a combination of powder-white sand and clear water combines to gives the appearance of an immense swimming pool.

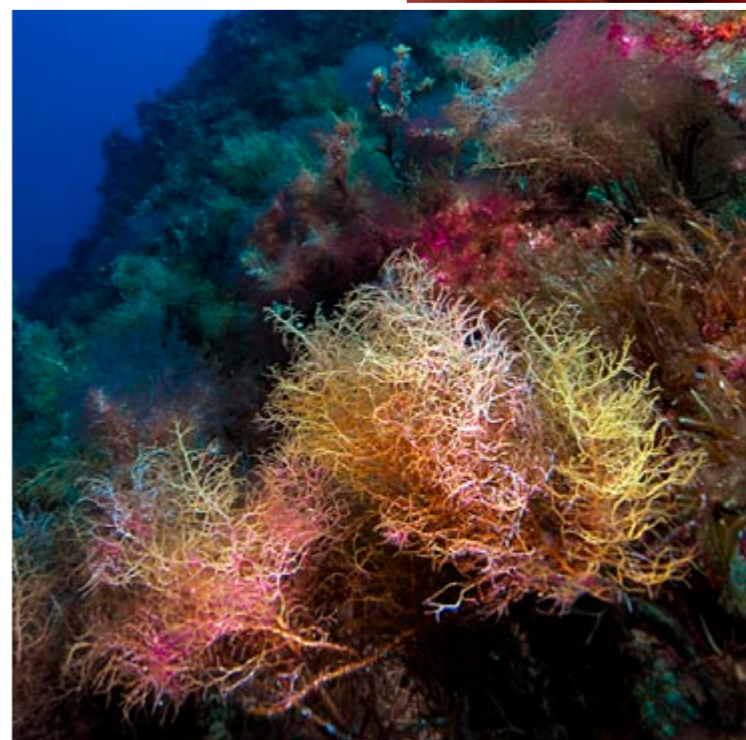
Lantern Point

Our destination was Lantern Point

Dwejra Point

Situated on Dwejra Point a 15-minute drive from Xlendi, Gozo's most popular dive site features a circular formation of limestone creating a large, clear rock pool. Dominating the proceedings is the Azure Window, a colossal natural arch that is one of Malta's most photographed natural attractions.

Upon arrival, we immediately headed over to a vantage point to judge the situation. Alas, the Blue Hole looked like a jacuzzi, with relentless waves spilling





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A delicate flabellina nudibranch (left) provides a splash of colour at the Karwela wreck; Beaded fireworms are routinely encountered at Gozo dive sites (above); A tiny cuttlefish (right)

over the narrow isthmus of rock separating it from the adjacent ocean. A few hardy Russian divers braved the churning waters, while a nearby fisherman sat oblivious to the entire scenario. As we had cameras, Dino recommended giving it a miss. Disappointed, we hopped aboard the land rover and returned to Xlendi. Back in town, we discovered conditions were rough pretty much everywhere, so we decided on the sheltered waters of Xlendi Bay.

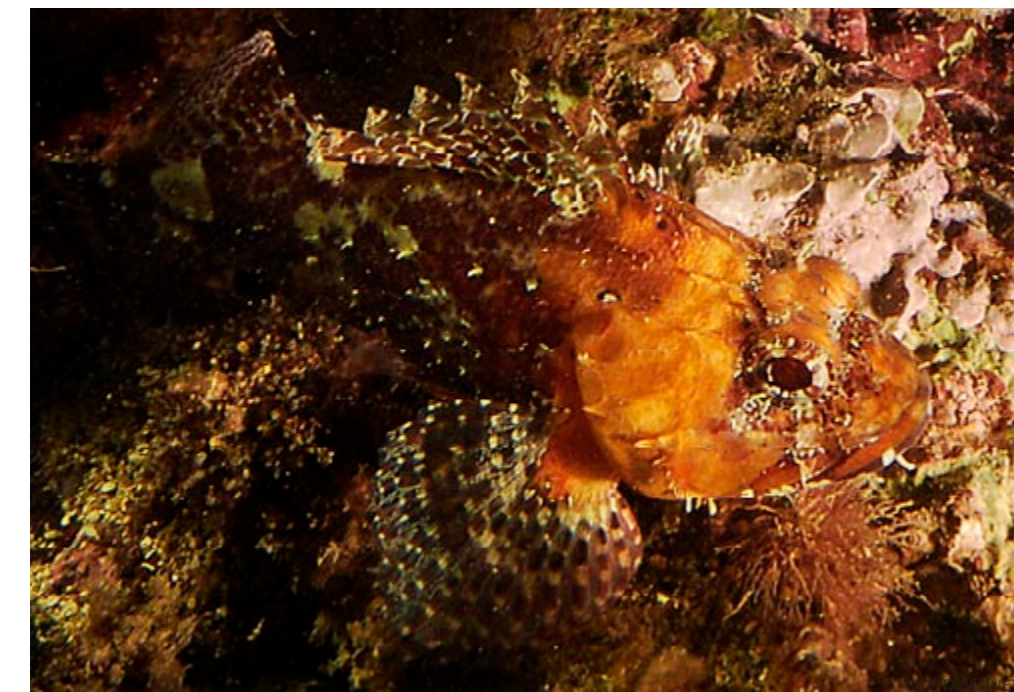
Xlendi Bay

After gearing up, we walked along the promenade to our entry point, a small ladder bolted to the rock face. Although the surface was calm, the visibility was limited to only a few metres. I was already kicking myself that I had brought wideangle instead of macro. Despite losing Dino for a short time, we managed to stick together as we kept

our eyes peeled for critters. We managed to locate some interesting scorpionfish, including a particularly photogenic orange specimen. Curse you, wideangle lens! However, the reef's most conspicuous residents were beaded fireworms. Boasting slate blue bodies accented by a multitude of puffy white hairs, some specimens were nearly a third of a metre in length.

Back at the dive centre, Mark told of one hapless Swedish diver who was so captivated by the 'pretty worms' that he placed one on his forearm for a photo. The following day it had ballooned to Popeye the Sailor proportions and required serious medical attention. So remember folks, look but don't touch!

Glancing at my watch, I discovered there was only a half hour before the next dive. I hurried over to a nearby sandwich shop to buy us some lunch. Still clad in my dripping wetsuit, no one even batted an eye.



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Accessing the Blue Hole requires an arduous trek over slippery jagged rocks (above) A scorpionfish rests underneath a large boulder near Xlendi Bay (far left)



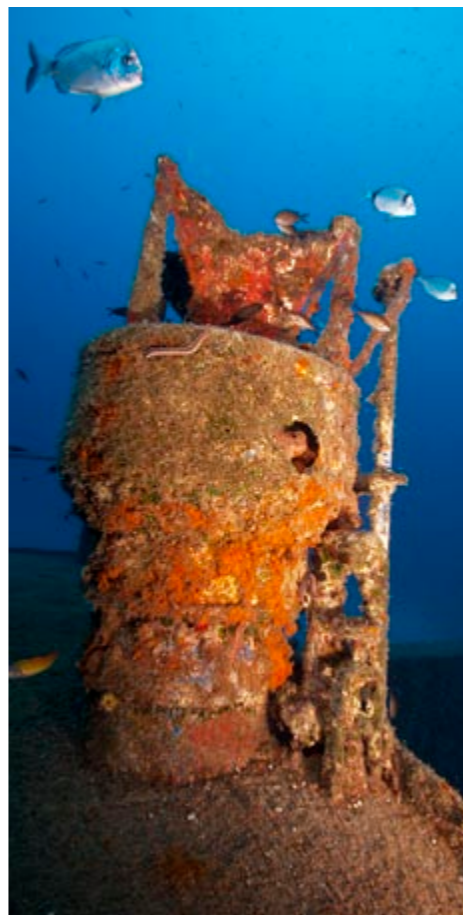
silver



cinema of dreams



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THIS PAGE: Resting on the sandy bottom near the Cirkkenwa ferry terminal, the Rozi is a magnet for fish and divers alike. All images this page by Scott Bennett

Rose Wreck

After inhaling our curry wraps, we were back in the land rover heading for Mgarr harbour. This time our destination was the Rose Wreck across the channel just off Malta. I couldn't help but notice how much faster the speedboat was than the ferry. Situated near the Cirkkenwa ferry terminal, the wreck is a tugboat sunk in



Malta's Gozo

1992 as an attraction for tourists on submarine tours. Although the tours have long-ceased, it is now a popular dive site.

Entering the water via giant stride, I was instantly struck by the visibility. Easily 30+ m, it was a world away from the murky waters of Xlendi Bay, with vivid blue water right out of the tropics. Sitting upright on a broad expanse of sand at 30m, it had already been colonized by colourful marine growth. A magnet for fish including chromis, bream and sand smelt, the vessel was quite photogenic,

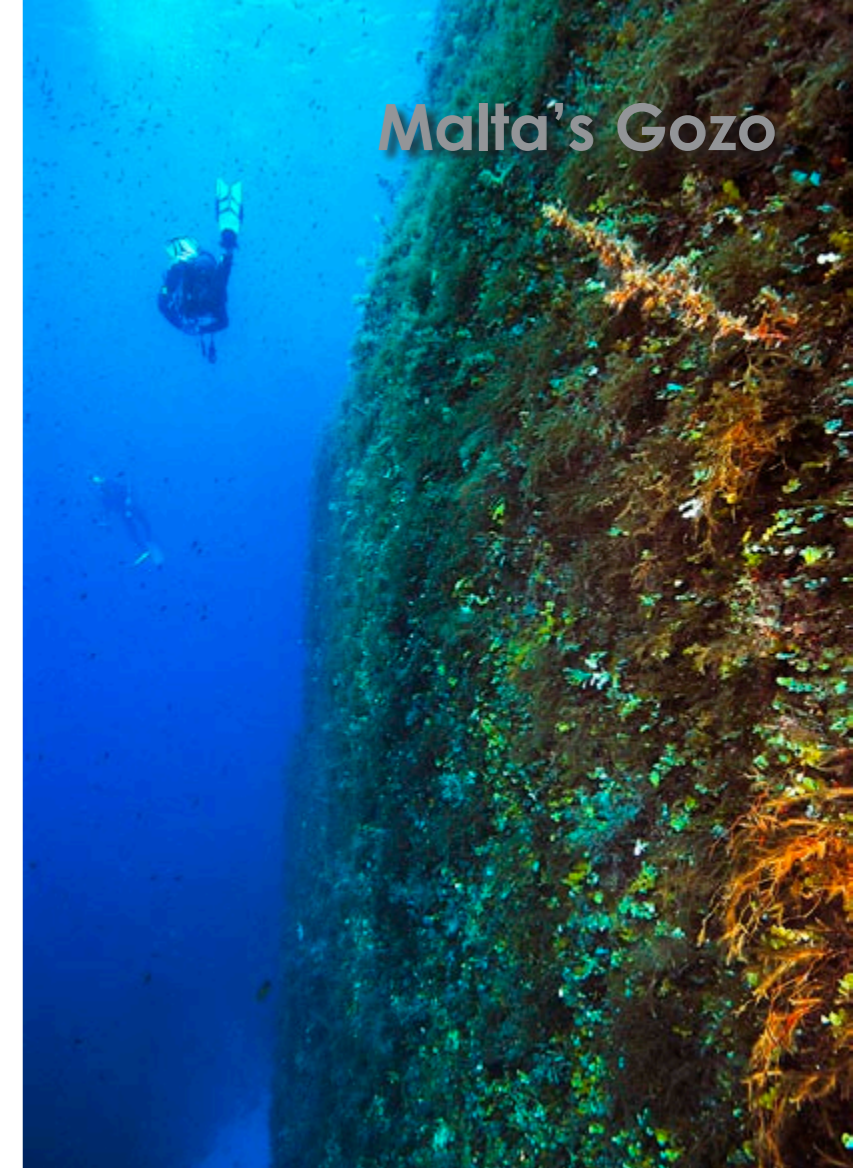
and I could have easily spent an additional half hour photographing. However, my computer had other ideas and we soon had to ascend to shallower water. Enroute to our safety stop, we passed through a sizeable underwater arch. As impressive as it was, I would later discover it to be the smaller sibling of a much larger relative. Back on the boat, Dino nonchalantly informed us the visibility was merely average that day, as it sometimes extends to up to 50m.

The next morning, we decided to give the





CLOCKWISE FROM TOP LEFT: A juvenile Portuguese man-o-war stands out from the vivid blue waters of Crocodile Rock; Divers congregate at the Inland Sea's entry point; The sheer drop offs of Crocodile Rock cascade to the depths below; The reef top at Crocodile Rock. All images this page by Scott Bennett



entering, we were greeted with an amazing sight. Dwarfed by the sheer immensity of the tunnel, a procession of divers passed, silhouetted by a narrow ribbon of blue leading to the exit beyond. At a depth of 18m, there was certainly no danger of colliding with anyone in here.

Continuing onwards, we entered the open ocean, with visibility easily reaching 30m. To the right and left, vertical fissures scarred the cliff face, while lush green growth and sponges shrouded the walls. During calm conditions, it's possible to

swim all the way to the Blue Hole.

Back in Xlendi, we were happy to discover the speedboat anchored near the dive shop. With 90 minutes to spare before our next dive, we had time for a leisurely lunch.

Grabbing our housings, we wandered over to the promenade and procured our usual seats at the St. Patrick's outdoor patio. Another day, another sumptuous pasta dish. The hardest part was fighting off the temptation of a glass of wine.

does resemble a crocodile's head! From the anchor point on the reef top, we descended to a rock platform at 7m. Following the reef to the rock's southern edge revealed a sheer-sided natural amphitheatre plummeting to the depths. We also had company; swimming in the blue was an impressive school of Mediterranean barracuda. Unfazed by our presence, they tolerated a close approach, allowing for endless photo opportunities. Continuing our circumnavigation, the vertiginous walls coupled with the 30m + visibility made for a truly spectacular dive. Immense undersea formations towered above distant divers as sea bream; rainbow wrasse and parrotfish flitted past. Enroute, we chanced across a diminutive jellyfish, pulsating white against the vivid blue. We later discovered it to be a juvenile Portuguese man-o-war, making me grateful I didn't get too close.

Blue Hole another try. Unfortunately, conditions remained maddeningly uncooperative, so Dino suggested the nearby Inland Sea.

Inland Sea

Created millions of years ago when an immense limestone cavern collapsed, the shallow lagoon is linked to the sea via a 100m long tunnel through a nearby cliff. After gearing up by the land rover,

we strolled over to the jetty, which was already chock-a-block with divers. Sliding into waist-deep water, Dino remarked that it was to be the easiest of the week's shore dives, a comment that bore decidedly ominous overtones.

Finning to the entrance, an immediate descent proved necessary to avoid the relentless stream of tour boat traffic. Upon



Crocodile Rock

After lunch, it was a full boat as we headed for Crocodile Rock, positioned offshore near Dwejra Point and the rather unglamorously named Fungus Rock. Passing alongside the towering limestone cliffs, the sea route was decidedly more scenic, not to mention expeditious!

We soon discovered it wasn't one of those fancifully named locations where one has to strain their imagination. It REALLY



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Victoria

For a change of pace, we all decided to head into Victoria for the evening. Gozo's principal town, it was originally known as Rabat before being renamed in 1897 to commemorate Queen Victoria's Diamond Jubilee. However, many locals still refer to it by its old name, which translates as "superb" in Arabic and archaic Maltese. Even with the main road linking Xlendi and Victoria closed due to resurfacing, the detour took all of 12 minutes to get to the bus terminal near the main square. Getting around was quite simple, as all signs were in English.

The town's dominating feature is Il Kastell (The Citadel), dramatically positioned on a hill overlooking the town. Before heading up to we made quick stop to photograph St. Francis Church located on the Pjazza San Franġisk. Dedicated in 1906, the church was stunning, bathed in the warm glow of the late afternoon sun. Despite being armed with a guidebook and map, it didn't take long for us to get pleasantly lost amidst the tangle of narrow streets. At every step, honey-coloured houses adorned with an intriguing medley of ornate covered balconies beckoned for photos. Maltese houses all have names, ranging from the traditional (Maria), to

the somewhat non-traditional (Hakuna Matata).

After a few more wrong turns, we finally discovered the road ascending the hill to the citadel's entrance. Compact and picturesque, it was originally constructed by the Arabs and hosts a cathedral and several museums. Just within the main gate lay the 17th-century baroque Cathedral of the Assumption whose imposing façade was infuriatingly obscured with scaffolding. It is famous for the remarkable trompe l'oeil painting on its ceiling, which depicts the interior of a dome that was never built due to a lack of funds. A walk around the bastions offered stunning panoramas of the entire island, with the Mediterranean visible in each direction.

With feet and cameras exhausted, we decided to stay for dinner before heading back to Xlendi. There was no shortage of restaurants and we soon settled on It-Tokk (Meeting Place), overlooking Victoria's main square, the Pjazza Indipendenza. From our table on the second story outdoor patio, we were spoiled with stunning views of the now-floodlit citadel. I couldn't resist getting out my camera for one last photo.



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CLOCKWISE FROM FAR LEFT: Victoria's dramatic citadel of Il Kastell as seen from the road to Xlendi Bay; A typical narrow winding walkway found in the quaint inner streets of Victoria; St. Francis Church in Victoria; Homes are given names such as Maria, the patron saint chosen for this abode; Il Kastell's ramparts command spectacular views of the Gozo countryside; Mopeds are common in the quiet narrow alleys of the town



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Third time's the charm

With our remaining diving days limited, we set out once again the next morning to try our luck at the Blue Hole. Arriving early to beat the morning rush, the third time proved a charm, as sea conditions were perfect. However, just getting to

the pool proved to be an adventure. After traversing a flat shelf of rock and descending some metal stairs, the going got rougher. Clambering over a multitude of wet, jagged rocks through a cleft in the limestone, I didn't wish to contemplate the results of a misplaced

foot. Finally reaching the pool, we descended 8m to an archway mirroring the Azure Window above. The actual size was difficult to comprehend until a group of divers passed directly beneath it. The scale was simply jaw dropping. Dino then



led us to a massive undersea cave. Entering the interior, we descended to 21m, where our torches startled a pair of hefty groupers resting on the flat, sandy bottom. Annoyed by the intrusion, they made a hasty retreat to the safety of the dark interior. Our 50-minute dive simply wasn't long enough.

Comino Caves

The afternoon saw a repeat visit to Comino. At the north side of the island Comino Caves consists of a large system of caves and tunnels extending in excess of 30m through the limestone headland. With a maximum depth of 11m and no noticeable current, the dive was quite leisurely. It also proved to be the week's 'fishiest' site with legions of saddled bream, two-banded bream and damselfish approaching divers for a handout. Entering a large cave entrance, torch beams revealed walls shrouded with a mosaic of pastel-hued sponges, corals and algae. A number of the passages were a bit on the tight side, but we all managed to squeeze through without any difficulty. However, a few errant fins resulted in a snowstorm of

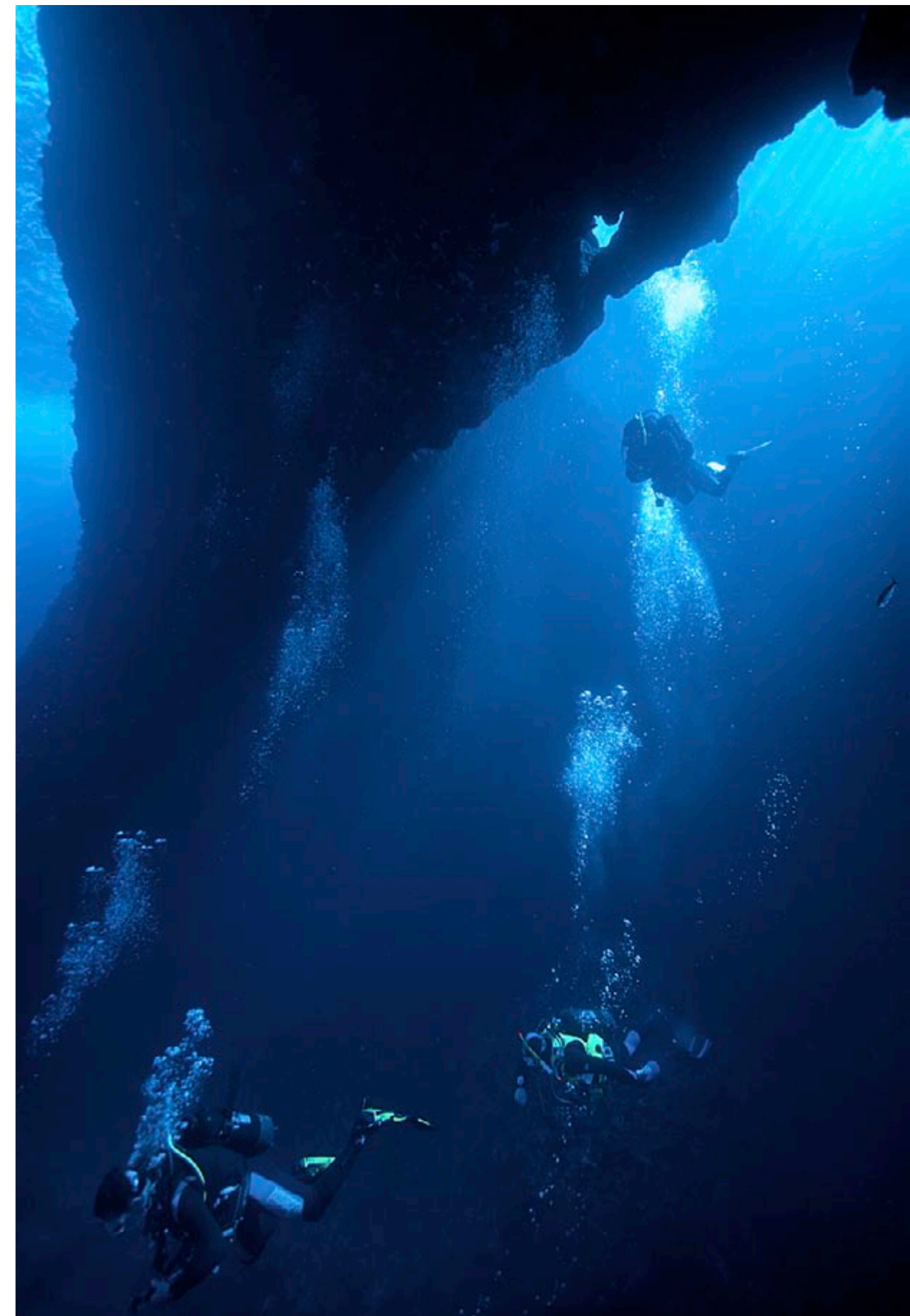


fragmented algae.

After the dive, Mark dropped us off for a shore excursion. The beach was quite possibly the smallest I have ever seen. Crammed full of sunburned holidaymakers in beach chairs, I was reminded of an overcrowded penguin rookery. Wading through throngs of tourists, we followed a trail along the rocky hillside. The air was

LEFT TO RIGHT: Cave entrance on Comino Island; Mediterranean barracuda cruise the blue at Crocodile Rock; The Blue Hole's incredible undersea arch towers over passing divers. All images this page by Scott Bennett

Malta's Gozo



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redolent with a familiar aroma that I later discovered to be wild thyme. A high vantage point offered a spectacular panorama of the entire lagoon and tiny Cominotto Island, with the northern coast of Malta visible in the distance. Dominating the horizon was the Comino tower, a fortress erected by the Knights of St. John in the 17th century as part of an early warning system to protect the area from marauding corsairs, pirates and Turks. It obviously had no effect on ice cream trucks,

which had somehow colonized the car-free island.

Topside excursions

The next day, we decided to take a break from diving to experience some of Gozo's land-based attractions. Our first stop was the extraordinary temple complex of Ggantija situated outside the village of Xaghra.

Ggantija

Translated as "Giant's Grotto",

Ggantija's two temples are the largest and most complete of Malta's megalithic shrines. One of them, estimated to have been constructed between 3600 and 3000 BC, is the oldest stone structure in the world, predating the Great Pyramids of Egypt by hundreds of years. According to legend, the temple walls were built in one day and one night by a female giant named Sunsuna, who accomplished the feat while nursing a baby.

A place of pilgrimage for Malta's ancient inhabitants, archaeologists believe the temples were dedicated to the Great Earth Mother, a goddess of fertility. Characterized by round, curved architecture, the two shrines suggest the body of the Earth Mother, with broad hips and full breasts. It is still a mystery as to how the island's ancient inhabitants were able to hoist such massive stones, with some weighing in at more than 1000kg.

Salt Pans

Afterwards, we headed to the island's north coast towards the resort town of Marsalforn. Along the way, we stopped at an overlook to admire picturesque Ramla Bay with its sandy beach, a rarity on Gozo's

rugged coastline. Just outside of town along Xwieni Bay, the peculiar natural formation of Il-Qolla l-Bajda (white hill) overlooked a man-made one; an intricate patchwork of salt pans hewn into the rugged coastline.

Produced only during the summer months, sea salt production has a long tradition in Gozo. The first step is the easy part, with rough weather flooding the pans with seawater. Once sizzled dry by the sun, the residual salt crystals are then harvested utilizing backbreaking manual labour carried out in the scorching heat.

Ta'Mena

The morning's most pleasant surprise was a visit to the Ta' Mena Estate. Situated in the Marsalforn Valley between Victoria and Marsalforn Bay, Ta' Mena is Gozo's first agritourism development. Upon arrival, we met owner Joseph Spiteri who showed us around the property. The estate includes a fruit garden, olive grove with about 1,500 olive trees, over ten hectares of vineyards and a state of the art winery. The diverse assortment of produce ranges from Mediterranean herbs such as thyme and rosemary to olives, lemons, oranges, pomegranates, strawber-

CLOCKWISE FROM LEFT: Gozo's ancient temple complex of Ggantija predates the Great Pyramids of Egypt by hundreds of years; Olive trees; An intricate patchwork of salt pans is hewn into the rugged coastline near the resort town of Marsalforn; Ramla Bay features an expansive sandy beach, a rarity on Gozo's rugged coastline



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ries, tomatoes and watermelons.

Joe explained that the property was unique in Gozo, offering accommodation for those wanting to take part in agricultural experiences such as fruit picking, grape and olive harvesting, winemaking and olive-oil pressing. Just procuring the land has been a major undertaking, with ownership of the surrounding countryside being passed down by a number of families through many generations. With the advent of immigration, purchasing up the property has required a

worldwide search that took a number of years to complete.

After our tour, we all sat down to a delicious buffet-style lunch prepared by Joe's wife and daughter, with the majority of the ingredients

coming right from the property. Especially delectable was an appetizer of fresh bread called hobz slathered with sun-dried tomato paste and a drizzle of olive oil. Much thicker than the usual tomato paste with a more intense flavour, I never would have imagined it as spread for bread. I was so smitten that I purchased a hefty jar to bring home.

Along with more standard Maltese fare such as salami, salad and eggplant, the most unusual dish was salad of mint, watermelon and gbejniet, unpasteurized goat's milk cheese flavoured with salt and crushed black

peppercorns. I never imagined such disparate ingredients would meld so superbly!

Afterwards, Joe also showed us the proper (and highly complex) procedure to peel and open a pomegranate. If a test had been required afterwards, I would have no doubt failed miserably.

During the meal, we had the opportunity to sample a splendid selection of Gozo wine including red, white and rose. We even sampled one of Joe's specialties, liquor prepared from the fruit of the prickly pear cactus. The latter proved especially dangerous, and we were all grateful our tour was finished after lunch. It was hard to believe we could fit so much into half a day.

CLOCKWISE FROM TOP: The vineyards at Ta'Mena Estate; The owner, Joe Spiteri, demonstrates how to peel a pomegranate (inset); Delicious Ta'Mena lunch with fresh produce; Olives and olive oil of Ta'Mena



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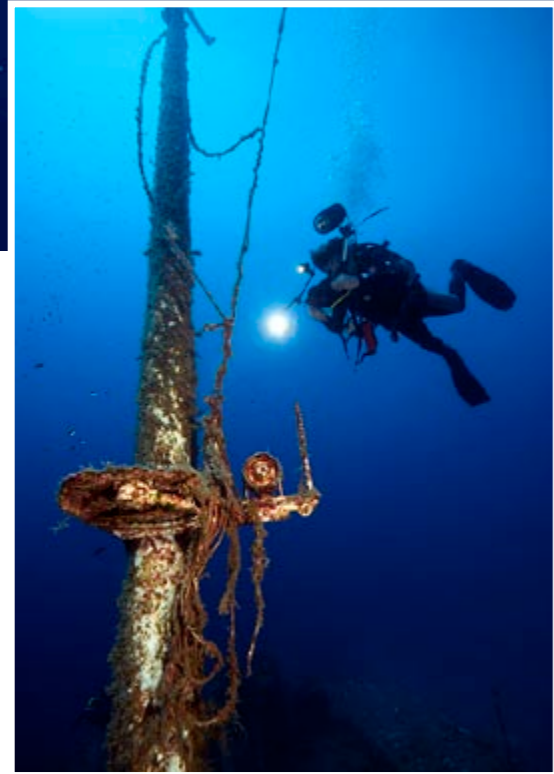
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CLOCKWISE FROM TOP LEFT: Despite being sunk only recently, growth has already started to colonize the vessel; Dive guide Dino poses in the wheelhouse of the Karwela; Peter photographs a flabellina nudibranch perched on a mast; Resting at 35m, the Karwela is a former passenger ferry sunk to create an artificial reef. All image this page by Scott Bennett

headed down a bone-jarring track that would have mortally wounded the suspension of an average vehicle. The views were dramatic, offering uninterrupted views of farmland sloping to the rugged shoreline below. Our land rover took it all in stride and Dino expertly delivered us to the parking lot without incident.

lying upside down between 35 and 40m. "They're all heading there just because it's deeper," mused Dino. To avoid the impending undersea bottleneck, he suggested the nearby *MV Karwela* instead. We certainly started the day with a healthy dose of exercise, as it was a bit of a hike to the entry point. After descending steps hewn into the rock, we traversed a series of rock slabs that fortunately lacked the Blue Hole's jagged entry. As we were going to gear up at the water's edge, several trips were necessary to haul everything

down. By this point, the Germans were already enroute to the *Xlendi* so we headed straight for the *Karwela*. Within five minutes of descending the slope, the vessel's dim silhouette broke through the gloom. The *Karwela* is a 50m long passenger ferry sunk in 2006 to create an artificial reef. Not quite as deep as the *Xlendi*,

she rests upright a depth of 35m. Although barren in the growth department, it was nonetheless a fascinating dive. It's also possible to enter the wheelhouse, which

Dino did to pose for a photo. Peter also discovered the week's first nudibranch, a beautiful pink flabellina (which I unfortunately missed). Due to the depth, I hung

More diving

For our final day of diving, Dino recommended another wreck dive. We then loaded our gear in the land rover for one final time and set out. Turning off the immaculate main round, we

MV Xlendi & MV Karwela
We arrived to discover a sizeable contingent of Germans already gearing up. Their destination turned out to be the *MV Xlendi* a purposely-sunk passenger ferry



PETER SYMES



GUNILD SYMES

Steeped in history, the intricate tangle of Mдина's streets is a pleasure to explore (left); The Strand at Silema (above) provides fantastic sunset views of neighbouring Valletta



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With Mдина's citadel a popular film location, costumed extras are a common sight

around the upper portions of the deck towards the bow. I later discovered that we missed a unique sight; an old VW Beetle had later been sunk on the vessel's rear deck.

With the spectre of deco looming, we reluctantly ascended the nearby slope to shallower waters. Healthy meadows of eelgrass hosted abundant populations of fish. On the seabed, small ridges of overhanging rock proved to be a popular hangout for an array of critters, including red scorpionfish, flatworms, octopus and even a tiny cuttlefish.

Malta

After a wonderful six days of diving, it was finally it was time to bid Gozo adieu. After catching the ferry back to the main island, we immediately headed to our overnight accommodation, the San Antonio Hotel and Spa in St. Paul's Bay. After Gozo's sleepy environs, the bustling resort atmosphere of St. Paul's was like Miami Beach. After a quick check-in

and cappuccino (yes, ANOTHER one), we set out on our afternoon tour of Malta.

Mдина

Our first stop was the city of Mдина, a UNESCO world heritage site a fifteen-minute drive from the hotel. Occupying a commanding position atop a rocky promontory, the fortified bastions of medieval Mдина loom high above the azure Mediterranean.

Derived from the Arabic word 'Medina', the city's present name comes from the Saracens who arrived around 870 AD. Christened the "Silent City" by residents and visitors alike, the narrow streets are mercifully off limits to cars. Entering the old city walls was like stepping into a time capsule, its enchanting labyrinth of meandering laneways crammed with churches, palaces and stately houses. Rounding a corner, I was startled by the appearance of an assembly of

men clad in medieval garb. The illusion was quickly shattered; not only were they wearing wraps but one fellow was eating one. I then discerned a series of snaking cables leading to a nearby film crew.

Fronted by a large square, the impressive Cathedral of the Conversion of St Paul is the centrepiece of the old city. Constructed between 1697 and 1702, it replaced the original Norman church destroyed by an earthquake and is believed to occupy the site of a villa belonging to Publius, Malta's first Roman governor. While admiring some intricate balconies adorning the square's buildings, I asked our guide Vince what the local people called them. "Balconies" he quipped with an utterly deadpan expression. Old English style phone booths and mailboxes provided a charming reminder of the days of British colonial rule.

We could have spent hours exploring, but we had one final stop to make



PETER SYMES

The Cathedral of the Conversion of St Paul is the centrepiece of Mдина's old city



GUNILD SYMES



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CLOCKWISE FROM ABOVE: Malta's compact capitol of Valletta occupies one of the most outstanding natural sites in the Mediterranean; The stunning interior of St. Paul's Co-Cathedral is a masterwork of Baroque architecture; Interior of the Grand Master's Palace

across Marsamxett Harbour. As the light waned, the city lights transformed the historic skyline into a mesmerizing vision against the deepening indigo sky. As the last vestiges of light dissipated, cameras and photographers were exhausted!

Valletta

Our final day in Malta proved to be a whirlwind of activity, with our first stop being Valletta, the Maltese capitol. Occupying one of

the most arresting natural sites in the Mediterranean, Valletta was simply extraordinary. Perched atop the rugged Mount Sceberras peninsula separating Marsamxett and Grand Harbours, the

city was named after its founder, Jean Parisot de la Valette, Grand Master of the Order of St John. Encompassing a compact area of 600m by 1,000m with a population of 7000, the diminutive city is a cultural cocktail of European art and architecture.

Constructed by the Knights of St. John starting in 1566, the city is one of the first planned towns in Europe.

The island's principal business centre and the seat of government, its network of constricted streets boast some of Europe's finest art, churches and palaces. Upon being named a World Heritage site in 1980, UNESCO declared Valletta among the most concentrated historic areas in the world. Right away, I could see a mere morning wouldn't be nearly enough time.

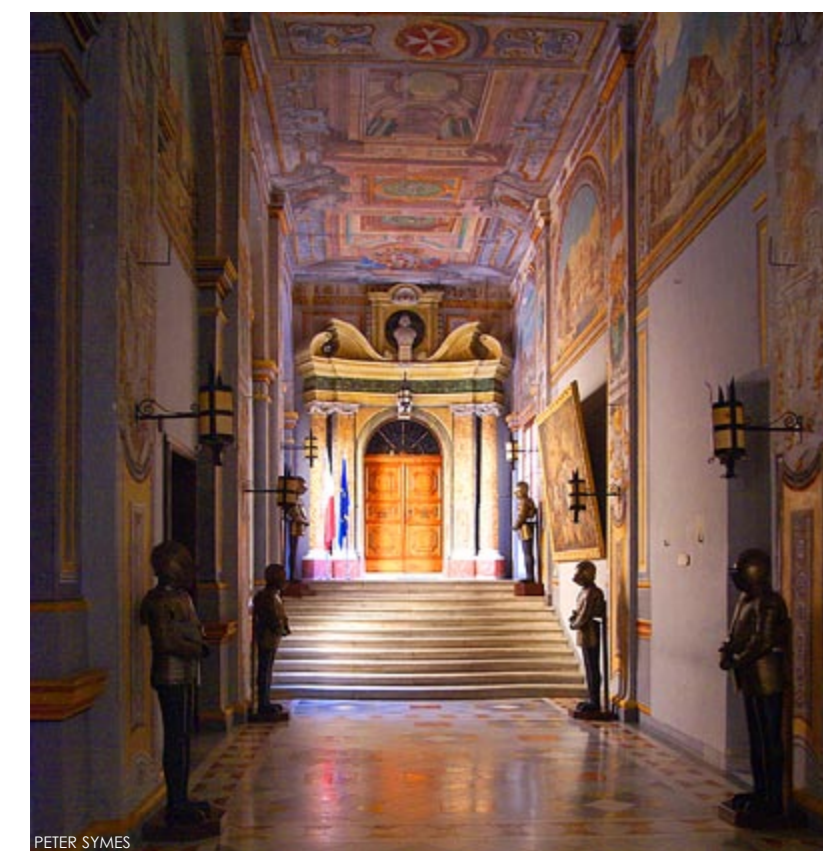
Upper Barrakka Gardens

After parking the van, a short stroll brought us to the Upper Barrakka Gardens. Created in the late 16th century, the colonnaded gardens offered a welcome respite from Valletta's bustle while a viewing platform offered a stunning panorama of Valletta and the Grand Harbour. In the distance, Fort St. Elmo guarded the harbour's entrance facing Ricasoli Fort on the eastern arm of Grand Harbour. Contrasting sharply with the harbour's vibrant blue, a hodgepodge of ochre-hued buildings jostled for space along the steep hillside creating a photographer's dream. I didn't want to leave.

St. Paul's Co-Cathedral

The remainder of the morning was spent exploring Valletta's bevy of attractions.

Constructed between 1573 and 1578, St. Paul's Co-Cathedral is Malta's largest church. Framed by twin bell towers, the unadorned exterior is no preparation for the wonders that lay within. A riot of Baroque splendour, the magnificent interior was truly wondrous to behold. The Cathedral contains eight chapels, each dedicated to the patron saint of the eight langues (divisions based on nationality of the Knights). High above, every centimetre of the vaulted ceiling was covered with paintings depicting scenes from the life of St. John., while a collage of more than 300 tomb slabs in a rainbow of colours covered the floor below. Numerous side altars, columns and alcoves were emblazoned with a wealth of intricate details including the distinctive Maltese crosses, the insignia of the Knights of St. John. Gold shrouded



PETER SYMES

before dinner. Negotiating Friday afternoon rush-hour traffic, we arrived at Silema's Triq ix-Xatt (the Strand) in the nick of time to catch the setting sun gloriously illuminate the Valletta shoreline



GUNILD SYMES



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CLOCKWISE FROM FAR LEFT: The ruins of Hagar Qim; Colourful fishing boats called luzzu bob in Marsaxlokk's picturesque harbour; A thoroughly decadent ricotta cheese dessert; The spectacular Blue Grotto on Malta's southern coast; The distinctive 'Eyes of Osiris' adorn a fishing boat

virtually every surface, adding an opulence that bordered on sensory overload.

Grand Master's Palace

A short stroll away on Palace Square lay the Grand Master's Palace. Now hosting the President's office, it has been the seat of Maltese government since the time of the Knights. In these days of heightened safety measures, it was downright surreal wandering the superbly appointed rooms and passages with a complete absence of guards. At the parliamentary entrance, the only semblance of security was a few suits of armour. A highlight was the Council Chamber, adorned with priceless Gobelin's tapestries woven in France for Grand Master Ramón Perellos y Roccafi.

Marsaxlokk

From Valletta, a short drive brought us to the coastal village of Marsaxlokk (marsaxlokk) for lunch. Its name is derived from marsa, meaning "port" and xlokk, the Maltese name for the southeasterly Mediterranean wind known as the Sirocco. Home to 70 percent of the nation's fishing fleet, the harbour was used as an anchor-

age by the invading Turks during the Great Siege of 1565. Today, it is famous for its flotilla of double-ended fishing boats called luzzu. Boldly painted in hues of yellow, blue and red, many were ornamented with the distinctive "Eyes of Osiris" to ward off evil spirits, a design thought to date back to the ancient Phoenicians.

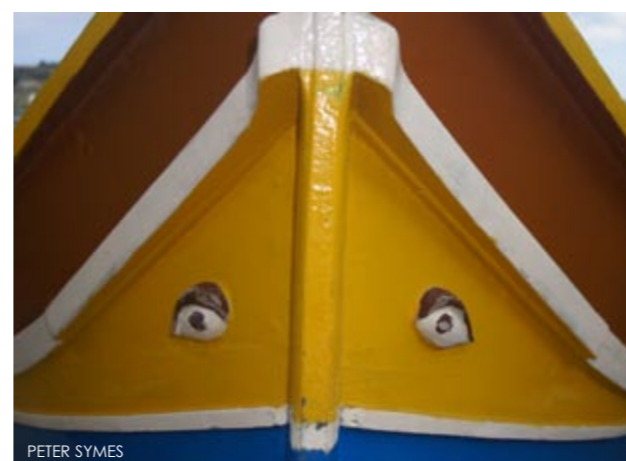
Hagar Qim & Blue Grotto

With time running out, we just had time to visit the ancient ruins of Hagar Qim and the striking natural arch of the Blue Grotto before heading to the airport to catch our flight.

It is said that the massive stones of Hagar Qim were erected around 3600 and 3200 BC, and are considered to mark one of the most ancient religious sites on Earth.

Located on the southern coast of Malta, Blue Grotto is actually a group of sea caverns in which each morning various blue colors are reflected off the waters by the sun and the phosphorescent colors of underwater flora are visible.

Despite the country's diminutive size, we barely scratched the surface of all the cultural, historical and natural sites to see,



PETER SYMES

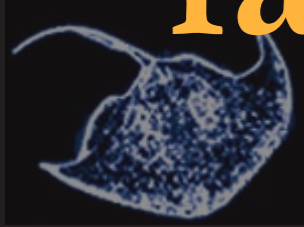
not to mention the high end shopping district in Villetta as well as the quaint street boutiques and antique shops of Victoria.

During our stay, we did a total of nine dives each offering a broad array of environments. While fish life was less than I've encountered in Asia, the spectacular undersea landscapes and tremendous visibility made for some truly enjoyable diving experiences. Along with the remarkable history, friendly people and sumptuous food, I'd go back in an instant. While small in size, Malta is big on attractions! ■



GUNILD SYMES

fact file



Malta



SOURCE: CIA.GOV WORLD FACTBOOK

History With the signing of the Treaty of Paris in 1814, Malta was formally acquired as a crown colony of the British Empire, remaining a staunch supporter of the United Kingdom through both World wars. Upon attaining independence in 1964, the nation remained in the British Commonwealth until becoming a republic a decade later. Since about the mid-1980s, the island has transformed itself into a freight transshipment point, a financial center and a tourist destination. After a narrow vote in a national referendum, Malta became an EU member in May 2004. The Euro was adopted as the national currency on 1 January 2008, with coins displaying the Maltese cross. Government: Republic. Capital: Valletta

Geography Comprised of an archipelago of five islands, Malta is situated off Southern Europe in the Mediterranean Sea between Sicily and North Africa. Of the five, only the three largest islands—Malta, Gozo and Comino—are inhabited. The tiny islets of Filfa

lines, providing excellent natural harbours. Although bounded by sea cliffs in many areas, the landscape is primarily dry, low and rocky, with no mountains present on the islands. The highest point is Ta'Zuta on the island of Malta, which rises to a height of 253m. Neighbouring Gozo is noticeably greener, with terraced hillsides and flat-topped hills. Malta and Tunisia are currently discussing the commercial exploitation of the continental shelf between their countries, particularly for oil exploration.

Climate Malta's climate is Mediterranean with mild, rainy winters and hot, dry summers.

Environmental issues Due to its compact size, Malta faces a number of serious environmental issues. Along with such world-threatening issues such as air pollution, biodiversity, ozone layer protection and climate change, other localized concerns include desertification, endangered species, hazardous wastes, marine dumping and ship pollution. In addition, limited natural fresh water resources have seen an increasing

reliance on desalination. Malta is party to agreements including Air Pollution, Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Marine Dumping, Ozone Layer Protection, Ship Pollution, Wetlands.

Economy Malta's financial services industry has grown in recent years, escaping significant damage from the 2008-09 international financial crisis. This was largely due to the sector being centered on the indigenous real estate market and not being highly leveraged. Locally, the restricted damage from the financial crisis has been attributed to the stability of the Maltese banking sys-

RIGHT: Location of Malta on global map
BELOW: Location of Xlendi on map of Malta



tem and to its prudent risk-management practices. However, with the economy contracting by 2.2 percent in 2009, the government took steps to supply direct grants to struggling local businesses. Due to its geographic location between the EU and Africa, Malta has become an ever-increasing target for illegal immigration, which has placed a tremendous strain on the islands' political and economic resources. With limited fresh water supplies and few domestic energy sources, Malta produces only about 20 percent of its food needs. Along with natural resources including limestone and salt, the islands' range of agriculture products include potatoes, cauliflower, grapes, wheat, barley, tomatoes, citrus, cut flowers, green peppers; pork, milk, poultry and eggs. Effects of the global economic downturn, combined with elevated electricity and water prices, have dam-

aged Malta's economy, which is heavily dependent on foreign trade. Tourism is the predominant industry, supplemented by electronics, shipbuilding, construction, food and beverages, pharmaceuticals, footwear, clothing, tobacco, aviation services, financial services and information technology services. Natural resources: limestone, salt, arable land.

Currency Euros (EUR)

Population 7406,771 (July 2010 est.). Ethnic groups: Maltese (descendants of ancient Carthaginians and Phoenicians with Italian heritage and other Mediterranean stock). Religion: Roman Catholic 98%. Internet users: 198,800 (2008)

Language Maltese (official) 90.2%, English (official) 6%, multilingual 3%, other languages 0.8% (2005 census)

Hyperbaric Chambers
Gozo General Hospital, Victoria, Gozo. Tel: (21) 561600 or (21) 562700

Mater Dei Hospital, Msida, Malta. Tel: (356) 2545 5269 or emergency 112.

Websites
Malta Tourism
www.visitmalta.com



and Cominotto are uninhabited. Copious bays punctuate the coast-



Tiny little cuttlefish hiding in the reef

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ON BOLD LINKS



Gifts for Sea Lovers

Valentines Day is just around the corner...



Artistica Blue Hawaii

From the timeless legend of Medusa, to the awe-inspiring majesty of the tropical reefs and beyond, Artistica Blue Hawaii Jewellery Collection includes 700+ creations crafted in platinum-glazed sterling silver with real diamonds and ocean blue topaz. With craftsmanship backed up by three generations' worth of experience, each piece comes with a lifetime warranty. Part of the

proceeds goes towards maintaining a healthy marine environment. Medusa's Shield Octopus Pendant (left) shows the octopus shape of the guardian queen who is said to protect ancient Atlantis and its treasures. Beyond the Reef Fish Heart Pendant (above) is designed with two tropical fish, diamonds and blue topaz available for US\$110 at:

Crystal-fox.com



Crystal-fox.com

Romantic Sea Myths

Iemanjá, the goddess of the ocean and the "national" Orixa of Brazil, is the highlight of this intricate papercutting by artist Kay Weber of San Francisco, California, USA. This 20 x 14 inch piece is just one of Weber's many papercutting creations, in which he gives traditional legends and mythology a modern appeal. Hmm... what mythical tales of fantasy come to mind when you gaze upon this image? Price: US\$500.00 Absolutearts.com



Whale on a Bike

Now, this is something you don't see every day—a gray whale riding a bicycle, on a t-shirt. Created by husband-and-wife team Adam and Coryn of Dark Cycle Clothing in Tampa, Florida, USA, this memorable image is hand-screen-printed in black gray ink onto 100% cotton black American Apparel t-shirts with an additional two inches of length. Whatever your message to the world, be it whale conservation or eco-friendly public transport, you will make a splash wherever you go! Price: US\$18.00 Artfire.com

Mermaid Dreams

Fancy a mermaid in your home? No, we're not talking about re-runs of *Splash* on the telly—rather, this stunning 7.5 x 10.25 inch stained glass window cling handmade by Window2theSoul in Sadler, Texas, which can stick to any window, sliding door or other non-porous surfaces. And if you ever want a change of decor, simply peel it off and move it to another room in your home. Painted on acrylic glass with UV protection—won't fade. Custom orders welcome. Artfire.com

ALL IMAGES COURTESY OF THE MANUFACTURERS



Edited by Gunild Symes
& Catherine G S Lim





...Gifts Sea Lovers

A Whale with Heart

Here's another whale that breaks the norm. This hump-back whale is literally bursting with love, not just water.

Designed by Corrie Kuipers from the Netherlands, this quirky design is printed on a 100% combed cotton American Apparel t-shirt. Sizes start with a junior/very small fit. Skreened.com



Oceanic Tattoo Fish Tie

Now here's a way to wear your vacation fantasies to the office in style with this necktie designed by Michael Phipps of Orem, Utah, USA. It's practically teeming with Polynesian Tattoo-style fish, seaweed and coral. Every image you see is an original creation that's been carefully screenprinted by hand on a microfibre Umo Lorenzo tie. Price: US\$15.00. Artfire.com



Frivolous Tendancies

Creative, whimsical, joyous, and fun to look at. These words spring to mind as one glances upon these colourful sculptures designed by John and Robbyn Runyon of Frivolous Tendancies in Ashland, Oregon, USA. And, looking at these two in particular—a mermaid with the man on the moon and three mermaids riding a whale—it's also inspiring to note that they have been painstakingly salvaged and recreated from recycled metals. Many styles of mermaid pieces are available. Their hair is cut, curled and styled using the same recycled metal. Glass eyes from the artisans' kiln are used as well as recycled copper starfish. Two hooks soldered on the back make for easy hanging for indoor or outdoor use. Each sculpture is signed and dated and hand painted with outdoor acrylic metal paint. International shipping available. Price range: US\$39.00-495.00.



Mermaid Kissing Man on Moon. 24 x 18 inches. Price: US\$195.00 Etsy.com



Mermaid and Whale Wall Sculpture. 20 x 31 inches. Price: US\$495 Etsy.com

A GIFT OF LOVE

Adopting an animal, or a natural area, is a gift of compassion and conservation that keeps giving. It is a thoughtful alternative to buying stuff that may actually pollute the sea and imperil its creatures.

ADOPT A WHALE

Through adoption programs you learn about whales such as orcas in the wild and in captivity, as well as how orcas in the Northwest United States and British Columbia have been studied and individually identified. Donation: \$25.00 Savethewhales.org or Whale-museum.org

ADOPT A DOLPHIN

In the resort town of Hisaronu on the southern coast of Turkey, two bottlenose dolphins—Tom and Misha—were kept in a small, deteriorating pool. They were fed frozen fish and were clearly traumatised, showing signs of deep distress. Despite this, tourists were oblivious to their suffering, and willing forked out GB£50 to swim with the two dolphins. You can help rehabilitate and retrain these dolphins to return to their natural home in the wild. Donation: GB£10.00 Bornfree.org.uk

ADOPT A MANATEE

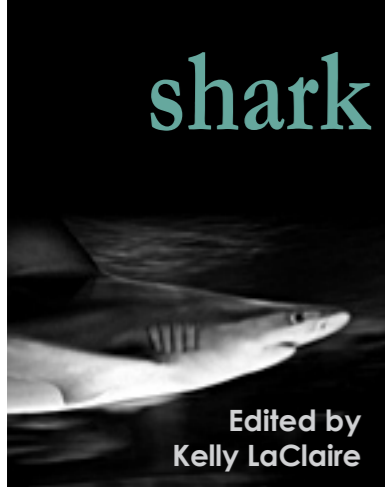
Adopt a manatee and help protect an endangered species. Funds from the Adopt-A-Manatee program go toward initiatives and activities that help protect manatees and their habitat. Unlike other animal adoption programs, the manatees in this adoption program are real, living manatees—individuals with known histories. Donors can even visit their adopted manatee at one of three locations in Florida. Donation: US\$25.00. Savethemanatee.org

ADOPT A SHARK

Adopting a shark is a progressive and unique way to get involved in shark and ray conservation. AdoptaShark is also an educational program for adults and kids because everybody learns a ton of information about sharks and the oceans. Donation: US\$50-100. Adoptashark.com

ADOPT A REEF

You can help protect some the world's most fragile and diverse ecosystems when you Adopt a Coral Reef today. The Nature Conservancy's Adopt a Coral Reef program raises funds for critical coral reef projects in the Bahamas, Dominican Republic, Palau and Papua New Guinea. Donation: US\$50 and up. Adopt.nature.org



Edited by
Kelly LaClaire

Cousteau visits Nassau in attempt to ban commercial shark fishing

Pierre-Yves Cousteau, son of legendary, Jacques Cousteau, visited Nassau recently to personally support the Bahamas National Trust (BNT) and the Pew Environmental Group's (PEG) campaign asking the government to enact legislation banning commercial fishing of sharks in the Bahamas.

Such a ban would help ensure the US\$78 million that shark related tourism (essentially diving) is estimated to bring to the Bahamas annually.

Because of the global decreases in shark populations from over-fishing, primarily due to the demand in Asia for shark fins soup, a long-line fishing ban in the 1990s helped the Bahamas remain with an abundant population of sharks.

Now, Cousteau, along with the BNT and the Pew Environmental Group is asking that

the government take a bolder proactive stance towards protecting this resource through legislation banning all commercial fishing of sharks.

Cousteau pointed out that the shark diving industry in the Bahamas—estimated to have brought in \$800 million to their economy over the last 20 years—could be severely threatened in the near future if the ban is not put in place immediately, citing examples in other parts of the world as proof.

"I know that divers like to see large animals underwater. Because of lack of protection in the Mediterranean, sea sharks have been completely exterminated. People used to go to the Red Sea to see sharks but there are now no more there either because of a lack of legislation," he said. "The Bahamas is one of the last places where people can come and enjoy watching sharks. If we let the sharks be depleted the demand will be there but the supply will not, and the Bahamas will miss a huge economic opportunity going forward."

The decision to ban shark fishing may take time, as governmental change is often slow and mired in bureaucratic-soup, but the fact that the discussion has been started and supported by opinion leaders such as Cousteau is a good sign for the future of sharks in the Bahamas. ■

SOURCE: BBC



NOAA

Small islands to become Pacific leaders in shark conservation

The Commonwealth of the Northern Mariana Islands (CNMI) has taken a decisive step to become the first U.S. territory to ban shark finning. The CNMI consists of 14 volcanic islands of the Pacific—most notably Saipan, Tainan, and Rota—and is located between Hawaii and the Philippines.

With a unanimous vote, the Commonwealth House passed minor-

ity leader Diego T. Benavente's (R-Saipan) bill seeking to prohibit any person from possessing, selling, offering for sale, trading, or distributing shark fins in the CNMI.

House Bill 17-94, based upon similar legislation passed in Hawaii earlier this year, now heads to the governor for final ratification.

"I am very happy," Benavente said.

New shark sanctuary announced in Indonesia

Indonesia has announced that a shark sanctuary has been declared for the entire 17,760 square miles of Raja Ampat.

The Sanctuary will provide full protection for sharks, rays, manatees, turtles and exotic fish illegal caught for the aquarium trade as well as exclude the highly destructive practices of reef bombing. The Shark Sanctuary, described by many scientists as an area with the most diverse marine life on earth, is the first of its kind anywhere in Indonesia, the largest island archipelago in the world.

The declaration is in direct response to a massive global campaign initiated by Shark Savers, an international conservation organization, and Misool

Eco Resort. The campaign gained widespread support of thousands of divers and conservationists, tourism groups and diving companies from all over the world.

"This new Shark Sanctuary owes its creation to thousands of ocean advocates who expressed the urgent need to protect sharks, mantas, and other marine life," stated Michael Skoletsky, Executive Director of Shark Savers. "Divers experience the oceans from the inside and are increasingly taking responsibility for ocean and shark conservation. Underwater ecotourism is a vital tool to counter the rampant exploitation of the world's remaining sharks and bio-rich marine ecosystems."

"I consider this a milestone legislation because it not only benefits the Commonwealth as far as putting our place on the world map in protecting sharks, but it also helps the international movement to protect sharks."

Once the bill is signed into law, it is hoped that the shark fin soup trade in the CNMI will cease. Marine scientists point to shark finning as the principal reason for the decline in shark populations worldwide, estimating that 70 million sharks are killed each year in the hunt for fins that will end up in soup. Some shark populations have fallen as much as 90 percent in certain parts of the world as a result.

Two international groups, Shark Savers and WildAid, have publicly extolled CNMI's efforts. "Increasingly, the countries most dependent on the ocean are rallying to the defense of sharks, perhaps the ocean's most important inhabitants," said Michael Skoletsky, of Shark Savers. "The CNMI's intelligent decision to preserve sea life will benefit future generations and attract lucrative underwater tourism, rather than allowing foreign fisheries and shark fin cartels to plunder its resources." ■



NOAA

Ghostfishing

adventure

—Discarded, lost nets keep on fishing even after they have been relieved of duty

It is the nightmare of every diver who dives the Dutch North Sea—getting entangled in a fishing line of old net, unable to free yourself. The Dutch wrecks are becoming an ever popular destination for both the fishing and diving industry. A threat to both, fishing boats and anglers can lose their nets and lines on wrecks, and divers can lose their lives. This year, a new project was initiated to clean the wrecks of their burdens of abandoned fishing gear—*Duik de Noordzee Schoon*, or Dive Our North Sea Clean. This summer, photographer, Peter Verhoog, was a member of the project team and captured the beauty and the dangers of adventurous diving.

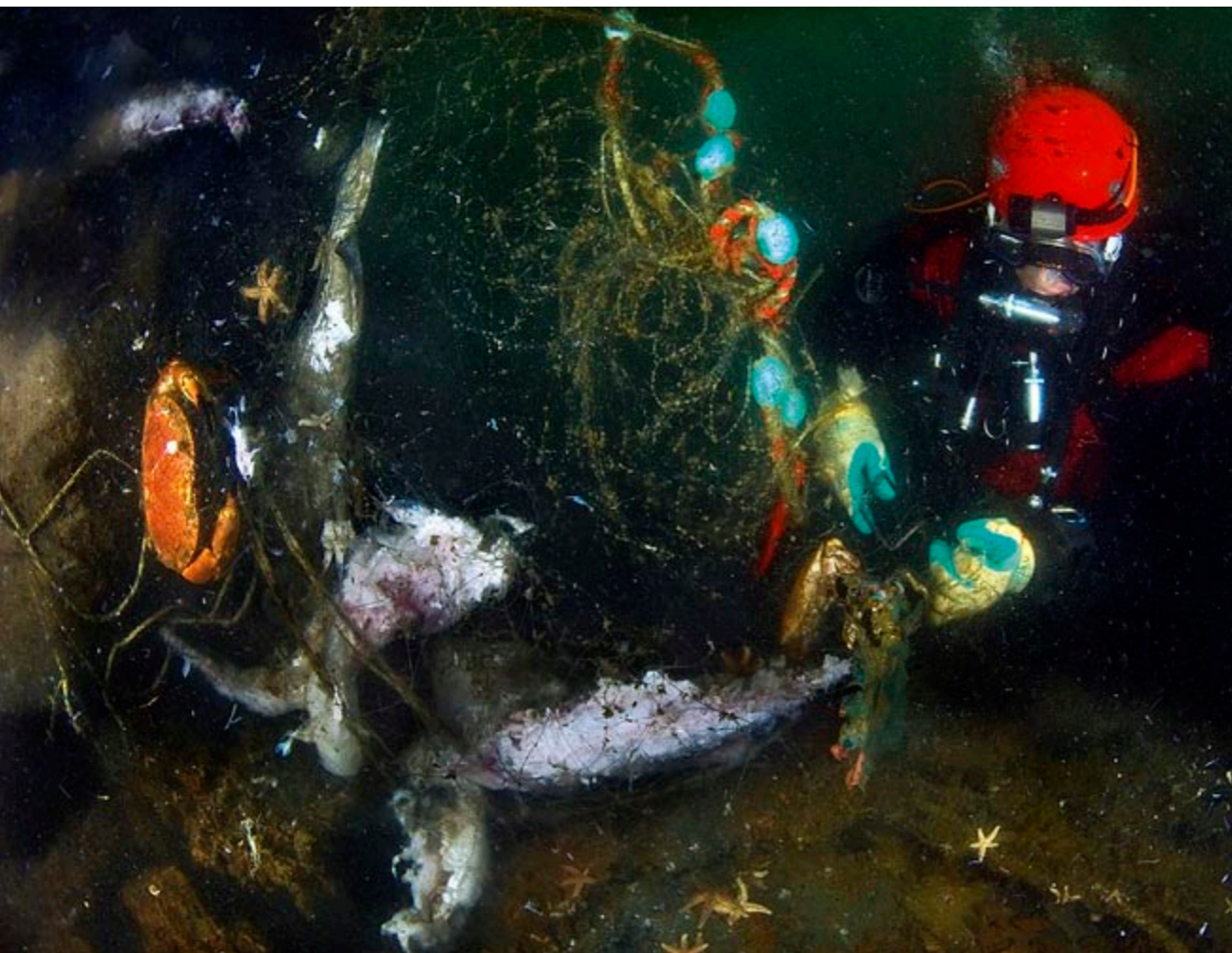
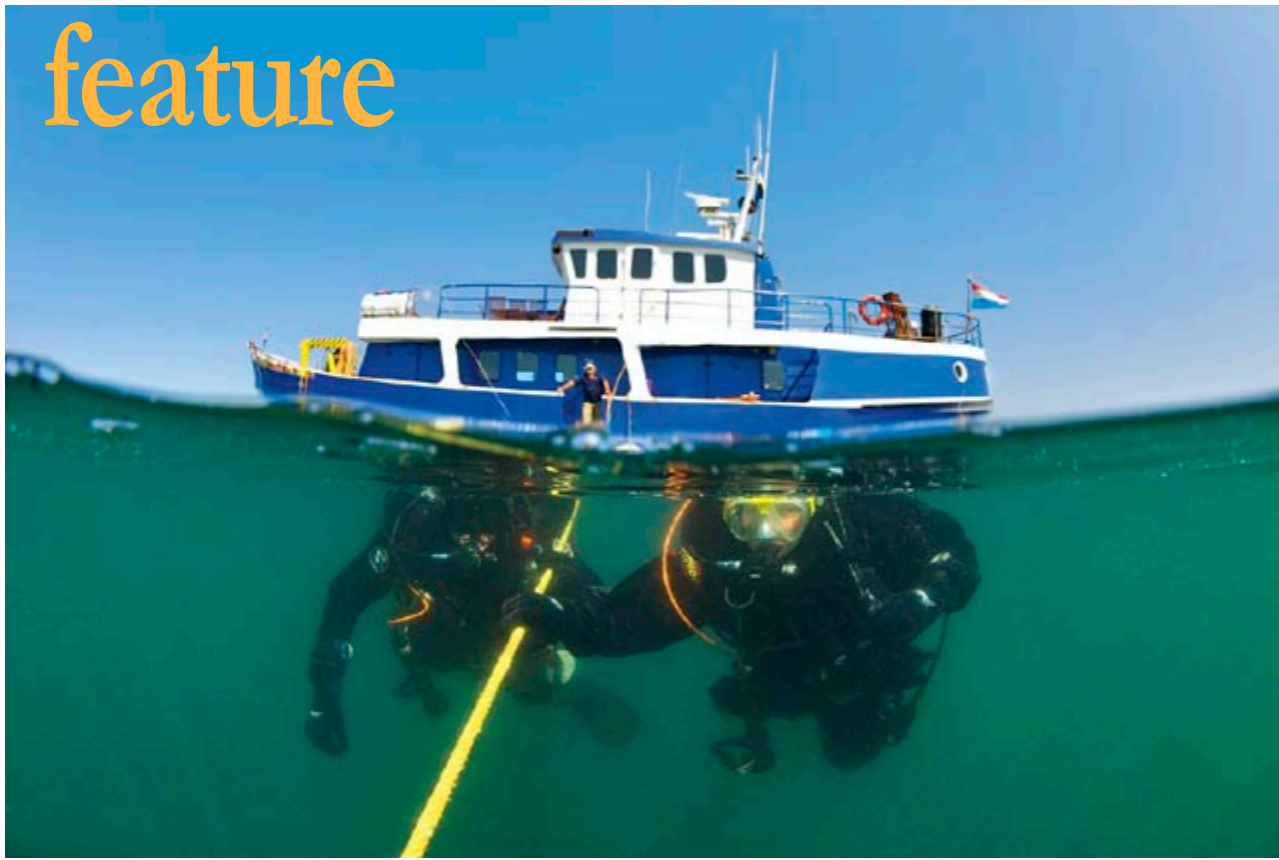
Text and photos by Peter Verhoog



Every lost net, every lost line, keeps fishing, sometimes for decades. Fish get caught, starve, die, and are approached by large North Sea crabs that eat the corpses. Most of the time, they get entangled in the net as well. And starve. And die. And attract other creatures...



CLOCKWISE FROM TOP: In good visibility, a net can easily be found; Crab, unable to move, forever caught by a copper pipe and fishing lines; Ben releases a lobster from a fishing line



Diving the North Sea is always an adventure. Even though the weather can be unpredictable, more and more divers have started to explore the wreck sites each year. But wreck diving can be dangerous, too. I have dived the wrecks of my North Sea for over a decade now, and I have seen the number of lines, hooks, sinkers and nets explode. On several occasions, my slow swimming exploration over a wreck was suddenly interrupted—something held me back. It could be a line, a line and hook, or a fine-mesh net that was almost invisible. The only solution was getting out a sharp knife and cutting the lines or net—a task that can be daunting under low visibility and in a tidal current. Most of the time, I needed the help of my buddy to survive. As cod and flatfish are becoming scarce in the Netherlands, an ever increasing

CLOCKWISE FROM TOP LEFT: Divers descend along the anchor line to the wreck; Divers swim by a fishing net; Peter jumps off the ship for a photo dive on the wreck of the *Elbe*; Ben cuts a dangerous, thin fishing net from the wreck



number of people try to make extra money by fishing on the wrecks. For them, there is no quota, as officially, they are not professional fishermen. At a profit of over seven euro's per kilo, wreck fishing is a great hobby and the large boats that leave almost every weekday are crowded. The catches are mostly composed of undersized cod that are not even sexually mature, which goes to restaurants and are also sold privately.

But angling is not only a threat to the fish. Every year, an estimated 100,000kg of poisonous lead are left behind in the sea, as many anglers lose their lines, sinkers and hooks. The professional fishing industry fishes with the nets as well, and use standing nets and dragnets on the sandy floor around the wrecks, which are occasionally left

behind, as one wreck or another refuses to let them go. None of those visitors have a clue as to what is going on underwater once they have departed.

When they head back to port, a tragedy unfolds. Every lost net, every lost line, keeps fishing, sometimes for decades. Fish get caught, starve, die, and are approached by

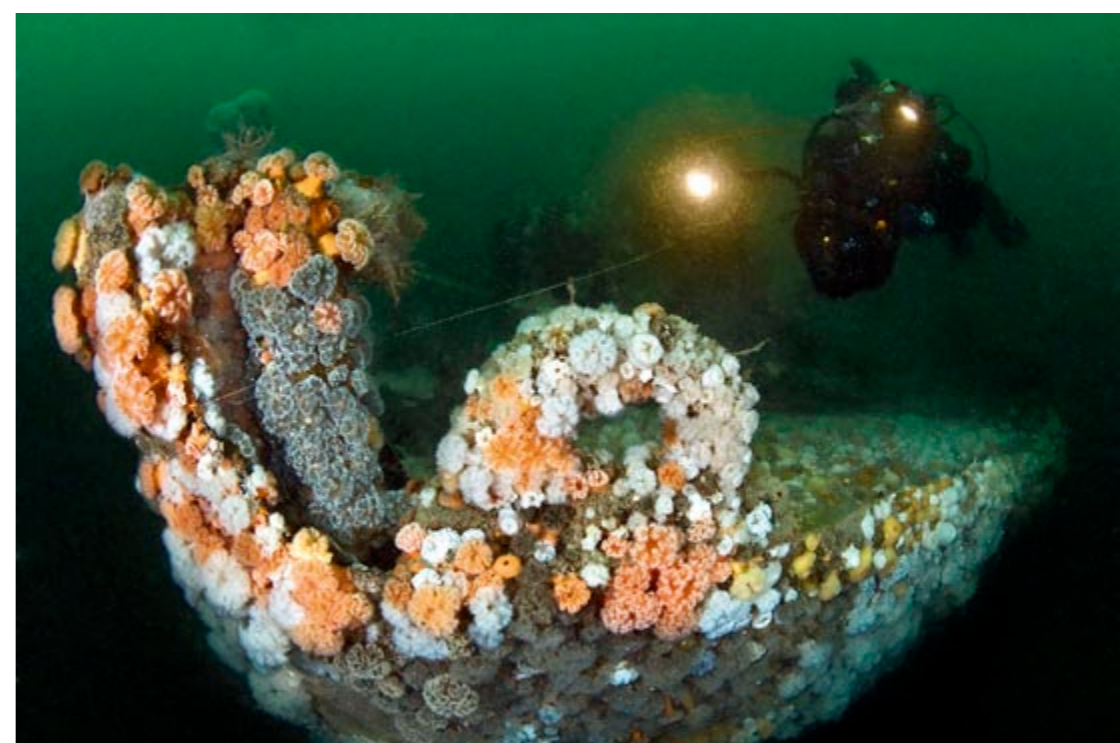


THIS PAGE: Scenes from the rescue dive

RIGHT: Snagged by wreckage, a fishing net remains left behind by fishermen



THIS PAGE: Scenes from the rescue dive
 ABOVE: Anemones at the boulders of the *Queensfort*. RIGHT: The bow of the *Queensfort* with camerawoman Klaudie



large North Sea crabs that eat the corpses. Most of the time, they get entangled in the net as well. And starve. And die. And attract other creatures.

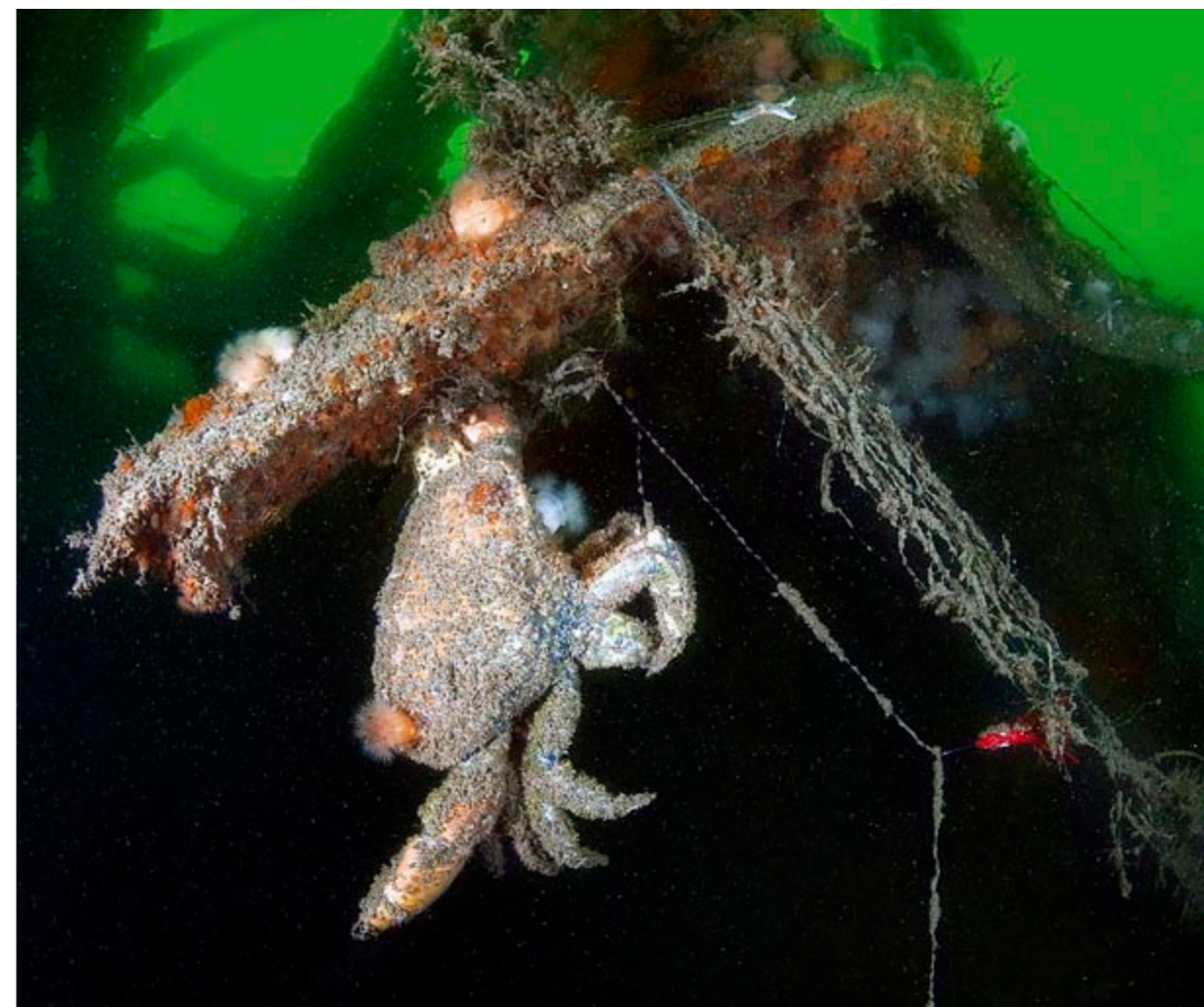
The North Sea is a shallow, sandy sea, and the wrecks form artificial reefs that justify their

unnatural presence by the wealth of marine fauna they attract. But some wrecks are completely covered in layers of nets and are now barren ruins of the fascinating biotope they once were.

Rescue team

Any North Sea diver has witnessed these events. My wife, Georgina, and I regularly freed crabs, cut lines and removed parts of net. But to be honest, our fellow divers were more interested in exploring the wrecks and their artefacts than saving creatures.

Luckily, there are now more people who have come to the rescue of the innocent crabs and fishes under the surface. The people of the project, Duik de Noordzee Schoon, have been cleaning nets for one and a half years now, and their efforts are beginning to pay off.



THIS PAGE: Scenes from the rescue dive. TOP LEFT: 23-pound bombs near the wrecks. TOP RIGHT: A crab can hang on a fishing line for weeks. ABOVE: A bow with portholes

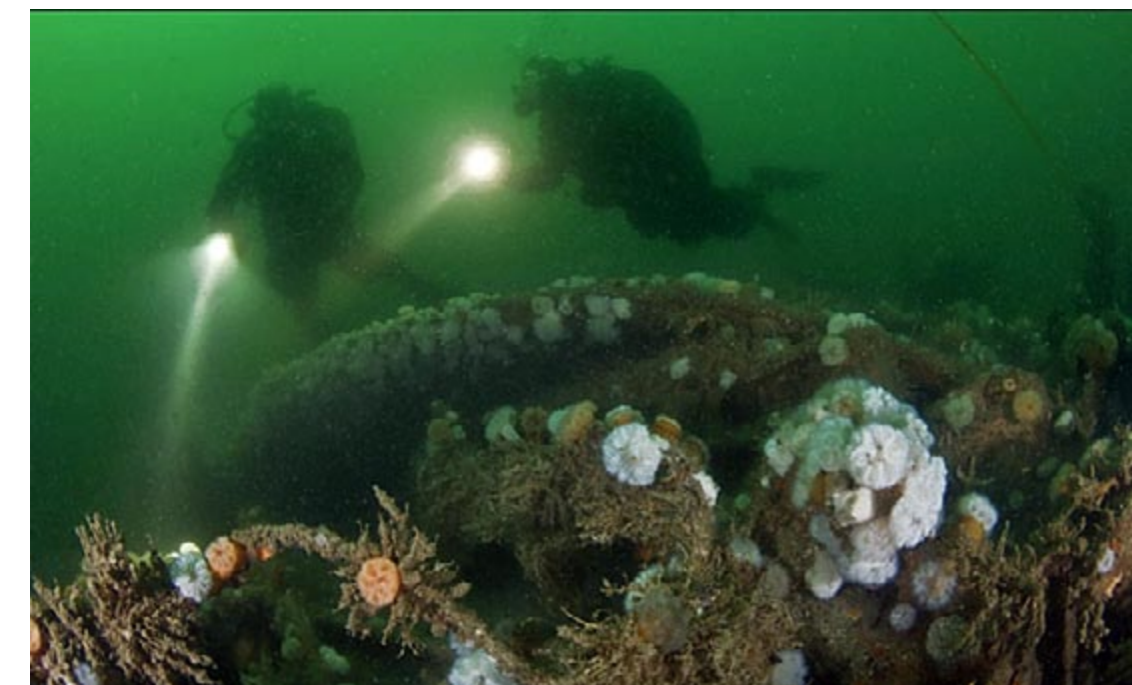
Klaudie Bartelink and Ben Stiefelhagen, the founders, have succeeded in putting together a group of dedicated divers, who receive free training and free clean-up trips on the condition that they commit themselves to cleaning wrecks during those dives.

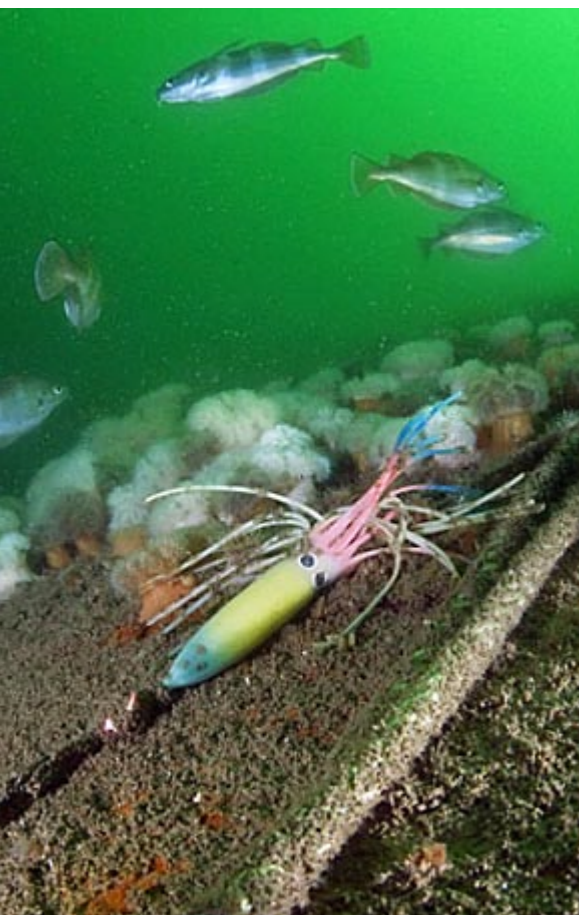
Klaudie and Ben have also funded the project with their own money, but are now partly supported by a Dutch foundation.

As they were also planning on publishing a book, they asked me to be an added extra member of their team this summer—an invitation I gladly accepted! I documented their training and their dives and witnessed them rescuing countless animals and removing many, many lines, hooks, sinkers and nets.

Extra benefits

It is easy to blame anglers and the fishing industry. Most people who enjoy a day of fishing on the North Sea are





THIS PAGE: Scenes from the rescue dive. TOP RIGHT: Ben cuts fishing lines from the wreck

absolutely unaware of the havoc they cause. Ben and Klaudie therefore contacted the largest sport-fishing association in Holland to discuss options and proposed the use of biodegradable lines, like Bioline™.

Normal fishing lines are made of monofilament, which can take over 500 years to decompose. Bioline will degrade in five years. The partners are also investigating the possible use of biodegrad-

activities.

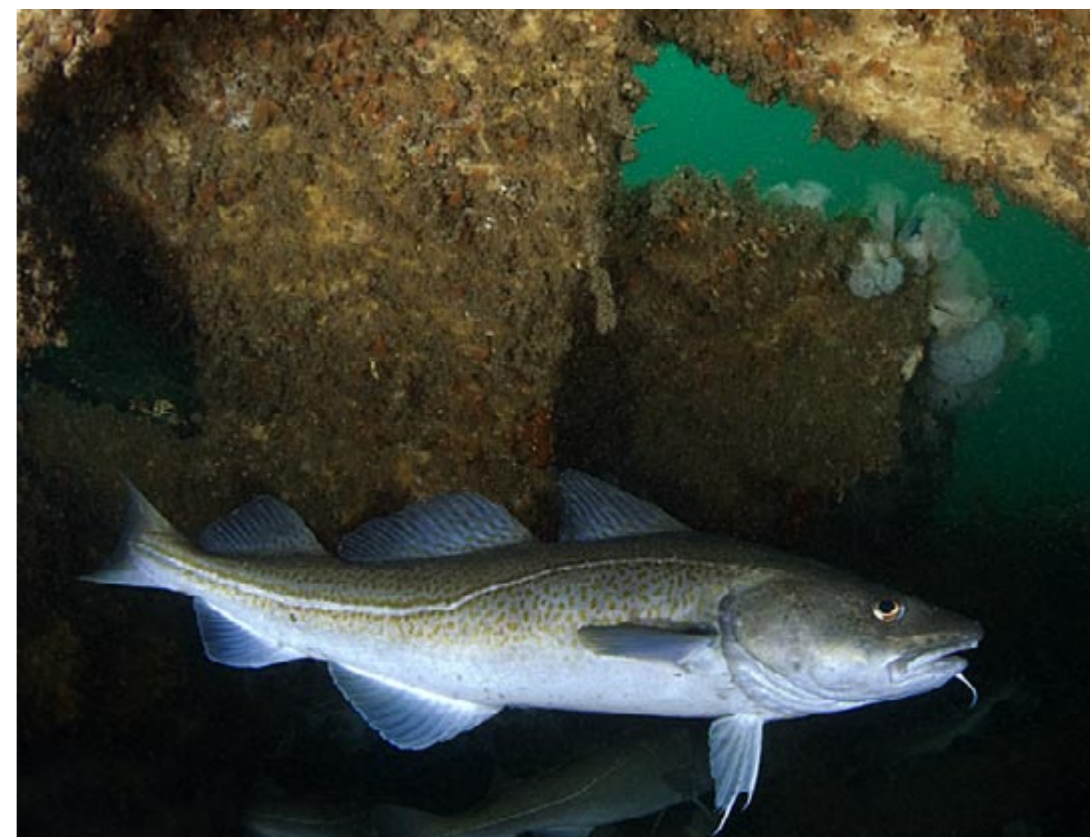
And I had a great summer not only witnessing work being done for a good cause but also enjoying the wonders of my North Sea from a different point of view, capturing unique images.

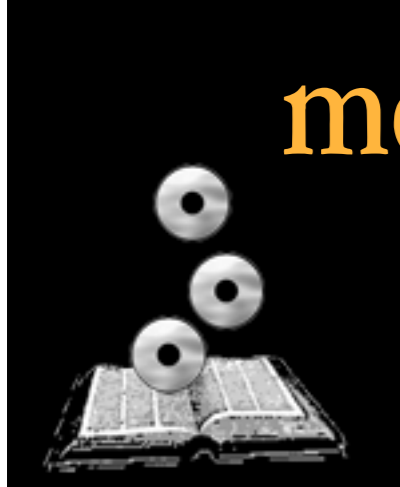
For more information, visit: www.duikdenoordzee-schoon.nl (Dutch only) or Peter Verhoog's website at: www.peterverhoog.com ■

ABOVE: Ben and Marc with a net with a lot of crabs stuck in it
RIGHT: Crab in an ammunition box with cordite

able nets and ceramic sinkers and have also made arrangements for a "pick-up service". Captains of fishing boats who have lost a net can contact this service, so the net can be retrieved.

The project attracted a lot of publicity and even received a prestigious Dutch nature prize, which can partly fund next year's





POINT & CLICK
ON BOLD LINKS



The Apps are coming

Text by Peter Symes

The advent of smart phones iPod, iPads, and the new generation of tablet PC have created a surge in ‘apps’, which are small programs—a special kind of software unlike the programs you install and run on, say, a PC. We have taken a look at four very different apps, which are available in the iTunes app store.

Scuba Exam

The main feature in Scuba Exam is a quiz with 50 questions on diving theory that will let you test how strong your knowledge is, say, if you are facing an exam. It also comes with a compact encyclopaedia that includes a list of common terms and expressions as well as a brief tutorial on the most important aspects of dive theory, such as the various physics and laws. It is quite

handy if you are out on a liveboard and need to look something up, or settle a debate, or you can rehash your theory while you sit in an airport lounge waiting for the next flight. The quiz seems to be aimed at open water or entry level, and as such, doesn't hold many challenges for the experienced diver. After trying it out several times, the only criticism I have concern the quiz questions about some of the dive hand signs, as they are not universal and do

not always mean the same thing. But, overall, you get plenty of value for the US\$2.99 that the full version costs; there is also a free *lite* version.

DiveTime

“The World’s Largest Online Dive Site Database,” read the blurb. That sounded promising, so I parted ways with another \$3.99 to take this app through its paces. This app let me search dive sites and dive shops, which can be

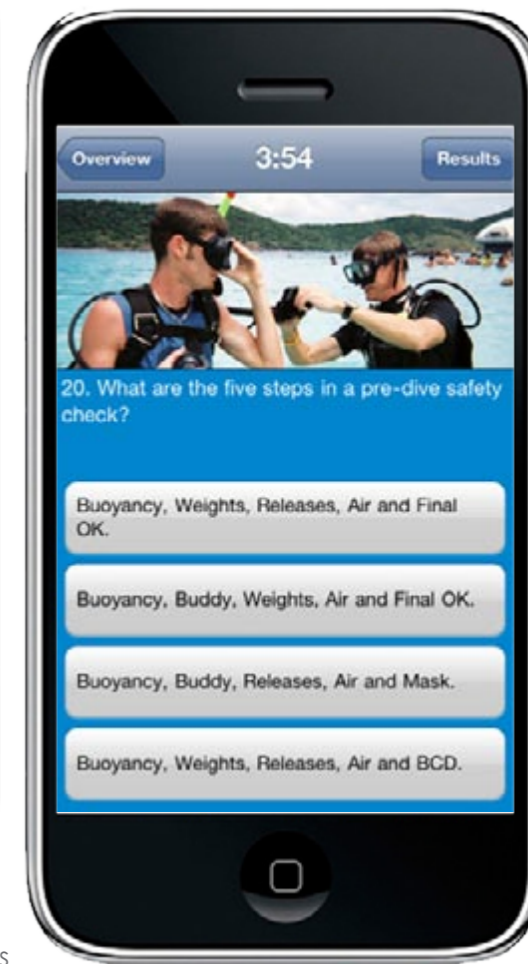
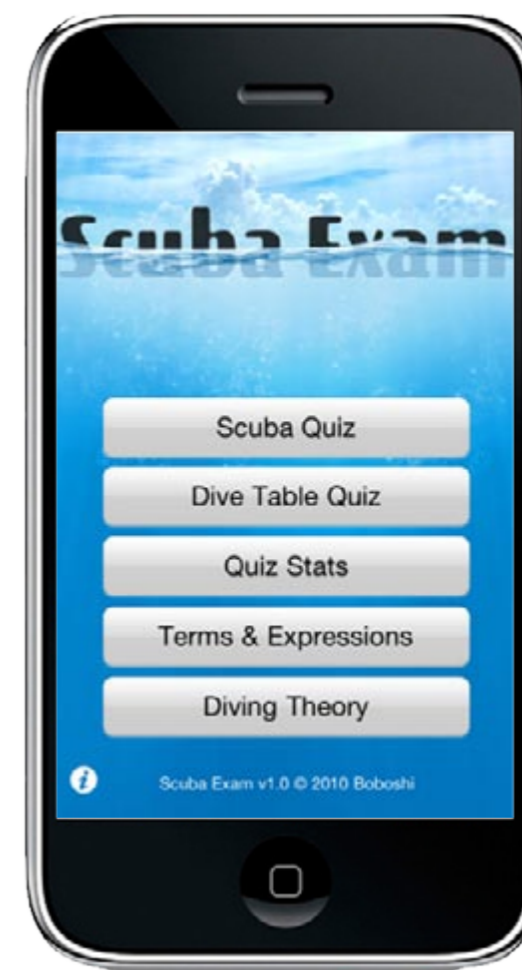
searched either via keywords, a *nearby search*—I suppose that it hooks up with the device's built-in GPS, if it has one— or via a map, which looks and seems to work a bit like Google maps. For the purpose of testing, I believe that our location is optimal. Our main office is located in Denmark, which on one hand is not one of the big dive destinations, yet has decent diving with lots of interesting dive sites and a lively dive community. Unsurprisingly, I soon found that the list of dive shops was incomplete and a number of the existing entries were not up to date. And of course, there were only a tiny fraction of the many local dive sites listed. But let's be fair and keep in mind that it is impossible to keep such directories up to date, and the bigger they are, or purport to be, the more daunting the task is. I would have liked to have seen more local dive sites listed.

For some of the more well-known dive locations, there seems to be a decent

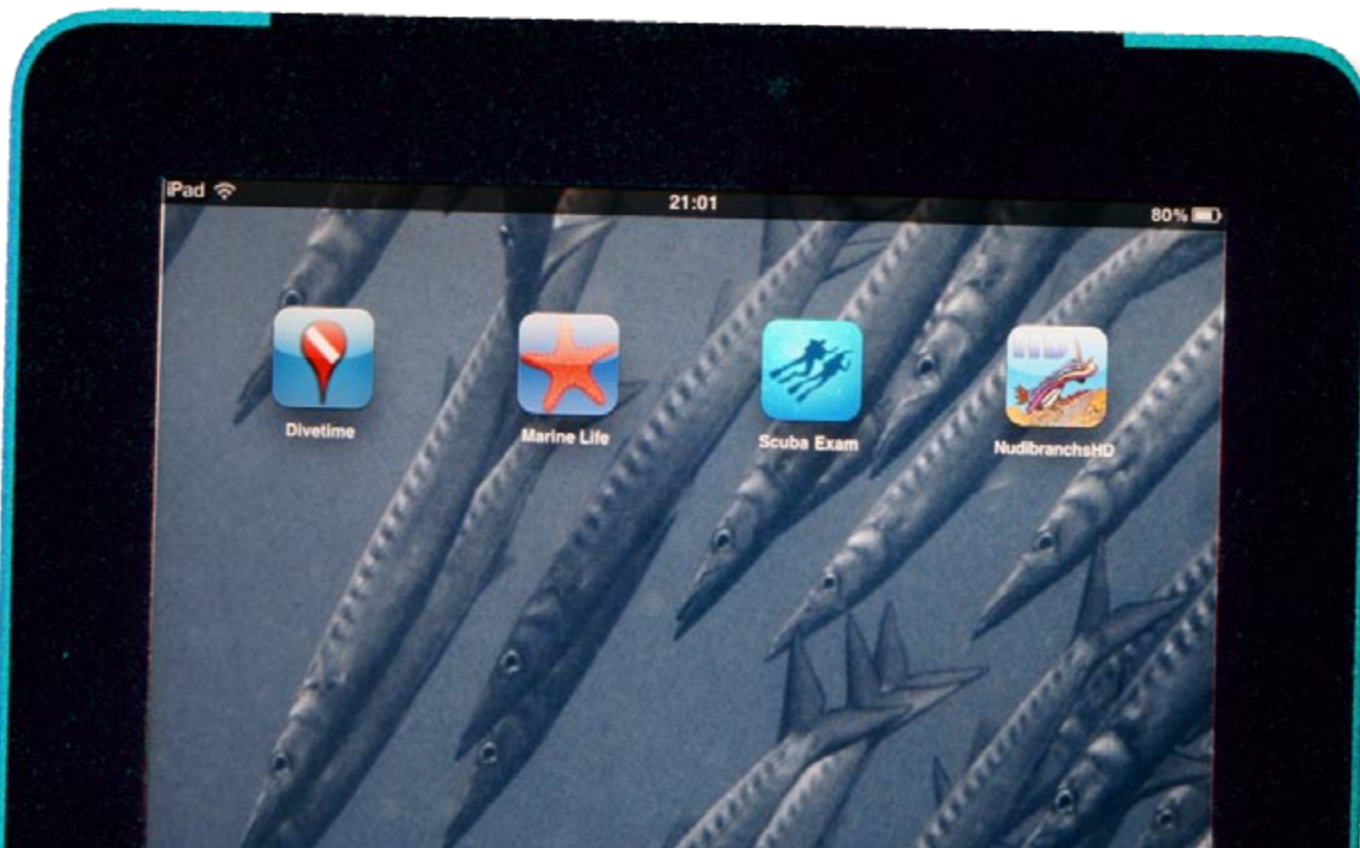
list, but other, less fashionable regions are left blank. This is all testament to the inherent weakness that many of these directories and databases have, whether they are online or in the form of an app.

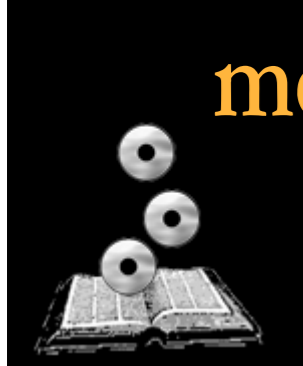
Ultimately, they are dependent on reports and input from users, which is a notoriously unreliable and inconsistent source method. Many—I would say almost all—of the big dive portals, which are often launched with lots of fanfare, seem to fall flat on their faces after a short while, because they rest on the premise that content will be generated and kept up by the users (aka: the *community*)—an assumption which invariably soon turns out to be a fallacy.

All such directories, no matter how comprehensive, will be limited in a number of ways. However, that does not mean that they are not useful or worth the investment—c'mon, \$3.99 isn't going to break anyone's piggybank. As for looking up local dive sites, I would know



Scuba Exam screenshots. On the right an example of one of the quiz questions





better myself anyway, so I see more use for the app when I am going travelling. Since I have seen how the app performs in regards to my own locality, I am aware that it is not perfect and has plenty of blank spots, but does it really matter? In my opinion, it doesn't, because if I am visiting another region, the issue at hand is not whether the list is complete but whether I can look up some dive shops that can take me out.

A good feature is the coupling between the app and a browser. The app links directly to the dive shop's homepage or its entry on DiveTime's own portal. Dive sites are also and in a similar manner linked to an entry to DiveTime's

portal, which has far more room for information, and I believe that this is also where users can provide info. Returning to the app after visiting the Web in this manner, I was pleased to see that it reopened where I left it—some apps start all over at their main page.

Nudibranchs HD

It is only too easy to get fascinated by these colourful but

very alien-looking creatures. Of the 3,000 plus described species, many have only scientific names, which can make identification a real head scratcher.

The Nudibranch HD app shows 100 of what I can only presume

to be the species most commonly encountered by divers. Although a hundred species is hardly a comprehensive database, search functions that use body type, colours and other easily determinable features which allow the novice user to quickly narrow down a search in order to identify the creature in the field or captured in an image.

A little name game allows the user to practice identification in a fun way, although I found it was very tricky to get anything right, due in large part to the species having Latin names only. Who knows, with a little more practice, it may catch on.

What I feel is missing in this app is any kind of information about the species; we only get to match an image to a name and that's too little. I would like to see some basic biological information such as geographical range, habitat, size and so forth.

As a little dessert, the app has a little video sequence, *nude ballet*,

with some quite nice footage of nudibranchs. It is not an award-winning documentary, but can always be used to impress the uninitiated.

The biggest drawback is clearly the small number of included species, which prevents it from being really useful. Released in December 2010, the app retails for \$2.99 on iTunes.

Marine Life eGuide

Authored by acclaimed international author and underwater photographer, Neville Coleman, this app is as close to a mobile marine encyclopedia as it gets. From fishes, to bryozoans, ascidians and even seabirds and marine plants—when it comes to the marine life of the Indo-Pacific, this app is impressively comprehensive, to say the least.

I live on the opposite side of the planet, so I was left with a desire to be able to look up species closer to home. Nonetheless, I must commend Coleman for

Computer Apps

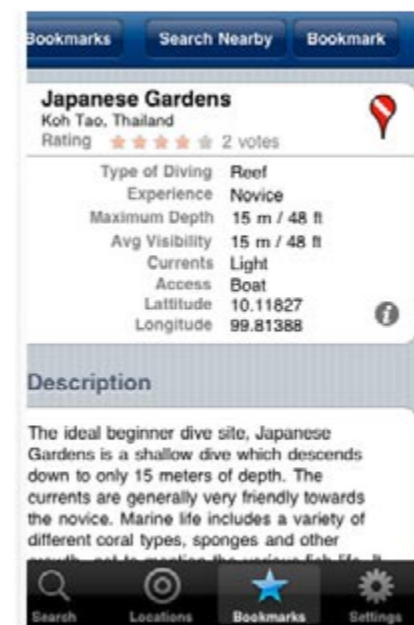
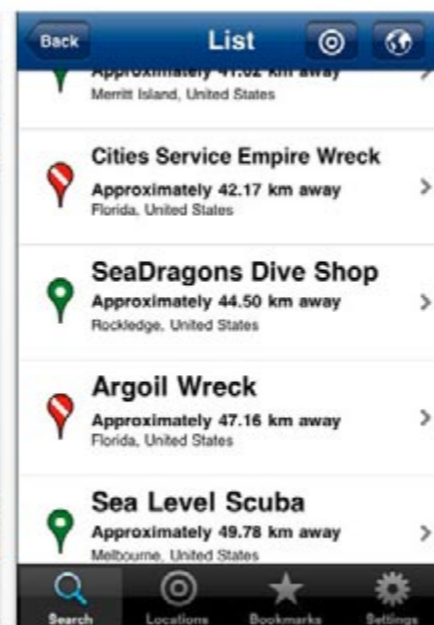
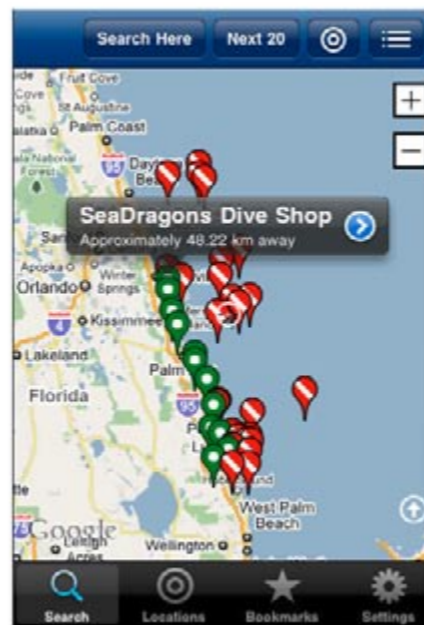
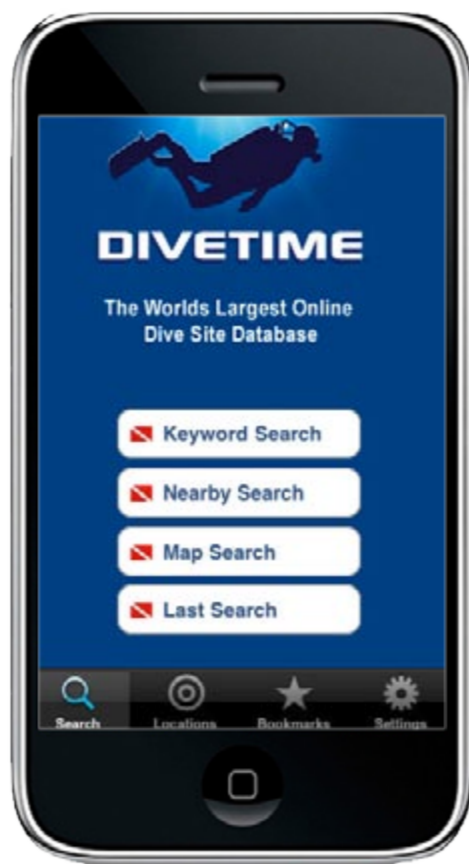
the enormous task undertaken to put so many species into this app. I have not had a chance to count, but when the introduction states that it contains more than 2,000 photographic examples—I believe it.

This and many other apps have been designed foremost with iPods, iPhones and smart phones in mind, and their smaller screen calls for a very simple design as well as images with a somewhat limited resolution. Many apps, including this one, will also work on iPads and tablets although they will either sit in the regular size in the centre of the screen, or be magnified to fill out the larger screen, with the result being some images appear grainier—a concern that Coleman voiced to me.

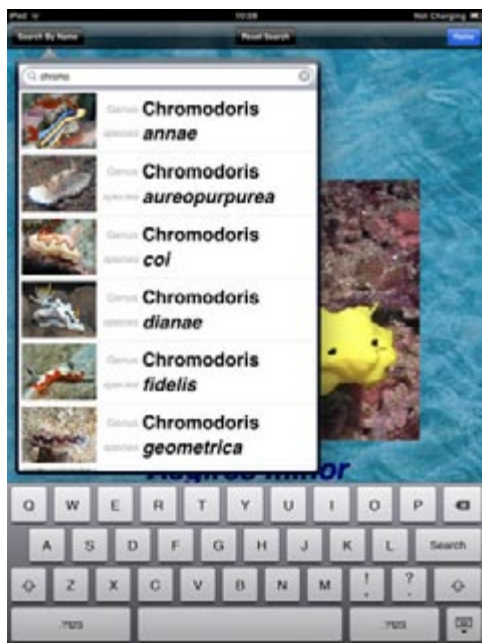
It does not seem to be a problem though, as the images also look fine on an iPad. However, I would prefer a version of the app made specifically for the iPad and tablet, which can take better advantage of the larger screen.

The built-in species introduction provides a good overview, not only of the guide's organisation, but also of general taxonomy. So, if you ever wondered how kelp differs from flowering land plants, or why a comb jelly is not really a jellyfish, you will find the answer here. Each species entry contains additional fields where the user can enter logbook notes such as location, dates and comments.

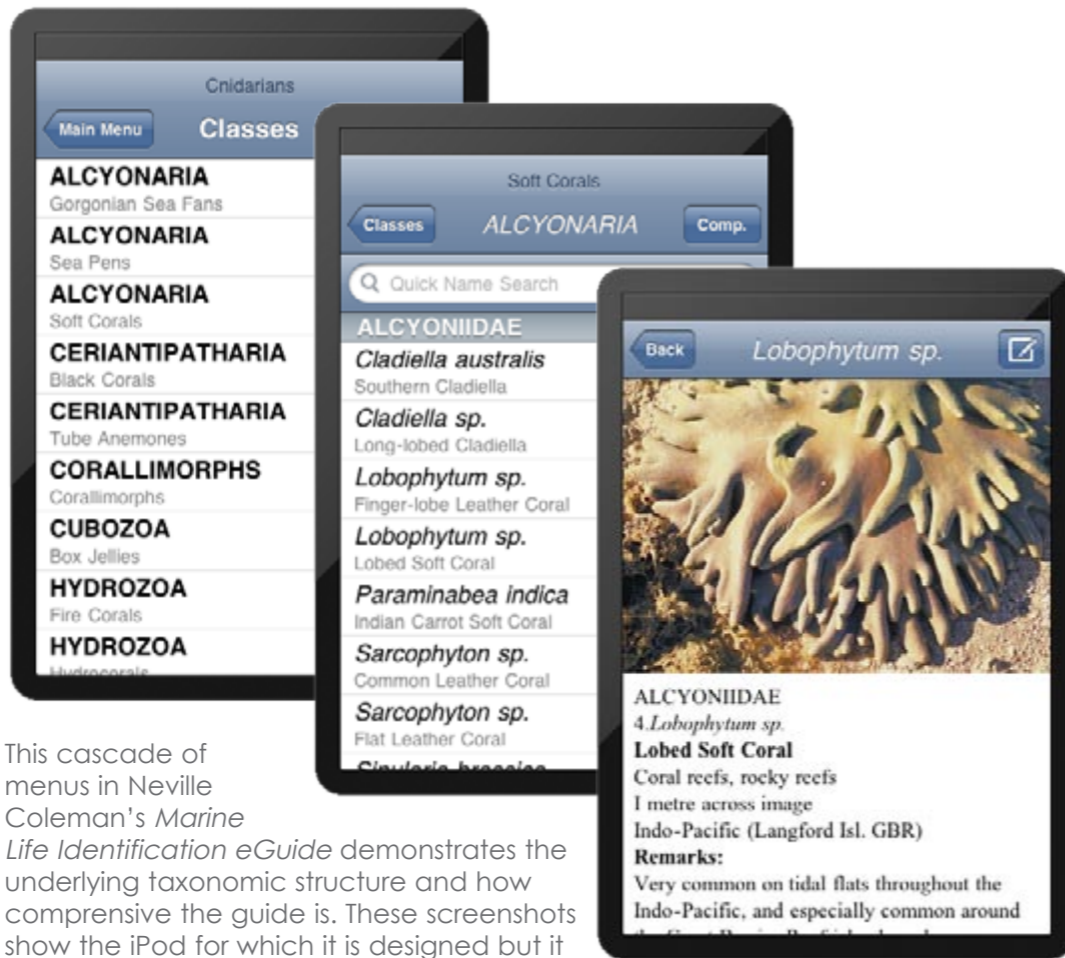
At \$19.99, this app is in a different category price-wise, but you get what you pay for. The app is very good, comprehensive and useful. In fact, this app has now become the first and preferred encyclopedic reference I resort to when I need to identify a species from the region. ■



Some of the screenshots from the DiveTime app—the strongest, yet perpetually incomplete features include the search function and the list of dive sites and dive shops



Screenshots from Nudibranch HD. LEFT: The database is searchable, but why bother? With a mere 100 species, you can quickly scroll through the collection anyway. CENTER: The perhaps most useful feature, where you can identify a species by checking off a list of physical features. RIGHT: The Nudi Game, in which you can test your knowledge of species names. I don't know how useful that is



This cascade of menus in Neville Coleman's *Marine Life Identification eGuide* demonstrates the underlying taxonomic structure and how comprehensive the guide is. These screenshots show the iPod for which it is designed but it works fine on the bigger iPad as well



The images are top-notch and even though the resolution has been set with the iPod or iPhone in mind, they don't seem to suffer much from being displayed on the much bigger iPad

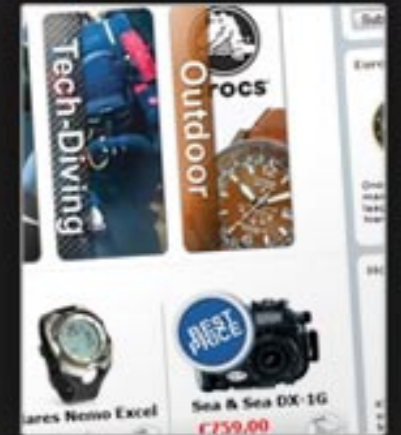


In the log-book, the user can add notes to each species, such as where it was spotted



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Many diving deaths should be preventable ... a diver ought to be able to minimise his or her chances of becoming a statistic by understanding and influencing the factors which are now known to be associated with diving deaths.

—Dr Carl Edmonds

SCUBA Diving What are the risks, really?

—learn what makes you a safer diver

Text by Dr Carl Edmonds
Photos by Kate Clark and Scott Bennett

Experience of life suggests that anything which is fun tends to be either illegal, immoral, fattening or dangerous. Recreational diving partly conforms to this universal law, ranking below hang gliding and parachuting but above most sports in regards to the risk of a fatal accident.

Statistical evidence

Diving statistics from the United States, United Kingdom, Canada and Japan all show diving death rates of 15–30 per 100,000 divers per year, with the statistical chance of a fatality being about 2–3 per 100,000 dives. These figures tend to contradict the misinformation issuing from some sections of the diving industry (fatalities of < 4 per 100,000 divers) which would have us believe that diving is a very safe recreation. It is not, but then we accept risks every day. Even driving an automobile to a dive site carries an appreciable

(but much less) risk of death—a possibility which we generally regard with equanimity. This article will show that many diving deaths should be preventable and that a diver ought to be able to minimise his or her chances of becoming a statistic by understanding and influencing the factors which are now known to be associated with diving deaths.

Dying with weightbelt on

The information presented here is mainly based on data gathered by valuable studies involving recreational diving fatalities. They have been conducted in different countries, but show strikingly similar results. The U.S. recreational diving deaths, originally compiled by John McAniff of the University of Rhode Island and then NUADC, are now collected and reported on by DAN, which recently analysed 947 open circuit scuba divers. The DAN survey also included technical divers, who dive deeper, longer and with gases other than compressed air. The BSAC do a similar job in the United Kingdom, and DAN-AP Diver Fatality Project is the Australian compiler. Unfortunately, significant data is frequently not available, and so relevant causal fac-

tors are often underestimated. Another Australian approach (the ANZ series of diving fatalities) was to select and analyse only the accidents in which sufficient data was available to make the analysis credible, and to determine what factors materially contributed to the fatality. Most of our statistics come from this source and are rounded up, for simplicity.

Diving Fatality Data

- 90% died with their weight belt on
- 86% were alone when they died
- 50% did not inflate their buoyancy vest
- 25% encountered their difficulty first on the surface, 50% actually died on the surface
- 10% were under training when they died
- 10% were advised that they were medically unfit to dive
- 5% were cave diving
- 1% of "rescuers" became a victim

Age

The recorded deaths range from children (pre-teens) to septuagenarians. Some decades ago the average age of the deceased was in the early 20's. Then there developed a small increase in the middle



First published in the first (1876–1899), second (1904–1926) or third (1923–1937) edition of *Nordisk Familjebok*, this illustration shows a diving set developed by Rouquayrol and Denayrouze with a barrel-shaped bailout air tank on the diver's back



ages (45-60 years). This bimodal curve has now become distorted on the other side, and the average scuba death age is now 43 years. The reasons for this increasing age of death are:

- The "youngsters" from the 1970-80 scuba diving boom are now older.
- Cardiac disease, the sudden death syndrome, affects the elderly and diving introduces more cardiac hazards than many other sporting activities.
- Diving is becoming a lifestyle option for the increasingly active and affluent elderly, with more older people taking up this sport.

Gender

In the 1990s, one in ten of the fatalities were women. The actual percentage of women in the overall diving population was about one in three, suggesting that women are safer divers than men. Even now females account for only 20 percent of the deaths.

Diving experience

In most series, one-third were inexperienced, one-third had moderate experience and one-third had considerable experience. The most dangerous dives were the first dive and the first open water dive. In half the cases the victim, based on witness statements and previously logged dives, was extending his diving experience (depth, duration, environment, equipment etc.) and thus did not have the experience to undertake the final dive. For this reason, any diver extending any of his dive parameters (depths, durations, environments, equipment) is advised to do this only with more experienced supervisors.

Major causes of death identified at autopsy

According to death certificates, most



FILE PHOTO: KATIE CLARK

divers ultimately drowned (over 80%), but a number of factors usually combined to incapacitate the diver before this terminal event. Drowning is really only the final act in a sequence of events that lead up to this. It is a reflection of the medium in which the accident happens, more than the accident itself. Often it obscures the real cause of death. Unless there are other factors, drowning should never happen to a scuba diver, as the diver carries his/her own personal air supply with him! Drowning develops because of preceding problems, such as cardiac disease, pulmonary barotrauma, the stress disorders, unconsciousness from any cause, salt water aspiration, trauma, equipment difficulties or environmental hazards, etc.

Contributing factors

Deaths usually followed a combination of

difficulties, which alone may have been survivable. The factors contributing to deaths are easier to understand when classified, and we have categorised them into the following groups:

In Part One of this series, we have a closer look at:

- Diving techniques (inadequate air supply, buoyancy, buddy system)
- Human factors (medical, physiological, psychological)

In Part Two, we have a closer look at:

- Equipment factors (misuse, faults)
- Environmental factors

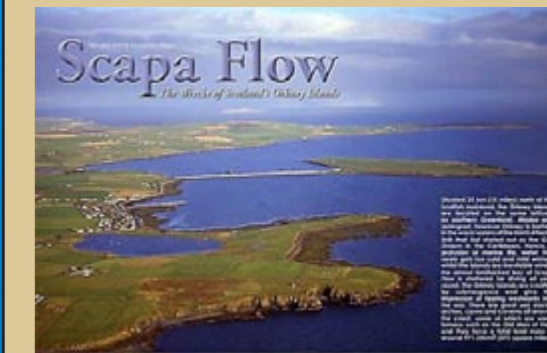
Diving Technique

—*Inadequate Air Supply*

In the ANZ survey in half the deaths (56%), critical events developed when the diver

was either running low or was out-of-air (LOA, OOA). When equipment was tested following death, few victims had an ample air supply remaining. The DAN survey found 41% in this situation. Most problems arose when the diver became aware of a low-on-air (LOA) situation. Some divers then died while trying to snorkel on the surface, attempting to conserve air (8%). Concern about a shortage of air presumably impairs the diver's ability to cope with a second problem developing during the dive, or causes the diver to surface prematurely and in a stressed state of mind, where he/she is then unable to cope with surface conditions. In many cases the LOA diver faced these difficulties alone, as his/her buddy who had more air, continued the dive oblivious to the deteriorating situation (see later). LOA situations should be avoidable by adequate dive planning, using

Diving in the BRITISH ISLES



BY LAWSON WOOD



BY STEVE JONES



BY MARK WEBSTER



BY JEROME HINGRAT

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a cylinder with ample capacity for the planned dive, and frequent observation of the contents gauge. A particularly dangerous technique was to intentionally use all the available air (breathing the tank dry). Then there is much less opportunity to cope with unexpected eventualities and greater likelihood of emergency ascent and salt water aspiration. The dive should always be completed with at least 50 ATA remaining.

In some cases the diver was using a smaller cylinder than a 2000 litre (72 cu.ft) tank. A 1400 litre (50 cu.ft) cylinder has much less endurance than a conventional cylinder, and allows fewer breaths once a LOA situation develops at a significant depth. Also, a diver using a smaller cylinder will usually run out of air sooner, encouraging separation from his group.

Buoyancy

In the ANZ survey, half the diving victims (52%) encountered buoyancy problems. Most of these were due to inadequate buoyancy, but some (8%) had excessive buoyancy. The DAN survey buoyancy problems were the commonest adverse event leading to death. The buoyancy changes peculiar to wet suits were a significant factor. The considerable buoyancy offered by a wet suit at the surface needs to be compensated by weights. An approximate formula for this is:

- 1kg for each 1mm thickness,
- 1kg for "long john" extensions and a hood,
- 1kg for an aluminium tank,
- \pm 1–2kg for individual body variations in buoyancy.

Based on the above formula, 40% of divers who perished were found to be



Detail from 16th century Islamic painting of Alexander the Great lowered in a glass diving bell.

interest that irrespective of who became OOA first, the overweighted diver was the one who died—at a 6:1 ratio, dealing with weights, buoyancy compensators, etc. In spite of being heavily reliant on their BC's, many divers then misused them. Examples of this include accidental inflation or over-inflation causing rocket like ascents ("Polaris missile effect"), confusion between the inflation and dump valves, and inadequate or slow inflation due to being deep or LOA. The drag induced by the inflated BC (needed in many cases to offset the non-discarded weight belt) was a factor contributing to exhaustion in divers attempting to swim to

grossly overweighted at the surface. This factor would have been greater at depth. When weighted according to this formula, a diver should be neutrally buoyant at or near the surface. In this state, descent or ascent are equally easy. During descent, the wet suit becomes compressed, making the diver negatively buoyant. This is where the buoyancy compensator (BC) comes in. It is inflated just sufficiently to restore neutral buoyancy. This is why it is called a buoyancy compensator.

Evidently, some divers deliberately overweighted on the surface, using this excess weight to descend more easily and were then using the BC to maintain depth and then later to return to the surface. This places excessive reliance on the BC. This dangerous practice is unfortunately promoted by some instructors. It has advantages from a commercial point of view, as it expedites training. Groups of divers can be quickly taught to descend with minimum skill. The technique is less advantageous in terms of longevity of the diver. In another fatality survey on buddied divers who ran into LOA/OOA situations, it was of

safety on the surface.

There are other unpleasant consequences of buoyancy problems. The American Academy of Underwater Sciences, in a symposium in 1989, reported that half the cases of decompression sickness were related to loss of buoyancy control. After acquiring the initial open-water certificate, possibly the best course to undertake would be on buoyancy control.

Ditching of weights

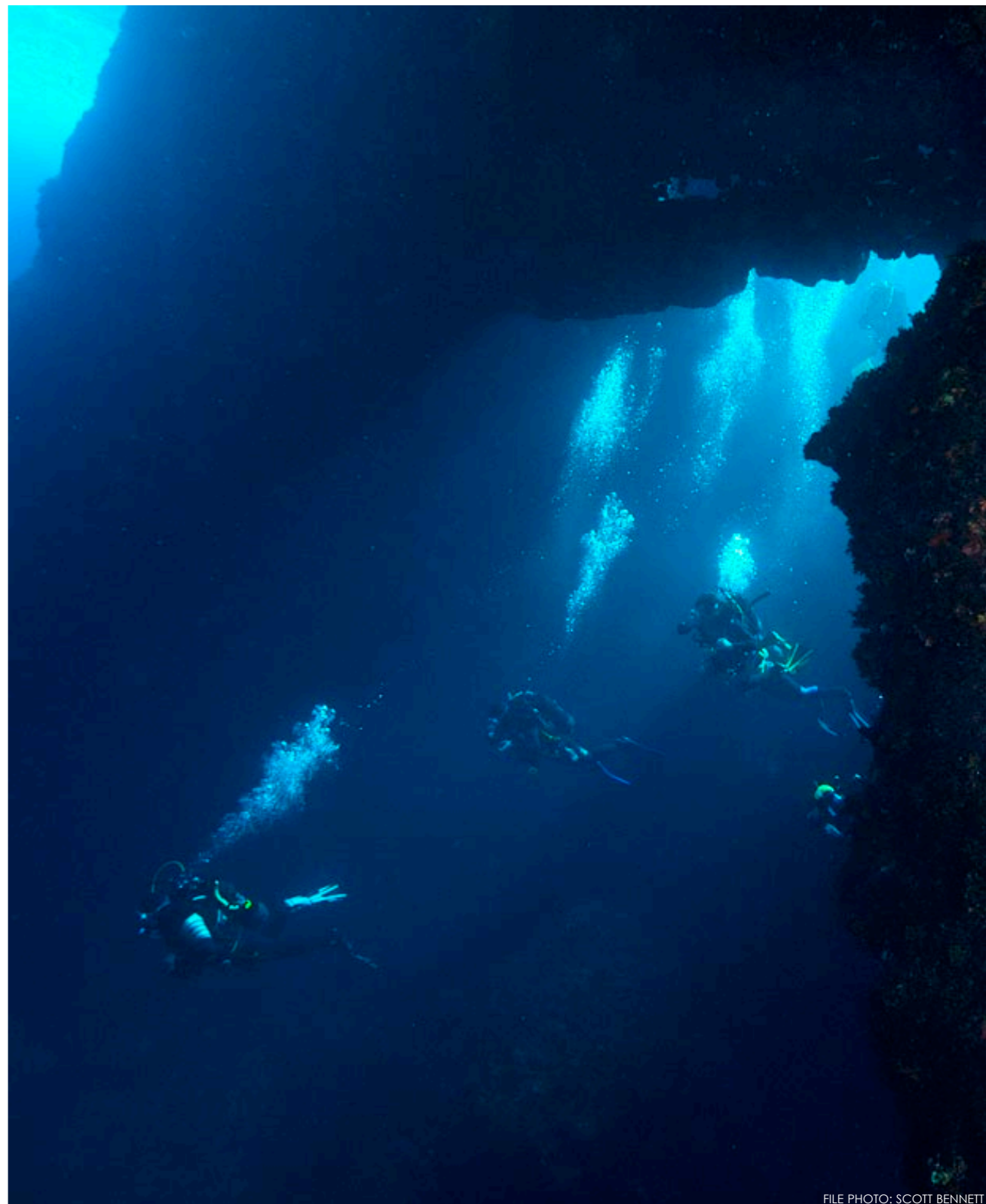
This was omitted by most victims (90%). Not ditching the weightbelt, compelled them to swim towards safety carrying many kilos of unnecessary weight, and made staying on the surface very difficult in these cases. This critical and avoidable factor should be easily remedied by restoring the traditional weight belt ditching drills.

Earlier diving instructors taught that the weight belt was the last item put on, the first taken off. It was to be removed and held at arm's length in the event of a potential problem. The diver then had the option of voluntarily dropping the belt if the situation deteriorated,

or replacing it if the problem resolved. When problems did develop, the belt was dropped automatically! Some current diving students now question the validity of dropping these lead (? dead) belts—perhaps the high cost of replace-

ment is worth more than their lives. "Lead poisoning" is a frequent contribution to fatalities. When ditched, the belt is held at arms length to avoid falling and fouling on other equipment. This entanglement occurred in some of the reported

Diving & Risk



FILE PHOTO: SCOTT BENNETT



FILE PHOTO: KATIE CLARK

kilograms of flotation are immediately available by simply discarding the weight belt. This action also results in a more consistent, controlled ascent than with an inflated BC.

Buddy Diving System

The value and desirability of the buddy system is universally accepted in the recreational diving community. Two maxims have arisen in diving folklore from this concept:

- "Dive alone—die alone"
- "Buddies who are not in constant and direct

communication are not buddies, merely diving in the same ocean."

In spite of this, only 14% of divers who perished still had their buddy with them, and in the Hawaiian series, it was 19%. In 33% of the ANZ cases, the deceased diver either dived alone or voluntarily separated from his buddy beforehand, 25% left their buddy after a problem developed, and 20% became separated by the problem. Of those who started diving with a buddy in the DAN series, 57% were separated at the time of death.

A common cause of separation was

one diver (the subsequent casualty) having inadequate air, OOA or LOA. In this case, the buddy often continued the dive alone, or accompanied the victim to the surface, before abandoning him and continuing the dive. There were many misapplications of the buddy system. In some cases, more than two divers 'buddied' together, leading to confusion as to who was responsible for whom. A particular variant of this is a training technique in which a group of inexperienced divers follows a dive leader. When one becomes LOA, he is paired with another (usually another inexperienced diver) in the same situation, and the two instructed to return to the surface together.

Often the heaviest air consumers are the least experienced and are over-breathing through anxiety. Two such inexperienced, anxious divers, both critically low on air, are then abandoned underwater by the dive leader and left to fend for themselves!

In others, the buddy was leading the victim and therefore not immediately aware of the problem. Generally, the more experienced diver took the lead, affording him the luxury of constant observation by his buddy, while he gave intermittent attention in return. In this situation, unless a "buddy line" is used, the following diver (upon developing a problem such as LOA or OOA) has to expend precious time and energy and air, catching his buddy to inform him of the difficulty. Often this was impossible, and the first indication the leading diver had of the problem was the absence of his buddy, who by this time was unconscious on the sea bed or well on the way to the surface.

A buddy line may be life saving. But not always.

Buddy rescue

In only a minority of cases was the buddy present at the time of death. Most divers ultimately died alone, usually because of poor compliance with the principles of buddy diving. In only 1% of cases did the

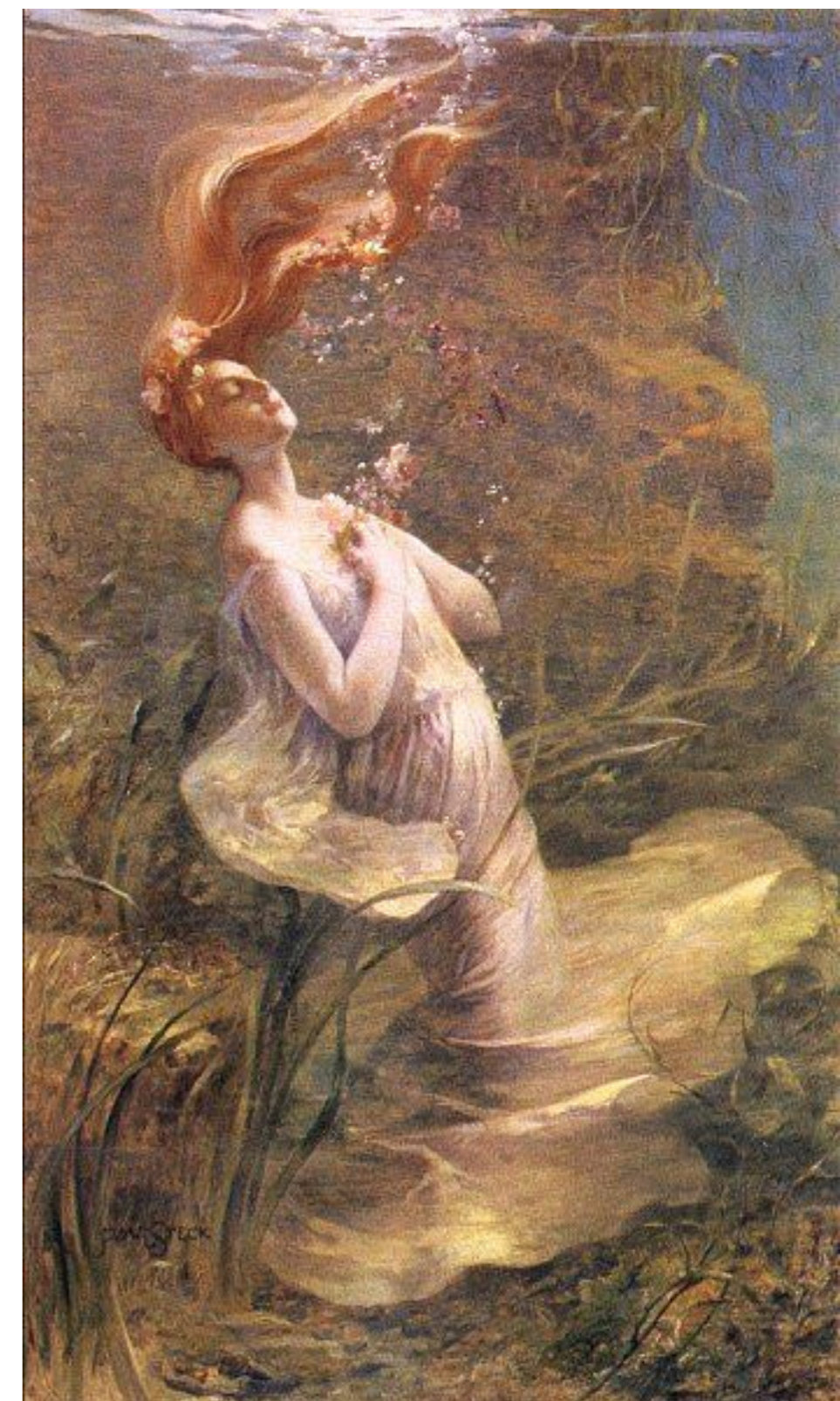
buddy die attempting rescue, indicating that adherence to the buddy principle is reasonably safe for the would-be rescuer.

Buddy breathing

Four percent of fatalities were associated with failed buddy breathing. In a study of failed buddy breathing conducted by NUADC, more than half were attempted at depths greater than 20 metres. In 29% the victim's mask was displaced, and the catastrophe of air embolism occurred in 12.5% of cases. One in eight victims refused to return the demand valve, presumably to the righteous indignation of the donor. In one reported instance, knives were drawn to settle the dispute! Nevertheless, donating a regulator rarely results in the donor becoming the victim. The use of an octopus rig or (more sensibly) a complete separate emergency air supply (e.g. "Spare Air") would appear to be a more satisfactory alternative, having the added advantage of providing a spare regulator for the owner in the (not so rare) event of a failure of the primary air supply.

Human factors

(medical, psychological, physiological) In at least 25% of cases, the diver had a pre-existing disease which should have excluded him from diving (compared to 8-10% in the potential diver trainee popu-



Ophelia by Paul Albert Steck, 1895



FILE PHOTO: SCOTT BENNETT

Diving & Risk

Cardiac (Sudden Death Syndrome)
In these cases, there was either gross cardiac pathology or a clinical indication of cardiac disease. In the DAN series, 26% of deaths were due to this. Of the cardiac deaths, 60% complained of chest pain, dyspnoea or feeling unwell before or during the dive. Victims tend to be older—cardiac causes explain 45% of the scuba deaths in those over 40 years. They tend to be more experienced divers, often with a history of known cardiac disease (arrhythmias or ischaemia) or high blood pressure—often under control with medication (especially beta blockers).

They usually die quietly, and the pathophysiology is probably a cardiac arrhythmia (ventricular fibrillation). Resuscitation is difficult or impossible under these environmental conditions. The trigger factors producing this very rapid ineffective heart beat include the following; exercise, drugs, hypoxia from salt water aspiration, respiratory abnormalities from breathing under dysbaric conditions through a regulator and with restrictive clothing and harness, cardio-pulmonary reflexes and cold exposure.

Asthma

In at least 9% of deaths the diver was asthmatic in the ANZ survey, and in at least 8% of cases asthma contributed to the death. In some other surveys (especially those with less data on each fatality, or those that do not specifically check the previous medical history), this data is not so obvious. Asthmatics should normally be excluded by a competent medical examination. Even so, surveys have shown that between 0.5 and 1% of divers are current asthmatics. When this figure is contrasted with the 9% of fatalities who have the condition, it implies that asthma is a significant risk factor.

There was often a series of adverse contributors to death in this group, including panic, fatigue and salt water aspiration. The ultimate pathology was usually drowning or pulmonary barotrauma. The risk of pulmonary barotrauma is

lation). The diseases either killed the diver or predisposed him to the diving accident. In assessing the cause of scuba fatalities, it is too easy to ignore the disorders which have no demonstrable pathology, such as panic and fatigue, but to do so results in less understanding of the incident. Drowning obscures many other pathologies and some, such as asthma or the sudden death syndrome, may not show up at autopsy.

Panic

Thirty-nine percent of deaths were associated with panic. Panic is a psychological stress reaction of extreme anxiety, characterised by frenzied and irrational behaviour. It is an unhelpful response that reduces the chance of survival. Evidence of panic was derived from wit-

ness accounts of the diver's behaviour, in the Australasian series. Other studies suggest a 40–60% incidence of panic. Panic was usually precipitated when the diver was confronted by unfamiliar or threatening circumstances such as LOA, OOA, poor visibility, turbulent water, unaccustomed depth, buoyancy problems (usually insufficient buoyancy), or separation from diving companions. After panicking, the diver frequently behaved inappropriately by actions such as failure to ditch weights or inflate the BC, rapid ascent, or abandoning essential equipment such as the mask, snorkel and regulator.

Fatigue

In 28% of cases, fatigue was a factor. Fatigue is a consequence of excessive exertion and limits the diver's capacity

for survival. Physical unfitness aggravates it. Fatigue commonly arose from a variety of circumstances including attempting to remain on the surface while overweighted, long swims in adverse sea conditions or swimming with excessive drag from an inflated BC. The fatigue factor was not restricted to unfit divers—under special circumstances any diver will become fatigued. In some cases, the fatigue was associated with salt water aspiration syndrome, cardiac complications or asthma.

Salt water aspiration

This factor was present in 37% of cases. It refers to inhalation of small amounts of sea water by the conscious diver. In many cases this was the result of a leaking regulator, aspiration on the surface

after removing the regulator and buddy breathing. In most cases, salt water aspiration was a preterminal event as the situation became critical. It frequently predisposed to the development of panic, fatigue, respiratory and other complications.

Pulmonary Barotrauma

Thirteen percent of deaths had autopsy evidence of pulmonary barotrauma (burst lung). In some cases, it was a complicating factor rather than the initial cause. Factors promoting the barotrauma were diverse including panic, rapid buoyant ascents, asthma and regulator failure. Half the cases had an identified cause for the illness. The other half were unexplained.



predictable, considering that asthma narrows and obstructs airways. Added to this is the possibility of an incapacitating asthmatic attack during the dive. A considerable number of divers in the survey died this way, some as they were returning to get their medication (aerosol inhalers). Others took it before the dive!

The diving environment can aggravate asthma in several ways:

Salt water aspiration

Respiratory physicians use nebulised salt water to provoke an asthmatic attack in cases of questionable asthma. Divers immerse themselves in such a solution and often breathe a fine mist of seawater through regulators.

Cold dry air

Breathing this air precipitates attacks in some asthmatics. Divers breathe this type of air continuously. It is carefully dried by the filling station before being used to fill scuba tanks, and cools as it expands in the regulator.

Exertion

This aggravates many attacks. Even the most routine dive can require unexpected and extreme exertion,

due to adverse environmental factors such as rough water or currents.

Hyperventilation

The effects of anxiety cause hyperventilation and changes in respiratory gases. This will have little effect on normal lungs. It provokes asthma in those susceptible.

Breathing against a resistance

Many of the cases first notice problems at depth, where the air is more dense, or if there is increased resistance in the regulator—such as with a LOA or OOA situation. A study from Denver showed that although normal divers did not show any change in respiratory function with exercise or breathing through scuba regulators, asthmatics had decreases of 15% and 27% respectively.

Vomiting

Apart from the cases that vomited during resuscitation—and there were many—in 10% vomiting initiated or contributed to the accident. It was often produced by sea sickness or salt water aspiration, but ear problems and alcohol over-ingestion also contributed.

Nitrogen narcosis

This was an effect of depth, and contributed in 9%, but was never the sole cause of death in the ANZ series.

Respiratory Disease

A further 7% of casualties had chronic bronchitis, pleural adhesions, chest injury or other respiratory conditions. Because divers with these conditions are in a minority, they appear to be over represented in the deaths.

Drugs

Alcohol and cannabis (marijuana) are well known contributors to drowning. Cocaine is an established cause of sudden death in athletes. What

surprised us was the apparent association between drugs taken for hypertension and the deaths from the sudden death syndrome. Antiasthma drugs seemed to have the same association.

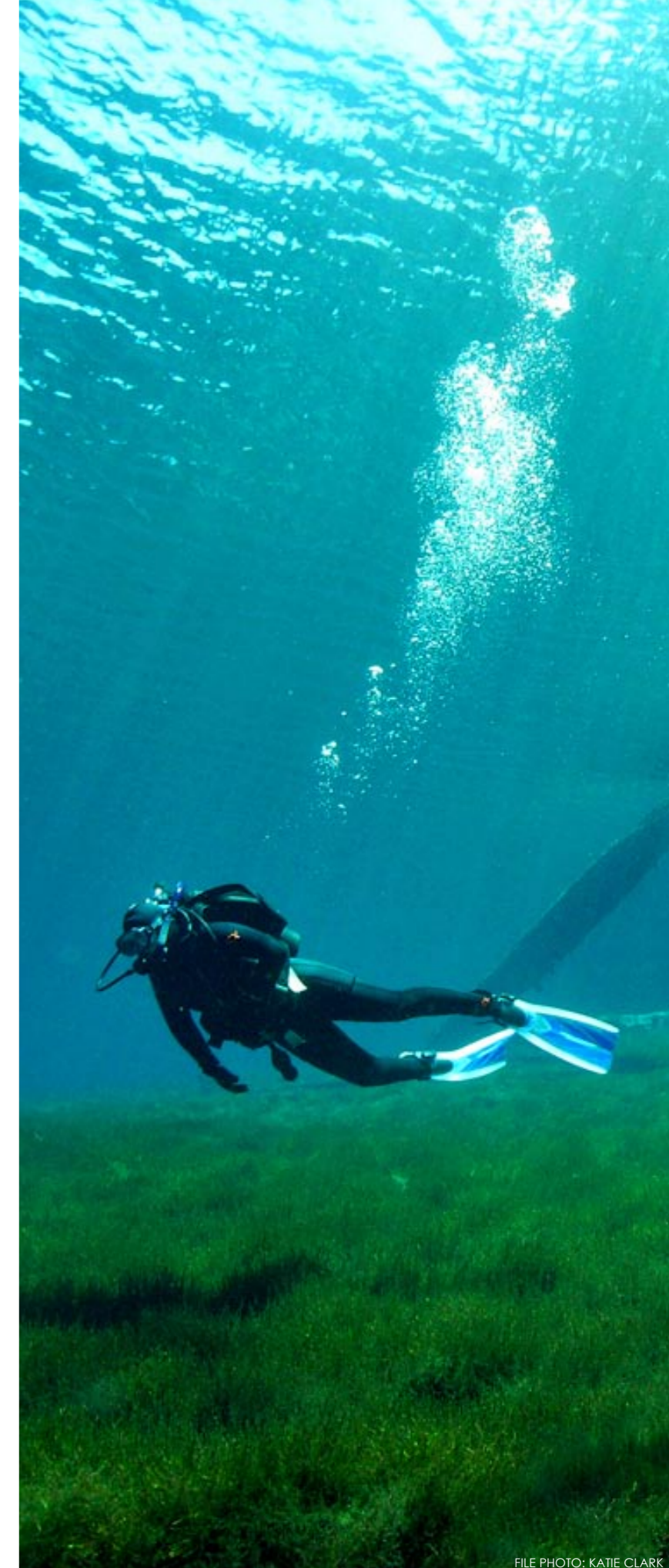
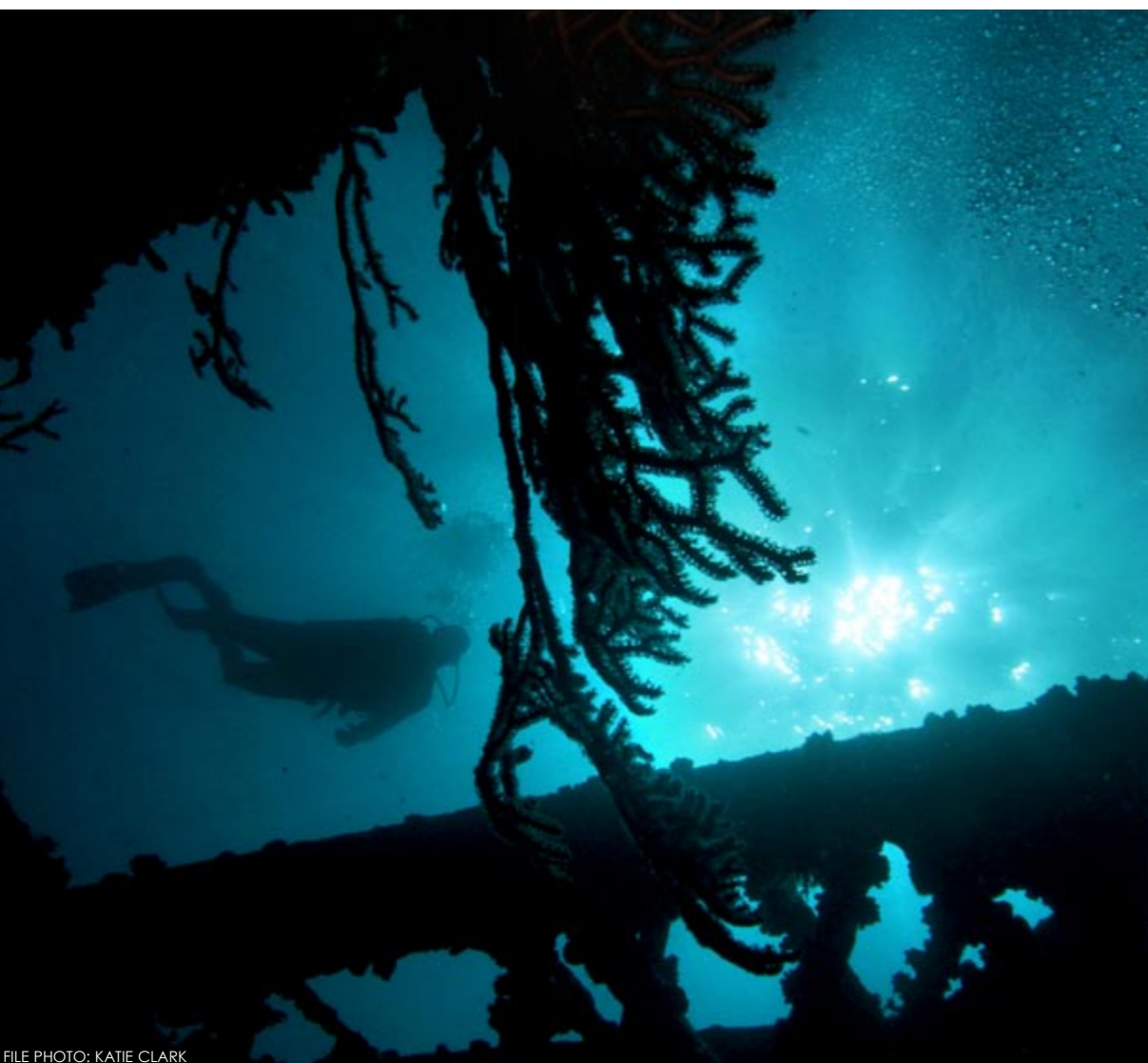
Decompression sickness

The dread of DCS is prominent in the minds of most divers. Perhaps this is why there are no deaths due to this condition in the ANZ studies, and less than 1% in the NUADC. Hawaiians reached 4%, due to deep diving for black coral. The DAN survey has 2.5%, probably because of the inclusion of technical divers, who often dive deeper—the mean depth being 68 metres (226 ft) in that study. While DCS is an important cause of serious disability (such as paraplegia) in all divers, it is not a frequent cause of mortality in recreational divers. This is not, however, true for professionals. ■

Don't miss SCUBA diving: What are the risks, really? Part Two in the next edition of X-RAY MAG, where we have a closer look at: Equipment factors (misuse, faults) and Environmental factors. Part two also includes a summary and some thoughts on how to prevent diving accidents.

Dr Carl Edmonds, co-founder and director of the Diving Medical Centre in Australia from 1971-2001, served as a consultant in diving medicine to the Royal Australian Navy Submarine and Underwater Medicine Unit, HMAS Penguin, for over 20 years. He was foundation president of the South Pacific Underwater Medicine Society from 1971-1975, and has authored or co-authored over 60 articles and books related to dive medicine. Two are sold by Dive Alert Network, Diving & Subaquatic Medicine (4th edition) and Dangerous Marine Creatures. For more information, visit: Diversalertnetwork.org.

Diving & Risk



turtle tales



Edited by
Bonnie McKenna



DAVID BURTON / CREATIVE COMMONS

United States pushing for strong measures to protect sharks and sea turtles

The 17th meeting of the International Commission for the Conservation of Atlantic Tunas (ICCAT) ended with successes in some areas and disappointments in others. One of the objectives of the United States this session was met: the adoption of measures to address the bycatch of endangered sea turtles, conservation measures for shortfin mako sharks, a recommendation on scientific observer programs and continued progress toward a more robust compliance system. ■

Green sea turtle off the coast of Western Australia

International support needed to create marine sanctuaries in Western Australia

The public has a chance to support Australian conservationists in calling for marine sanctuaries in waters that are vulnerable to oil and gas drilling, overfishing and pollution.

Deep under the waters of the southwestern corner of Western Australia are hidden mountain ranges and dramatic canyons teeming with life. An array of marine species from blue whales to migrating leatherbacks, foraging green turtles and playful fur seals live here.

Ocean activists report that important decisions are being made now and that your help is needed to call for a strong network of marine sanctuaries in Western Australia. The seas off the coast of Western Australia are becoming a major frontier for oil and gas development.

Australia's Environment Minister Tony Burke is on the verge of making a decision on the size and location of new marine sanctuaries. What makes this looming decision abso-

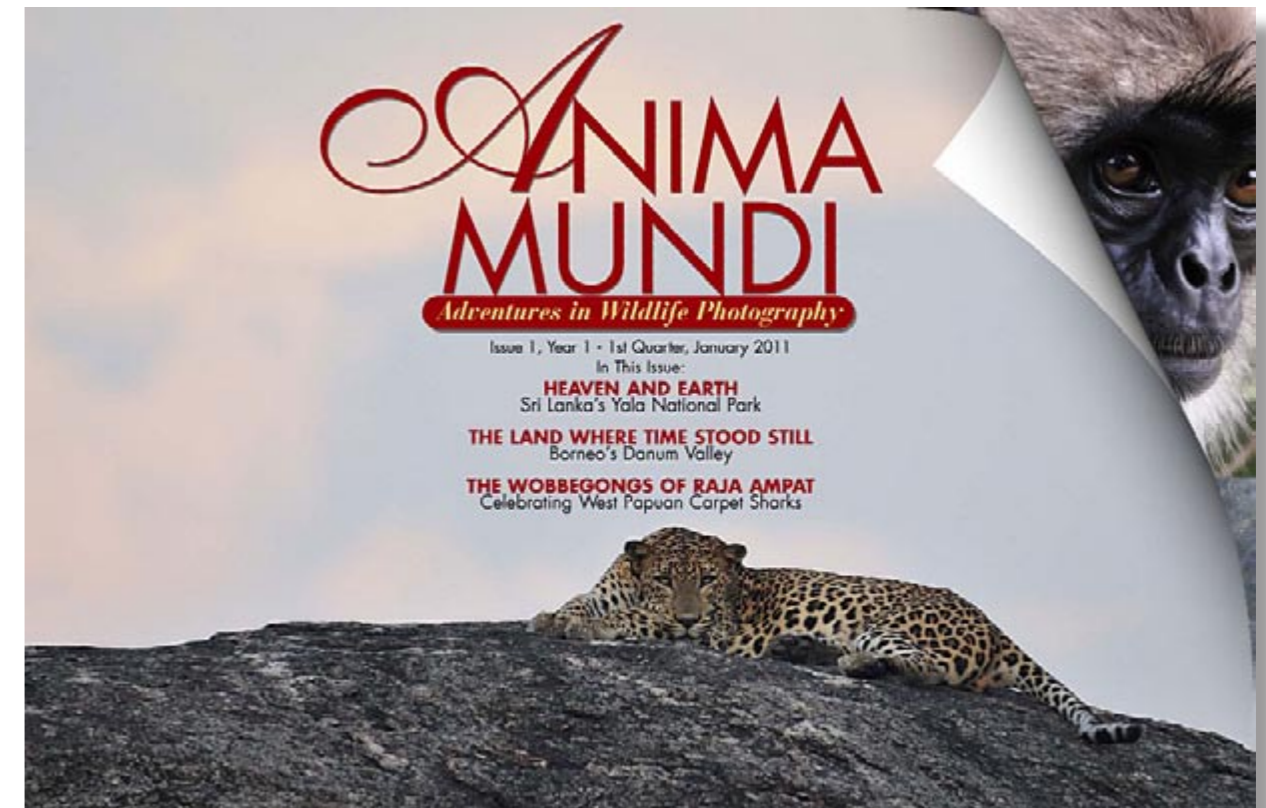
lutely critical is that it will set the standard for marine sanctuaries for the rest of Australia for the next ten to 20 years.

Please join the action to protect Australia's marine environment by sending a message to Minister Tony Burke urging him to set aside significant areas of Western Australia.

Got to: www.seaturtles.org and click on the Action Alert link for the e-address of Australian Environment Minister Tony Burke. ■

Ferraris Go Online With New Wildlife Photography Magazine

Andrea and Antonella Ferrari - authors of the best selling guidebooks *A Diver's Guide to Underwater Malaysia Macrolife*, *A Diver's Guide to Reef Life* and *A Diver's Guide to the Art of Underwater Photography* and *X-Ray Magazine*, *Wetpixel* and *DivePhotoGuide* contributors - have now gone fully digital with the publication of their new free online magazine **ANIMA MUNDI - Adventures in Wildlife Photography**.



Anima Mundi is a quarterly, 110+ page, fully interactive, fully illustrated, high-quality online magazine available as a pdf for free downloading from their websites animamundimag.com and reef-wonders.net. Issues are available for downloading in three different resolution formats, even if the High Resolution version is the recommended one:

Each issue of the magazine - which is published in January, April, July and October - features a minimum of three extensively illustrated trip articles plus book and equipment reviews, photographer's portfolios, field technique tips and fully interactive videos. While ANIMA MUNDI - Adventures in Wildlife Photography is mainly focused on topside wildlife and nature shooting, each issue of the magazine features at least one article or trip report centered on marine life or U/W photography. The Ferraris' new venture - a true work of love - is the result of a long-planned joint venture which is hosted and supported by X-Ray Magazine .

The first issue of ANIMA MUNDI - Adventures in Wildlife Photography can now be downloaded for free at:

AnimaMundiMag.com





Diving the Land of Volcanoes

Kamchatka

— *Russia's Mysterious East*

Text and photos by Andrey Bizyukin, PhD



Bears, steller sea lions and orcas are the real lords of this wild land. PREVIOUS PAGE: When you fly into our dreamland, that is Kamchatka, you see only volcanoes in and around the majestic mountain ridges. It is still a world of untouched wild nature

“Is there diving in Kamchatka?” my buddy asked me while inspecting a map of Russia on Google. It was such an unexpected question, it put me in a stupor. As a Russian dive professional, I certainly should know about all the dive sites and dive centers around the country, but I was stumped with this question about Kamchatka.

The question and the uncertainty got so deeply stuck in my head that the hasty decision to go to the state of Kamchatka and check out the diving there was immediate, and I was determined to make it happen as soon as possible. I decided to investigate everything about Kamchatka and get rid of this annoying

blank in my chest of diving knowledge.

Each more or less erudite traveler I questioned told me that Kamchatka is the land of volcanoes. Of the more than 600 volcanoes on the planet, 160 of them are located on the peninsula of Kamchatka, and 30 of them are active. Volcanoes are even on the flag and emblem of the state of Kamchatka.

Official statistics state that Kamchatka has only about 15 thousand tourists annually, and the majority of them are citizens of the United States, Japan, and other foreign visitors. I was amazed that the percentage of Russians in these numbers was a lot less than half, in comparison to the approximately three million Russian tourists that visited very similar environments in Alaska. All these numbers pushed me to thinking that something was not quite right about my fellow countrymen’s knowledge of Kamchatka.

Most of the travel agencies (operating tours to Kamchatka) offered me hiking or helicopter excursions to the volcanoes, white water rafting on wild rivers, fishing, photo sessions with wild bears, bathing in hot springs and other small pleasures for boring philistines. But in regards to diving on Kamchatka, there were only rare, atypical replies, which brought me big doubts about the professionalism of the operations there.

The Internet—the best friend of divers today—informed me that August was the best season to travel to Kamchatka. We found only one PADI dive center, Orca-Diving, in the town of Petropavlovsk-Kamchatsky. This information wet my appetite and growing desire to dive even more, together with real professionals, on the coast of the mysterious volcanic peninsula.

We booked our flight for March to save money on seasonal airfare increases





Overview (above) of Petropavlovsk-Kamchatsky—the capitol city of Kamchatka; Anna Butkovskaya, PADI instructor and director of Kamchatka's dive club (inset); Location of the state of Kamchatka on map of Russia (left)

group of 19 brave underwater adventurers land on the concrete airstrip of Elizovo Airport.

History

Since ancient times, Kamchatka has been occupied by the tribes of Ilmen, Koryaks and Ainu. The first visit by a Russian to Kamchatka is not dated precisely, but Georg Wilhelm Steller (Stöller)—the historian of the first Kamchatka expedition—mentioned that Russians already lived on Kamchatka in the 17th century. There was even history about a certain person, Fed'ka, who travelled across Kamchatka and lived there for some time.

Officially, the peninsula was explored much later by Yakuts and

Anadyrs Cossacks who traveled there from the continent. Unfortunately, many documents of that time have been lost, as they were written on birch bark and stored in wet conditions in an old state office.

Eventually, Europeans discovered Kamchatka in 1729, when the Russian flotilla under command of Vitus Jonassen Bering—the Dane in the service of the Russian sovereign—rounded the peninsula from the south and made maps of the bays of Kamchatka and Avachinsky.

The peninsula is bordered by the Ohotsky and Bering Seas and the Pacific Ocean. The only overland way to Kamchatka, via the northern isthmus connecting Kamchatka with the continent, is through a land of bogs and very difficult to pass—



Map of the Kamchatka Peninsula

for such popular locations as Petropavlovsk-Kamchatsky. We were not in error to do so! In summer time, Russian air-monopolists raise the prices more than double the going rate, and tickets to Kamchatka become more

expensive than flights to the United States, Seoul, Hong Kong, Singapore, Manila or Tokyo.

It is a nine-hour non-stop flight between Moscow and the state capital of Kamchatka. Finally, our



The orca pod (above) was very friendly with us. They were very curious, liked our boat and sought contact with people; Puffins (inset above) can dive deep, about 30 meters, to hunt for fish. This red-beaked bird had even caught a few small fishes and tried to hide them from us; Our boat named *Orca* (right & below) really attracted all the local orca families. Did they like the sound of our engine or our maybe our experienced Captain Sergey (previously a professional submariner) in blue, standing on the stern? The sea otter (left inset) is the most clever creature of the sea

feelings of freedom of movement in three dimensions and communion with the underwater world that left indelible impressions on me for the rest of my life. Even now, as a PADI professional with hundreds of dives under my belt, I still enjoy diving, weightlessness and the feeling of comfort underwater.

almost impossible for any surface transport. Therefore, all the most necessary items for normal life for people there are delivered by ships or planes from Vladivostok. At present, Kamchatka exists as an isolated island removed from mainland Russia.

Dive operator

We were happy with our guide. In Petropavlovsk, we met Anna Butkovskaya, PADI instructor (MSDT #636191) and head of the Orca Diving Club. "Diving is my hobby which has become my favorite work now," said Anna. She told her story: "Ten years ago, I did my first dive in the Red Sea—bright unforgettable impressions—

"But Kamchatka's diving is special," Anna said, more seriously. "Here, it is difficult, much more severe, sometimes rough, diving. The water temperatures range from 14°C to -2°C depending on the season and depth. The visibility is 6-10 meters. There are thermoclines and tidal currents. The eastern (Pacific) coast of the peninsula is cut with sheer cliffs and has many deep and long gulfs and bays. This coast is



Sea lions, worried about hunting orcas, jump out of the water onto the safety of the rocks



sights and hiking the volcanoes, but for diving, August is by far not the best time. Frequent storms and poor visibility (due to many types of plankton) will make lots of problems for us.

"The underwater world of Kamchatka is unbridled—an often unpredictable element. Here, a diver is only a small particle. It attracts, frightens and commands respect simultaneously. I love our Pacific Ocean, and I will not exchange it for any warm seas. I have seen many oceans, but I've never seen another place with the unique underwater world that is here in our Kamchatka. Here, there are more than 350 fish species, seals, sea lions, sea otters, octopuses, walruses, orcas, whales, fur seals, king crabs and sea hedgehogs," said Anna.

Avachinsky Bay

The next day we went on our first dive trip to Avachinsky Bay. The bay is the



CLOCKWISE FROM TOP: Rocky coast of the Pacific side of Kamchatka; Unique rock formations near Starichkov Island look like huge stone whale fins from the Stone Age; Orcas patrol the local waters like Nature's coast guards

traditionally the most interesting and convenient for diving, but it is almost like diving in the ocean. It's possible to feel how strong ocean rip currents are even at 20 meters depth, and believe

me, not every diver can dive safely in such harsh conditions. By the way, you have chosen the wrong time of year for diving here. The end of summer is a good season for visiting the topside



CLOCKWISE FROM LEFT:
Diver with huge anemo-
nes in Avachinsky Bay;
Say, "Aaaaah", with su-
per big Kamchatka crab;
Hugging seaweed fronds

penetrated into my body, head and hands; and the bottom was not visible. In order to read the color screen of my dive computer, it was necessary to bring it face to face with my mask. The nervous divers and beginners could not handle any more; they inflated their BCDs and left us. Go back to the sun, folks!

We continued our descent in hopes of finding clear water below two thermoclines. But in the absolutely muddy, gray-green, dark waters, I wondered why I had to fly to the other side of the world just to dive in such terrible conditions. The irritating question itched inside my head. So far, the first dive on Kamchatka was a real upset. But finally, I got something hard underfoot—apparently, the



second largest in the world. It looks like a tiny sea—24 kilometers long with a maximum depth of 26 meters and capable (the experts say) of hosting all world's fleets in just one convenient spot.

The guides told us about a local favorite dive site named the Three Brothers—the three separate rocks—sitting at the mouth of the bay. They promised canyons decorated with sea anemones, sea hedgehogs, crabs, octopuses, plus an "adrenaline splash", as the dive could have low visibility, extremely cold water and strong currents.

Indeed, we jumped into very cold water. We did a last bubble check and started the dive. Visibility was simply not present; a piercing cold

sea floor.

It was necessary to lie down just to see the sea bottom and the stones. Even at this depth, the visibility was less than one meter. But the unique forms and colors of the surrounding landscape were quite unusual. Sponges, seaweeds and small sea anemones covered the stones and had surprisingly bright yellow, orange, pink, snow-white and red colors. Such a variety of colors I had never seen before altogether in one area of the sea.

However, in this incredible low viz, I lost my buddy immediately. With no compass and no guide, there was nothing to do but wait. The preliminary dive plan was all but





Fishers (like this guy at left) like to eat freshly caught salmon—within five minutes of the catch, they eat the salmon salted; Quadricycles, or off-road vehicles, are the most convenient form of transport in a country without roads; Both people and bears hunt the salmon that swim up river for the last time to spawn; Divers enjoy a hiking trip to the local valley of geysers to see the boiling lakes and clouds of steam



destroyed, but I decided to stay on the bottom just a few minutes more to try to see something else.

Large Kamchatka crabs were busy here; they coupled and chewed something, feeling themselves safe under the stones. Huge sea anemones hid between big boulders. But since the visibility did not exceed one meter, I was diving like a blind kitten, perceiving the world around me with touch alone. Suddenly, from the muddy environment there was a diver's hand which grabbed for one of my fins. Good luck was with me—it was my buddy. We knelt opposite each other at a distance of 50 centimeters and gesticulated madly. There was nothing more to see. The diving in the Avachinsky Bay was really extreme.

Our skipper told us that the best visibility in these places happens only in June and July. In the beginning and middle of summer, there is less sun, overcast skies or rain, but the sea is quieter and the water is clear.

Topside adventure

Nobody from our team wished to dive more in the bay. All understood that the time had come to look for new places in the open ocean, but a

strong wind and high waves changed our plans. We decided to wait for good weather, and instead, made a short land journey across Kamchatka to bide our time. Our topside



adventure included a rafting trip down the "Big Fast" river; an excursion into a mini valley of geysers at the volcano, Mutnovsky; and a quadrocycle trip to the foot of the Avachinsky and Koryak volcanoes.

Time on this adventure flew by very quickly. It was exciting to plunge into the wild nature of the peninsula, to observe wild

bears hunting for salmon, to cook food on an open fire, to spend the nights in tents, to drive quadrocycles on the forest roads as fast as possible and to photograph salmon heading to their spawning grounds through rough river rifts. But as keen divers, we quickly started to miss diving and waited with anticipation for the first possibility to go back to the ocean again.





A hunting orca (above) looks like a perfect weapon and even scares a guillemot (inset below); An unforgettable moment of diving (right) inside a massive cloud of jellyfish; Diver with one of Kamchatka's brightly colored seastars (bottom right)

Starichkov Island

The mouth of the shallow Avachinsky Bay to the ocean had changed our perception of Kamchatka considerably. The strong ocean rip current shook our small dive boat, and foamy waves broke violently along the rocky coast. Here, everything looked totally different—rugged, majestic and mystical. We were surrounded by the North Pacific, full of the power of nature and wild life. Puffins and guillemots flew over the sea and dived into the water. In search of food, they plunged to depths of 30 meters for several minutes and came back with mouths full of fish. Our presence frightened them and they sped away flapping and running with webbed feet on the water's surface to take off and fly away from our boat.

Orcas

"Orcas on the right side!" the skipper exclaimed. Everybody raced onto the deck and scanned the ocean. The first fountain of mist blew and a large one-and-a-half-meter dorsal fin of a huge orca male rose over the waves. Behind it rose more and more fountains and dorsal fins of lesser sizes. Orca cubs appeared surrounded by orca females. It was a group of orcas of no

less than 20 individuals (males, females and cubs). They passed by, along the rocky coast to the south in the direction of Starichkov Island, like we were.

"Orcas know and love our yacht," the skipper told us. "They have learned to identify the sound of our engine and propeller, have gotten used to our frequent presence in these places and have stopped being afraid." We followed the orcas with a parallel course. The orcas were busy hunting for fish. They stunned the fish with the loud noisy blows of their tail fins. The orcas dived under our ship, and it seemed that they very much enjoyed posing before us divers in order to be photographed. So, together with



these magnificent animals, we reached our next diving site.

At this dive site, Anna told us, a very amusing story happened. "Two divers saw an octopus underwater. One of them wanted to get a closer look, so he got very close to the octopus. The octopus was frightened by the diver and decided to attack the diver, spurring out black ink into the

diver's mask and ran away. The diver was so frightened by the inky reaction that came right into his mask, he jumped out of it. From the outside, it looked really funny: the frightened diver and the octopus quickly running from each other and the mask thus remained laying on the sea bed," explained Anna.





A humpback whale's tail fin tips up out of the water when it dives deep to hunt fish

We dived near the island. The sea water here was much colder; my dive computer registered 2°C. We went along a stony bottom to a depth of 20 meters where there were supposed to be huge sea anemones. A recently ended storm had mixed everything about; therefore, the visibility was about three meters.

Bright yellow, orange and red colors of the underwater landscape are pleasing to the eye, but at depth, all colors fade. In such conditions, a good underwater torch is very useful, as it was in this case.

There were huge, prickly crabs of bright red color covered with an uncountable quantity of sharp thorns, self-confidently walking slowly among luminous thickets. I attempted to play with one of the crabs; it went into a menacing pose and tried very hard to take off my finger with its monstrous claws. The big sharp thorns can easily pierce even thick neoprene gloves. It is necessary to be very cautious with such impressive Kamchatka monsters.

A forest of gigantic sea anemones

and seastars appeared at a depth of 17 meters. The tallest of the anemones reached half a meter in height. We took pictures of them, but quickly got cold and subsequently decided to start a quick ascent to the surface right from this spot. But just a couple of meters up from the bottom, we got into an extraordinarily dense layer of jellyfish.

It was a real underwater phenomenon, like a jellyfish wedding or a macabre underwater festival of pulsating globes. The jellyfish were so active, that even when I tried to push one aside, it quickly, purposefully and persistently ran into me again. We forgot about the cold and stayed in the thick of the jellyfish cloud, enthusiastically observing their movements and taking pictures. Other skilled divers have told us that they have seen a similar jellyfish gathering, only it was in a tropical lake—Jellyfish Lake on Palau. But finding a jellyfish cloud in ice cold Pacific waters on Kamchatka was doubly exciting, interesting and delightful.

Orcas also use their tail fins, whacking the surface of the water loudly to stun fishes they then eat (above); Views of humpback whales (top)

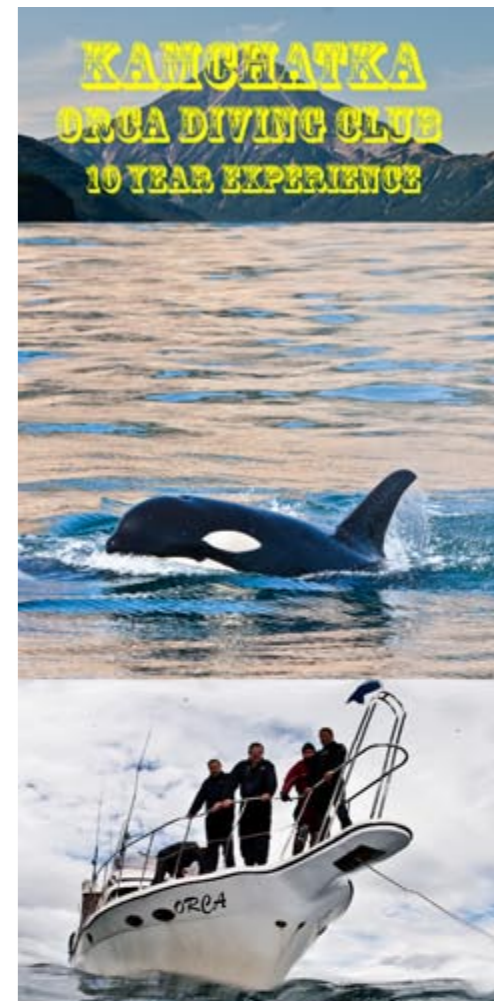


Close-up view of jellyfish



THIS PAGE: Exciting diving with curious sea lions looking to communicate and share contact with divers. It is the absolute highlight of diving on Kamchatka

Kamchatka



Back on the boat, fascinated by what we had seen, talking loudly, discussing, admiring and swinging our hands about, we turned back towards the town of Petropavlovsk. But then, humpback whales grabbed our attention. They were feeding directly at the mouth of Avachinsky Bay.

These huge underwater giants, of a size much larger than our boat, blew up noisy fountains of mist and circled around us with big, wide, gaping mouths, collecting something tasty from the sea surface. Periodically, they lifted their tail fins and dived deeply; then they again rose to the surface—paying no heed to our noisy shouts of excitement and the sound of our boat engine—and continued to be engaged in their important whale affairs.

Yes, the long-awaited day of diving had gone wonderfully right and well. We saw orcas and humpback whales, dived with monster crabs, swam through actinium gardens and spent some enthusiastic minutes in a natural stew of live jellyfish. Life was good.

Diving with sea lions

We left Petropavlovsk at 4:00am the next morning in order to have time to reach Russian Bay—a cozy, rocky place on the coast where sea lions have chosen to make a home for themselves.

Huge rust-colored sea lions (steller sea lions) spend all their summers here—feeding, warming



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The alpha male (sea lion bull) with his harem, very protective of his girlfriends and jealous of us; Diving seal (below right) demonstrates incredible mobility

themselves in the sun, getting fat, raising pups and hiding from orcas. In order not to disturb the large animals, we silently entered the water from our boat about 200 meters from them. We swam to a site where we could observe the seals underwater. We stopped at seven meters depth and waited in hopes of a miracle—that the natural curiosity of the sea lions would get them to dive into the water and come see us.

Really, curiosity is the surprising natural phenomenon pushing both people and animals into improbable adventures. Within five minutes, a group of sea lions of at least ten to 15 individuals came to examine and sniff us out from all sides. They obviously discussed us among themselves.

They came as close as possible to us. With big, wide open, brown eyes, they looked directly into our masks, carefully bit our fins, tasting them, and one even gave me a kick in the back for good measure—for in front of me, there was “a terrible” bulky camera with wide-spread strobes.

The sea lions did not lose interest in us for the entire hour of diving. I was delighted to be able to take around a hundred shots or so of these wonderful creatures and only came up to the surface when when my air tank was empty. All of us divers were full of euphoria.

The female sea lions had disappeared somewhere, but the big five-meter-long sea lion bull came up out of the water 50 meters from us. His head was



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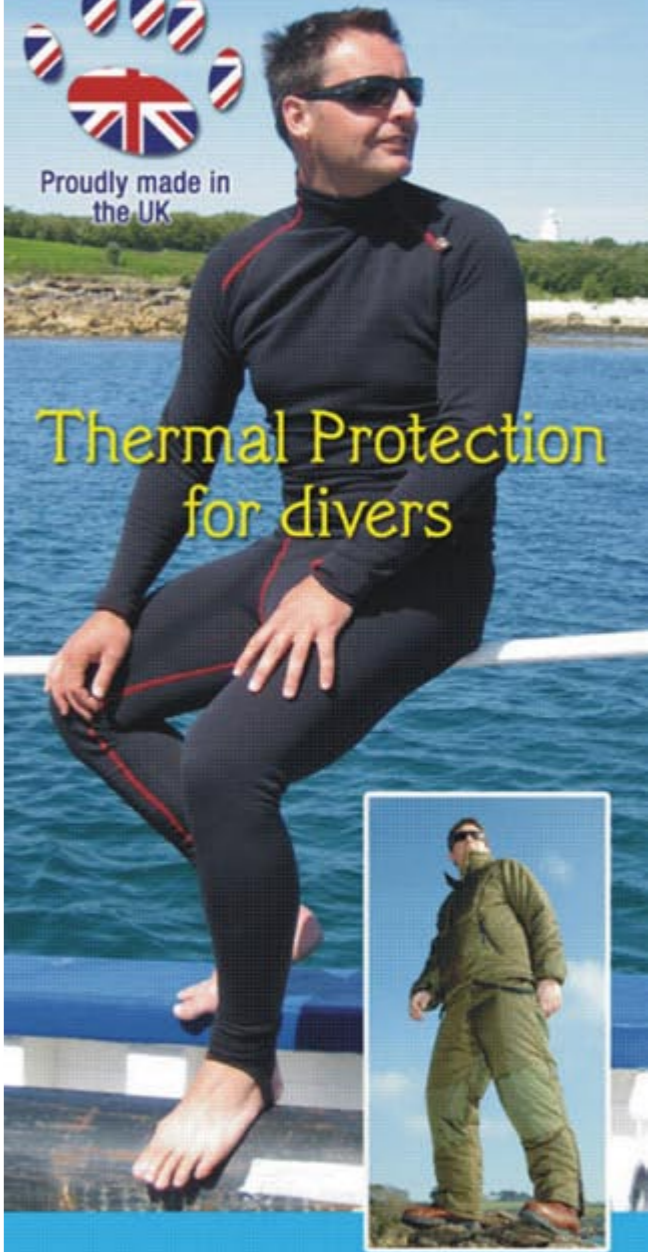
Kamchatka

similar in size with that of an adult bear. He was very protective of his territory and his harem of sea lions, looking at us with such jealousy that we instantly felt we had exceeded our stay, challenging his permission and intruding on his private territory.

In an instant, as if by a single command, we all switched on our "fifth gear" and forced our fins into action desperately trying to reach our boat. The excited sea lion bull charged with such force and speed when he rushed at us that we understood at once that we were dead meat. In actuality, we did not have a prayer to get out of the confrontation. Only a miracle could rescue us, and so, it did—in the form of an inflatable boat with a motor and a skilled diver at the helm who kept control of the situation and reacted instantly. At

Support team (left) picks up divers on the surface; Hot springs at +40°C sooth muscles after a long day of hiking (bottom left); Fresh caught sea food make a feast for us cold water divers (below)

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CLOCKWISE FROM LEFT: The quadrocycle tour to the foothills of Avachinsky Volcano (left); Anchorage near mouth of Russian Bay; Memorial for British and French Navy seamen who died in an attempt to capture the city of Petropavlovsk-Kamchatsky during Russian-Turkish war; Aerial view of Kamchatka

full speed, the zodiac “cut off” the path of the bull charging us, and frightened off the animal, effectively discharging the heated situation.

The technique of diving with sea lions was thought up and tested personally by Anna Butkovskaya, and its prime directive was an insistent requirement: do not pursue sea lions, just stay in place and wait for a miracle. Sea lions should not associate with divers because of the possible danger; divers should tease the sea lions’ natural feeling of curiosity only. And such a philosophy works 100 percent of the time. “Sea lions here are absolutely

pristine. Just developed, this is my favorite dive site. Diving here is like diving on one breath,” Anna told us.

Diving with the sea lions provided emotional highs and delights which completely compensated

for all the difficulties of our first days of diving on Kamchatka. The general conclusion of all the members of our group was unequivocal, we had to fly back again to Kamchatka just to dive with these graceful and extraordinary, flexible and charismatic animals.

Afterthoughts

Before coming back home, all of the divers in our group discussed diving on Kamchatka together. As a long-term resident of the peninsula, Anna explained the underlying vision of her

quest: “I am very enthusiastic about the preservation of our underwater world. People often destroy more than they create. Sometimes just to get food or money for living, people do not spare the underwater world. On Kamchatka, there are still untouched virgin places, and there is a lot to see. It would be desirable, that, as much as possible, divers could see our still untouched underwater world while we still can conserve it and save it from the fate of the Asian seas where there are now absolutely empty underwater regions. Let’s save and protect the natural world of Kamchatka! I wish to address this call to all the divers who live and dive on the peninsula, and also to all those who come to visit.

And I also have another dream: to organize a dive trip to see the orcas of Kamchatka. Orcas are worthy of our respect and sincere admiration. I have



not seen anything better in the world than the orcas of Kamchatka. Come with me next time, and we will dive

together! And you will be convinced that Kamchatka will not leave you indifferent,” said Anna as she finished her story. ■



marine mammals

Edited by Kelly LaClaire

Federal judge in Canada rules in favor of killer whales

A federal court judge recently ruled that Canadian environmental officials failed to give proper and adequate protection to the killer whales, or orcas, that live along the country's Pacific shores. The court sided with fervent environmental groups that argued the Canadian government had a duty to protect all aspects of the whales' habitat, some of which includes the waters between British Columbia and Washington state, not just certain segments of their feeding grounds.

According to the ruling, in 2009 government executives were negligent by limiting a protection order for the whales to only a portion of their natural habitat. There are only a little over 200 orcas that live near Vancouver Island, and they already face a host of factors militating against habitat preservation including salmon shortages, commercial pollution, acoustic disruptions from ship traffic, etc. The court's judgment was clear—the whales need all the help they can get.

It was a big win for environmental and conservation groups fighting for the orcas. "We're very pleased with the court's decision," said Susan Howatt, campaign director for the Sierra Club of British Columbia, who has been pushing for federal bureaucrats to do more for the protection of the threatened killer whales in the area. "It sends a strong message to do a better job in the future." SOURCE: REUTERS ■



Orcas breaching



Springer, a lost juvenile orca in Puget Sound

Orca thriving after return to the wild

The world-famous killer whale known as Springer is still doing remarkably well according to recent reports by researchers and scientists in Puget Sound. Just two years old when she was found lost, underweight and alone in 2002, Springer was picked up off the coast of Seattle. Experts nursed her back to health on a steady diet of salmon and medicines for a month while trying to determine where she had come from and what pod she belonged to. By listening to Springer's unique calls scientists from Orcalab concluded she was a member of the Northern Resident Community of killer whales that spend their



Researchers and scientists transport Springer back to his family pod in the Puget Sound

summers off the British Columbia coast in Canada. When she was well enough, Springer was transported to a sea pen in Canada's Johnston Strait, a deep and narrow glacier-carved passage located between the east coast of Vancouver Island and the BC mainland. Not long after, Springer was released when she began calling to a passing group of Orcas. The meeting, unfortunately, was not a success and the pod swam away without her. Fortunately, the young whale was soon spotted with another community that had close relations with her mother and one older female, known to researchers as Nodales, had taken the orphaned juvenile under her wing. Springer is now ten years old and is regularly seen with her adopted family looking healthy and happy. To find out more about Orcalab and their research, log on to www.orcalab.org. ■

Dolphins hunt with conch shells

Dolphins in Shark Bay, Australia, have developed a new and extraordinarily clever foraging technique witnessed and photographed by researchers from Murdoch University. According to details published in the journal, *Marine Mammal Science*, several dolphins have been spotted using conch shells to hunt and capture prey.

"Dolphins are known as clever inventors, showing a remarkable range of foraging tactics, which are unprecedented in other cetacean populations," said biologist Dr Michael Krützen, who is working with the Cetacean Research Unit at Murdoch University in Western Australia. For example, some dolphins have been observed hydroplaning into extremely shallow waters while simultaneously slapping their tails on the surface to chase fish into areas where they are easily caught. Other dolphins

are known to swim in small circles, kicking up mud with their tails, creating a "feeding ring", which traps confused fish and allows other pod members to rush in and grab large mouthfuls of prey.

It now seems the pod members of Shark Bay—one of the most studied pods on Earth—have developed another revelation in fishing tactics to add to their repertoire. Here's how it works: the hungry dolphins chase fish into large, abandoned conch shells, trapping them inside. From there, the dolphins simply pick up the shells off the sea floor, bring them to the surface, shake their heads back and forth a few times until the fish falls out and, viola . . . instant satisfaction!

Researchers are not entirely sure how or when this new behavior started, but they are fairly certain no other dolphins hunt this way. SOURCE: BBC NEWS - NATURE ■



Bottlenose dolphin





marine mammals

Russia and United States team up for endangered whales

A team of scientists and researchers from both the United States and Russia have successfully tagged a male western gray whale in hopes of tracking him to breeding grounds and thus gaining vital data for future research projects and conservation efforts.

This is the first time a whale from this critically endangered population has been tagged and traced. "Tremendous care was taken to select a healthy adult male," said Greg Donovan, head of science for the International Whaling Commission who coordinated the project. "Although the risks associated with such tagging are minimal, we wanted to take absolutely no chances with females or young animals. The information we expect to get from this study is vital to international conservation efforts to preserve this population, as is the collaboration between governments, international organizations, international scientists, industry and other stakeholders."

The tagged whale, known as



Gray whale

"Flex", is well known to the team of researchers, having been seen and photographed since the late 1990s when it was just a calf. Transmissions from the tag are collected every-day via satellite and then sent to the researchers for further analysis and study.

"Not a lot is known about western gray whales, so finding out where they migrate to breed and calve will be a tremendous step forward," said Bruce Mate, director of the Marine Mammal Institute at Oregon State University and one of the chief scientists helping to coordinate the project. Any data collected would

be invaluable to those attempting to aid recovery of the fragile population. There are only about 135 western gray whales left in the world with approximately 30-35 sexually mature and active females. While their feeding grounds in the Russian far east are well known, little is understood about their breeding and calving grounds.

The scientists involved in the collaborative tracking project are hoping the collected data from Flex's transmitter will help safeguard and reestablish gray whale numbers, but also aid future international conservation and protection efforts around the globe. SOURCE: REUTERS ■

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Mediterranean monk seal 'haven' discovered

Scientists discover rare seal colony at undisclosed Greek location. Researchers are keeping the colony's location secret to avoid disturbance by visitors

The monk seal is not only the world's most endangered seal, but also one of the most endangered marine mammals.

Fortunately, a glimmer of hope has arisen for the embattled species whose numbers teeter on the brink of extinction. Scientists have discovered a colony of the rare creatures at an undisclosed location in the Greek Islands. It is the only place in the region

Monachus is a genus (and a subgenus of the same name) containing the monk seals, a group of three Pinniped species. They are the only earless seals (Family Phocidae) which are found in tropical climates. They are now extremely rare, and the genus is in imminent danger of going entirely extinct

where seals lie on open beaches, rather than hide in coastal caves. Researchers are keeping the location of the colony secret to avoid having the seals disturbed by human visitors.

Mom

Alexandros Karamanlidis, scientific co-ordinator of the Mom/Hellenic Society for the Study and Protection of the monk seal, explained that this was the seals' original behaviour. "It is human disturbance that has caused the species to retreat to inaccessible

caves. So this place is incredibly important—the seals feel so secure that they go out onto open beaches."

The Mom researchers, whose society name is derived from the Latin name of the species, *Monachus monachus*, have been monitoring and studying monk seals for more than 20 years. This has not been an easy task, as most of the animals now live in areas that are not visible from the water line. By driving the seals into secluded caves, scientists say that human activity has also greatly affected the number of seal pups that survive into adulthood.

"Because of human disturbance, the seals give birth in

these coastal caves, meaning that more pups die during storms," explained Karamanlidis. The number of seal pups born annually in the newly discovered colony is amongst the highest recorded anywhere in the Mediterranean Sea.

Tourism

The region's popularity with tourists has gradually driven the animals away from other beaches, something scientists hope to stop from happening on this island. The team has placed cameras on the island to study the seals remotely. "It's a small island in the Aegean with nice sandy beaches," said Karamanlidis. ■

Seals returning to the Baltic

Scientists from the Institute of Oceanography at the University of Gdansk say in the last 20 years the population of seals has grown in the Baltic from 4,500 to 20,000.



Gray seal

After an absence of almost 50 years, gray seals are returning to the Polish coast of the Baltic Sea, researchers said, but not everyone is happy about it.

There was once a time when seals thrived in the cold waters of the Baltic Sea. At the turn of the 20th century, the natural population was estimated to be 100,000 seals strong, but thereafter, the populations suffered a strong decline. Fishermen, whose livelihoods depended on abundant fish stocks, considered seals an unwelcome competition. For decades, they drove away and killed thousands of seals until eventually there were none to be found. Such was the anti-seal sentiment at one time that the government sanctioned a mass

seal cull, offering rewards to fishermen for each seal killed.

Now, after almost 50 years of absence in these waters—and after the governments of Sweden and Poland have been working to rectify the damage done over the last century by monitoring seal populations,—the animals are finally making a comeback, thanks to tireless conservation efforts.

From an estimated 4,500 seals in the region just 20 years ago, their numbers are thought to be closer 20,000 today. A shift in attitudes has lead researchers to conclude that peaceful coexistence between man and seal is not only possible, but also necessary for the preservation of the ecosystem as a whole. ■



The Mediterranean monk seals is critically endangered and not many images are readily available. This file photo shows the related and equally endangered Hawaiian Monk Seal resting and sunbathing on a beach near Wailua Bay

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Realm of the Giant Kelp
Channel Islands

Text and photos by Matthew Meier

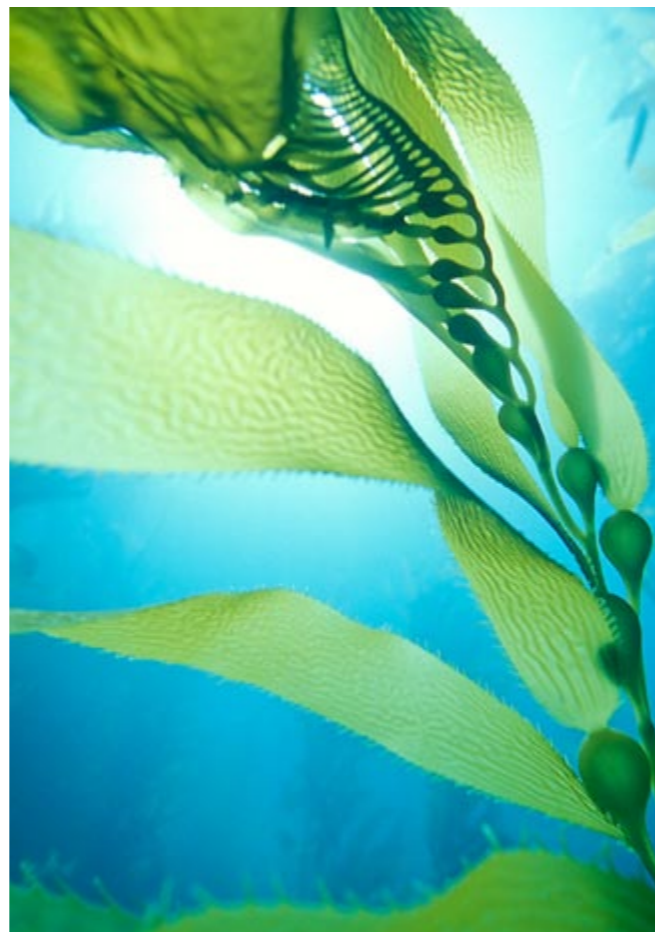


A two-spotted octopus (*Octopus bimaculatus*) moving along the sandy bottom (above), Santa Cruz Island. PREVIOUS PAGE: A school of jack mackerel (*Trachurus symmetricus*) fish in a giant kelp forest off Catalina Island

For those of us fortunate enough to call Southern California home, the Channel Islands offer world-class diving in our own backyard. Comprised of eight islands stretching over 160 miles of Pacific Ocean, the Channel Islands boast over 2,000 terrestrial plants and animals, including 150 endemic species, rivaling the Galapagos for diversity. Below the surface the islands play host to forests of giant kelp and a multitude of abundant marine life, supported by nutrient rich, cold water upwellings. The rocky reef structure is covered with algae and sponge growth, bryozoans and hydroids, anemones, tube worms, burrowing sea cucumbers, sea stars, urchins and nudibranchs. Spiny lobster, moray eels and octopus shelter in crevices, while fish species too numerous to mention, range from the resident bright orange Garibaldi to colossal giant sea bass.

My first underwater photos were taken at the Channel Islands, and I have returned every year since. On my most recent trip, the liveaboard

spent two days anchored at one dive site, in which time, none of the 20 photographers and videographers onboard ran out of subjects



Giant kelp (*Macrocystis pyrifera*) lit from behind by sunrays, Santa Cruz Island



Ochre sea stars (*Pisaster ochraceus*) and purple sea urchins clinging to the rocky reef (above) off Santa Cruz Island



LEFT INSET: Horn Shark (*Heterodontus francisci*) laying in a rock crevice, Catalina Island



CLOCKWISE FROM TOP LEFT: Soupfin shark (*Galeorhinus galeus*) with jack mackerel swimming over kelp, San Clemente Island; Giant sea bass (*Stereolepis gigas*), adult, also known as black sea bass, Catalina Island; Leopard shark (*Triakis semifasciata*) in shallow water filtered with sunrays, San Clemente Island

to shoot. We were privileged to have harbor seals and California sea lions nearby, a vertical wall of rocky reef full of macro subjects, bat rays in the sand below the boat, and schools of Jack mackerel, opaleye and blacksmith fish, along with soupfin and leopard sharks swimming in the shallow waters of the giant kelp forest.

On one particular night dive, I discovered an elusive two-spot octopus moving across my fin, as I knelt in the sand. Octopuses are not often seen during the day, preferring to stay in their den or else hidden in plain sight, camouflaged against the rocky reef. With no room to get down on its

level, I was left to hold my camera just above the sand, shooting blindly as it moved away. Days later, when my film was developed, I was rewarded with one of my more unforgettable octopus images.

Big fish

Spectacular to see underwater, giant sea bass are the largest species of fish living in the kelp forest. They can grow to be over seven feet in length and weigh upwards of 700 pounds. Due to their dwindling numbers from overfishing, giant sea bass have been protected in California waters since 1982. While still listed as a critically

endangered species, giant sea bass are slowly making a comeback. Swimming alongside one of these behemoths is truly an amazing experience.

The Channel Islands support numerous shark and ray species. I have had good luck photographing soupfin and leopard sharks at San Clemente Island, horn sharks at Catalina and bat rays at most islands. It is also possible to see blue sharks, mako sharks, angel sharks, swell sharks, stingrays, shovelnose guitarfish and electric rays to name a few. In the 60's and 70's, basking sharks were common in the Santa Barbara Channel, but by now they have all but disap-

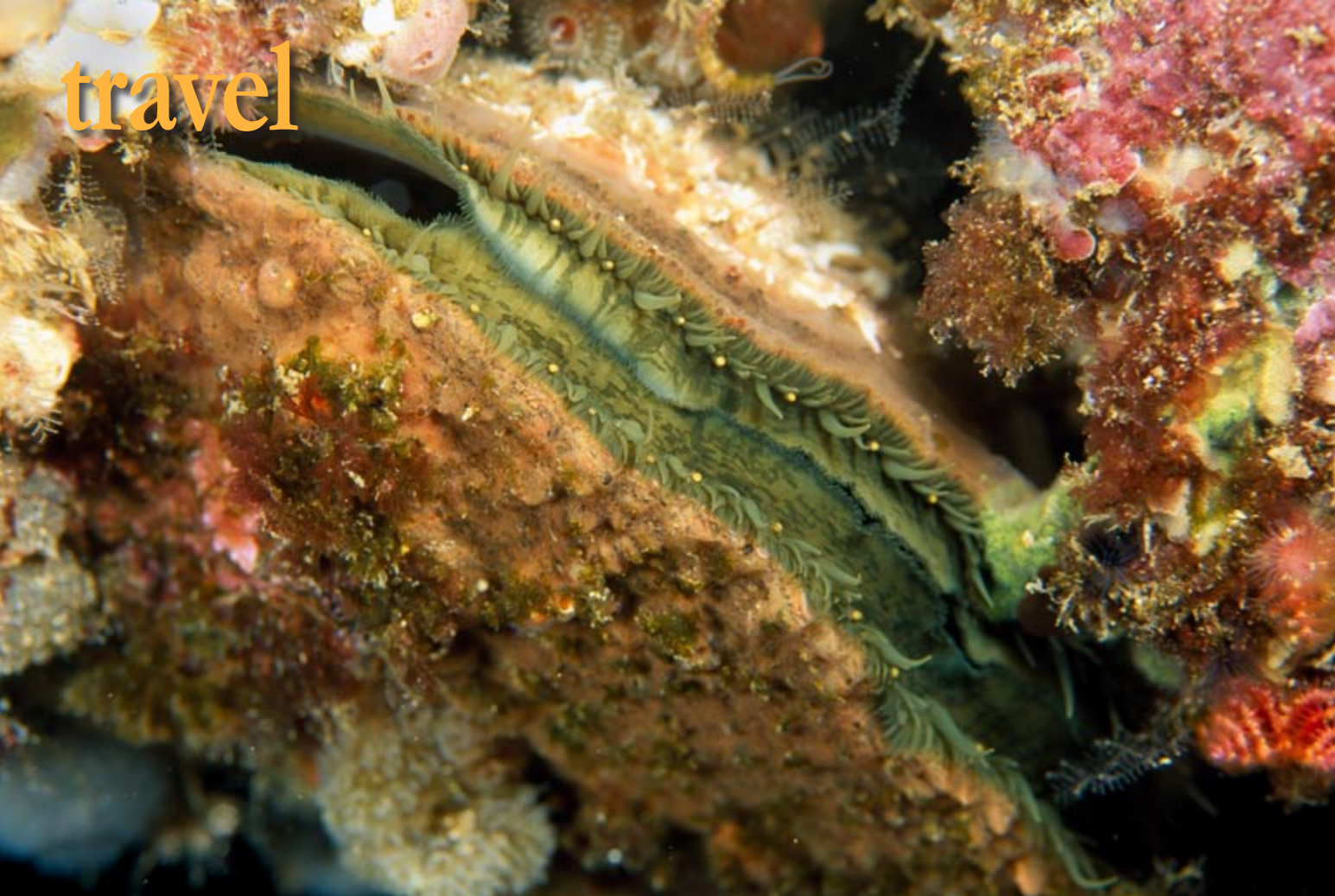




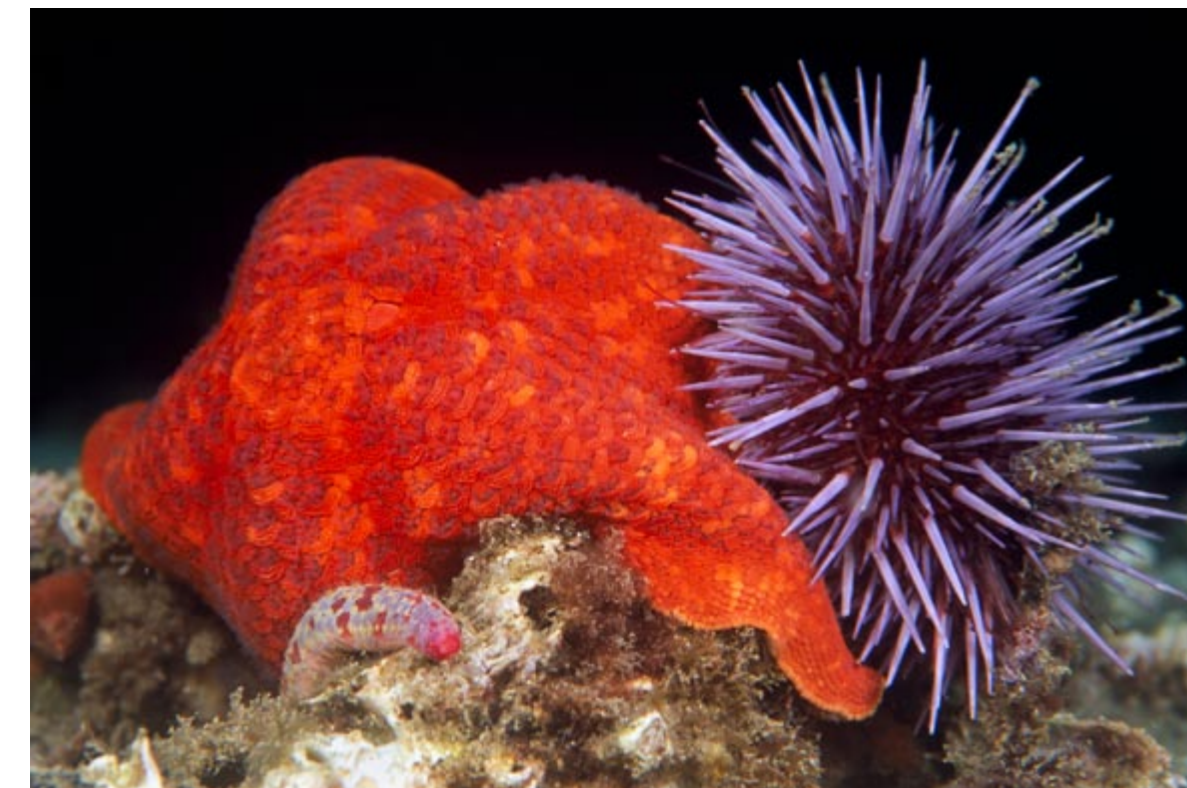
peared.

No visit to the Channel Islands is complete without encountering the charismatic and vibrant garibaldi, California's official state salt water marine fish. They are found only in the Eastern Pacific Ocean from Monterey Bay down to Baja and are abundant at the Channel Islands. Garibaldi are the largest member of the damselfish family, growing up to 12 inches in length and are a striking orange in color. A juvenile Garibaldi's color is slightly less vibrant, and it has luminous blue spots that disappear by the time it reaches adulthood. In summer, male Garibaldi construct circular nests on flat sections of rocky reef and then guard their nests after the female deposits her eggs. They are incredibly territorial during this time period and will attack much larger fish and even humans to protect their developing young.

CLOCKWISE FROM ABOVE: Club-tipped anemone (*Corynactis californica*); Coonstripe shrimp (*Pandalus danae*) sits at the opening to a crevice in the rocky reef; Garibaldi fish (*Hypsypops rubicundus*) graced with sunrays. All images this page from Santa Cruz Island



Channel Islands



Diving

Scuba diving at the Channel Islands is almost exclusively achieved by means of a day or multi-day boat trip from the mainland. Dive boats run out of harbors like Santa Barbara, Ventura, Los Angeles, Long Beach, San Pedro, Dana Point and San Diego. Single day trips usually allow for three to four dives, before returning back to the docks in late afternoon. Transport times differ depending on the harbor, boat and destination, but most range between one to two hours. The charters vary from intimate, six passenger vessels to 30+ passenger liveaboard boats.

Diving in California is for the hardy and self-reliant. The water is cold, the gear extensive and the pampering virtually nonexistent. On most boats, divers are required to provide their own equipment, tanks and even weights and to transport that gear onboard themselves. Once in the water, divers are expected to be able to read their



CLOCKWISE FROM ABOVE: Red bat star (*Patiria miniata*) and a purple sea urchin (*Strongylocentrotus purpuratus*); Detail view of a green rock scallop attached to the rocky reef; Sunflower star (*Pycnopodia helianthoides*) moves over the ocean floor. All images this page from Santa Cruz Island, except the three California rock lobsters (*Panulirus interruptus*) in a crevice (right) on the rocky reef off San Clemente Island





Channel Islands

CLOCKWISE FROM FAR LEFT: Silhouette of the lighthouse at sunrise over the east end of East Anacapa Island; Yellow zoanthid anemones (*Epizoanthus giveni*) growing on the rocky reef off Catalina Island; Anacapa Island (at sunset) and Santa Cruz Island make up part of the Channel Islands of California; A large sheep crab (*Loxorhynchus grandis*) moves across the sand amongst the sea grass, Catalina Island



to Catalina, though helicopter and plane rides are also available. Once on Catalina, there are a wide variety of quaint hotels and restaurants to choose from, the vast majority within walking distance of the ferry dock. Several dive boats operate out of Catalina and shore diving is also available. A must see is the Casino Point Marine Park, which was established as a marine reserve in 1965 by the city of Avalon. This shore dive is easily accessible by concrete steps taking you straight into the water.

The four northern Channel Islands (Anacapa, Santa Cruz, Santa Rosa and San Miguel), along with Santa Barbara Island comprise the Channel Islands National Park (CINP). The National Park expanded the protec-



tions of the Channel Islands National Monument, created in 1938 by U.S. President Franklin Delano Roosevelt, which covered only the islands of

may not even get wet. The reward for all this effort however, is magnificent diving and absolute freedom underwater. Plus, you finally get to prove you were paying attention during that navigation specialty course.

Visibility at the islands averages 30 feet and on a good day can reach 100+ feet. Water temperatures typically vary 5-10 degrees from the northern to southern islands. Average winter surface temperatures range from 53-59°F, while summer temperatures fluctuate between 62-70°F, though the water is typically cooler at depth. A drysuit or 7mm wetsuit, hood, boots and gloves are recommended.

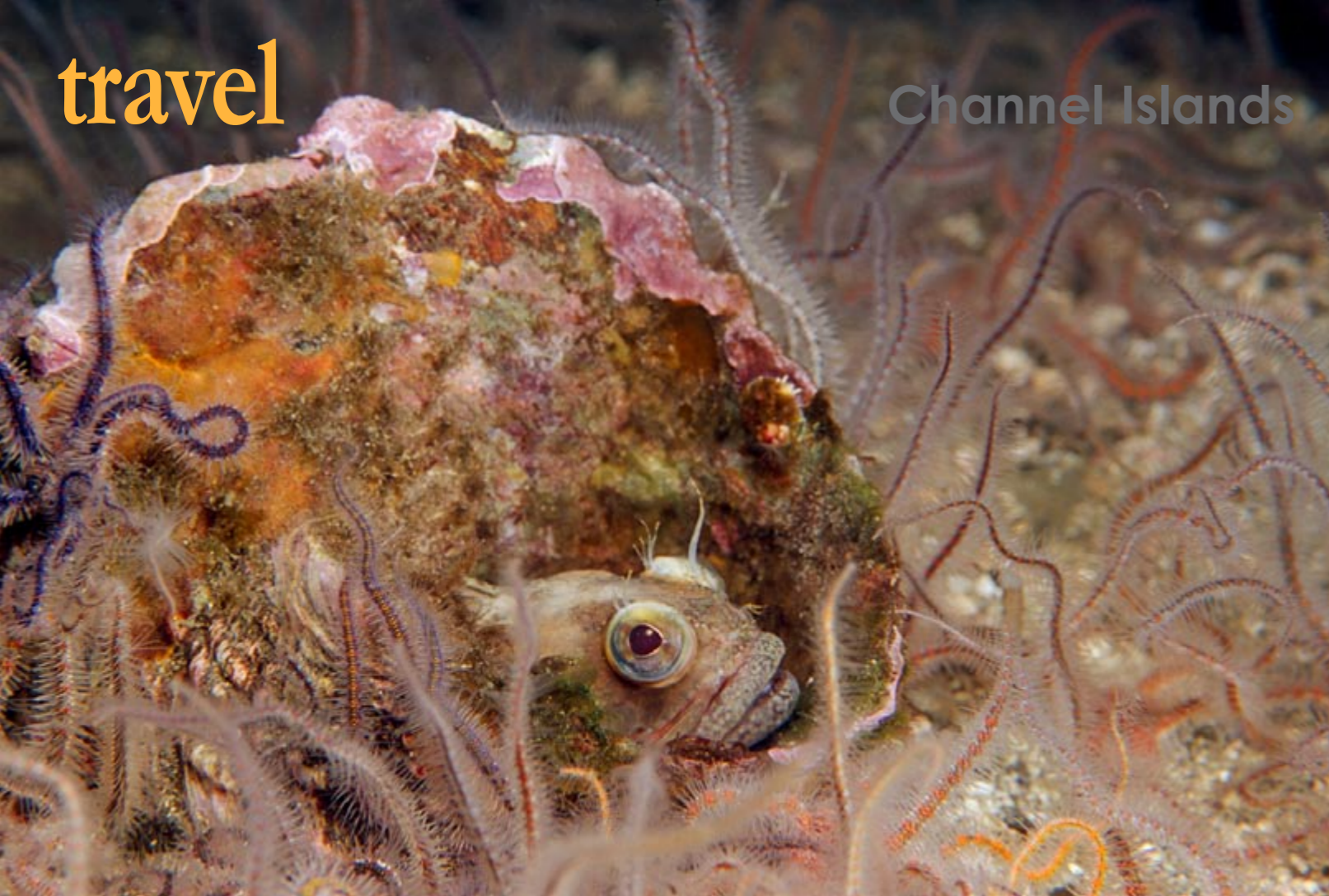
The islands

Santa Catalina Island maintains the only permanent, non-military settlement on the islands, with the majority of residents living in either Avalon or Two Harbors. Boat ferries are the most common means of transportation

compass, manage their bottom time and find their way back to the boat. Dive masters typically do not conduct a follow-the-leader guided tour and



Hilton's aeolid (*Phidiana hiltoni*) nudibranch moves over the rocky reef off Santa Cruz Island



Sarcastic fringehead fish (*Neoclinus blanchardi*) in a shell, with brittle stars all around, Santa Cruz Island

heading south from their Arctic feeding grounds towards the warmer waters of Baja California, Mexico, to give birth. In the summer months of July to September, humpback whales, fin whales and blue whales come to feed. This aggregation of blue whales is the largest of it's kind, with nearly ten percent of the world's population gathered in the Santa Barbara Channel.

Visitors will frequently see large pods of common dolphins and occasionally much smaller pods of Risso's dolphins at the surface. Less frequently encountered are pacific white-sided and bottle-nose dolphins. A few lucky visitors will experience dolphins or even a whale underwater while diving around the Channel Islands, but the vast majority of these sightings will be from the deck of a boat. Several tour boat operators run



California sea lion (*Zalophus californianus*) blowing bubbles upside down, Santa Barbara Island

Anacapa and Santa Barbara. Surrounding the entire CINP is the Channel Islands National Marine Sanctuary (CINMS). The sanctuary is a marine protected area administered by NOAA (National Oceanic and Atmospheric Administration) that encompasses 1,250+ nautical square miles of the Pacific Ocean, from the high tide line of the CINP, to six nautical miles offshore. Both were established in 1980 and together they help to protect the natural and cultural resources on the islands.

Marine mammals

A wide variety of marine mammals call the islands home, and at various times of the year, many more pass through on their migratory routes. Nearly 30 species of cetaceans (dolphins and whales) have been observed, with 18 species listed as residents. Pacific gray whales migrate during the months of December through March,



Beams of sunlight shine through the canopy of a forest of giant kelp (*Macrocystis pyrifera*), Catalina Island

whale watching cruises, specifically to search out these majestic creatures.

A few years back I had the pleasure of watching a humpback whale in the Santa Barbara Channel while returning from a

dive trip. The whale was leaping out of the water, in a behavior known as breaching, at seemingly regular intervals. As we waited for its next breach and tried to estimate where it might reappear, the whale advanced much closer



Channel Islands

LEFT TO RIGHT: Humpback whale (*Megaptera novaeangliae*) breaching at Anacapa Island; Large pod of common dolphins (*Delphinus capensis*) off Santa Cruz Island

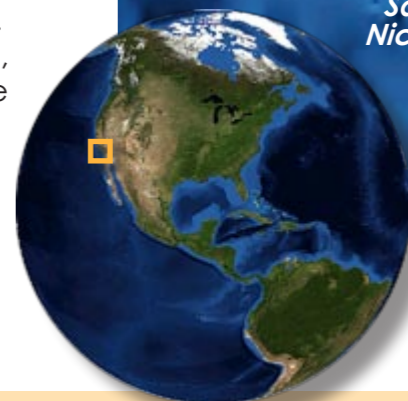
past, Guadalupe fur seals and stellar sea lions also visited the islands, but today, are rarely seen. On the northern most island of San Miguel, hundreds of thousands of pinnipeds gather, breeding at different times of the year, to form one of the largest congregations of wildlife in the world.

The leeward side of Santa Barbara Island plays host to a rookery of California sea lions. Hundreds of sea lions haul out on the rocks at night to sleep or to laze about in the sun during the day. Pups are born in the spring and learn to swim under the watchful eye of adults in the calm, shallow waters close to shore. By mid-summer, they are graceful swimmers and curious to explore their world. This is a popular dive destination and well worth the trip. Some of my most memorable dives have been at Santa

Barbara Island watching playful sea lions swim circles around me.

Topside adventures

The Channel Islands offer a wide range of activities for non-divers as well. Water-based activities include whale watching, kayaking, boating, fishing, surfing, tide pooling and snorkeling. Camping and hiking are allowed on all of the islands except San Clemente and San Nicolas, which are controlled by the U.S. Navy and off limits to the public, though diving is permitted in the waters around those islands. Limited backcountry camping is allowed on Santa Cruz and Santa Rosa. Facilities differ, but most are primitive, so be sure to check on conditions and necessary equipment



Map (above) of Channel Islands of California and their location on the global map of the world (left)

than anticipated. I was able to snap four photos as it breached perhaps 20 yards from the boat and landed with a monstrous splash. Thanks to modern technology, my photos were actually in focus, though much more tightly cropped than I envisioned. To this

day, that is one of my favorite wildlife viewing experiences.

There are four species of pinnipeds (seals and sea lions) at the islands, including the California sea lion, harbor seal, northern elephant seal and the northern fur seal. In years

Detail of green anemone
(*Anthopleura sola*),
Santa Cruz Island

FACT FILE

Southern California's Channel Islands are geographically broken into the Northern and Southern Channel Islands. Anacapa, Santa Cruz, Santa Rosa and San Miguel make up the northern islands, while the southern islands consist of Santa Barbara, Santa Catalina, San Clemente and San Nicolas.

Climate The climate at the islands is similar to the Mediterranean, with cool, wet winters, hot dry summers and moderate temperatures year round. December to March are the coolest months and July to October are the hottest. The majority of the rainfall occurs from November to April, with January and February being the rainiest. May to October is considered the dry season, accounting for only one percent of the annual accumulation. Morning fog is common in the spring and early summer due to the humid ocean air and high nighttime temperatures.

Diving Diving is possible year round at the Channel Islands, however the visibility is typically better from mid-summer through winter.

Websites

www.nps.gov/chis/index.htm
channelislands.noaa.gov
www.ladiver.com
www.truthaquatics.com
www.californiadiveboats.com
www.santabarbaraca.com
www.sandiego.org
www.discoverlosangeles.com ■

before you go. Hiking trails vary from maintained roads and paths with directional signage to rugged, unmarked, and mountainous. Day hikers need to plan their routes accordingly, to be certain they are back at the dock in time for their boat ride home. In late winter and spring, the islands are usually lush and

alive with wildflowers in full bloom.

Bird watching at the islands can be spectacular. Over 60 species of seabirds winter, feed, nest or migrate through and 99 percent of all Southern California seabirds utilize the islands for nesting and feeding grounds. The islands also play host to the only nesting population of

brown pelicans on the U.S. west coast. Once threatened by pesticides like DDT, the California inhabitants have made a remarkable comeback.

Divers and non-divers alike will appreciate the diversity and beauty of the Channel Islands. ■

Matthew Meier is an underwater photographer and dive writer based in San Diego, California. For more information and to order prints, visit: www.matthew-meierphoto.com

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photo &
video

Text and images
by Joseph C. Dovala

Not all sunken ships are the same. There are shallow wrecks, deep wrecks, very old barely discernable wrecks, wrecks sunk in war, wrecks sunk to make artificial reefs, even wrecks placed on the sea bed for Hollywood movies. While each ship has a different history and characteristics they share one thing in common—they all have been transformed into undersea time capsules.

The ship's design reflects how life at sea existed in a particular era, and personal effects that went down with them signs a personal signature to those that walked and worked the decks. Even vessels placed intentionally on the bottom as man-made reefs, often have glorious histories contained within their hulls that can be felt by the astute diver during a visit.

As artificial reefs, they tend to attract, and ultimately, possibly sire their own population of critters from encrusting invertebrates to apex predators. Between the assemblage of marine life and the ships themselves there's no shortage of photographic opportunities. The emphasis of this article will be on bringing back meaningful images from inside the passageways and compartments—AND do it as safe as possible. In no shape or form is this piece intended to be an all-encompassing text on wreck penetration or photography, but merely a primer of some things to think about.

So, you want to crawl inside what's essentially a submerged man-made cave, place hundreds or thousands of tons of steel over your head, and then work in near total dark-

Divers descend with torches alight upon a Curtiss SB2C Helldiver, a carrier-based dive bomber aircraft made for the U.S. Navy during WWII. She now lives on the hanger deck of the *USS Saratoga*, Bikini Atoll, Marshall Islands

Shooting Below Decks

ness? The absolute first criterion is to evaluate your skill and desire level long before you book that trip. If you do not have the proper training and gear, then entering any overhead environment is foolhardy. Yes, it's done all the time, and every year the fatality statistics show some a mere portion of the results, as the number of near misses don't make the list. There is a BIG difference between managed risk and home-grown risky behavior.

Preparation

Serious wreck explorers make a substantial investment in education and equipment before making penetrations. They also study maps and drawings of the vessel to learn as much as possible before getting wet. Paying close attention to briefings and soliciting information from others is an integral part of the dive plan. The immersion calls for strict adherence to bottom times, air consumption rates, desired length of

penetration, and most importantly, emergency contingencies. The degree of planning is reflected in their equipment. They carry adequate gas supplies for the objective which usually consists of twin cylinders, but could also be a large capacity single with a smaller tank (sometimes called a pony bottle) for a redundant gas supply held in reserve. Breathing gas is managed based on consumption rates of those divers making the plunge. The highest breathing

rate and decompression obligations of the dive are usually the limiting factors for its duration. One common technique of managing gas supply is called the "rule of thirds." One third of the available gas is used for entry, one third is used for return, and the last third is held for emergency use only. Redundant regulators, multiple powerful lights, guide reels, computer/bottom timer with backups are also required before every significant penetration. Adequate





photo & video



Dive guide Jim Akroyd investigates dentist chair (left) and medical cabinet (below) deep within the *USS Saratoga*, Bikini Atoll, Marshall Islands

Shooting Wrecks

into the bottom, you're buoyancy skills are in excellent shape.

Flailing arms and legs are the single biggest enemy of keeping the water clear inside a wreck, so being proficient with your fins is far better if it's not an after thought. Large kicking sweeps suitable in open water have no use inside a confined space. A number of other fin movements such as the "modified flutter" work well and still give adequate propulsion. The legs are bent at the knees and only the ankles are used to power the fins, the thighs are kept stationary. Another popular method is the "shuffle kick" where again the knees are bent upward and you use small sideways motions with the calves bringing both legs

out and then back in together.

The key is small efficient movement as far away from sediments as possible. Hand movements are also controlled with only gentle minimal sculling or a single finger used to keep balance. Wildly swinging arms will not only dislodge sediment (or a buddy's mask), but also give you a fairly decent chance of having to rummage through the first aid kit after the dive because of skin to steel impact. The wreck diver's mantra, indeed every diver's mantra, should be to keep your hands to yourself and know where your fins are.

Configuration

It is not only the dive kit that

needs special attention for penetration but also the camera configuration. Long multiple arm sections on strobes might be great for open water wide angle but inside a ship they can be grabbier than a drunken frat boy. A single arm on each side works far better. Keeping the strobe arms collapsed parallel with the camera housing body helps to keep a low profile while navigating passages and hatches.

I find that keeping just enough tension on the flash arm joints to keep them in place works best. This way, it's a simple matter of pulling them into position and collapsing them again without having to constantly fumble with the ball clamps. Unless

cutting tools—at least two, are a must as well. Besides the cables, ropes, lines, etc., that most sunken wrecks are "equipped" with before they are sunk, there most likely will also be a nice selection of fishing line, anchor line, nets, and maybe even diver guide lines left behind by visitors after sinking. A sharp blade for ropes and nylon lines and a pair of shears for cables, wires and other metals need to be added to the wreck diver's kit.

Technique

Techniques and skill development are as important, if not more so, than having the proper gear. Buoyancy and propulsion techniques have to be mastered before swimming inside overhead

environments. These two diving inherent skills, while not overly difficult, do require effort and practice. Far too many certified divers, including "advanced" c-card holders, show a lack of ability in this department. Ricocheting off the deck with fins and arms flapping all over the place is not a pretty picture and becomes dangerous quickly in a confined space. Even a small amount of silt kicked up will pretty much negate any chance of capturing good images. The nuances of buoyancy control apply to the entire dive team.

Ideally, you want as horizontal a position as possible without needing to do excessive hand or foot movement to maintain it. This can be achieved through shifting

a small portion of ballast weight around the body as needed. For instance, if your feet float, you can shift a couple of pounds to the lower legs with ankle weights. If head up is a problem, you can put a few pounds on the upper portion of the air tank. A combination of BC jacket weight pockets and a belt will also spread some of the weight around. Make sure to pay attention to roll, as a little too much lead or gear on one side or the other can make it very difficult to stay right side up.

With the plethora of weighting options available to us today it has never been easier to achieve balance in the water. If you can maintain a horizontal position with a foot or two of water beneath you without stirring up or crashing





photo & video

you're in a very large compartment such as a cargo hold, you'll generally want the flashes pointed close to 45 degrees, or more, away from the lens direction. Even if you have perfect fining technique there will always be at least some particles forced into the water column.

Ever heard of "thousands of tiny scrubbing bubbles...?" (From an old TV toilet bowl cleaner advert) Well, unless you're on a closed circuit rebreather, every exhale is going to send a barrage of "scrubbing bubbles" heading for the overhead and rust, paint chips, silt, and crud is going to come raining down. The first couple of minutes, or seconds, is when you generally have the clearest water for image making when first entering a particular section or compartment. This is why you don't want to waste precious time fumbling with strobe arms just prior to a shot.

For smaller compartments it sometimes is better to send the model in and then just stick your camera through the hatch and fire away. This method keeps your bubble trail out of the compartment and may buy you a couple of extra frames. Once a section is even partially silted out the game is over.

Lighting

Photographically speaking, lighting is arguably the biggest concern when shooting below decks. While backscatter as mentioned above is a primary problem there are a host of other less obvious illumination issues as well. A full power strobe blast can ricochet off bulkheads like a Hollywood action movie bullet. Even the darker rust/silt covered varieties of older ships reflect more than seems reasonable. Newly sunk artificial reef vessels can positively glow. At other times, they soak up light like the office rummy



with alcohol at the company Christmas party.

The trick is to try and use the reflective light as an ally when setting up composition and exposure. Direct full lighting with flashes can result in harsh murky hotspots with very dark backgrounds. There is little sense of "being" there as from the perspective of an exploring diver. For an example, the image of the hellfighter in the hanger loses much of its mystery when over lit up from multiple high power

strobes. Using only diver HID's and a touch of ambient light gives the scene a more "realistic" look, as though the viewer is actually on the dive. Admittedly, this takes far more effort and cooperation from your dive buddies to pull off, so make sure you have something to bribe them with.

Using lower output lighting usually means far slower shutter speeds and wider apertures. The new breed of high ISO performing cameras are perfect for

this kind of shooting.

Camera stability becomes more of an issue once below 1/30 second give or take. On land, of course, you'd break out the trusty tripod. While tripods can and are used underwater by a number of photographers, they definitely increase the complexity. Taking yet another piece of bulky gear on a penetration has to be weighed against the increased hassle factor and risk.

I have used tripods in open water but

second nature in no time. The trick is to let the time gap between breaths be conducive to one's own breathing cycle and not consciously extended (that's holding your breath) to get that extra time delay.

Using strictly natural available light usually means having a port, hatch, torpedo hole, or some other opening letting in the sun. This kind of illumination can make for very dramatic images. Mostly, this means silhouettes, but by adding a touch of

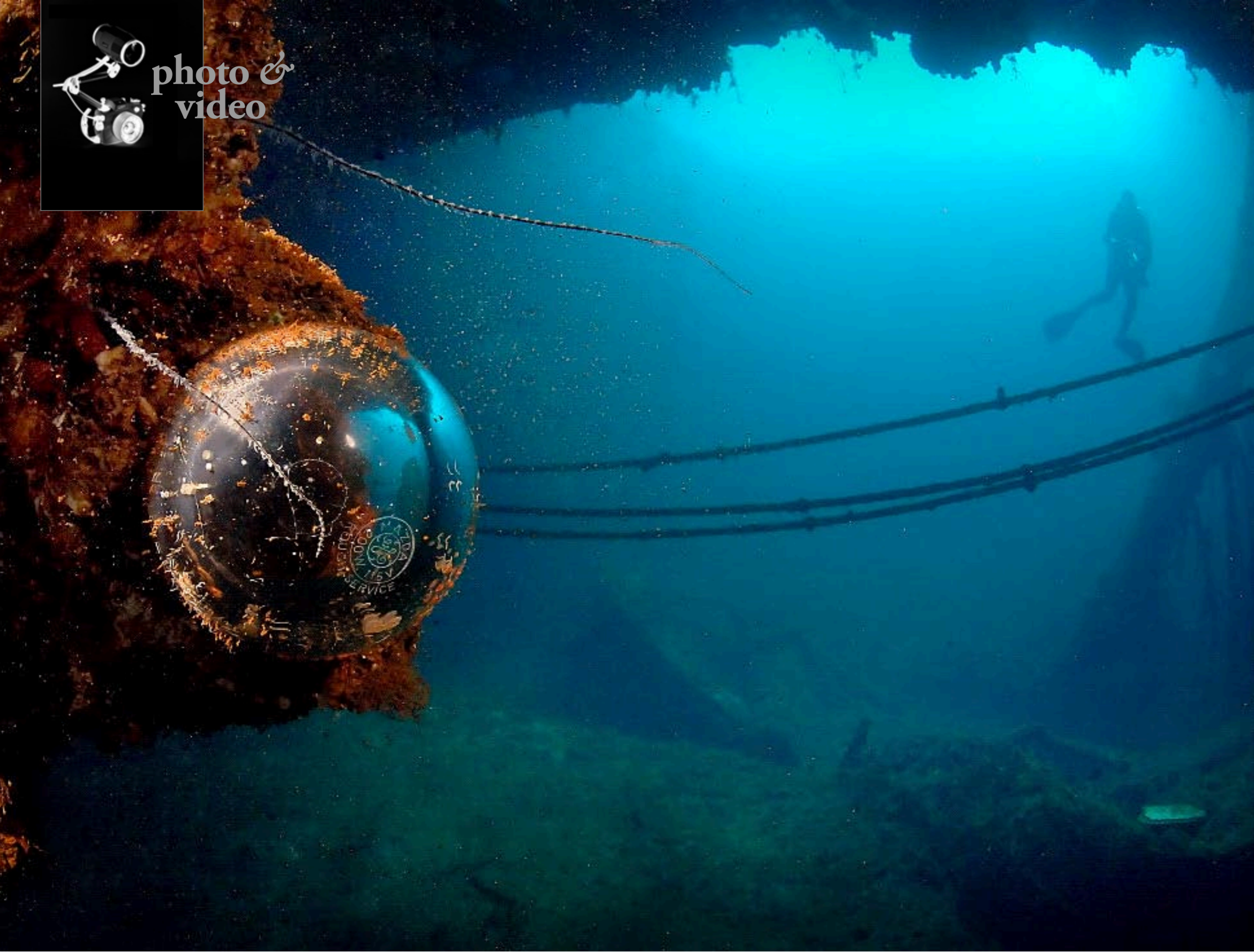
Shooting Wrecks

Jim Akroyd places teapot on display table near "Officer's Country" within the *USS Saratoga*, Bikini Atoll, Marshall Island

prefer to try and use naturally existing supports inside of wrecks. Fortunately there are often pipes, beams, cabinets, etc., that can be used as an impromptu camera stabilizer. Extreme care must be used maneuvering around these objects. Besides the obvious potential entanglement issues, all one needs is solid jagged steel contact with the dome port to end that good nitrogen narcosis feeling.

As on land, breathing techniques can help in steadying the camera. Typically, some version of holding your breath is used just before pressing the shutter release. For a variety of reasons, I try to avoid doing this underwater especially on decompression dives. When I'm doing things right my breathing rate is slow and steady with deep inhaled and slow extended exhales. During the last second or two of my exhalation I try to be in position to take advantage of the "natural" interval before taking my next breath.

While this takes a little practice, the method works quite well and becomes



Intact G.E. light bulb with filament in place has survived two nuclear bombs and the ravages of the sea for over 60 years. Hanger deck, USS Saratoga, Bikini Atoll, Marshall Islands

generally of higher contrast and strong shapes but don't ignore the mysterious look of muted grays and dark contours that ship wrecks can provide.

Models

Working with models below decks takes very good communication that starts well before anybody starts blowing bubbles. Underwater instructions must be clear and simple. Often the best outcome requires multiple dives in the same area to figure out the best way accomplish the task. When that isn't possible, learning as much as possible about what to expect from someone else who's been inside is quite useful. And an experienced professional guide is invaluable.

Once you've formulated an idea, make sure to talk to your model(s) in enough detail so they won't have to

secondary to all else of the dive exploration. Keep in mind when working with people in overhead situations that they are already task loaded. Avoid hitting them with point blank high power strobe blasts. Watch your own fins. Pay attention to time, depth, and other dive requirements. You can often let some of these parameters slide in open water but not here.

Wearing some kind of color on the model really helps with separating them from the dark background. Lively fins, mask, and gloves are a big help as are red and yellow BC's. They don't have to be gaudy but having something other than light sucking black makes for a brighter image. And make sure to let the model dive.

A wreck explorer is always in some kind of action, albeit slowly. Static looking divers staring at the camera rarely exude the excitement of adventurers. Pulling an artifact from the muck or showing a perfect fining technique through a silted out compartment can help share some of the thrill.

To be sure, the "keeper" rate is low shooting in this environment. There is increased risk for both you and your equipment. Finding buddies who'll put up with your crazy filming ideas are hard to come by. And there're more than enough challenges for all who venture inside, but the chances for some unique images are definitely under all that steel.

Joseph Dovala is an internationally published dive writer and photographer with a background in the U.S. Coast Guard, ocean technology and molecular biology. For more information, visit: www.jcdovala.com ■

flash and letting the ambient light "take over", the exposure you can create an ethereal quality to the photo.

When I shot film my waste basket tended to fill with slides

of ambient-light-take-over accidents. With the immediate feedback of digital it has become easier to fine tune just the right amount of over exposure for the look you want.

Available light is also the king of black and white shooting. The high contrast ranges can make for very effective grey scale images. Again, with the versatility of digital you can visualize for both

color and black and white on the same dive with just one camera.

Most image makers I know shoot in color and then convert later on the computer. Better black and white images are

second guess you down below. Ad-libbing during a penetration dive is NOT a good idea, for no photo is worth jeopardizing the safety of the dive team.

Taking the images have to be



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Inon Snoot

The INON Snoot Set for Z-240/D-2000 is an accessory for a range of INON strobes to change beam angle. The various combination of packaged parts supports six different beam coverage with the following sophisticated effects. It blocks extra diffused light eliminating backscatter, highlights a subject by illuminating the subject only, and gives a spotlight effect on a subject. The Rubber Hood is securely attached on a compatible strobe via supplied dedicated aluminum sleeve, which is screwed on diffuser mount screw holes on the strobe. www.inon.jp



Hartenberger Video Maxi



The set consists of a power pack with a four-position power setting switch (50/75/100/125%), two Lamp Heads and the charger (LG) off-shore 1/12. The power pack utilises the latest generation Nickel-Metal-Hydride cells and is rated at 14.4V / 4.5Ah. The burn time with 2 x 50 Watt halogen Bulbs at 100% power setting is approximately 30 minutes. The cell pack is a plug-in unit and can be replaced with a spare cell pack within seconds. www.hartenberger.de



10bar gf1

As its brand name suggests, all 10 Bar underwater housings are 10 bar (300 ft./90m) pressure-tested, they are tough enough for heavy-duty deep dives. This sturdy aluminum housing is specially designed for the Panasonic Lumix DMC-GF1, a micro Four Thirds camera with interchangeable lenses, DSLR image quality and focusing speed. 10bar.com



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UltraLight GoPro

Ultralight Control Systems has released two new mounting options for the GoPro HD camera housing. The GoPro HD Ball mount cage fits over the GoPro HD camera housing. It serves the purpose to prevent loss of the camera if the housing's plastic mounting tab breaks. The ball attachment allows for the housing to be attached to a still camera housing, for example, giving the option of recording on video what you are shooting. www.ulcs.com



Clip-On Screen

A new clip-on LCD monitor from Sony gives DSLR camera owners a bigger, better view of their footage while shooting HD video. The CLM-V55 is a portable video monitor featuring a high-resolution WVGA (800 x 480) (5") LCD panel. Attaching easily to most Interchangeable Lens Digital cameras and compatible HD camcorders via the supplied adaptor, it displays video footage during shooting/playback with excellent clarity and a wide viewing angle. The clip-on screen tilts and swivels to any angle for comfortable framing in any position—even self-shooting when you're in the picture. www.sony.eu



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Ikelite

An ultra compact housing for Panasonic Lumix TS10 and FT10 cameras. All camera controls are fully functional through the housing and depth rated to 200ft (60m). Easy open latch and drop in camera loading make set-up a breeze. Two 12-24 threaded mounts on the bottom of the housing allow for the secure attachment of optional trays and lighting accessories. Includes one 1cc tube of silicone lubricant, vinyl lanyard, flash diffuser, flash deflector and vinyl port cover. www.ikelite.com



128 Gb

The SanDisk Extreme Pro CompactFlash card features 128 gigabytes of storage and up to 100 megabyte per second write speeds. With a set of features opti-



mized for professional photographers and videographers, the 128GB SanDisk Extreme Pro CompactFlash card is ideally suited for imaging applications requiring Full HD3 1920x1080 resolution, up to 50Mbps bit rate and 4:2:2 color sampling. [Sandisk](http://Sandisk.com)

assisted machines available. It will be protected by anodizing to North American military specification. While anodizing in itself is a necessary step in protecting the housing from the environment, it will fade and discolor if left exposed to the elements. For further protection, Aquatica provides corrosion inhibiting zinc anodes as standard equipment and coats their housing with a baked on, tough as nail, powder coating. This extra level of protection does make a huge difference. aquatica.ca



Aquatica AD7000

Made from carefully selected alloy of aircraft grade aluminum and premium grade of stainless steel, the housing is machined on the latest five axis computer

Bonica

GZ-HD300 and HD320 represent the latest technology in hybrid camcorders, both have built-in hard-drives (60GB and 120GB respectively) and accept micro SD cards for storage. Equipped with an impressive 20x optical zoom lens, they are capable of capturing stunning 60 frames per second video at full HD resolution (1920x1080). Bonica packages the above cameras with the WR-MG250 housing from JVC and one or two of Bonica's new 1500 lumen LED video light G8-V15. bonicadive.com



Sekonic meter

The new L-308DC DigiCineMate is a simple and easy-to-use compact light meter that is ideal for today's DSLR videographers and digital cinematographers as well as still photographers. It features a full range of shutter speeds plus a special grouping of cine speeds and shutter angles and indicates exposure in f-stops to one-tenth step. The unit's LCD readout can be customized to display only specific functions needed for the task at hand for fast, easy operation.



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Bahamas

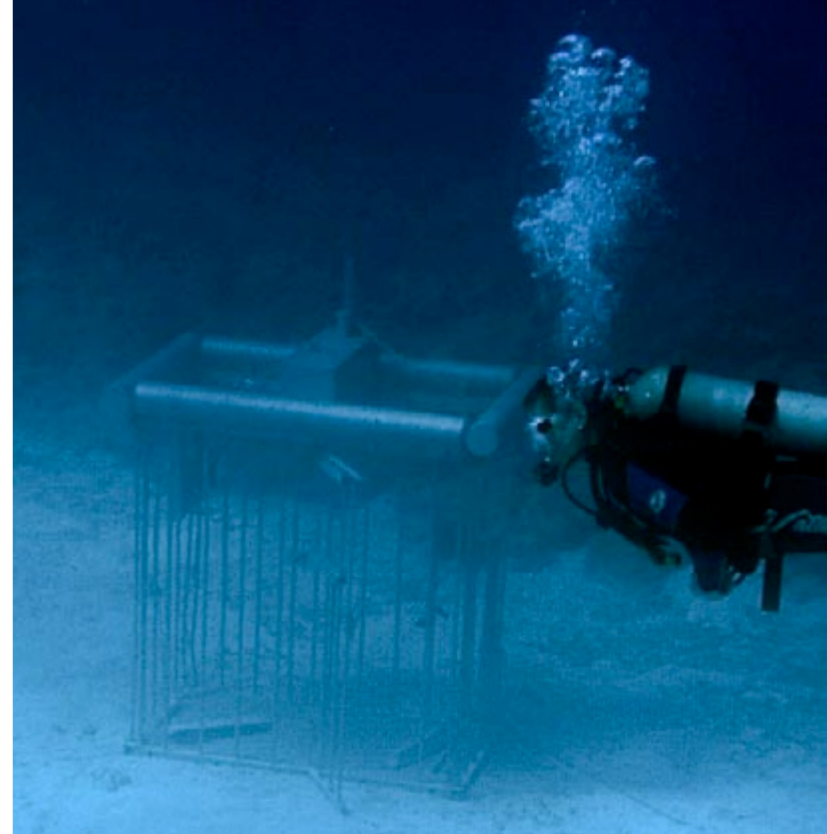
Underwater Hollywood

Nassau — New Providence



MythBusters have done a number of shoots in Nassau leaving objects behind for divers to explore (right)

The Cessna (below) was used for the filming of *Jaws: The Revenge*. The site is popular with both divers and snorkelers



Text and photo by Millis Keegan

Are you a movie buff? Or even a movie fanatic, under the spell of Hollywood, watching hours and hours of adventures wishing you were part of the experience? Well, you can, in a sense, anyway. If you are reading this, chances are that you also dive. It is time for you to start logging some Hollywood dive sites!

Start the adventure in the Bahamas. Film history was created here. You will hit the jackpot right from the start. It began as early as 1915 when the classic silent movie, *Twenty Thousand Leagues Under the Sea*, first filmed underwater scenes outside Nassau. In 1954, Captain Nemo and his submarine, *Nautilus*, was back, and the first remake of Jules Verne's classic was produced, once again in Nassau.

Perfect location

What makes this the perfect location for shooting film underwater is the extraordinary visibility. The reef area

The crystal clear water conditions in the area (left) makes Nassau, Bahamas, the perfect location for Hollywood

dedicated to Hollywood, and film makers in general, is situated on the south side of the island, New Providence in the Bahamas, or Nassau, which is the more common name for the island.

The sandy bottom resting between coral heads, the water flow and the incredible reef walls ending thousands of meters deep down into the big blue is part of reason. Add to that the surrounding reef that keeps the water within calm and bam! There you have it—the formula for crystal clear water conditions and an ideal environment to capture underwater scenes.

James Bond

—the one and only

Even if *Twenty Thousand Leagues Under the Sea* was the very first movie with underwater scenes filmed in Nassau, the James Bond sequels really set the tone. *Dr. No* was the very first in the



James Bond spy movie series filmed there, with Sean Connery establishing the spy character that enchanted the entire planet.

Left resting on the sandy bottom lays remains from the movies. Take the 30-meter (98-foot) long wreck the *Vulcan Bomber*, for example. It was used when James Bond headed out on his fourth mission in 1965, in the movie *The Thunderball*. When the terrible SPECTRE organization hijacks a NATO plane car-

rying nuclear warheads, James Bond is forced to travel to the Bahamas to deal with the situation. He ends up in an underwater battle of epic proportions. We all know the ending. As always, James Bond saves the world.

In *Never Say Never Again* (1983) an adaptation of *Thunderball*, Bond was back again. This time the epic battle took place in and around the wreck, *Tears of Allah*.

The wrecks used in the battle scenes

are still there. They have seen years go by, and display no more than a thin skeleton structure, but lilac gorgonian sea fans and beautiful, colorful sponges cover them—so, who cares! Sean Connery fought for our future right here, on these wrecks. Film history was created here. One can feel it.

Other James Bond movies shot in the Bahamas were *For your Eyes Only* released in 1981 and *The World is Not Enough* released in 1999.

For those of you that are not turned on by James Bond, enough movies and TV shows have been taped here to make a visit worthwhile for any film enthusiast—*Splash*, *Cocoon*, *Speed 2*, *Spy Kids*, *Into the Blue*, *Flipper* and *Jaws IV* to mention a few. If you don't know any of these movies, just face it—you are not a film buff.

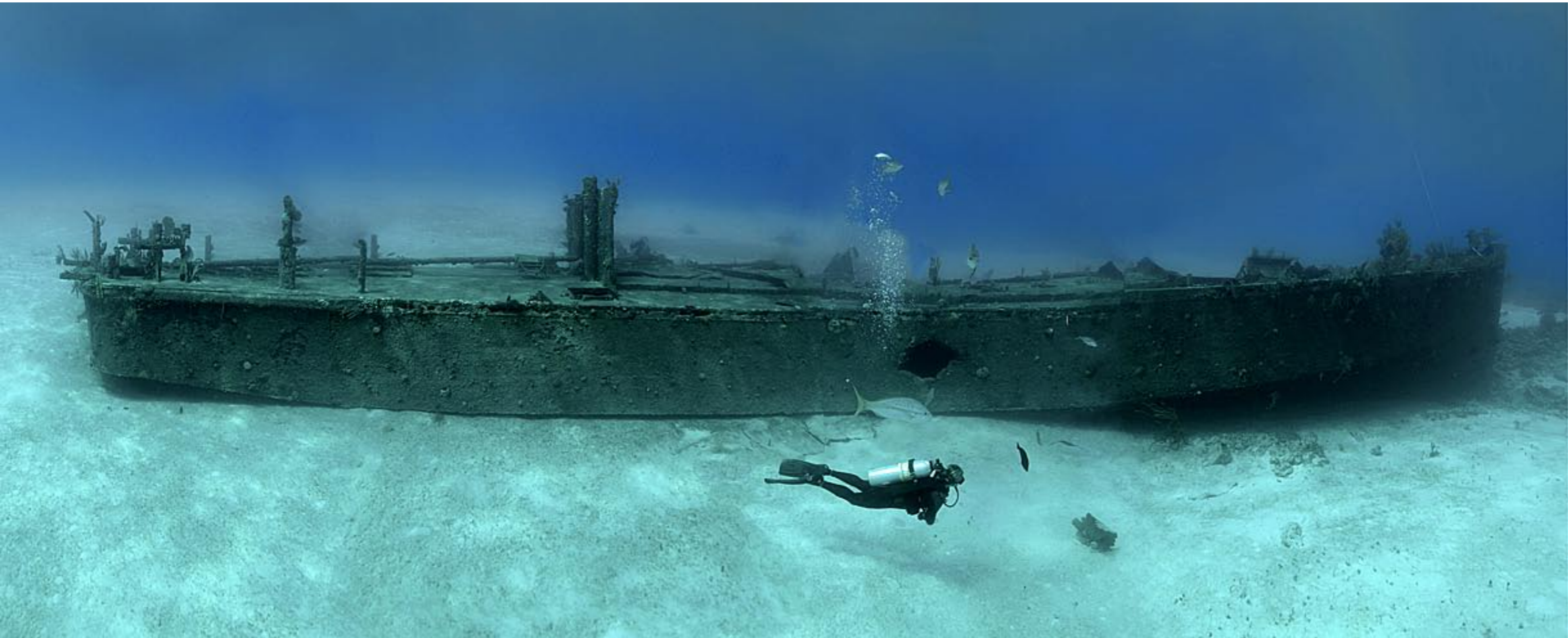
Not all sets are in bad shape. Take the Cessna that was used for the filming of *Jaws IV*, for example. It is in great shape

and rests in a relatively shallow area, suitable for both diving and snorkeling.

Shark wrangling

There to help film crews over the years, and a reason why Nassau in particular has been the chosen destination for Hollywood, is the dive center, Stuart Cove's. That is not by chance alone. It all started when Stuart himself was quite young. He got a job as a shark wrangler with the James Bond movie, *Never say*

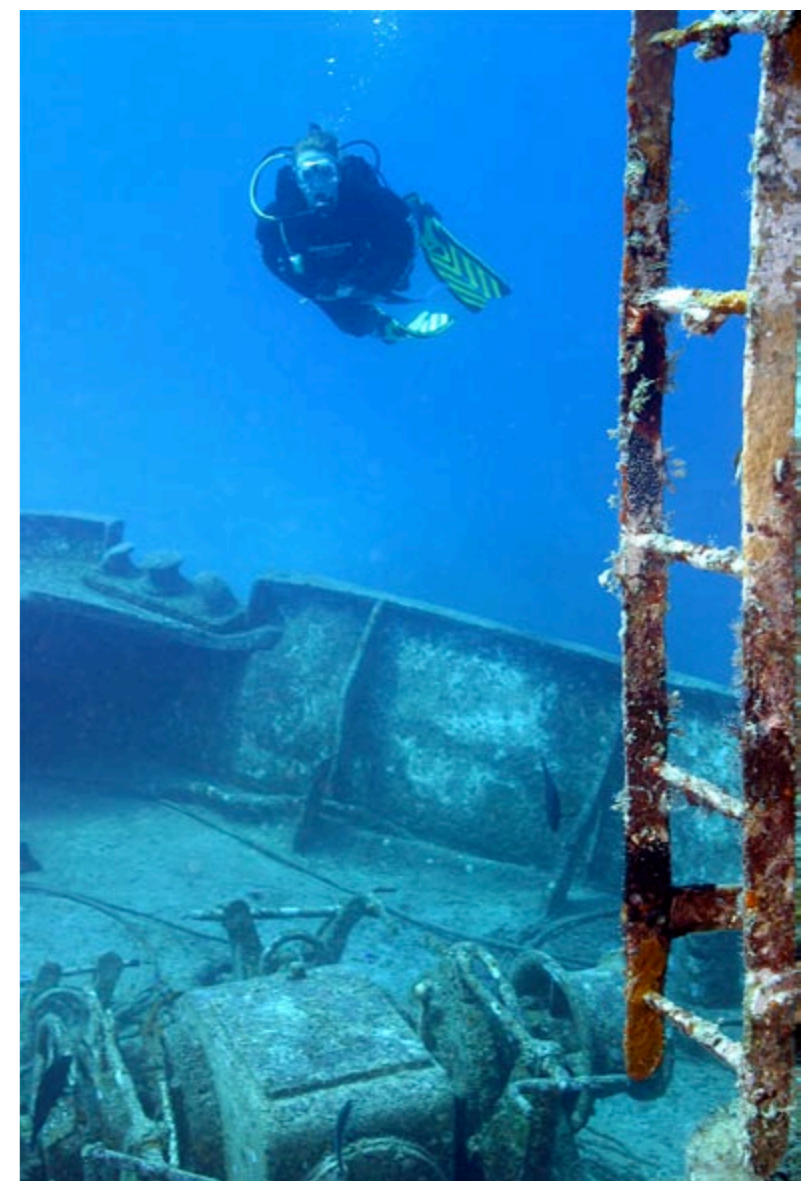
BELOW: The skeleton remains of the wreck *Tears of Allah* used in the movie *Never Say Never Again* (1983) is still a cool dive site. After all, this is where James Bond saved the world, yet again





SHARK IMAGES THIS PAGE: Choreographing sharks is not an easy task, but a useful skill for many underwater scenes. Shark images courtesy of Stuart Cove's Fin Photo

Wrecks (left and right) create a dramatic background set for any shoot, whether it's for a film, advertising campaign or a magazine spread



Never Again—and you tell me what young guy wouldn't have jumped at that opportunity!

That was his very first taste of working with Hollywood, and from that point on, one thing led to another. For many movie scenes, attacking sharks plays an important part. Shark wranglers are rare, but Stuart Cove's Dive Center can be of service.

Popular television series get below the surface as well. It is not that unusual these days to run into film crews getting ready to shoot a scene on the dock of Stuart Cove's Dive Center.

Take *MythBusters*, for example. They come with a mission, to confirm a myth—or not. As I visited the dive center, they were trying to figure out if it is possible to control a shark's movements with magnets. To do so,

they mounted two electromagnets on each side of the nose of a shark. To get the shark to turn left or right, weak electrical pulses were sent to each respective side. In case you haven't seen the episode, the results will remain a myth—for now.

Left on the seabed stands a cage with a sign that says: "Science experiment".

Diving A-list celebs

It is said that Sean Connery learned how to scuba dive during the takes in Nassau. It is a rumor, but the fact is that he did his own stunts, so why not? He is a diver, and has been seen diving in the Bahamas many times. He is in good company.

Many A-list celebrities have been spotted bubbling around in the underwater world of Nassau, either as scuba students or dive



guests—Tom Hanks, Elijah Woods (Frodo from *Lord of The Rings*), Sandra Bullock, Sidney Poitier, Jessica Alba, the fashion icon, Heidi Klum, and another James Bond character, Pierce Brosnan, to mention a few.

Other destinations

Nassau in the Bahamas is not the only place film history has been made. The real diving film buff needs to visit Silver Springs, Florida. That's where the infamous *Creature from the Black Lagoon* was produced (1950-1960). Take a dip in that spring, if you dare! Then, there is Mexico where even though it was far away from any icebergs, *Titanic* was filmed in 1997. *Pearl Harbour* (2001) was true to its destination while filming, and why not, it's Hawaii! Plane and shipwrecks from the film were left behind. If you know about a dive site where underwater scenes are shot for feature films and television series, tell us about it. ■

INTERVIEW WITH STUART COVE'S

I had a talk with Pam Christman, manager at Stuart Cove's U.S. reservation office. She has worked with the production end of it all in film over the years.

MK: You told me the story about Stuart wrangling sharks in the Bond movie, Never Say Never Again. That was a long time ago, but somehow you are still involved in helping with film crews. Can you tell us why they still choose Nassau for their productions?

PC: It does help that Nassau helps in making life easy for the film crews, with permissions and other hurdles.

MK: Cutting through the red tape, basically?

PC: Yes. Film crews coming here is a big push for the local economy. They need a place to stay, they need transport, they need to eat and all that. For the diving they come to us for service.



MK: And what kind of service are we talking about?

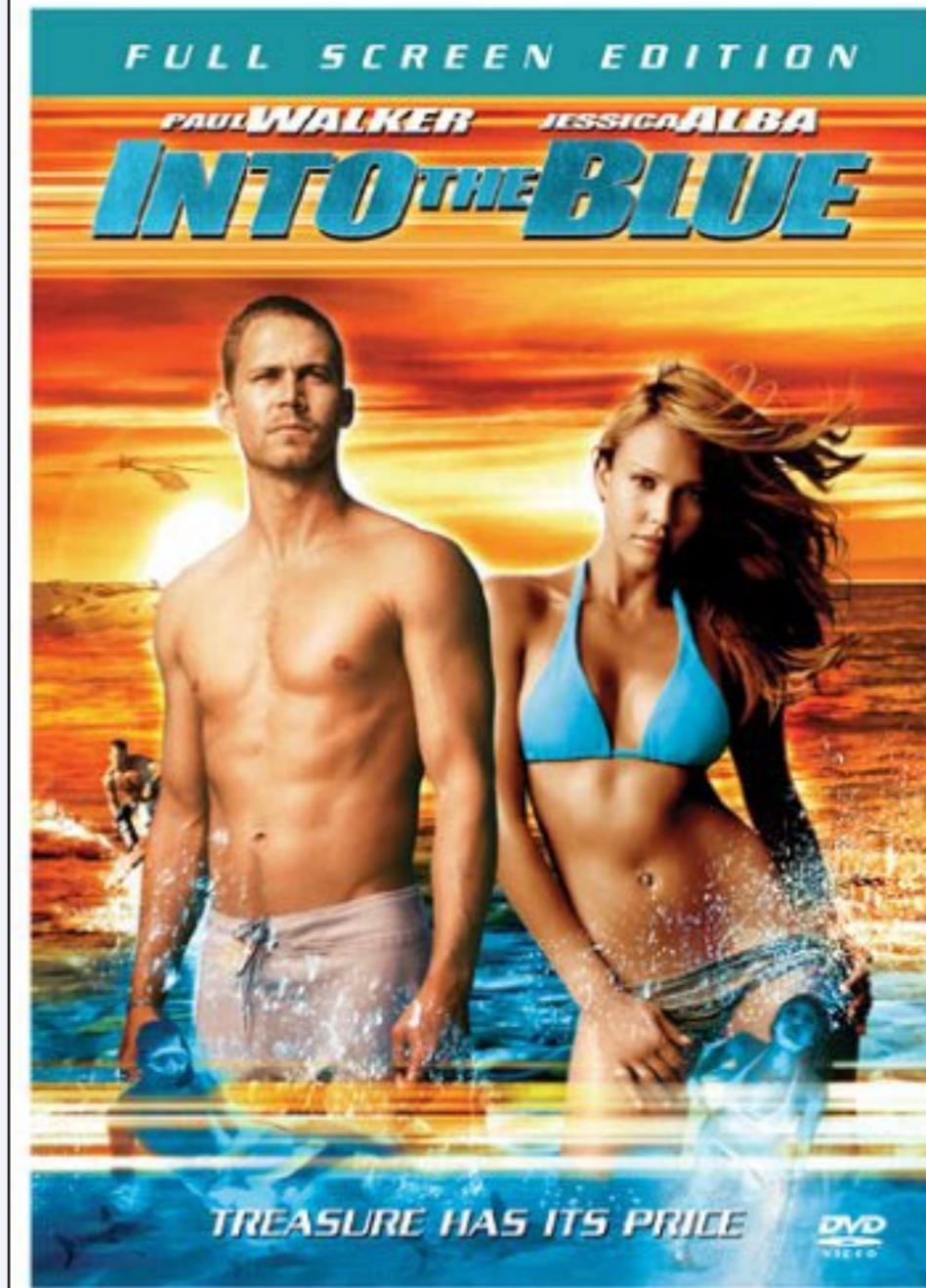
PC: They are shooting scenes at our locations, and mostly it is about logistics around the productions. We can provide underwater models, film extras and boats. Over the years, we have built up a local network of talents and contacts to be able to provide to productions coming to the island. Not too long ago, a film crew wanted a family. We provided a family. If they need a bus driver, we find them a bus driver.

MK: And what about sharks? No thrills in an underwater scene without a few sharks circling around, right?

PC: We have a select few working with sharks. We can help choreograph scenes with sharks and even though sharks are not always that co-operative, you would be amazed at how much you can actually make them do. It's all about incentive.

MK: I would like to see that! I know you are a busy dive center, with lots of divers coming your way. The filming, does it interrupt your guest divers?

PC: No, not at all. We have so many great dive sites to choose from, that is never a problem. Also 10am-2pm provides the best light for filming, which partly is lunchtime for diving guests. Mostly a production team pops in for one scene, for a movie or a TV-production. The last big motion picture that we did was *Into the Blue*. Everything was done right there.



MK: Thank you Pam, one final question—list some people who come here to film, outside Hollywood productions.

PC: *Myth Busters* have done a number of episodes here. We have 3-4 shoots per year with Discovery Channel. Then we have photo shoots for magazine layouts, advertising, bill-

board advertising—lots of different people coming in with different needs.

MK: Sounds exciting, Pam! Thanks.

For more information, visit www.stuartcove.com ■

IMAGES THIS PAGE COURTESY OF AMAZON.COM

Alex Vanzetti



P O R T F O L I O





THIS PAGE AND PREVIOUS PAGE: Images from the *Underwater Fantasy* series by Alex Vanzetti

Text by Gunild Symes
Images by Alex Vanzetti

With Valentine's Day just around the corner, images of mermaids spring to mind when thinking of romance and the sea. There are many timeless romantic stories and images of these mythical creatures in the art of cultures around the world. Surrounding the myth is the magic of the underwater realm and the connection, and even romantic entanglements, between its mystical creatures and human beings, as in Hans Christian Andersen's famous tale, *The Little Mermaid*, in which a mermaid falls in love with a sailor. We looked for modern day images of the female figure underwater and found the stunning work of fashion photographer, Alex Vanzetti, who recently received recognition for his photography at the 2010 Epson Red Sea Underwater World Shoot-Out in Eilat, Israel.

Alex Vanzetti was born in Leningrad, now St. Petersburg, Russia, in the midst of a period of stagnation. After he graduated, he went into army service in the Russian border region along Afghanistan. After his tour of duty, he was accepted into the Physical Training Institute to study sport and excelled in boat-racing.

In 1990, Vanzetti moved to Israel with his wife and small child. He has lived in the Holy Land ever since. However, he said that he is not particular to any specific nation. "I have no favorite country, as a sailor has no favorite sea."

Artistic background

Vanzetti has dabbled in photography since childhood, he said, "composing from different chemical compounds (hydroquinone method, waterless potassium sulphite) various developers and fixing agents for my black

and white pictures, which I was giving to my favorite girlfriends as presents and objects of pride, since I prepared them by myself".

He said he has admired the aesthetic image since he was a young boy, crediting much of this appreciation to the efforts of his mother to expose her young son to art and culture: "I cherish love, indelible love towards beauty, which arose when my Mom took me in my early childhood to the halls of my favorite museums—the Hermitage and the Russian Museum. When I grew older, I wandered those museums on my own, contemplating. Thus, my first pictures were born, or, more exactly, my first artistic ideas, since I never knew how to draw, but the art of painting attracted me in a strong way."

Vanzetti tried his luck in graphics and watercolor painting and hoped to practice the art of oil

painting as well. Life was still very much ahead of him, he said.

"My favorite category is the depiction of people. People have always attracted me, through their psychological peculiarity, their emotions, or simply through their strange faces, as if they came from other worlds... There are not so many strange faces, and I always select them from the ordinary mass and try to convince them to let me photograph them... It is not always a success, but many portraits were created in this way," he said.

The underwater realm

Vanzetti said that water was a special subject for him. "One day, many years ago, I paid attention to a slide I took with a medium format Pentacon Six camera [before digital was big]. It was a depiction of a girl lying on the surface of the Dead Sea, and it was odd; her reflection

Yanika Land is the model in all the images in this article

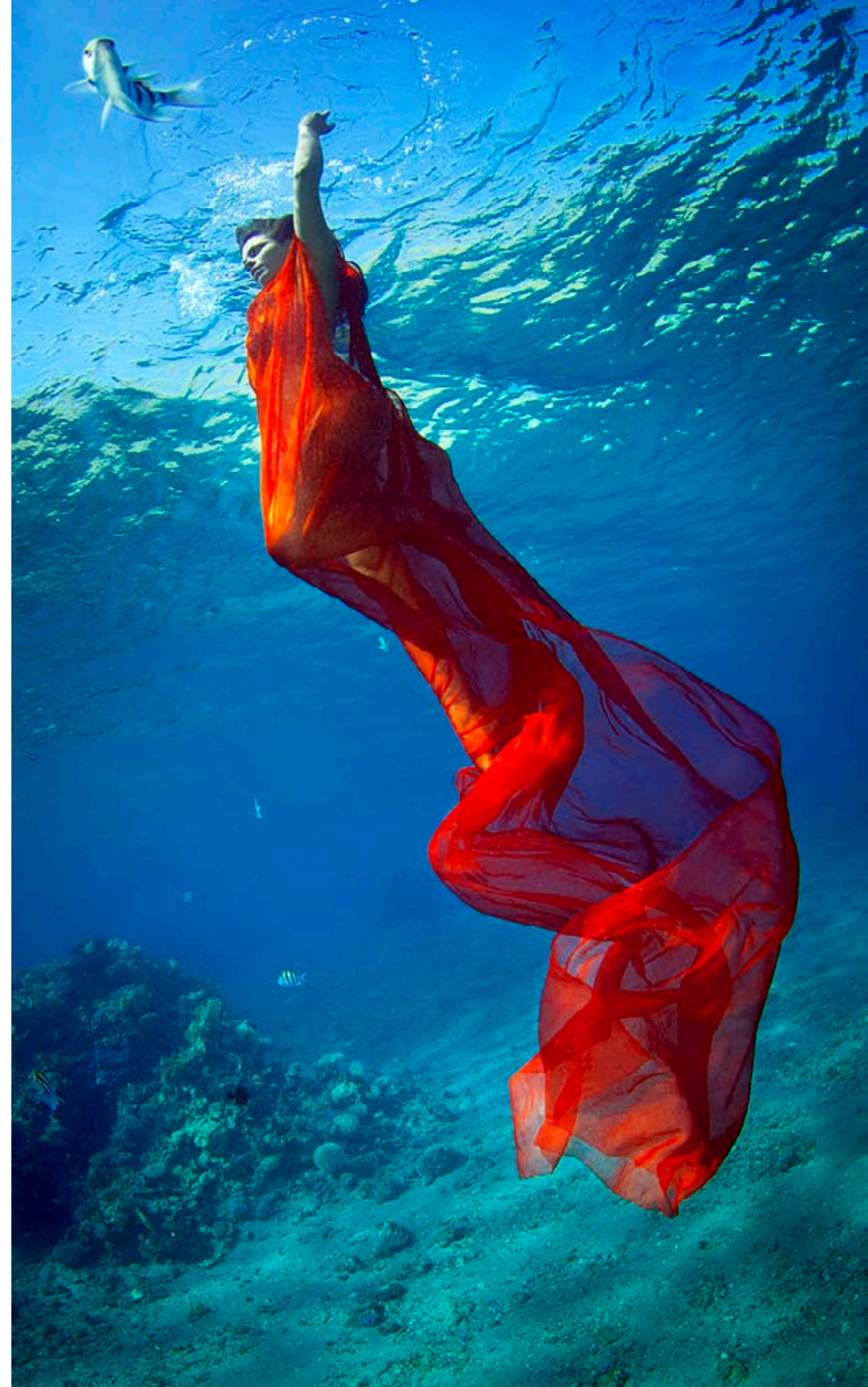


Vanzetti



LEFT: *Who Are You?*
by Alex Vanzetti

RIGHT: *Dance with the Fish*,
by Alex Vanzetti



was distorted in an unreal way, so that one could think about some fantastic forces contributing to the making of this picture. Yes, don't smile—it was like that when I saw it for the first time. It was the first time I paid attention to this fact. Later on, when I did serious photographic work at the Dead Sea, I looked for an explanation to this interesting phenomenon, which was obviously contrary to the laws of physics. Thanks to my pictures, I started realizing that the fundamental law of physics of "equal angles of incidence and reflection" does not always work!"

In San Francisco in 2003, he exhibited his images for the first time. He said that people did not believe him when he told them that the images were real photo-

graphs, untouched and unprocessed in Photoshop. It wasn't until he showed them a clip of his work in photography and a slide show of his other images that they were finally convinced of the authenticity of his underwater images, he said.

After the exhibition, he travelled often to observe water reservoirs similar to the Dead Sea, such as the Salton Sea in California, the Mramor Sea in Turkey, and the salt lakes of Kyrgyzstan. "I have found nothing similar to the Dead Sea... or found an answer as to how such reflections are achieved."

Artistic theory

Vanzetti has specific thoughts about how to create a good image: "In my opinion,

when we photograph a nude model in a studio, we achieve only 50 percent of the harmony with all the components present. When we photograph nature without human presence, we also achieve 50 percent of the maximum perception of the picture possible. But when we connect two halves into one whole image, we achieve 100 percent of the effect. For this reason, I prefer to photograph the nude body on a natural background, surrounded by the harmony ensuing from nature."

He said that he has always been attracted to the idea of the "mirror realm" of the underwater world and that his journey into underwater photography was finally enabled by the opportunity to participate in the Epson Red Sea World



Image from the *Underwater Fantasy* series by Alex Vanzetti

Shoot-Out in 2010. He entered several works in the category of Nudes and Fashion. It was then, he said, that he was first exposed to the numerous problems involved with underwater photography of the nude.

Having worked in photography for many years with not many technical difficulties, he found that underwater photography posed new challenges. He said, "The technique of underwater photography implies good command of many aspects of underwater technique in general. The results of which are presented to your attention."

Working as an artist

Vanzetti said that he considers himself a lucky person. "I work in the field of my dreams, and I have come a long way towards achieving this objective—deriving my sustenance from my creative work. Many people can only dream about that," he said.

Because he derives a proper livelihood from his artistic work, he has the possibility of investing money in future creative projects, and he has a lot of them, he said.

"My immediate project is the publication of a big book (a coffee table book) with pictures from Africa, Asia and the Middle East," he said. It is the production of a large project connected to his recent work in underwater photography and the publication of his other coffee table book of photography entitled, *Beautiful World Around*.

As for models for his photography, he said that they find him now, which was not quite the case in the early years. "In the beginning, when I worked at the Dead Sea as a life guard, I found my models after getting acquainted with them and offering them a chance to participate in a certain project. Now everything is much easier. They find me, they know my work, and I do not



THIS PAGE: Images from the *Underwater Fantasy* series by Alex Vanzetti

Vanzetti



suffer from the lack of models," he said.

A note on exhibitions

Vanzetti said that he's not too much into exhibitions. He feels that this venue is not profitable or advantageous and does not aspire to showcase his talents in the way that many other photographers do in solo exhibitions of their work. He said that many of his photographs are bought at auctions by private collectors, "They pay good money, according to the modern standards." However, in the start of the new millennium, his works were shown in galleries on the west coast of the United States in San-Francisco, Los Angeles and San Diego. He later stopped traveling there.

Vanzetti said that these days, the

most effective exposure of his images is not through exhibitions, with the exception of joint exhibitions on the international level, but via the Internet on his own website. He gets much more traffic and visibility this way, he said. The amount of people that visit his website to see his work cannot be compared to that of exhibitions, magazines and newspapers, he said. "My popularity grows when my pictures are recognized everywhere, through their style, the manner of conveying the material, etc," he said—this, without particularly participating in lots of public advertising campaigns.

For more information or to order prints, email: vanzetti_studio@yahoo.com.au or write: Alex Vanzetti, P.O.Box 954, 80700 Arad, Israel ■

OUR NEXT ISSUE

MARCH-APRIL 2011

Happy Diving!



ANDREY BIZYUKIIN



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— from the staff at X-RAY MAG

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