

*Oceanic Design Inspired by the Sea :: Underwater Photography—Snoots*



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Mar-Apr 2011  
Number 41

Indonesia  
**Halmahera**

Tech  
**Team  
Diving**

UW Film  
**Shiver**

Wrecks  
**Leaking  
Fuel**

Portfolio  
**Sayaka  
Kajita  
Ganz**



*A Tour With Cathy Church & Lawson Wood*  
**Cayman Islands**  
GRAND CAYMAN : CAYMAN BRAC : LITTLE CAYMAN

COVER PHOTO BY LAWSON WOOD

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COVER PHOTO: *Red rope sponge reaches out from a wall,  
Cayman Islands*, by Lawson Wood

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Sweetlips, Halmahera, Indonesia. Photo by Don Silcock



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# We broke it, we fix it

—Reefs at risk revisited

The most detailed assessment of threats to coral reefs ever undertaken finds that 75 percent of the world's coral reefs are currently threatened by local and global pressures. For the first time, the analysis includes threats from climate change, including warming seas and rising ocean acidification. According to the new analysis, if left unchecked, more than 90 percent of reefs will be threatened by 2030 and nearly all reefs will be at risk by 2050.

A pretty grim message indeed, but there are lots of things we can do prevent these nightmare scenarios from becoming a reality.

In 2003, the Phoenix Islands—a remote archipelago located about half-way between Hawaii and Fiji—was hit by one of the most devastating coral bleaching events ever recorded. Nonetheless, in 2009 scientists visiting the islands returned home in a rather optimistic mood.

Dr David Obura, the expedition's chief scientist wrote: "The best part of the story was that the reefs were clearly recovering from the massive bleaching impacts six years ago and looking better than in 2005 ... Overall, coral cover was almost halfway back to where it

was before the bleaching, which is a phenomenal speed of recovery in six short years. This was an incredible affirmation of the expectation we have in the sci-

Les Kaufman of Boston University and Conservation International added in a later entry: "The scenes and situations differ on every island that we have visited in the Phoenix group, but the abundance of fishes and regenerating coral have been the persistent themes ... This is the first time I've felt with full conviction, that the reduction of human coastal impacts could significantly help the ocean to heal itself."

There are no simple fixes and certainly no cheap ones, but at least we have some doable solutions at our disposal. The message is clear and it is substantiated by a long list of positive and encouraging observations from the growing number of Marine Protected Areas

and no-fishing zones. Where destructive human activities and influences are curbed and nature is left to heal itself, it often recovers at an impressive speed.

In light of the impending catastrophe, it seems like the establishment of as many marine protected areas as soon as possible is a total no-brainer.

*"Many of the coral reef habitats that I have dived on have undergone bleaching events in recent years and are now just beginning to show signs of new life. It is actually a testimony to the overall good health of these reefs prior to the bleaching that they are able to rebound at all. So in terms of the future, these places should continue to recover and return to their once lush state."*

—Observation at the time by National Geographic photographer Brian Skerry

ence and conservation communities that ecosystems that are not suffering from a range of different threats have a much greater ability to recover from any one. In this case, the lack of local human impacts has made the Phoenix Islands reefs able to recover faster from a global change impact than most of the reefs that I study anywhere else in the world."

Veteran coral reef biologist

---- Peter Symes, Editor-in-Chief

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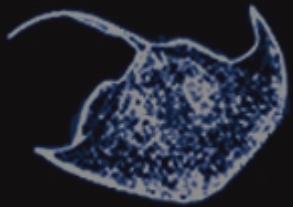
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X-ray mag

News edited  
by Peter Symes

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# NEWS

## Antarctic Green Pools Are Teeming With Life



DAVID MUNROE, UNITED STATES ANTARCTIC PROGRAM

**Emerald pools teeming with life have been observed among remote Antarctic sea ice in the little-studied Amundsen Sea.**

The brilliant green blooms owe their colors to chlorophyll, the photosynthetic pigment in

various types of phytoplankton, or tiny algae. Algae-eating zooplankton, small crustaceans

called krill, and fish and shrimp larvae also thrive in the area.

A recent scientific expedition, which studied the blooms in the Amundsen Sea's polynya (the recurring areas of seasonally open water surrounded by ice —ed. ), found the surface waters in these pools held as much as 45 micrograms of chlorophyll per liter. That's five times greener than parts of the Amazon River plume, the nutrient-rich region where the Amazon empties into the Atlantic.

Such a discovery "exceeds all expectations", Patricia Yager, chief scientist for the Amundsen Sea Polynya International Research Expedition wrote in a preliminary research report. It's "the greenest water I've seen in the world".

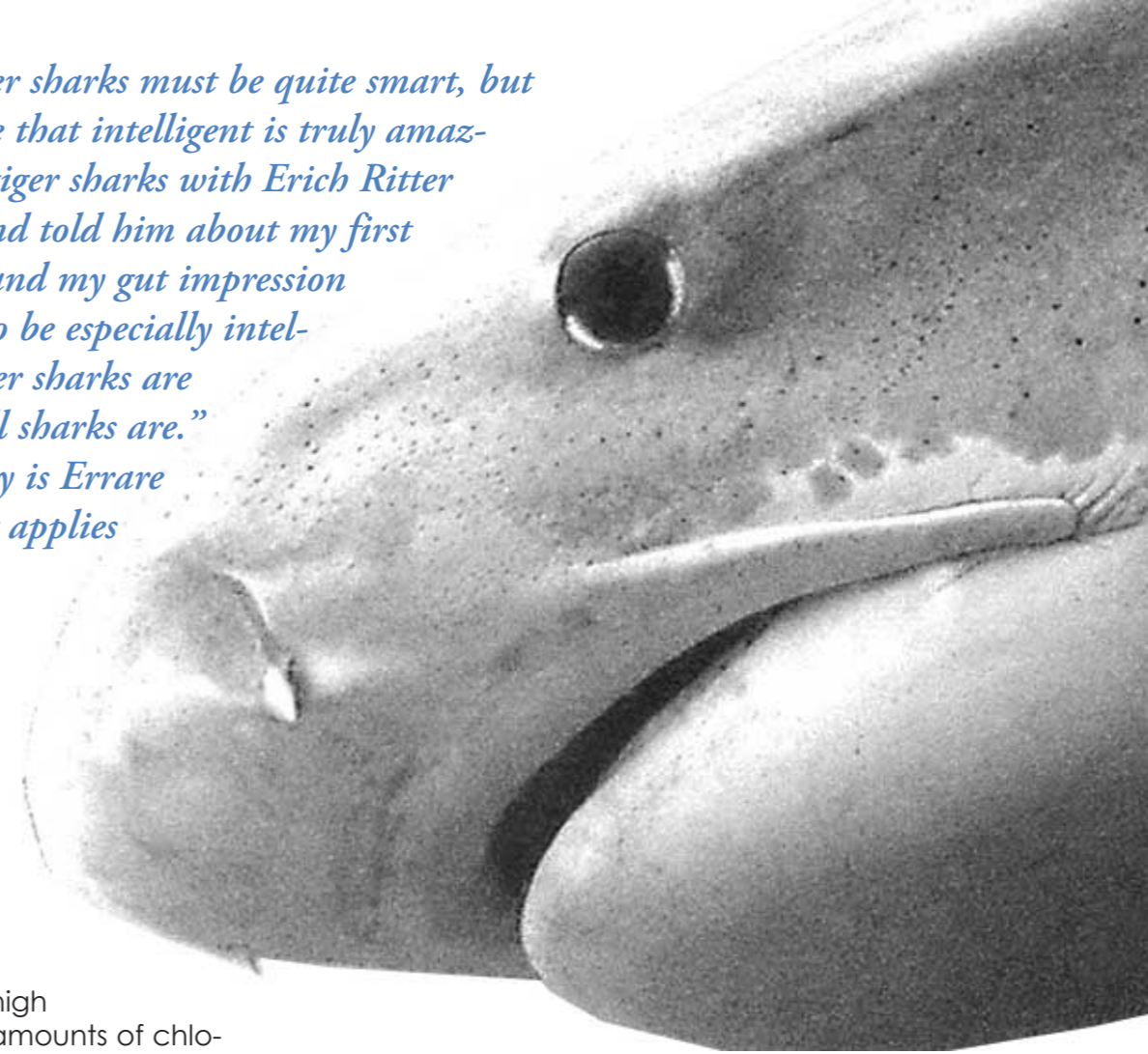
It's not unusual to find

high amounts of chlorophyll in the Amundsen Sea, according to Maria Vernet, a research biologist at Scripps Institution of Oceanography in La Jolla, California. Energy and material transfer between the atmosphere, polar surface ocean and the deep sea in polynyas provide polar ecosystems with just the right ingredients needed for high productivity and intense biogeochemical recycling.

Polynyas may be the key to understanding the future of polar regions since their extent is expected to increase with anthropogenic warming. ■

*I always sensed that tiger sharks must be quite smart, but to find out that they are that intelligent is truly amazing. When I discussed tiger sharks with Erich Ritter about four years ago, and told him about my first encounters with them, and my gut impression that these sharks seem to be especially intelligent, he said: "No, tiger sharks are not very intelligent, bull sharks are." Well, Erich, all I can say is Errare humanum est, and that applies even to experts*

— Wolfgang Leader



Tiger sharks not only look intelligent, they are

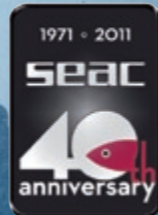
## Sharks know where they are going

Some shark species make "mental maps" of their home ranges, allowing them to pin-point destinations up to 50km away, research suggests. Using statistical analysis researchers has demonstrated that the journeys of three species—tiger sharks, thresher sharks and blacktip reef sharks—were not made by accident; the sharks were following some kind of path.

"Our research shows that, at times, tiger sharks and thresher sharks don't swim randomly but swim to specific locations," said research leader Yannis Papastamatiou from the Florida Museum of Natural History in Gainesville. "Simply put, they know where they are going." ■



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# Where are the Great Hammerheads heading?

New study provides new insight into the largely unknown migratory patterns and habitat use of the endangered shark.



Scientists at the University of Miami have successfully tracked a great hammerhead shark using satellite tag technology

WOLFGANG LEANDER

Scientists from the University of Miami in Florida tracked one of the nomadic sharks for 62 days to uncover its northeast journey from the coast of South Florida to the middle of the Atlantic off the coast of New Jersey.

The straight line point-to-point distance of 1,200 kilometers (745 miles) represents a range extension for this species. The data also revealed the shark entering the Gulf Stream current and open ocean waters of the northwestern Atlantic Ocean. The animal was likely following food, such as mahi-mahi and jacks, off the continental slope and into the Gulf Stream, according to the authors.

This preliminary study is part of a larger effort to track tropical sharks by satellite in order to identify areas that are important for feeding, mating, and pupping and to docu-

ment their largely unknown migration routes. In the last year, the researchers tagged the fins more than 50 large and environmentally threatened sharks in Florida and the Bahamas, among them great hammerhead, bull and tiger sharks.

"This study provides evidence that great hammerheads can migrate into international waters, where these sharks are vulnerable to illegal fishing," said study co-author Professor Neil Hammerslag. "By knowing the areas where they are vulnerable to exploitation, we can help generate information useful for conservation and management of this species."

DNA analysis of great hammerhead fins sold in the Asian shark fin market has shown that a large majority of the sharks came from Atlantic waters. ■ SOURCE: ENDANGERED SPECIES RESEARCH JOURNAL

*"This animal made an extraordinary large movement in a short amount of time. This single observation is a starting point; it shows we need to expand our efforts to learn more about them."*

Edited  
by Roz Lunn

## Network is key for corals too

**Strong links between the corals reefs of the south China sea, West Pacific and Coral Triangle hold the key to preserving fish and marine resources in the Asia-Pacific.**

The richest marine region on Earth, the Coral Triangle—which sits between Indonesia, Malaysia and the Philippines—depends vitally for its diversity and resilience on coral and fish larvae swept in from the South China Sea and Solomon Islands, Australian researchers have found.

The Coral Triangle supports more than one third of all the world's coral reefs, including over 600 various species of reef-building coral and 3,000 species of reef fish. These coral ecosystems are a source of food and income for more than 100 million people who work in marine based industries in the region.

"The currents go in various directions, but the prevailing direction is from east to west, and this carries coral spawn and fish larvae from areas such as round the Spratly Islands in the South China Sea and the Solomons, Papua New Guinea," explained Dr Johnathan Kool of the ARC Centre of Excellence for Coral Reef Studies and James Cook University.

"Maintaining the network of links between reefs allowing larvae to flow between them and re-stock depleted areas, is key to saving coral ecosystems threatened by human pressure and climate change.

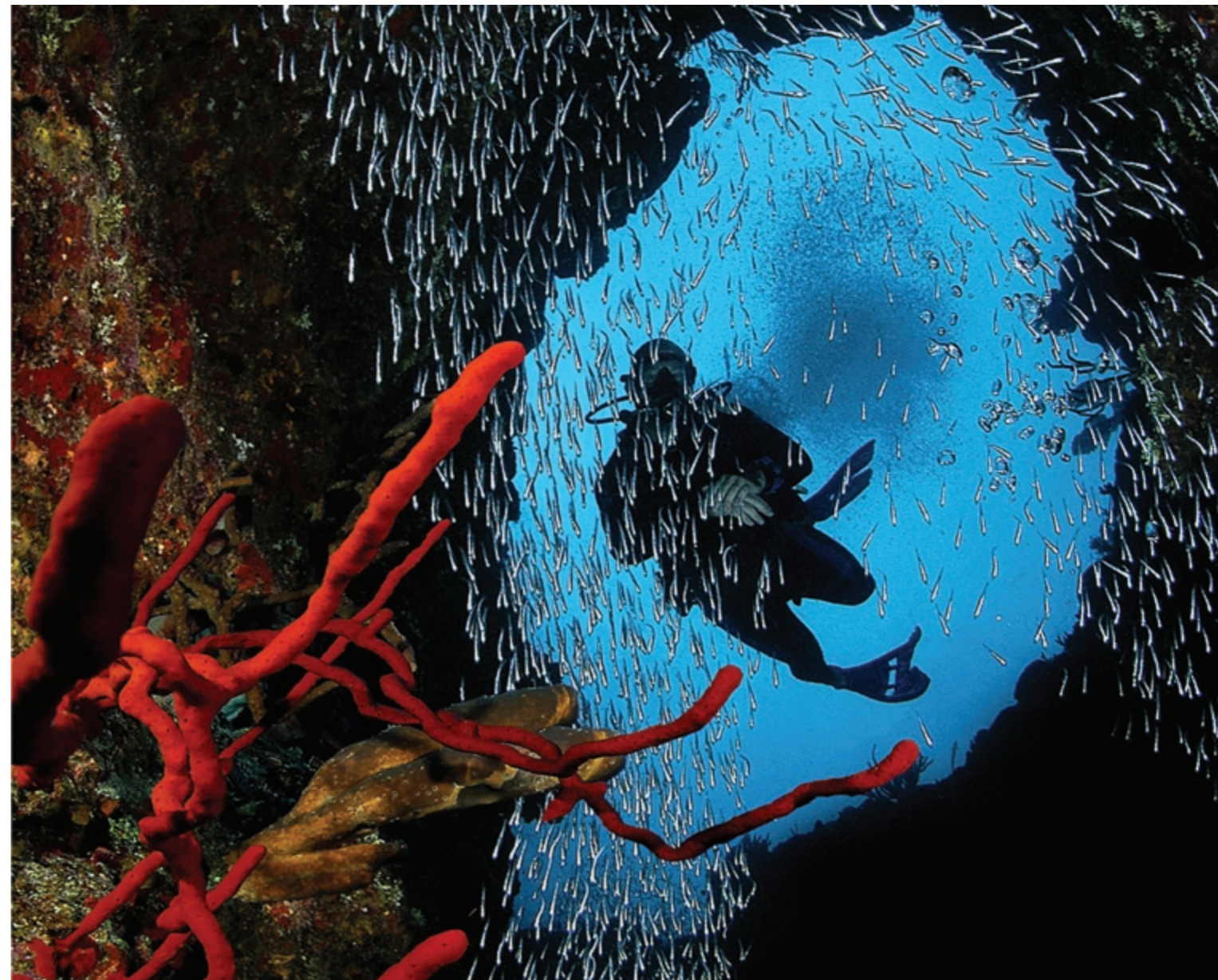
"Knowing where coral spawn comes from is vital to managing our reefs successfully. Even though coral reef communities may not be connected directly to one another, reefs on the edge of the

Coral Triangle have the potential to contribute significant amounts of genetic diversity throughout the region," said Kool.

He argued that recent evidence showing the region's biology is closely inter-connected, suggesting that it is in the interest of all Asia-Pacific littoral countries to work together more closely to protect it: "The science shows the region's natural resources are closely interconnected. Nations need to co-operate to look after them—and that begins with recognising the resources are at risk and that collective action is needed to protect them. ■

SOURCES: GLOBAL ECOLOGY AND BIOGEOGRAPHY JOURNAL AND ARC CENTRE OF EXCELLENCE FOR CORAL REEF STUDIES.

Six nations within the Coral Triangle, (Indonesia, the Philippines, Malaysia, Papua New Guinea, The Solomon Islands and Timor L'Este) are now working together to strengthen coral reef governance and management, under an arrangement known as the Coral Triangle Initiative.



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# Aquatic plant traps prey in an instant

A team from University of Grenoble and University of Freiburg have shown that a carnivorous plant can snap up tiny freshwater crustaceans in just one millisecond. Digestive enzymes are quickly released and within a few hours, an animal is completely consumed.

It looks unassuming, the bladderwort, but the vacuum-driven bladders of *Utricularia* are the most sophisticated carnivorous trapping mechanism to be found anywhere in the plant kingdom—about a hundred times faster than the Venus fly trap, according to a new study, which caught the motion on camera for the first time.

“We wanted to know how fast the trap was,” said Philippe Marmottant from Grenoble University. Using high performance light microscopes and a high-speed camera that captures up to 15,000 frames per second, the researchers were finally able to record the bladderwort swallowing several freshwater copepods. The resulting research paper is the first ever detailed analysis of the bladderwort’s mechanics.

**600 G’s**  
“Because the suction is so fast, with accelerations of up to 600G, it is very difficult for any living ani-



mal to escape,” said Marmottant. Space shuttles reach a G-force of around three, demonstrating the ferocious speed of the bladderwort’s inescapable motion.

**Pure mechanics**  
The trapping mechanism of *Utricularia* is purely mechanical; no reaction from the plant is required in the presence of prey, in contrast with the triggered mechanisms employed by Venus fly traps. The bladder walls are very thin and transparent, but are sufficiently inflexible to maintain the bladder’s shape despite the vacuum created within. The entrance, or mouth, of the trap is a circular or oval flap whose upper half is joined to the body of the trap by very flexible, yielding cells that form an effective hinge. Once the seal is disturbed, the bladder walls instantly spring back to a more rounded shape; the door flies open, and a column of water is sucked into the bladder. The animal, which touched the lever, if small enough, is inevitably drawn in, and as soon as the trap is filled, the door resumes its closed position—the whole operation being completed in as little as one-hundredth of a second. ■



Watch video: The ultra-fast trap of an aquatic carnivorous plant >>>

The stem is lined with tiny traps of a length of just a few millimeters each. Glands in the traps routinely pump out water and the trap thus deflates, meaning interior pressure is far lower than pressure in the surrounding water. The result is similar to when a pipette is squeezed, and poised to suck up liquid. The trap door is slightly concaved at this point, ready to collapse inwards like a spring trap if stimulated. Tiny hairs lining the watertight door trigger the trap when organisms brush past



# Gray whale tracked across the Pacific

Marine researchers say a rare whale tracked across the Pacific Ocean into North American waters this year has been there before.

Photo analysis has confirmed that the highly endangered western Pacific gray whale nicknamed "Flex" by the researchers—one of only 130 remaining—was photographed in 2008 off Canada's Vancouver Island and was assumed to be part of the eastern gray whale population.

### Critically endangered

There are only about 130 western gray whales left. The species is listed as Critically Endangered on the IUCN Red List of Threatened Species, with perhaps only about 33 mature and reproductively active females. Their feeding grounds in the Russian Far East are known but details of their migration routes and breeding grounds are not. It is believed that western

gray whales migrate south in the winter, towards Japan, Korea or China.

U.S and Russian researchers started tracking the 14-year-old male whale on October 4, when they tagged him with a satellite tracker off Sakhalin Island, Russia, as part of research into where the animals spend winters. Flex stayed at Northeast Sakhalin until around mid-December, but instead of moving south as expected, he moved across the Okhotsk Sea to the west coast of Kamchatka, then followed the coast around the southern tip of Kamchatka.

The whale left Russia's Kamchatka Peninsula on January 3 and began swimming east. It swam halfway across the Bering Sea, turned south and swam

between Aleutian Islands into the Gulf of Alaska. It continued southeast to shallow coastal waters off Washington and Oregon. Its last confirmed location was February 4 off Siletz Bay, Oregon, where researchers believe the satellite tag fell off.

Since leaving the Kamchatka Peninsula, Flex travelled more than 8,500 kilometers over 124 days with an average speed of 6.6km per hour during his migration. Flex was first photo-identified off Sakhalin Island as a calf in 1997 and has subsequently

been observed in multiple years off Sakhalin during the summer feeding season. This photographic match, in combination with the telemetry data,

provides the first evidence that links the Sakhalin feeding ground of western gray whales to locations in the eastern North Pacific. ■



CHARLES MELVILLE SCAMMON



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On 4 October 2010 a team of scientists from Russia and the United States satellite tagged a western gray whale off the east coast of Sakhalin Island, Russia. This whale has now been successfully tracked for over four months traveling from the Okhotsk Sea to the eastern North Pacific and is currently off the west coast of the United States



OREGON STATE UNIVERSITY MARINE MAMMAL INSTITUTE



## Alvin gets a makeover

Text and image courtesy of Woods Hole Oceanographic Institution

**Alvin is the world's longest-operating deep-sea submersible. It was launched in 1964 and has made more than 4,600 dives, along the way, participating in some of the most iconic discoveries in the deep ocean. Throughout 2011 and into 2012, Alvin will undergo a comprehensive overhaul and upgrade funded by the National Science Foundation that will greatly expand its capabilities and eventually put almost the entire ocean floor within its reach.**

Alvin is owned by the U.S. Navy and is operated by WHOI through the National Deep Submergence Facility. The facility provides marine scientists with access to the deep ocean with Alvin, as well as the remotely operated vehicle, Jason, and the autonomous underwater vehicle, Sentry.

Alvin's most famous exploits include locating a lost hydrogen bomb in the Mediterranean Sea in 1966, exploring the first known hydrothermal vent sites in the 1970s, and surveying the wreck of RMS Titanic in 1986. In its final series of dives before the current upgrade period, Alvin explored deep-sea biological communities in the Gulf of Mexico near the site of the Deepwater Horizon blowout and oil spill.

The upgrade will take place in two stages. After stage one is complete in 2012, Alvin will boast several new improvements, including:

- \* A new, larger personnel sphere with

an ergonomic interior designed to improve comfort on long dives

- \* Five viewports (instead of the current three) to improve visibility and provide overlapping fields of view for the pilot and two observers
- \* New lighting and high-definition imaging systems
- \* New syntactic foam providing buoyancy
- \* Improved command and control system.

Several of these and other improvements to the sub will be designed to withstand descents to 6,500 meters—the remainder will be upgraded later. As a result, Alvin will initially maintain its current diving capability of 4,500 meters. In stage two, the entire sub will be upgraded to 6,500 meters depth. In addition, new batteries will be added to enable the submersible to stay at depth longer, giving scientists more time to work in unexplored parts of the ocean and putting 98 percent of the seafloor within their reach. ■



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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".



News edited  
by Millis Keegan

# World's oldest Heidsieck champagne and beer found in shipwreck

In summer 2010, one of the oldest preserved beers was found off the Aaland archipelago in the Baltic Sea at a depth of 50 meters. Divers found not only several bottles of well-preserved champagne, but also five bottles of beer.

Among the 30 bottles of champagne salvaged last summer from a nearly 200-year-old two-masted schooner in the Aaland archipelago in the Baltic, experts have discovered what are believed to be the oldest existing bottles of Heidsieck champagne. Divers stumbled across a cargo of around 150 champagne bottles last July in a two-masted schooner, which had run aground sometime between 1825 and 1830, and by last November, experts had already identified the world's oldest Juglar and Veuve Clicquot brands among the bottles.

"When re-corking the almost 200-year-old bottles a third brand has now been discovered," Aaland authorities said in a statement. Four bottles have been identified as having come from the Heidsieck & Co Monopole house, which is now owned by Vranken Pommery

Monopole.

"In the 1800s and the beginning of the 1900s, it was one of the leading champagne houses, and it was one of those that we expected we might find in the cargo," Richard Juhlin, one of the world's leading champagne experts, told AFP

### Wreck beer second life

In addition, five of the bottles later proved to be the oldest drinkable beer yet found. The local government of the Aaland island chain where the wreck was found has now commissioned a scientific study to unpick the beer's original recipe.

VTT Technical Research Centre of Finland will determine what kind of a recipe was used in the brewing of the beer and what kind of yeast caused the fermentation process. The beer in question is one of the world's oldest preserved beers, and the Provincial Government of Aaland is interested in its reproduction.

The brew has already been sampled by four professional beer tasters. "They said that it did taste very old, which is no

surprise, with some burnt notes. But it was quite acidic, which could mean there's been some fermenting going on in the bottle, and with time, it's become acid," said Annika Wilhelmson of the Technical Research Centre of Finland (VTT).

"What we want to do, first of all, is to analyse the contents of the bottles. After that, we hope to be able to recreate the original recipe so that it can be used to make beer," said Rainer Juslin, Department Head at the Provincial Government of Aaland.

VTT has decades of experience in malt and brewery research. VTT's expertise in, for example, proteomics and DNA will be utilised in the project. The research results will be ready in May 2011. VTT will prepare a scientific article of the results in due course.

"We're going to try to see if we can find any living yeast or other microbial cells, because that would be very interesting with respect to reproducing the beer," Wilhelmson explained. ■



RABOE/WIKIPEDIA

Archival photo of like bottles

See video here: <http://www.youtube.com/watch?v=RuSR04goJK8>



*The wine found on the seabed was perfectly preserved because of the conditions of dark and cold on the seabed.*

One of the bottles of beer recovered from the Baltic Sea ship-



## Pieces of Eight

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

by Carol Tedesco

Fully illustrated with hundreds of finely detailed photographs, *Pieces of Eight* is more than just a reference book. Carol Tedesco not only explains the subtle nuances of the coins themselves, but places them in the context of their moment in history, explaining where they were coming from, where they were going and why.

To be released in 2010 by  
SeaStory Press, Key West Florida.  
To be on our availability e-mail alert list,  
please inquire at [lostgalleons@aol.com](mailto:lostgalleons@aol.com).





Text and photos  
by Rob Rondeau

In September 1952, the CPR ocean liner *SS Princess Kathleen* sank beneath the waves just north of Juneau, Alaska. It ran aground on its final cruise of the season, from Vancouver to Juneau, during a bad storm. Ten hours after running

The *Princess Kathleen* lodged on the rocks of the coast

up on Point Lena, it was gone. Fortunately, all 307 passengers had been safely disembarked before the plunge. The wreck was largely forgotten, lying at the bottom of the Lynn Channel.



# Leaking Fuel

—A Big Problem!



The advent of scuba diving in the 1950s made visiting the wreck possible. The 369-foot liner lies on its port side on a steep sloop—with its bow at 40 feet and its stern at 140 feet. Although the water is cold, it's the perfect wreck dive.

But, in the 1970s, sport divers from Juneau started to notice droplets of oil leaking from the wreck. As time went by, more and more oil escaped to the surface.

In 1924, the *Princess Kathleen* was launched in Glasgow, Scotland, outfitted with 14 fuel tanks. Some of these were now leaking. In 2007, "tar balls" were noticed on the beaches around Point Lena. A "rainbow sheen" was seen at the surface.

On the wreck, scuba divers noticed oil trapped overhead in compartments

below deck. The oil had leaked from the ship's fuel storage tanks and had become trapped there. Something had to be done.

The situation was reported to the U.S. Coast Guard. Its "Unified Command" mobilized in the spring of 2010. Remotely Operated Vehicles (rovs) were first used to inspect the wreck. They observed large droplets of bunker oil floating to the surface.

Commercial hard hat divers then drilled holes in the ship's hull to find out where the oil had collected. Then, using a system called "hot tapping", they removed approximately 110,000 gallons of oil from the wreck.

"We have removed a significant threat to the local environment and maintained the *Princess Kathleen* as a historic rec-

reational diving site," said USCG Captain Melissa Bert.

## A growing problem

This wasn't the first shipwreck to leak oil. In February 2003, the U.S. Navy pumped approximately 1.95 million gallons of bunker oil from the wreck of the *USS Mississinewa* at Ulithi Atoll in the Federated States of Micronesia.

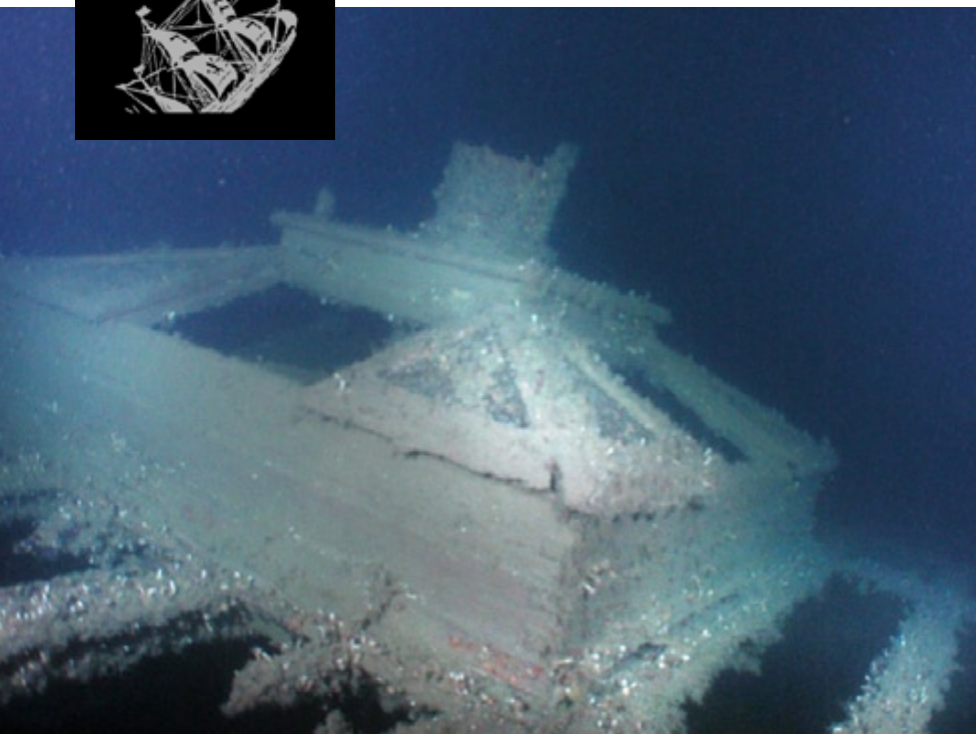
Oil washed up on the beach. Micronesians had no idea at the time where it was coming from—other than they knew it had to be from a WWII shipwreck lying offshore. They reported the situation to the U.S. Coast Guard.

The *USS Mississinewa* was a Navy support tanker. It sunk during combat on 20 November 1944, with 3.8 million gallons of oil aboard—in 22 tanks.





CLOCKWISE FROM BELOW:  
Skylight of the wreck of the  
*Princess Kathleen*; Wheelhouse;  
Helm and binnacle; Diver at  
the bow of the wreck



unique to the Pacific. In 2008, the former German WWII oil tanker *Welheim* also started to leak bunker oil off the coast of Norway. Like the *Princess Kathleen*, it too is a popular dive destination. In the last ten years, divers there noticed more and more oil leaking from the shipwreck.

The government of Norway acted quickly—hot tapping and pumping out the wreck. It cited the importance of keeping the Norwegian coastline free of contamination.

#### You can help

The modern-day reality is that there's no way to identify and clean-up every shipwreck containing fuel. In fact, the location of many wrecks isn't even known.

But, what we can do is respond quickly when a leak is detected. And, sport

The U.S. Navy quickly responded in August 2001. They found the wreck and initially patched it. In February, 2003, the Naval Sea Systems Command (NAVSEA) returned—removing all accessible oil from the warship's tanks, engine and pump rooms and previously leaking pipes.

The spill and subsequent clean-up led to the organization of a U.S. government task force, which looked at the issue of fuel leaking from WWII shipwrecks across the Pacific Region. It concluded that there were thousands of U.S. warships that pose a potential problem. For example, there are 60 wrecks in the 40-mile wide Truk Lagoon alone. And, in sea battles around the Solomon Islands, hundreds of American and Japanese warships were lost—so much so that the strait between Guadalcanal and Savo was knick-named "Iron bottom Sound".

"The oil, chemicals and unexploded ordnance still on board many of these vessels pose a grave and imminent danger to the people, marine and coastal environments and fisheries of the region," the task force stated in its final report.

Nor is the problem of leaking warships



divers can play an important role in detecting the problem.

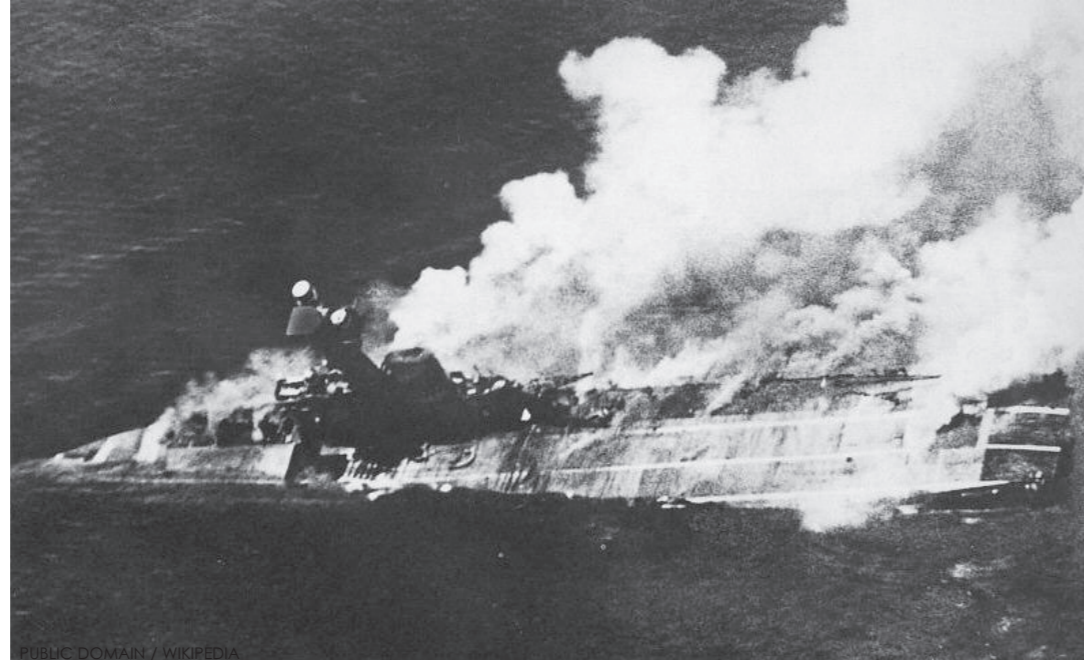
So, keep an eye out the next time you're diving a wreck from the 20<sup>th</sup> century, especially if it's a warship. And, if you do see evidence of leaking fuel, make sure you report it immediately. In the United States, your best bet is

the nearest U.S. Coast Guard station. Outside of the States, try the local office of the Department of the Environment. ■

—Rob Rondeau  
Marine Archaeologist  
ProCom Marine Survey & Archaeology  
[www.facebook.com/procomsurvey](http://www.facebook.com/procomsurvey)



British carrier *Hermes* sinking after Japanese carrier air attack on 9 April 1942. Photo taken from a Japanese aircraft



## HMS Hermes now open for divers

**More than 60 years after her sinking during WWII, the area has been opened to tourism, and the HMS Hermes has finally become available for technically trained divers to explore.**

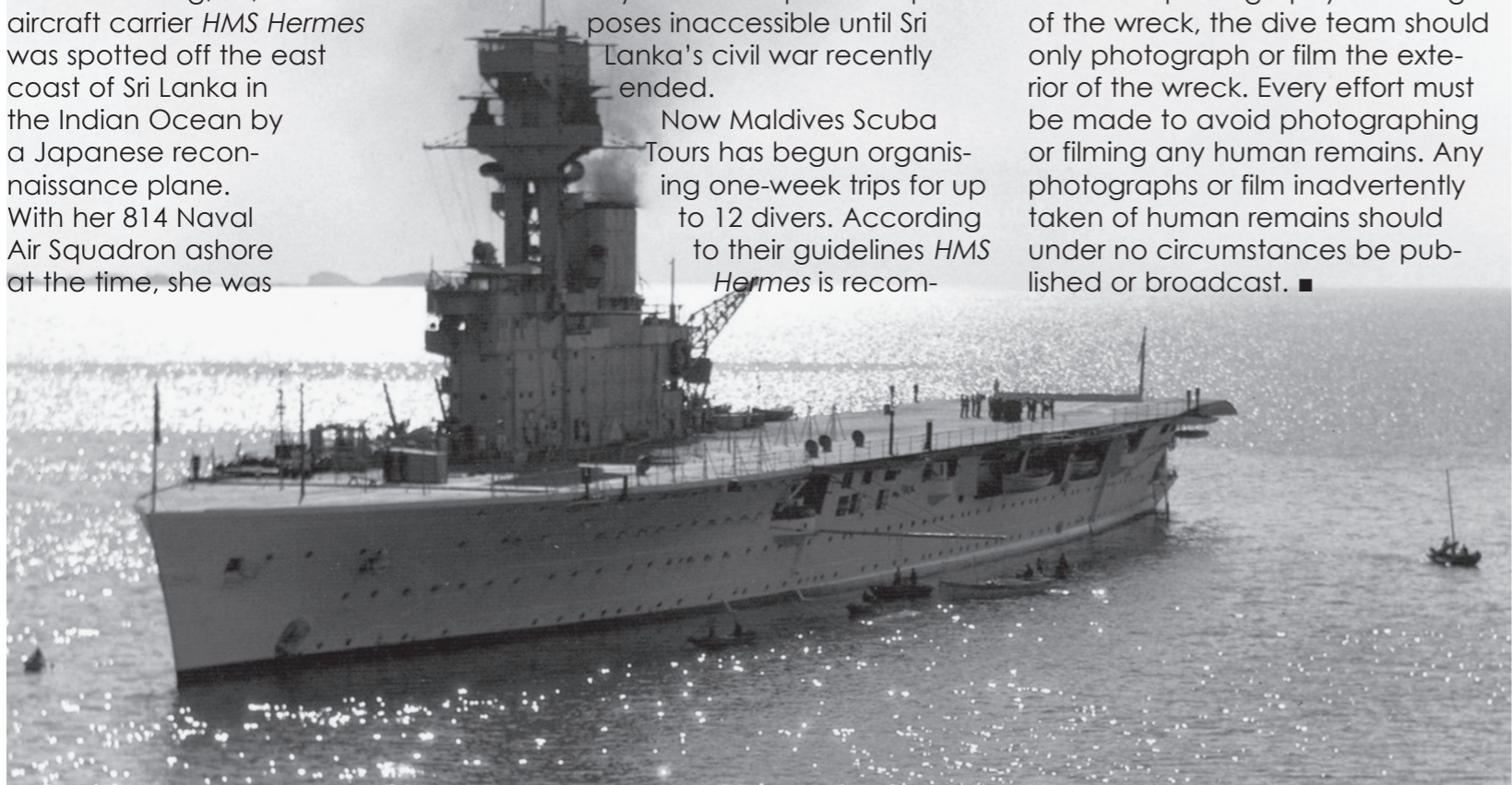
At dawn, on 9 April 1942, the 167-meter-long, 12,900-ton aircraft carrier *HMS Hermes* was spotted off the east coast of Sri Lanka in the Indian Ocean by a Japanese reconnaissance plane. With her 814 Naval Air Squadron ashore at the time, she was

defenseless when she was subsequently attacked by 70 Japanese bombers. Hit 40 times in less than ten minutes, *Hermes* sank with the loss of 307 men 8km off the coast of Batticaloa.

Resting at 45-58m, the intact wreck, a war grave, had been been offlimits to divers unless accompanied by the Sri Lankan navy and for all practical purposes inaccessible until Sri Lanka's civil war recently ended.

Now Maldives Scuba Tours has begun organising one-week trips for up to 12 divers. According to their guidelines *HMS Hermes* is recom-

mended for divers with minimum technical training to 50m. The wreck is a "military maritime grave", and as such, no attempt should be made to gain access to the inside of the wreck or touch or disturb or in any way interfere with the wreck. There must be no attempt to remove artefacts of any kind from the wreck. Whilst there is no objection to still photography or filming of the wreck, the dive team should only photograph or film the exterior of the wreck. Every effort must be made to avoid photographing or filming any human remains. Any photographs or film inadvertently taken of human remains should under no circumstances be published or broadcast. ■



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# Intact German WWI found off Ireland



The German submarine, the UC 42, was sunk off the Irish port of Cork in 1917

SM UC-42 was a German Type UC II minelaying submarine or U-boat in the German Imperial Navy during World War I. On 10 September 1917, UC42 was laying her deadly cargo of mines at the entrance to Cork harbour when a terrific explosion occurred, which sent the vessel to the seabed and the 27 German submariners aboard to a horrifying death.

A team of five sport divers from Cork discovered the WWI German U-boat in good condition in 27m of water just off Roches Point after a 12-month search.

On November 2 of that year, hardhat divers from the Haulbowline dockyard dived the area. The divers reported a German U-boat lying on the seabed with her stern blown off, and a brass plate on her conning tower reading "C42, 1916", identified her as UC-42. No survivors were ever reported even though some of the hatches were found to have been opened. It was thought likely that the submarine had been sunk by one of her own mines detonating under her stern while minelaying.

It was widely believed that in July 1919 divers using explosives

from HMS Vernon torpedo school had destroyed the submarine with the remains being dispersed on the seabed by wire sweeps.

The actual wreck was relocated by two local divers, Ian Kelleher and Niall O Regan, on 6 November 2010 in 27m of water just off Roche's Point. It was found with "little obvious explosive damage".

As they descended a shot line to see the menacing sight of the hull of a German U-boat emerge from the shadows, both divers were very surprised and ecstatic to find a fully intact World War I U-Boat just outside Cork harbour.

## 20th century shipwreck in NOAA's Stellwagen Bank Sanctuary listed on National Register of Historic Places



The wreck of a mid-20th century fishing vessel, representative of a distinctive regional fishing technique, has been listed on the National Register of Historic Places, the United States' official list of cultural resources worthy of preservation.

The Edna G shipwreck site rests within NOAA's Stellwagen Bank National Marine Sanctuary. The Edna G was a 54-foot groundfishing vessel launched in 1956 by the Morehead City Shipbuilding Corporation of Morehead City,

N.C. From her launch until 1974, the Edna G fished off the North Carolina and Virginia coasts, and in 1974 new owners moved it to New England.

The vessel sank on 30 June 1988, off Gloucester, Massachusetts, as her two-man crew set out its trawl net. A strange noise alerted the crew to water rapidly filling Edna G's engine room. The fishermen were able to abandon ship and were picked up by another fishing vessel. The exact cause of the sinking was never determined. ■

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2009 2nd Place, General Category Jim Gartland, Merseyside, UK. "The Wreck of the Glannis D."

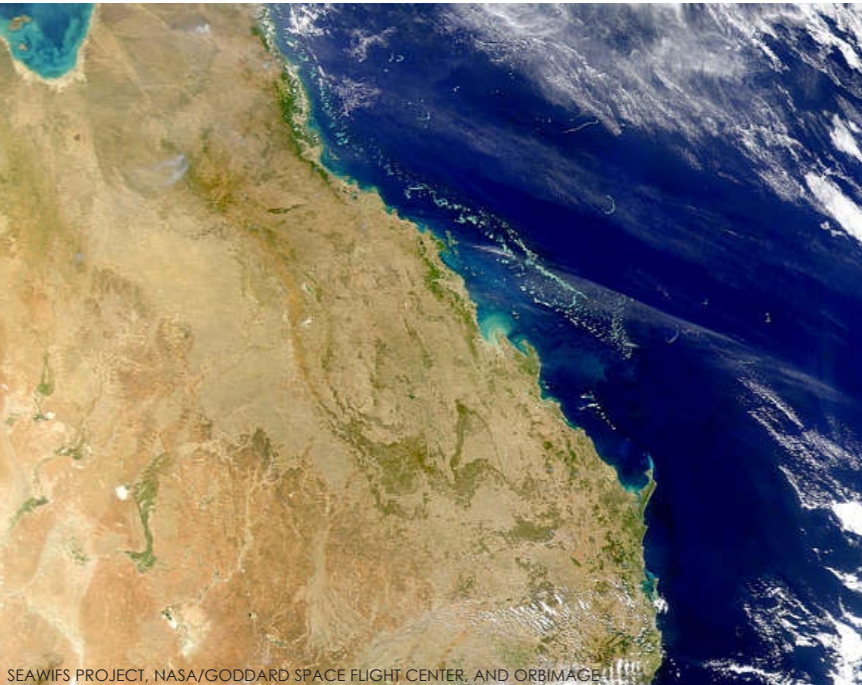
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SEAWIFS PROJECT, NASA/GODDARD SPACE FLIGHT CENTER, AND ORBIMAGE

Queensland, Australia, and the Great Barrier Reef

## Queensland tourism industry receives AU\$10 million

The Australian state of Queensland was hard hit by cyclons and floods recently and is now rebuilding its tourism industry. The state is among others famous for the Great Barrier Reef, which runs along its coastline. The Queensland tourism industry will receive a AU\$10 million injection with a new tourism industry support package from the Australian state and the federal government.

"It's no secret the tourism industry, like many industries in Queensland, has taken a hit by the floods and is still haemorrhaging because of the negative publicity that spread world-wide," said Queensland Premier Anna Bligh.

Tourism contributes a massive \$9.2 billion per annum to the state, directly employing 122,000 people and indirectly employing 100,000 more. Bligh also stressed that most of the state's tourism regions were largely unaffected by floods and that now is the time to take a Queensland holiday. ■

## Thailand temporarily closes popular dive sites

Seven areas in marine national parks in the Andaman Sea and the Gulf of Thailand were temporarily closed for diving from January. The closure of some divesites is to allow coral reefs affected by bleaching to recover and regenerate.

The National Parks, Wildlife and Plant Conservation Department (DNP) of the Ministry of Natural Resources and Environment has reported

PHOTO: COURTESY OF TOURISM AUTHORITY OF THAILAND



Coral fans at East of Eden, Similan Marine National Park, Andaman Sea



that coral reefs at several sites along Thailand's Andaman coast and in the Gulf of Thailand have been affected by coral bleaching—a phenomenon in which coral loses colour and becomes paler or completely white. Coral bleaching at these sites extends over 80 percent of the areas concerned.

Corals that have been exposed to environmental stress for an extended period of time are vulnerable to bleaching. The key to stopping and reversing the situation is to immediately alleviate the environmental stress to prevent further damage to the affected reefs and create a more favourable environment that allows the coral colonies to recover and regenerate.

The following areas have been closed for diving:

- Ko Chueak Island, Hat Chao Mai Marine National Park in Trang Province

- Ko Bu Lone Mai Pai Island, Mu Ko Petra Marine National Park in Satun Province
- The islands of Ko Takieng, Ko Hin Ngam, Ko Rawi, Hat Sai Khao and Ko Dong in the Tarutao Marine National Park
- Ko Ma Prao, Chumphon Marine National Park
- Hin Klang, Hat Nopparattara, Mu Ko Phi Phi Marine National Park
- Ao Mae Yai Bay, Ao Mangkon Bay, Ao Jak Bay, Ao Tao Bay, and Ko Torinla in the Mu Ko Surin Marine National Park in Phang-nga Province
- Ao Fai Wap Bay, Ko Payu or East of Eden in the Mu Ko Similan Marine National Park in Phang-nga Province

The Tourism Authority of Thailand stresses that these are a handful of the thousands of divesites available throughout the country. The vast majority of dive sites still remain open. ■

Map of areas temporarily closed for diving





SRTM TEAM NASA/JPL/NIMA

Satellite map of Panama

## Panama offers free medical insurance for tourists

As of 17 January 2011, all visitors arriving in Panama through Tocumen International Airport, as well as Panamanians living abroad will receive medical insurance with top level coverage in case of emergency during the first 30 days of their stay. The Panamanian tourist authorities has signed a three year contract with Italian assurance company Assicurazioni Generali. Tourists arriving at the airport in Panama City, can go to the tourist information office, and ask for a brochure with all the

necessary information, along with a user card. If the person requires medical attention, they will only need to present this card along with its passport at any health center.

Health insurance is an incentive for tourists visiting Panama. The health services in the country are good with highly trained physicians and hospitals, said Salo Shamah, Director of the Autoridad de Turismo Panamá (ATP).

The free insurance policy covers accidental death (up to

US\$20,000 dollars), hospitalization and medical expenses for injuries due to accidents or in case of contracting a disease in Panama (up to \$7,000 dollars), expenses for dental emergency (up to \$2,000 dollars), administrative legal assistance by accident (up to \$3,500), and lost or stolen documents, among others. The policy does not however cover incidents caused by negligence, those related to alcohol and drugs or injuries caused by extreme sports (e.g. scuba diving). ■

## Egypt travel bans lifted

At the time of writing most countries have lifted their travel bans for Egypt, which came into

effect during the recent upheaval. The Red Sea resorts remain quiet, as many of the flights that were

cancelled won't be replaced. Travel agents say that many of the tourists who had bookings to Egypt chose to cancel or re-route their travel plans. Many of the aircraft that were scheduled for Egypt have been redirected to new destinations. However, the situation is returning to normal. The World

Tourism Organization (UNWTO) welcomes efforts by the national authority of Egypt to restore confidence among tourists and by foreign governments to update travel advisories accordingly.

"As the situation has evolved over the past few weeks, I have been pleased to see that travel advisories have been kept accurate, confined to the affected areas and regularly updated," said UNWTO Secretary-General, Taleb Rifai.

Egypt reported 12 million international tourist arrivals in 2009 and preliminary results for 2010 are 14 million. In terms of international tourism receipts, the figures stand at around US\$11 billion in 2009 and \$12.5 billion in 2010. ■



PETER SYMES

File photo: Great Sphinx of Giza and pyramid, Egypt



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An underwater photograph showing a large school of small, silvery fish swimming in the upper left portion of the frame. In the lower right, there is a vibrant coral reef with various types of coral, including a prominent white branching coral. The water is clear and blue.

# Cayman Islands

Text by Cathy Church  
Photos by Cathy Church and Tony Mark

—*A guided tour with Cathy Church*



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PREVIOUS PAGE: Coral garden at Blackie's Hole. ABOVE: I stayed overnight on my boat in the north sound so that I could wake up with the sun and be at Stingray City sandbar when all of the rays came in for the day's action. This photo is the sum of two photos taken as they approached me. The large stingray in the center is the same individual as the one just to the right of him. His shadow is not missing—it is hidden in a small valley of sand. He was not photoshopped, only the large stingray in front was

**When people ask me where my favorite dive spots in the entire world are, I have to stop and give it some serious thought. I like Fiji for soft corals, Chuuk for wrecks, Indonesia for critters, the Solomon Islands for an all-around trip and the U.S. west coast for kelp. But I usually reply that I like wherever I am going next, and that often includes right here in the Cayman Islands where I have the good fortune to live.**

Like most dive areas in the world, there are always surprises, always something lovely and always something to photograph. Let me tell you what is so special about my hometown diving.

The Cayman Islands are three small islands isolated in the Western Caribbean. They barely protrude from the ocean surface, atop a steep mountain that plunges abruptly

hundreds to thousands of feet. This wonderful wall provides stunning diving and the water is clear and warm. Although sealife is not nearly as varied and prolific as in the south Pacific, it is nonetheless pretty and interesting and some spots are down-right spectacular.



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Juvenile spotted drum. By moving my point of focus to the lower right, and using only one strobe from the lower right, and waiting until the fish swam to the right, I was able to get the sort of photo that I visualized

**Grand Cayman**

Grand Cayman is the largest and most populated island of the three and is just 150 miles (241km) south of Cuba, which

is south of Florida, USA. It is famous above water for its world class Seven Mile Beach that runs along the entire center of the western coast. The sand is just right—not too fine, but not coarse either. It suits a set of bare feet perfectly.

**Where to stay**

Seven Mile Beach is lined with every range of accommodations from small condominiums to the extravagant Ritz Carlton Hotel. Many dive operators pull their boats right up to the beach to pick up guests. While the snorkeling here has some good spots, the diving is too far from shore for shore diving. There are other hotels, villas and condos throughout the island.

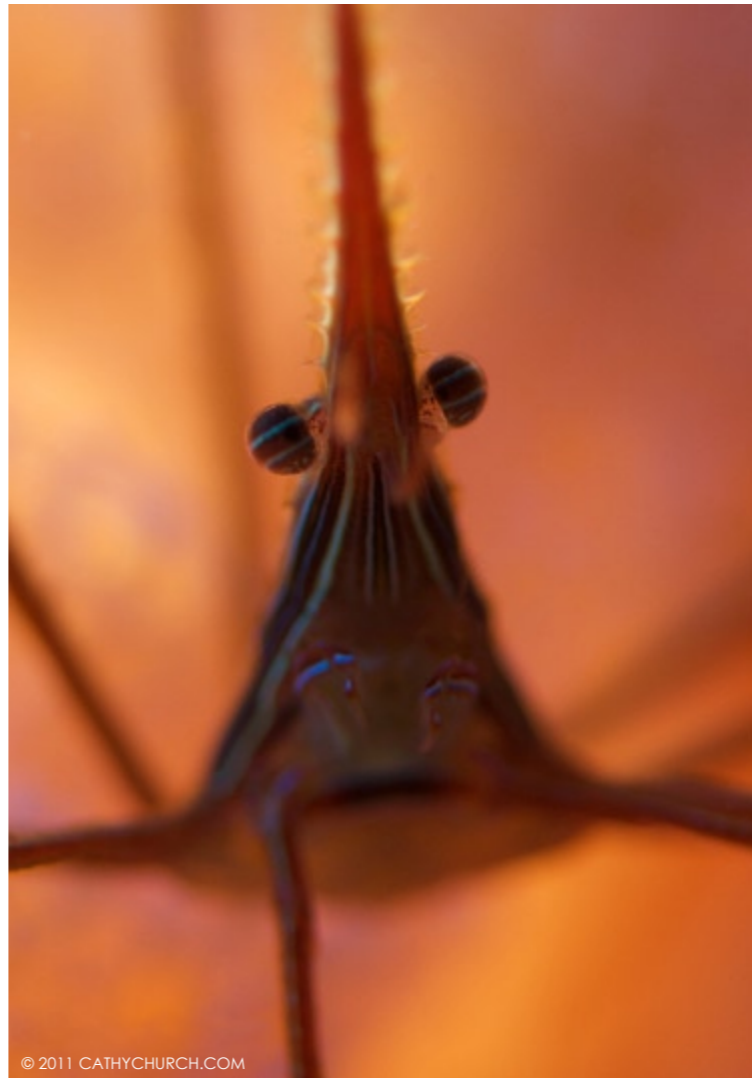
There are four small, dedicated diving resorts—all with a friendly family atmosphere. Ocean Frontiers Diving Adventure at Compass Point Dive Resort (all with full kitchens) has the whole pristine East side virtually to themselves. Divetech Divers at Cobalt Coast (all rooms are one or two bedroom ocean-view suites) and their new environmentally friendly Lighthouse Point (nine condominiums with full kitchens) on the Northwest corner has the best shore diving for critters. They are also close to the great diving along the north wall and the west bay area.

Sunset Divers at Sunset House on



Red finger sponges are common along the walls

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Even the most common blennies look great when you find one in a perfect setting (above); Arrow crab (left); Fancy sponges are reef sculptures (far left)

the southwest is closest to the airport, shopping, restaurants and town. They also have the best shore diving for variety—a small wreck, a nine-foot bronze statue, friendly fish, a huge anchor and even a canon. I may be prejudiced when writing about this location, as this is where my photo center is, but I chose to be here because of the easy shore access and leeward location for the most days of the year. The hotel itself does not have the apartment and other amenities of the other much newer hotels.

**What to do**

If, for some strange reason, you do not want to spend every waking moment underwater, there are a few things to do in Grand Cayman. There is a lovely Botanical Park where you can see the rare and endangered Blue Iguana. They are being overrun by thousands of the recently introduced Green Iguanas everywhere around the island, includ-

ing one crossing my dock as I write this. Darn, he is going to eat some of my garden plants. Oh, well—my plants should not just be for the bugs to eat.

You can also visit the Cayman Turtle Farm where they raise turtles for food and to replenish their numbers in the wild. This appears to be an environmentally acceptable activity. On the other hand, I would suggest that you consider not paying to watch trapped dolphins work to get fed. The captive dolphin entertainment industry is active in Cayman with two dolphinariums. Since I have seen the horrors of how these wonderful dolphins are captured and ripped from their families, I cannot personally condone supporting their ongoing enslavement. That said, there is always another side to every story, and I will still love you even if you tell me you went anyway.

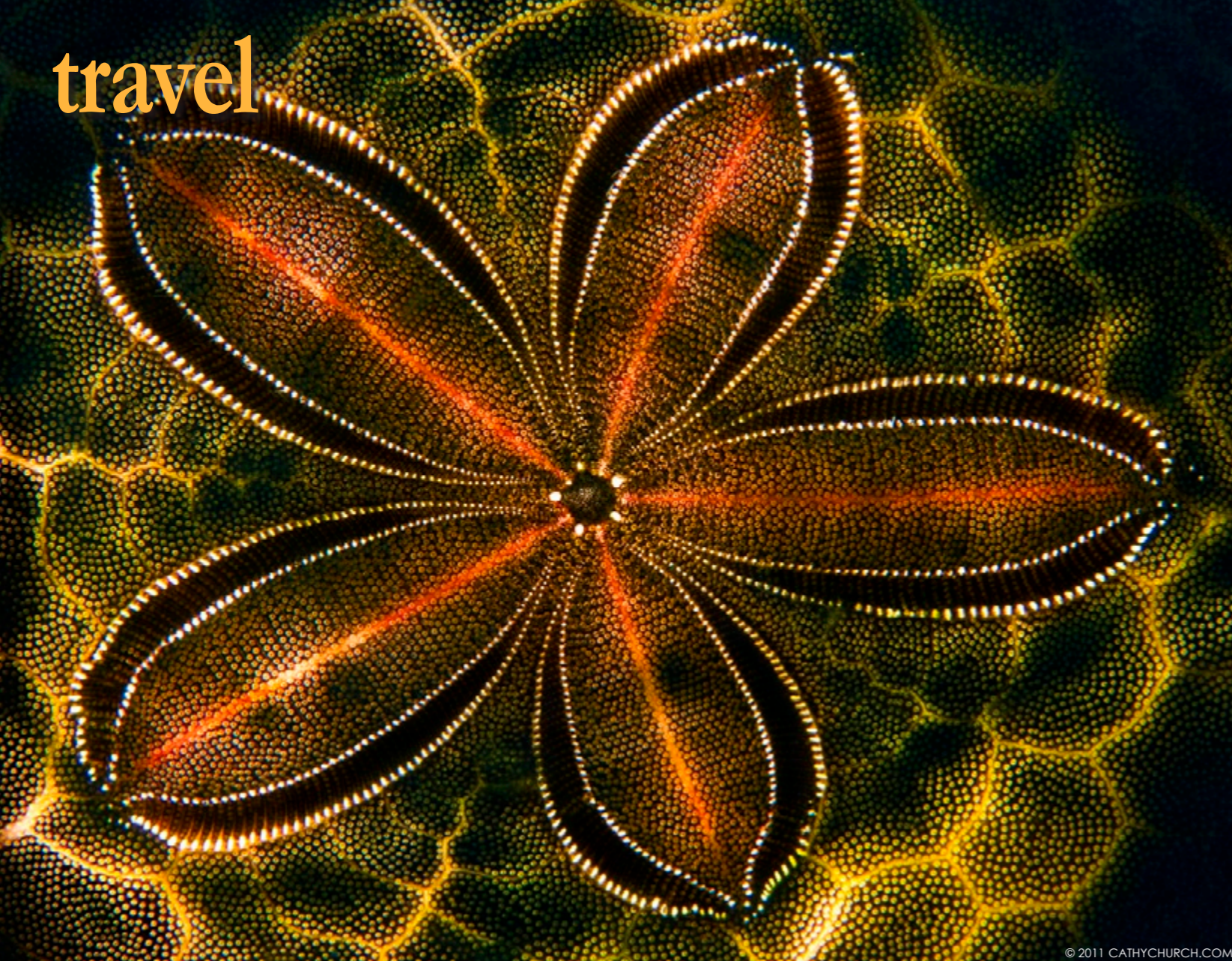
**Diving in Grand Cayman**

Now for the diving! This is the real rea-

son to visit us. The diving is warm, calm, safe, comfortable, usually free of current, shallow and varied with lots of canyons and interesting terrain. Let's start with the very first Stingray City.

**Stingray City and Stingray Sandbar**

Back in the day, fishermen came in from the north wall through a natural cut in the barrier reef of North Sound and cleaned their catch in the calm water. Stingrays quickly associated the sound of a motorboat with the onslaught of fish cleanings dropped overboard and immediately congregated below the boats. One day, Pat McKenney said, "Golly, I wonder if a diver could get close to them while they are eating?" I made up that sentence, but the idea is accurate. Anyway, he got into the water and was mobbed. The rest is history; Cayman visitors come by the hundreds to feed these wonderful creatures. They are smooth and soft underneath and being



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Sea biscuit—by backlighting this empty shell and adding a little reddish color, I made a new image of an old subject

relatives of sharks, they have rough skin on the top.

**Orange Canyon West Bay wall dive**

The next big treat are the walls. My personal favorites include Orange Canyon. This labyrinth of coral pinnacles and swim throughs has orange sponges everywhere you turn. When mixed with bright green halimeda algae and tall red finger sponges, every photo turns out wonderfully. Turtles are not uncommon here; tiger groupers, angel fish, and ocean trigger fish hang out here also. During certain seasons in spring and summer, look for schools of silversides flowing

through the deep crevasses.

**Babylon North wall dive**

Babylon, like my other favorite walls has a large pinnacle separated from the main wall by just a few feet. You can swim through the gap, being careful not to disturb the fragile sponges and gorgonians lining the crevice. On your way out, keep your eyes to the blue for the spotted eagle rays which cruise all of the walls of the Cayman Islands.

**Blackie's hole, Southwest wall dive**

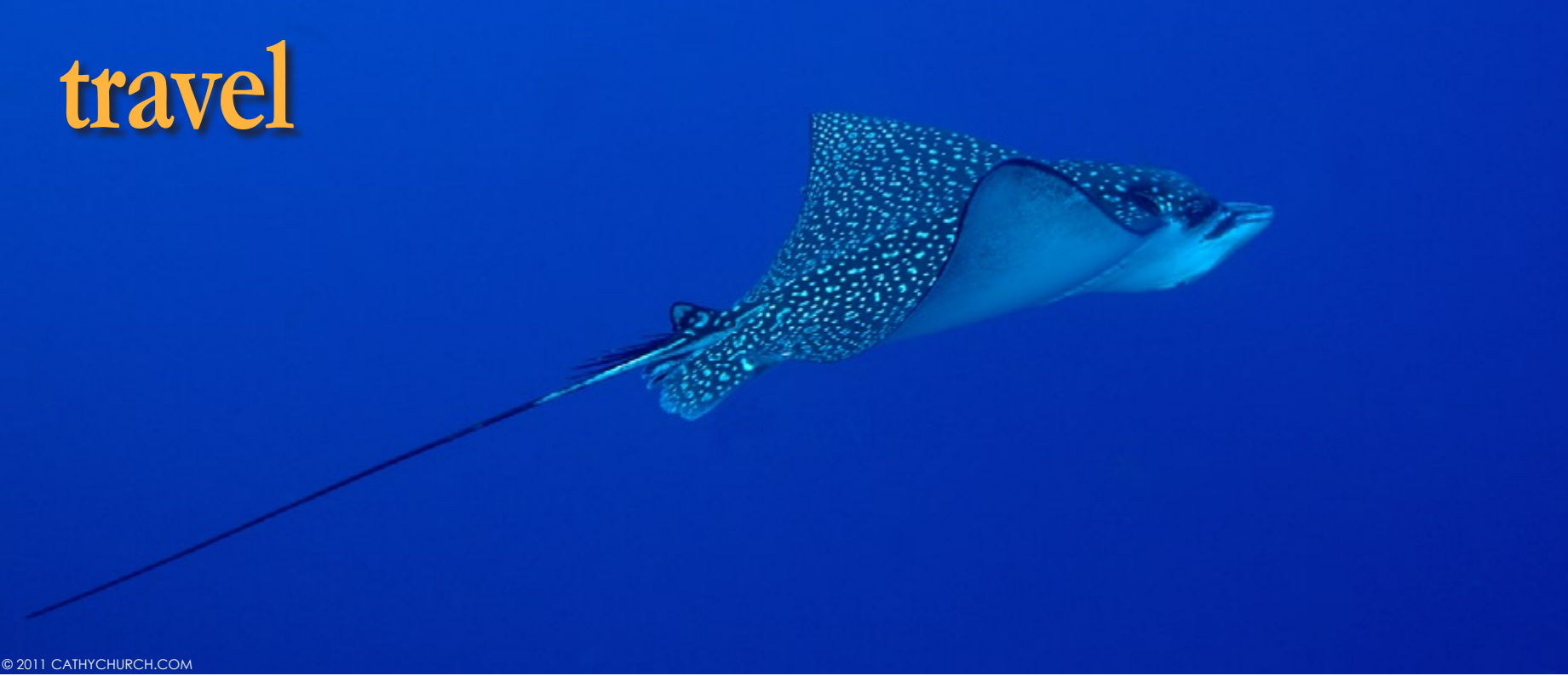
This dive is why I still like to dive in Cayman. I had not visited this site since hurricane Ivan in 2004. It

had gotten a bit beaten up and was NOT back on my list of good dives. A few months ago my close friend Christine and I went out on my boat, the *M/Y Photo Journey*, dropped down to 50 feet at the top of the large coral mound and to my surprise the swim throughs were filled with silversides. I started taking pictures and almost yelled underwater at the combination of the flowing silversides and the beautiful colors of the sponges. I took some of my favorite photos ever that day. They are not the kind of photos that will sell and make me rich and famous, but they are the type of photos



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Red sponges



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Divers enjoy a colorful overhang with sponges on Cayman wall (left); Watch for spotted eagle rays off the walls or on the sand flats (above); Rock Beauty, a yellow-faced damselfish, will look right at you (right); I found this incredible gorgonian hydroid near the stern of the wreck of the *Polson* (lower right)

that make me enjoy looking at them, and remembering a dive where I felt so much at home in the water. As the school moved around me, and curved over the sponges, I was mesmerized. I have been diving for over 45 years, and here was a wonderful, new array of creatures. I have seen sponges before and I have seen silversides before, but the combinations at Blackie's Hole were unique. They are not there often—this is an example of a nice surprise.

**Hepp's Pipeline / Armchair Reef**  
Hepp's Pipeline (northwest) and Armchair Reef (southwest) are great dives for the same reasons. They both start shallow at 25 to 30 feet deep (7-9m) with small schools of fish and lots of sponges and reef creatures. They both have a horseshoe curve with a vertical, "mini wall" drop-off to 65 and 55 feet respectively. Along this wall are pretty outcroppings

of sponges, plenty of queen angel fish, a turtle on occasion, arrow crabs, and at a large overhang at Hepp's, there is almost always a school of tarpon.

### Snapper Hole

Snapper Hole, like many sites on the east end is loved for the swim-throughs and tunnels with plenty of fish including snappers, tarpon and sometimes those incredible schools of silversides. There is a large 1872 Spanish Anchor, small critters and more. It is a great exploratory event. Since I do not get many chances to dive on the East end, I will let Ocean Frontiers tell you about the East End dive sites at: [www.oceanfrontiers.com](http://www.oceanfrontiers.com).

### Balboa Wreck

I have been diving on the wreck

of the Balboa for 45 years, and I still enjoy its serenity. It is broken into many small sections over a shallow sand bottom in Georgetown harbour. I have watched it break up a little more each year, but the prominent propeller of this small interisland freighter that sank in a hurricane in 1932, still sits atop a section of the upside-down stern. Endangered by an encroaching plan to build a large cruise ship dock, I take more photos every year to help preserve its memory.

I will never forget a night dive back in the 70's (let's see—not the one where we got caught among a group of nasty box jellyfish—we were all fine after a



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quick visit to the local hospital for anti-histamine and pain killers), oh yeah, the one where a group of my students were photographing an octopus hunting along the top of the boiler room. The student got really close and the octopus evidently detected his fish prey at the same time that he encircled her Nikonos camera and close up framer. (We did not have autofocus in those days and depended on metal framers extended in front of the lens to tell us where the focused distance and picture area were.) The octopus would not let go, so she had to let him have the camera. He moved away with it, did a lot more gyrations and finally abandoned her camera. This wreck is still a

wonderful night dive. It is shallow, well defined, and often has large crabs, octopus, and orange-balled anemones.

### The wreck of the *Doc Polson*

This is my favorite wreck for photography in Cayman. It is small enough to fit the entire wreck into your photo. The growth is wonderful, including yellow tube sponges, tall gorgonians with basket stars curled up asleep in the fronds. The structures include well-defined winches, an open hold, and a colorful bridge often with a large barracuda or even a goliath grouper inside. Go into the bridge and spread your strobes far to the sides. Expose for the open blue

toward the bow and shoot. The colors lining the inside will amaze you. Along the edges of the wreck, you can kneel in the sand and look for small corals and worms. By the port side of the stern, I found the largest, most complex, gorgonian hydroid that I have ever seen.

### The new *Kittiwake*

There is so much news about the recent sinking of the new *Kittiwake*, that I will not repeat it all here. It is a 1945 U.S. submarine rescue boat sunk 5 January 2011. You can see me photographing it on Youtube.com. For a complete news update go to: [www.kittiwakecayman.com](http://www.kittiwakecayman.com).

CLOCKWISE FROM TOP LEFT: Diver and large grouper meet on a reef off Grand Cayman; Scenes at Cayman Bay with fountains at night; Sunset with *Jolly Roger* sunset sail boat in foreground; Guest holds a sea turtle at one of the sea turtle farms on Grand Cayman Island; Fishermen sell fish from a thatch-covered trailer



LEFT: Underwater photographer on *Nicholson* wreck  
FAR LEFT: Colorful sponges at Babylon

# Caymans

take a look at Walton's Mango Manor on the north side. The six units of this delightful bed and breakfast are elegant and appealing. Bring your own phone if you have to make calls. For a larger dedicated diver resort with full amenities, there is the Brac Reef Beach Resort (Reef Divers II and Reef Photo centre). This is a hammock kind of island. No crowds, just a wonderful climate, friendly people, and lots of water. I have not been to the new Alexander Hotel, so I will defer reviewing them.

### What to do

With a population of only 1,200, there are not enough people to support things like large shopping malls—this is a quiet island. There is an active rock climbing community of visitors that has established over 70 bolted routes. (I have no idea what that means, but if you are a climber, I am sure that that is clear.) For more information, go to: [www.caymanbrac.com/islandattractions/climbing.html](http://www.caymanbrac.com/islandattractions/climbing.html).

### Brac diving

The Brac wall is further from shore and less steep than on the other two islands, but since diving at Little Cayman is just a short boat ride away you can enjoy both islands from one destination. The two must-see highlights on the Brac are the *M/V Capt. Keith Tibbetts* wreck and Atlantis.

### The Tibbetts

The wreck of the *MV Capt. Keith Tibbetts* is a 330-foot Russian-built Cuban naval frigate built in 1984 and deliberately sunk off the island's northwest coast in 1996. I have done this dive only once and have actually not been inside it, so I have that to look forward to next time. It is lying in sand 110-feet deep under the bow and 55 feet under the stern. The forward half of the ship was broken away from the stern

### Cayman Brac

Cayman Brac is the next largest island. "Brac" means bluff, and there is a tall bluff on the east end that is 43m high. Go to: [www.gocayman.ky/cayman-](http://www.gocayman.ky/cayman-brac-information.html)

[brac-information.html](http://www.gocayman.ky/cayman-brac-information.html) for complete information about the Brac.

### Where to stay

You can't all of you go at once, but





section and lies on its port side. The stern section is still upright, and has an impressive canon. There is relatively little growth yet on this wreck. Many openings are sealed off with grates. Those on the coning tower of the superstructure are so filled with colorful sponges that it is hard to imagine that this was built for war.

#### Atlantis

A passionate, colorful (to say the least) artist named Foots has used concrete formations to create his vision of the lost underwater city of Atlantis. His sculptures, resting on a sand bottom 40 to 50 feet (12-15m) deep, include a sundial, figures of the elders (modeled after actual people whom Foots chooses to immortalize), arches and more. It is an easy shore dive from the steps at Stake Bay in front of the government administration buildings. Visit: [www.atlantiscaymanbrac.com/index.html](http://www.atlantiscaymanbrac.com/index.html) for a complete look at Foots and his dream creation.

#### Little Cayman

The smallest island of our trio boasts the most wonderful walls. They not only start as shallow as 30 feet (9m) but wall at Bloody Bay forms a perfectly sheer vertical drop-off. While it is fun to look at, other areas of the wall are actually more photogenic.

#### Where to stay

The choices of dive resorts is amazing: Consider the twelve-bungalow Southern Cross Club Fish and Dive Resort, 11-room Pirates' Point Resort and Dive Centre (this place has a unique cozy style of family friendliness and incredible!! food that keeps it close to my heart) and the lovely 40-room Little Cayman Beach Resort with a larger menu and more amenities. All three have their own excellent dive operations.

Brown sponges—I cannot resist shooting sponges with such beautiful texture

### Little Cayman Walls

I could write a whole book just about the diving along the Little Cayman wall. The mile-long stretch along Bloody Bay that continues into Jackson's Bight is among the most famous walls in the world. Dive sites here are photogenic and full of life, color and interesting terrain. Some parts of the wall start as shallow as 25 feet, so you can start your dive as deep as you safely can, and then work your way toward the shallows and spend a long time finishing up your tank. Watch for all types of rays—spotted eagle rays and Southern stingrays feed in the sand.

Try to get to places like Randy's Gazebo with a small, colorful archway through a coral pinnacle that provides the setting for many great photos. I can't help loving Mixing Bowl (also called Three Fathom Wall). It starts shallow (three fathoms, about 18 feet or 5.5m) so that you can have a really long dive. For divers familiar with Grand Cayman, it is like having Devil's grotto sitting on top of Trinity Caves. Jackson Bay starts deeper, around 50 feet (15m) and is lush with sponges. The sandy plateaus are probably the best in the islands for seeing spotted eagle rays.



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### Live-aboard

Another great way to visit it all would be to stay on the *Cayman Aggressor*. Although it is sometimes limited by weather, this boat visits all of the islands and offers plenty of diving. With no time spent traveling between your bed and dive boat, you have more time to eat, sleep, dive, eat, nap and dive some more.

### Conclusions

It is hard for me to describe the features of the dive sites around the Cayman Islands. There will soon be

Little Cayman wall

365 moored sites and lots more shore dives. When I get to a site while I have my close-up lens on, I often don't need a big drop-off wall or swim-throughs. I just need to get close to the bottom and search for strange things that look like something

The endangered blue iguana eats plants. Many of them are being carefully raised in captivity for release in the botanical park and elsewhere



TONY MARK



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© 2011 TONY MARK

ABOVE: These four fascinating squat urchin shrimp (*Gnathophylloides mineri*) are found on the underside of the Variegated sea urchins (*Lytechinus variegatus*) found commonly in shallow water. I am looking forward to taking a really close photo with my newest camera. CENTER: A fine wedding on the beach would be a great start to a honeymoon diving in Cayman

other than what they are. I look for faces, textures, circles, anything that makes me laugh or challenges my creativity. I am still a sucker for Christmas Tree worms and flamingo tongues. I always remind myself that the most beautiful photograph of anything has yet to be taken and off I go, shooting another dozen angles.

I enjoy trying to get that perfect face-on photo of a fish and close-ups of their scales or eyes. When the water is clear, use a mild telephoto lens to shoot the dorsal fin of a squirrel fish or the eye of a mutton snapper. Look for juvenile spotted drum fish. If you have a movable point of focus set it for a point to the lower left (or right), and using just your single left (or right) strobe wait until the fish swims into that point of focus and shoot. Keep the strobe well to the side and shoot only as the fish is swimming toward the strobe.

There are lots of yellow-head jaw fish in the rubbly sand. Keep your strobe far to the side and low against the bottom and aiming slightly upward. If you underexpose them a little, their tails will turn a beautiful blue.

Every creature is a photo opportunity, even on the plainest reef. As I write this I am thinking of going right off the entry at Sunset House and try to get a better jawfish photo with my new D3x. Or maybe I will get a better tiny close-up of a blenny with my new close-up attachment from Kerri Wilk. Or maybe I will just take my new scooters and zoom around.

The biggest problem for both our shallow reefs, and many of our deeper reefs is the incredible loss of hard coral due to global climate change and diseases. Whether man-made or not, as the temperatures rise too quickly for nature to adapt, the corals are dying off at a rapid rate. Algae is covering bare places before the corals can attach, and without our population of long-spined black urchins (*Diadema*) to eat the algae away every night, new recruits of corals and other sessile animals do not stand a chance or finding a place to settle.

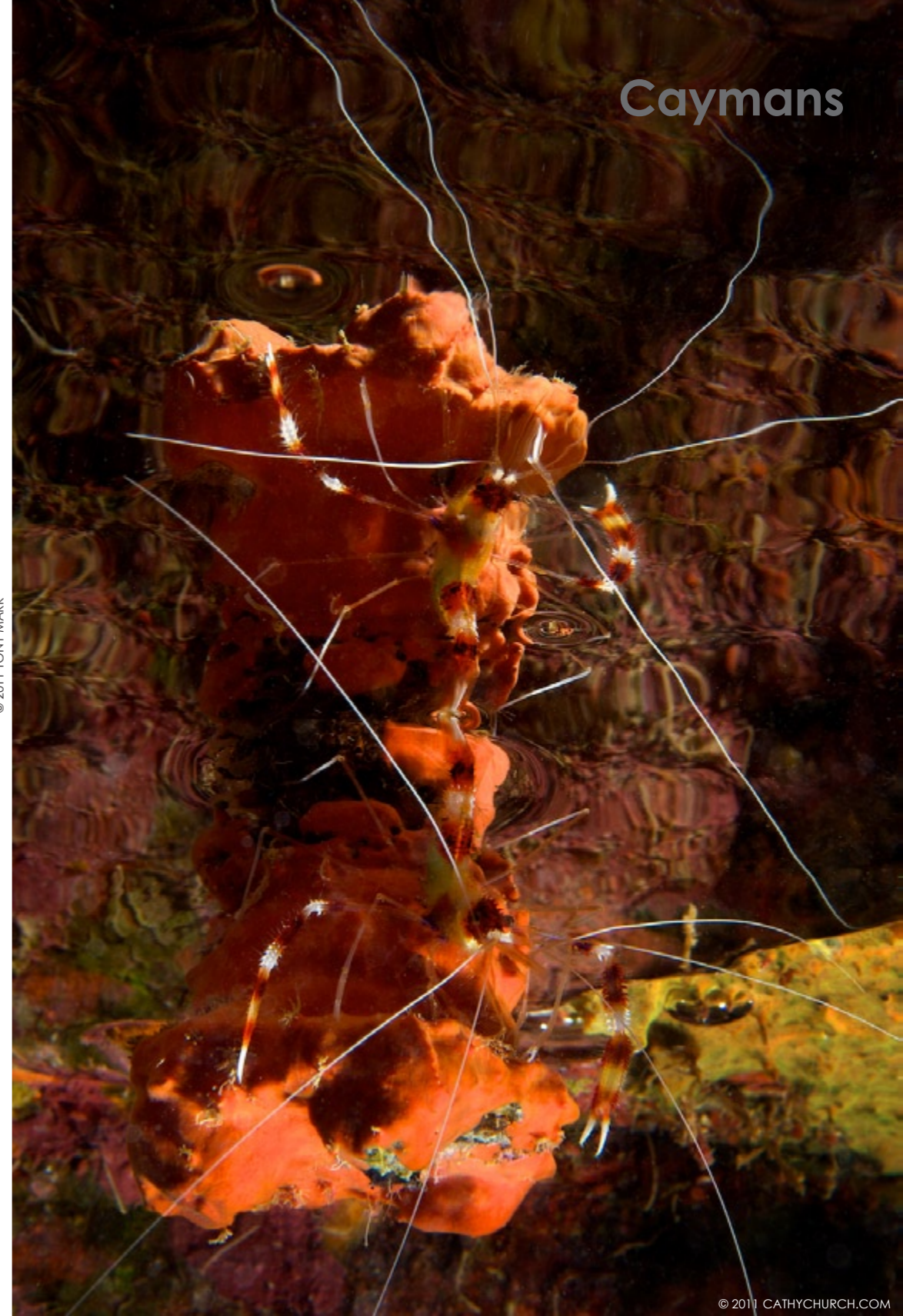
Sponges are replacing the corals and are pretty to photograph, but they do not have the durability of corals. As long as I am underwater, I can find something wher-

ever I go. And as long as I am underwater, I am content, I am where I want to be and I never think of some other place.

*Cathy Church has been taking photos underwater since 1965. She has master's degree in Marine Biology, and has received many awards for her pioneering work in underwater photography. She has written five books and a coffee table book, My Underwater Photo Journey, and has taught underwater photography to thousands of*



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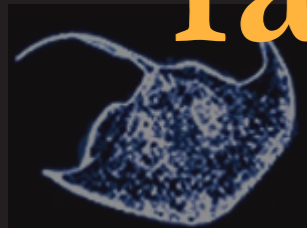
LEFT: Cathy Church. ABOVE: Shrimp reflection—this photo was taken inside the wreck of the *Nicholson* at Sunset House reef

students in the United States and Grand Cayman. This accomplished woman is in four halls of fame and continues to dive year round to take photos and teach. Go to: [www.cathychurch.com](http://www.cathychurch.com)

for full information about Cathy Church and about the services that she provides at her photo centre and gallery. ■

# fact file

## Cayman Islands



SOURCES: CATHY CHURCH  
CIA.GOV WORLD FACTBOOK

**History** The Cayman Islands were discovered by Christopher Columbus in 1503, and he named them "Las Tortugas" because of the abundant turtle population. In the late 16<sup>th</sup> century, Sir Francis Drake named the islands "Caymanas" (derived from the Carib word for marine crocodile) which were also plentiful. Early visitors to the islands included explorers and their crews from England, France, Spain and the Netherlands and, of course, pirates. The Caribbean islands collectively known as the West Indies, became part of the British Empire in 1670, and the Caymans were designated as a dependency of Jamaica for nearly 300 years. Although Jamaica gained independence in 1962, the Cayman Islands chose to remain a British Crown Colony. Presently, tourism and the international offshore financial services sector are the main contributors to the Cayman Islands' economy. In 2004, Grand Cayman was hit badly by Hurricane Ivan; Hurricane Paloma did extensive damage to Cayman Brac in 2008. Both islands have recovered nicely, and structures were repaired to even higher building standards to withstand future storms.

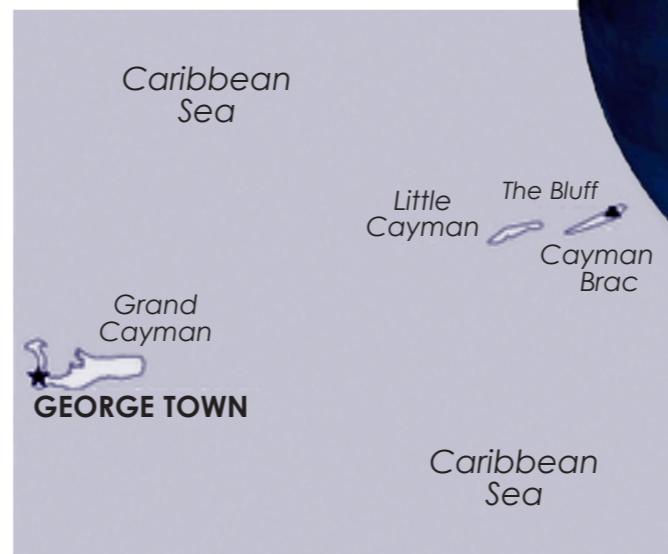
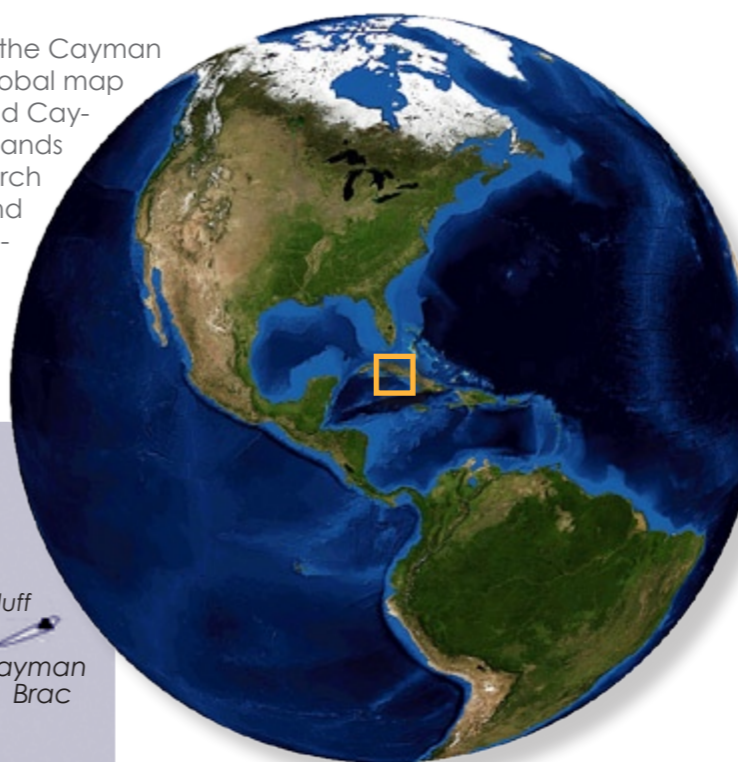
**Geography** The three islands that make up the country have a total land mass of only 100 square miles (161 square kilometers). The Cayman Islands are located in the Caribbean Sea 149 miles (240km) south of Cuba and 167 miles (269km) northwest of Jamaica. Grand Cayman is approximately 22 miles (35km) long, 8 miles (13km) at its widest, with a maximum elevation of 80 feet (24.4m).

Cayman Brac is 14 miles (22km) long, 2 miles (3.2km) wide with breathtaking bluffs rising up to 152 feet (46.3m). Little Cayman is only 10 miles (16km) long, 1 mile (1.6km) wide with a maximum elevation of 55 feet (16.8m). Primarily limestone, the Caymans are the visible portion of the submarine mountain range known as the Cayman Ridge. Because they are small and comprised of porous limestone, there are no rivers or streams; this lack of fresh water runoff contributes to the amazing underwater visibility (often exceeding 120ft or 36.6m). The Cayman Trough or Trench lies between the Cayman Islands and Jamaica; this is the deepest point in the Caribbean Sea at over 4 miles (6.4km) deep.

**Climate** The weather is warm and humid year-round; easterly trade winds keep the Caymans from being unbearably hot. Summer temperatures range from 30-34°C, with frequent showers or heavy rain, usually of short duration. December through April is drier with cooler temperatures ranging from 25-30°C. Storms called nor'westers cause high seas from the north west and occur when strong cold fronts descend from the USA. Hurricane season is from June 1 to November 30.

**Getting there** Several U.S. airlines offer nonstop flights to Grand Cayman, as do carriers from Canada and the U.K. Cayman Airways offers daily service from Miami as well as select service from other

RIGHT: Location of the Cayman islands on global map  
BELOW: Location of Grand Cayman on map of Cayman Islands  
BOTTOM RIGHT: Cathy Church (second from right), husband Herb (second from left) and long-time friends Dorothy and Marv Gelb relaxing on the beach during their first Cayman visit, "which is truly what Cayman is all about"



Cayman dollar (CI); U.S. dollar is accepted everywhere. The Cayman currency is tied to it. Exchange rate: 1USD =0.80CI. Banks will exchange U.K. Pounds and Euros at current rates.

**Population** As of July 2010, the estimated population is just over 50,000 with over 95% living on Grand Cayman. In 2008, expatriates made up a majority of the workforce, with about 40% of that number coming from Jamaica, followed by the Philippines, the UK, Canada, USA (6%) Honduras and dozens of other nationalities.

**Language** English (official)

**Time zone** Eastern Standard time (-5 GMT) year round—same time zone as New York City, but Cayman does not participate in Daylight Savings Time.

**Health** There is no need for any type of immunization to travel to Cayman. The overall quality

U.S. cities, Cuba, Honduras and Jamaica. Cayman Airways Express provides multiple flights daily to the sister islands of Cayman Brac and Little Cayman. Grand Cayman is also a popular destination among many of the cruise ship lines.

**Entry requirements** A passport is always your best travel document. Visitors must also have a round-trip ticket. To see detailed requirements for visas, etc. go to [www.immigration.gov.ky](http://www.immigration.gov.ky)

**Economy** The Cayman Islands has one of the highest standards of living in the world driven by its two primary industries of international finance and tourism, especially divers and other watersports enthusiasts. Due to its tax-free status, tens of thousands of companies are registered as businesses in the Cayman Islands. Agricultural products include small amounts of vegetables, fruit, livestock, farmed turtles and sea salt. Almost all food and consumer goods must be imported.

**Currency** The official currency is the

of medical care in the Cayman Islands is considered to be good—comparable to what is generally available in a small city in the United States. Medical evacuation to the States is often appropriate for certain procedures and critical care cases. Cash payment may often be expected for medical services.

**Hyperbaric Chamber** A hyperbaric chamber is available and well run at the Cayman Hospital on Hospital Road, George Town, Grand Cayman. Email: [diveraid@candw.ky](mailto:diveraid@candw.ky)

**Websites**  
Cayman Islands Tourism  
[www.caymanislands.ky](http://www.caymanislands.ky)

**Underwater photography** There are ample tiny subjects for close-up lenses, and good wide-angle opportunities can be found on the walls and wrecks. Telephoto lenses can be used for fish, especially the Rock Beauty (a lovely yellow-faced damsel fish that often turns and looks directly at you from a hiding place—but you usually cannot get close enough with a normal lens).

If you need to rent cameras, there are several locations to try but you will find the largest selection at Cathy Church's Photo Centre and Gallery at Sunset House, Grand Cayman. It is just a mile south of George Town. ■



# Inner space 2011

Inner Space—the world's largest closed circuit rebreather event—marks its eighth anniversary, 21-28 May 2011.

Hosted by DiveTech at the Cobalt Coast Dive Resort, Grand Cayman, this week-long seriously cool event welcomes 60 plus closed circuit rebreather (CCR) divers from all the globe. They come to dive the shallow reefs and deep walls of Grand Cayman, attend classes, share stories and have fun. And you don't have to be an experienced CCR diver to take part; any level of rebreather diver is most welcome at Inner Space. But, if you do desire some top notch training, this is the perfect event for learning, because some of the world's very best CCR instructors also attend this event taking recreational or Normoxic / Advanced Trimix classes.

Inner Space also attracts the who's who in the CCR world and many manufacturers bring along products, which the divers can play with. There are also product and seminar lectures during the evening from luminares representing Dive Rite, IANTD, Kiss, Silent Diving Systems and VR Technology.

Places are limited. To find out more about Inner Space, log onto: [www.divetech.com/Innerspace.htm](http://www.divetech.com/Innerspace.htm) or email Nancy on [divetech@candw.ky](mailto:divetech@candw.ky). ■

*"I look forward to experiencing Inner Space every year. You get a vast array of rebreather technology, like-minded divers and five star logistical support. This is topped off by warm water diving (from 10 to 100 metres) just a step away off the end of the dock."*

— Mike Fowler, President of Silent Diving, North American Distributor of Inspiration and Evolution Rebreathers



*"Inner Space is the ultimate gathering of Rebreather manufacturers, instructors and divers in one of the best venues to truly make the most of Rebreather Technology."*

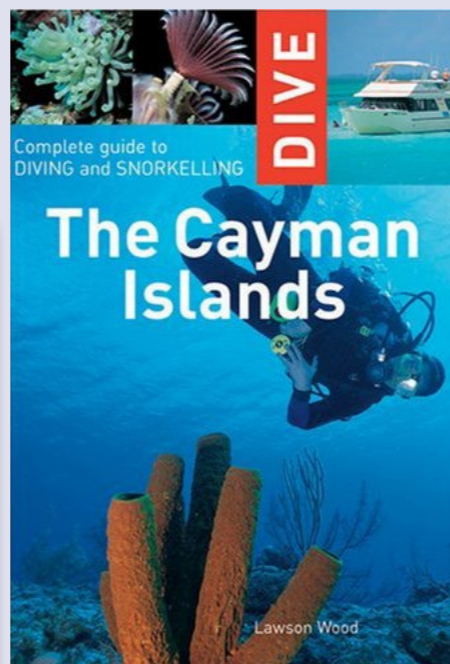
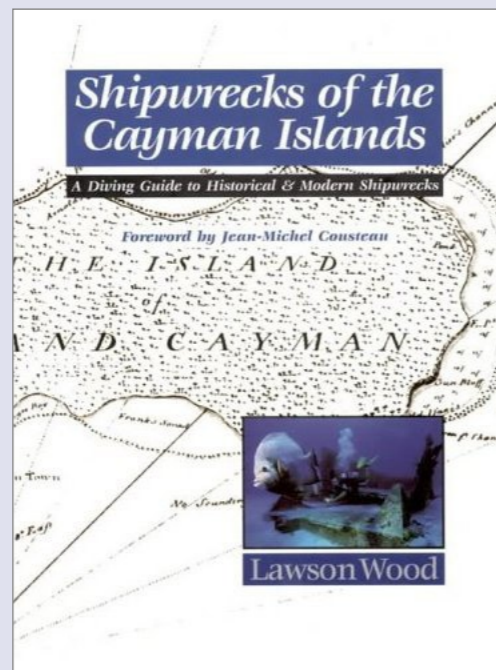
— Phill Short, Technical Director IANTD UK

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[www.cobaltcoast.com](http://www.cobaltcoast.com)

**Want to learn more about diving the Cayman Islands?**



**Read these dive guides by Lawson Wood**

[www.LawsonWood.com](http://www.LawsonWood.com)



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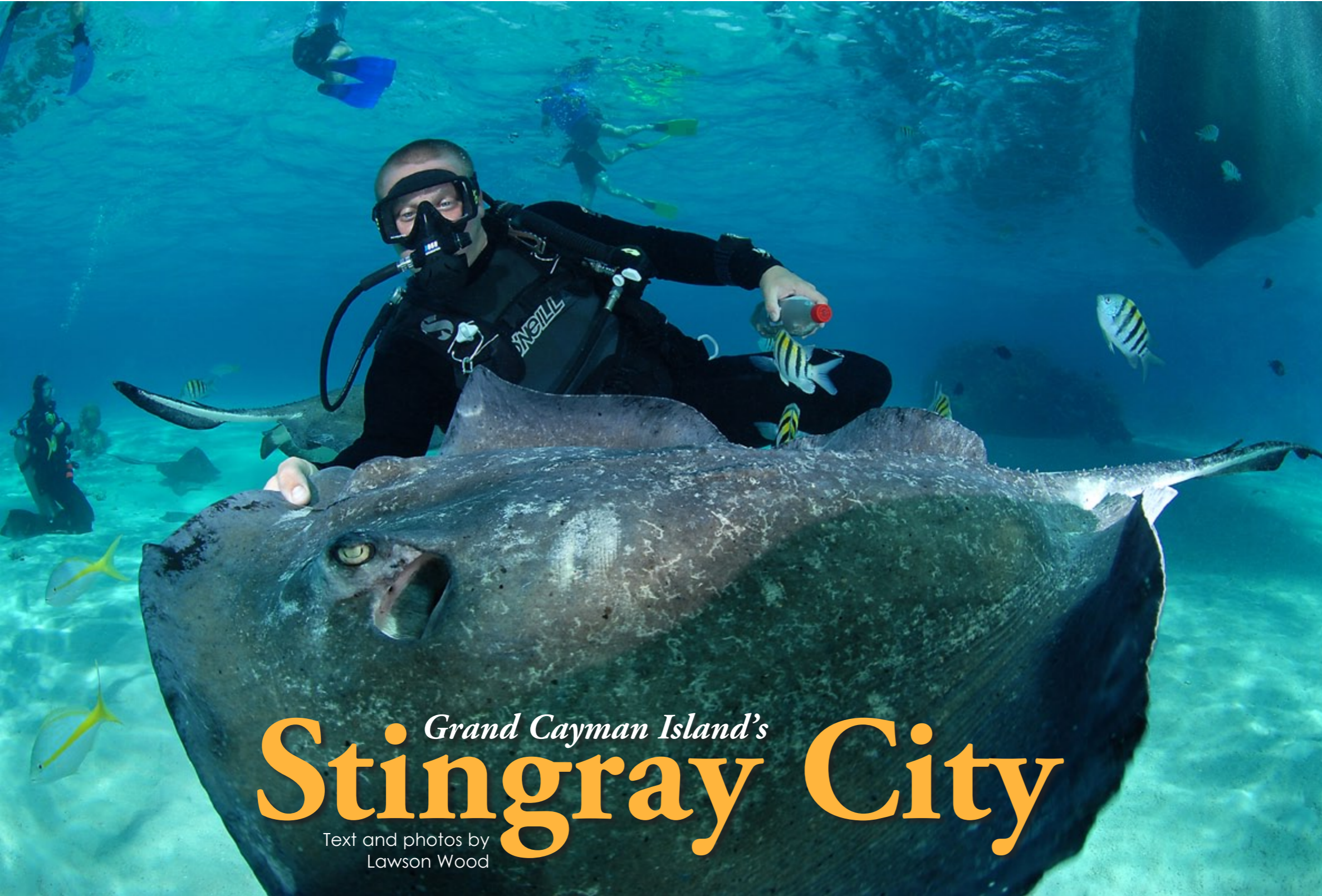


—*Caribbean Playground*

# Cayman Islands

Text and photos by Lawson Wood

Lawson Wood is a resident of the Cayman Islands. For indepth information, he's an expert source and has published several dive guides and books. What follows is an insider's tour of the Caymans complimented by stunning images taken at the best dive sites on each island—Grand Cayman, Little Cayman and Cayman Brac. Indulge yourself in the color and grandeur of Wood's underwater photographs, which reveal the splendor of the magical realm under Caribbean waves.



# Caymans

Guaranteed interaction with huge stingrays on every dive

PREVIOUS PAGE: Brilliant, beautiful and frilly, this nudibranch is called the Lettuce Sea Slug, *Elysia crispata*

Like it or hate it, Grand Cayman Island is still home to one of the most legendary animal encounters on the planet. Dubbed as the world's *greatest 12-foot dive*, the region is located inside the northern barrier reef, which protects North Sound from the vagaries of wind and rough seas. Here, the waters are almost always calm and sheltered, and the curious behaviour of the stingrays was first recorded by local fishermen many years ago. The fishermen used to clean their fish catches at the end of each day in the shallows near the edge of the drop-off and noticed that many stingrays would come into the shallows to take advantage of this free meal. (Incidentally, you also often get moray eels and nurse sharks too). Once the cleaning was over, the rays soon got bored and went about their day to day foraging business. These fishermen were apparently overheard by a local dive master as they were chatting about this in one of the local bars—well, the rest is history!

## Grand Cayman Island's Stingray City

Text and photos by  
Lawson Wood

The stingray most commonly found in the Cayman Islands is the Southern Stingray (*Dasyatis americana*) and the two locations where the stingrays congregate in the largest numbers are Stingray City, which is around 3-5 metres deep (10-17ft) and the Sandbar, a natural sandy plateau around only one metre deep (3.25ft). Over 250 of the rays inhabit the North Sound, and these have now

trained the humans to bring them plenty of free meals (usually frozen squid).

The deeper dive site at Stingray City tends to be used by the local dive shops as their second (shallower) dive of the day, or perhaps as an afternoon dive, as there are less tourists in the area. However, the shallow sandbar region is still inundated by large numbers of tourist boats who disgorge their cargo of tourists

looking for that thrill of the encounter with a wild animal. Once in position, the boat staff will introduce some food into the water to attract the rays nearby their particular boat. Even after all these years and many visits to the site, the surge of excitement is still palpable as the rays swoop in and envelop you in their wings in the search for a free meal. The dive guides keep the bait in sealed containers

and will feed the rays individually. If you do get the chance to feed them, hold the squid in the palm of your hand. The sensation is similar to feeding a horse—underwater. The mouth parts of the stingray are located underneath the body; they do not have teeth as such, but have a series of rasping plates with which they crush and grind the molluscs and crustaceans, which are their normal

food source. It is advised to wear some sort of body protection, such as a thin wetsuit or skin, as the stingrays have been known to give you a rather nasty suction bite, similar to a *hicky* or *love-bite*, which may be difficult to explain to your partner!

The dive or snorkel interaction becomes very much like a *feeding frenzy*, as the visibility of the water will





THIS PAGE: The Sandbar is the shallowest of two stingray sites where tourists and non-divers are able to experience the thrill of the wild animal encounter first hand



of searching the sand flats for small crabs, snails and burrowing sea urchins.

There are a couple of *must nots* when amongst the stingrays: Gloves should *not* be worn, as the fabric

drop due to the sand being constantly stirred up by both the tourists and the rays. Interestingly, as soon as the free meal is over, the stingrays immediately revert to their normal foraging behaviour

can remove the protective mucus on the stingray's leathery skin. When handling the stingrays, do not try and ride them or grab them by the tail. Remember, these are wild animals, and if they feel

threatened in any way, their defensive mechanism is designed to sting, as their name implies.

When Pliny first described the habits of the Stingray in the Mediterranean, he wrote in his famous *Historia Naturalis*: "So venomous it is, that if it be struchen into the root of a tree, it killeth it; it is able to pierce a good cuirace or jacke of buffe, or such like, as if it were an arrow shot or a dart launched; but besides the force and power that it hath that may be answerable to iron and steele, the wound that it maketh, it is therewith poisoned."

Even after all the years of hype and generally adverse reactions to stingrays after the untimely death of the Australian TV presenter, Steve Irwin, who was killed by a stingray during filming on the Great Barrier Reef in Australia, the Cayman Islands have more than weathered that

storm.

Stingray City and the Sandbar on Grand Cayman Island are amazing, and simply nothing can prepare you for that first rush of adrenalin. This balance of nature and enterprise is a curious mix, and it is not certain which has trained what! Suffice to say that several hundred thousand tourists have enjoyed the delights of the interaction in one of nature's amazing phenomena and will continue to do so for many years to come.

Just a small footnote: there are plans by a (well-connected) local person to install a floating bar in the middle of this protected area, which many regard as utter madness. There are hundreds of people against this

rash plan, and hopefully the Cayman Islands government will take note of the following saying by Mohandas Gandhi: "The greatness of a nation can be judged by the way its animals are treated."

The Cayman government clearly did not take this into account when they installed Dolphinarium—a dolphin interactive program—which was totally against the entire local population's feelings. Perhaps they may take these feelings into account now and save one of the true wild animal experiences from undue and unnecessary exploitation.



# Cayman Brac

*Caves, Wrecks & Walls*

Text and photos by Lawson Wood

## Caymans

—Open For Business!

Following a crushing hurricane in November 2008, Cayman Brac has spent the time re-inventing itself. The island is now incredibly lush and green, the existing Brac Reef Beach Resort has had a total (much needed) make-over and there is also a fine new hotel called the Alexander Hotel, also situated at the west end of the island. New condominium resorts and bed and breakfast establishments are also open for business and the top dive centre Reef Divers is looking after its diving guests with the same aplomb, friendliness and attention to detail.

Cayman Brac, Grand Cayman's farthest sister island used to be known affectionately as "the island that time forgot"—now they add the word "almost" to the phrase. The island is 20km long (12 miles) by just over 1.6km wide (1 mile). It is roughly split into two, being the flat area to the west of the island where the airport is located and the steep bluff with its remarkable ancient coral limestone cliff and caves to the east. The word *brac* is Gaelic for *bluff*. The locals are known as *Brackers*!

Situated 145km (90 miles) northeast from Grand Cayman Island, Cayman Brac now has a resident population of around 1,400. There are 15 churches, a hospital—Faith Hospital—and over the past 30 years, the old one room

Brilliant sponges  
decorate the reefs





## Caymans

CLOCKWISE FROM FAR LEFT: The fabulous walls are encrusted with colourful sponges with crystal clear water as a backdrop; A pair of grey angelfish; Turtles are commonly seen on most dives as are the stunning vistas filled with tropical fish

school house has expanded to the needs of the rising local population. There is now a secondary school, three primary schools and a community college. The Cayman Brac Museum is the oldest in the Cayman Islands and hosts a wealth of history, as the island has slowly changed with more modern trends.

Cayman Brac is the smallest island in the Caribbean that has a full jet service. The Gerald Owen International Airport has eight jet flights weekly and a further ten flights or so daily operated by Cayman Express, which services both Cayman Brac and Little Cayman Island, linking them to Grand Cayman, almost like an aerial taxi service. The flight from Grand Cayman is well worth the time if only to view the colours of the sea and reefs from the air.

There are two small resorts and several villages dotted around the island, and the two main roads run each side of the island but are unable to go all the way round because of the height of the bluff at North East

Point, which rises to 42 metres (140 feet).

The numerous caves are still used as hurricane shelters, and these are well worth exploring. The road to the north stops at Spot Bay, and the road to the south—more dramatic because of the size of the overgrown vertical cliff to the island side—terminates at Pollard's Bay. This drive, in particular, is splendid due to the contrasting colours of the sea as you drive along.

From Pollard's Bay you can walk to the edge of the bluff, where the ironstone shore terminates. This is incredibly dramatic, and

there are several blowholes that send sea spray way overhead (or over your head!).

You can rent a small car or scooter to explore the island (which cost about the same). The caves were reputed to have been used by Edward Teech (Blackbeard) to hide his ill-gotten gains





The newly refurbished Brac Reef Beach Resort (above); Colourful sponges are found on all of the reef structures (below); Divers can find huge, majestic barrel sponges protruding from the reefs (left)

I would recommend that you buy the local (very rare) Caymanite Rock jewellery, the island craftsmen are excellent. The local residents are some of the friendliest I have come across.

If you are not diving, then you are thinking about it, or getting your cameras ready or travelling to or from a dive site. Cayman Brac diving is similar to Grand Cayman, without the numbers of divers, and for that reason, it has become a great favourite with the world's diving fraternity.

The isolation of the island has served it well. The corals are in good condition, and there is a vast variety of marine life recorded in the registered 49 dive locations including seven wrecks. Also located along the north wall are many very fine reefs, quite similar in shape, structure and depth to the north wall on Grand Cayman, but here there is the added attraction of being able to dive under the huge limestone bluff, which rises steeply to the east of the island.

The underwater terrain in this area comprises of huge limestone blocks, which create interesting swim-throughs and gullies where sleeping nurse sharks are generally found. There are splendid pillar corals, magnificent sea urchins, scorpion fish and spotted drum—an excellent dive

which should not be missed.

The southern sites on Cayman Brac also resemble those on Grand Cayman, with a classic spur and groove reef system, but here it is more pronounced, and the wall starts around 20 metres (66 ft). The wall is more gently sloping in this area and starts much further out from the shore. This means that there are large

areas of sand flats with small but very good quality coral growths on the lower slopes. Lots of elk horn coral as well as numerous large sponges. However, the area is still not as popular as crossing the short distance to Little Cayman Island—this results in the reefs being relatively under dived.



plundered from the ships of the Spanish Main.

The two hotels are just a short drive from the airport and the Brac Reef hotel has its own in house dive centre, Reef Divers. There are also a number of condominiums, B&B's and holiday rentals, which will suit all tastes and purses of diving visitors to the island. There is, in fact, very little else to do on the island,

other than birding, rock climbing, snorkelling, kayaking, windsurfing, fishing, rockpooling or having fun getting drenched at the blowholes, or generally laying back and enjoying the superb beaches along the south shore.

Each of the major local families has a provisions store of some sort and all will sell homemade jams and chutneys (in season) as well as the usual goods.



CLOCKWISE FROM LEFT: Flamingo tongue shells are a common find on seafans; Diamond-backed blennies are the Caribbean equivalent of clownfish—living amidst the anemone's tentacles; The anchor that gives the Anchor Wall dive site its name, opposite the Brac Reef Beach Resort; A juvenile yellow-tail damselfish has iridescent spots all over its body

be found amongst the coral rubble as well as jawfish and yellow sting rays. The dive is very similar to the Meadows on Little Cayman Island.

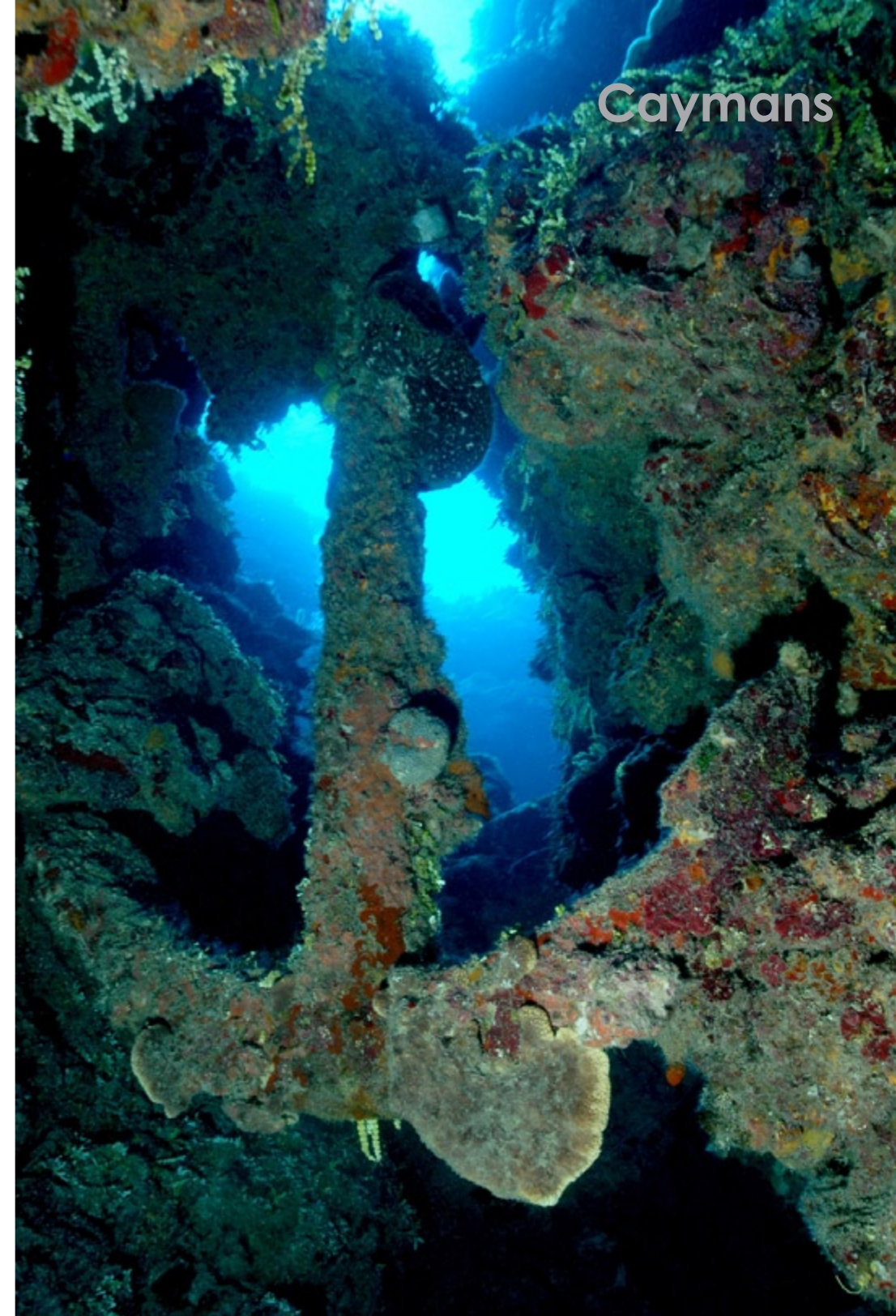
**Anchor Wall**

Three other dives along the south shore really stand out. The first is Anchor Wall. This is a deep dive to the outer reef wall, very close to Reef Divers home base. The spur and groove reef are cut here

by massive fissures, and you can locate a huge anchor jammed in one of them at around 27m (90ft). Hammerhead sharks are seen here in the spring as well as at the second noteworthy dive. This is known as Wilderness Wall.

**Wilderness Wall**

Here, the reef wall starts at only 9m (30ft) and drops dramatically down through some huge coral canyons. On the tips of the reef spurs can be found giant



**Frey Cave**

One of the best dives is Fry Cave, located off Salt Water Point. Weather dependent and with a moderate swell, the cave is on the same type of rugged spur and groove reef and mini wall cut by many different gullies and canyons. Lots of elk horn and pillar corals in good structure and form make this a delightful dive. Snapper and sergeant majors make a nuisance of themselves. The fry of the Fry Cave name

are silverside minnows comprising of four different species of juvenile fish, which congregate together to make one huge mass of moving fish, found in the summer months. This is a very interesting area for invertebrates including file clams, nudibranchs, arrow crabs and good quality sponges and sea fans. Pistol shrimp can



anemones with their symbiotic host fish—no, not clownfish, but Diamond-backed blennies that have a very similar existence to their Indo/Pacific counterparts. The great thing about this dive is the fact that the wall starts in shallow water and is suitable for all levels of divers.

**Prince Frederick**

The third dive worthy mentioning here is the wreck of the *Prince Frederick*. Located just offshore, this is a superb shore dive amidst the tumble and jumble of this ancient sailing vessel, which ran aground in 1888. (Apparently, the captain said that he did not know that the island was there!)



## Caymans

that there would be no accidents, were meticulous—what did cause a moment of anxiety was when the aluminium superstructure cracked open in two places, splitting the living quarters with a resounding crack.”

Fourteen years on, underwater, the ship is simply massive, now pulled apart with her gas turbine engines exposed. The main part of the hull listing only slightly to port and perfectly placed in a sand-chute, which plunges over the wall. On either side of her are healthy sections of coral reef carpeted with huge barrel sponges, rope sponges and good quality corals and under the bow at 25 metres (83 ft) is a field of Garden Eels.

A large section of the superstructure has collapsed and the bow has now almost sheered off, lying at a much more acute angle over to port, but now the ship looks much more like a real shipwreck, rather than an old ship that was sunk as a tourist attraction. Now known more simply as the 356, the wreck is at the top of the list to divers visiting the Sister Islands.

Russian Republic took over the operational control of the old Soviet base on Cuba. Unfortunately, due to the economic upheaval in Russia, the base could not be supported financially from

was finally sunk in September 1996, Jean-Michel Cousteau took the very brave move of staying on board the ship as she sank. We watched as Jean-Michel Cousteau, wearing full SCUBA gear clung onto the guard rail as the ship vanished. Later that night, after we had completed filming for the day he said, “...fear did not come into it. This is something that I have always wanted to do, and the preparations beforehand, to ensure

### Kissimmee Wreck

Nearby is the Kissimmee Wreck, located just north west of Scott's Pier, nearby the airport, it sits in 12m (40ft) of water and is almost upside down. This retired tug boat was deliberately sunk in 1982 as an addition to the reef system and provide an interesting start to



THIS PAGE: The Russian Frigate 356, renamed the *Captain Keith Tibbetts* was sunk in September 1996; The famous Brac Bluff is over 42m (140ft) high (left)

### Wrecks

The majority of all dives are undertaken along the north shore of Cayman Brac. Virtually all of the wreck sites are here, as well as some absolutely cracking reef dives, both down the wall and in the shallows for your second dive each morning.

#### MV Captain Keith Tibbetts

Undoubtedly the top dive is the renamed and christened the MV

*Captain Keith Tibbetts*. This former Russian destroyer, Patrol Vessel #356, is a Brigadier Type II Class Frigate, built in 1984 at Nadhodka in the U.S.S.R. at a cost of US\$30 million. The ship is 95 metres long (330 ft) with a beam of 12.8 metres (42.6 ft) weighing 1590 metric tons.

Originally part of the old Soviet fleet stationed in Cuba as part of the Cold War, the vessel was never actually involved in any conflict. When the U.S.S.R. dissolved in 1992, the newly created

Russia and in 1993 the base and all of the ships stationed in the Caribbean were removed from active duty. The ship's complement of 11 officers and 99 enlisted personnel were all repatriated to Russia.

When the ship



Four-eye butterflyfish are common on every dive

## Caymans

a huge sun dial and other artefacts. These are now all covered in sponge growth and make for an interesting photographic backdrop.

### Under the Bluff

Under the ancient Bluff is always the feather in a diver's cap, as it is very rare that the sea conditions are so perfect to allow this diving in an otherwise pristine diving location. Scoured by storms, there are very few robust seafans or sponges, as everything is low lying. However there are kazillions of featherduster worms, small nudibranchs, blennies and gobies and an otherwise undived terrain of huge boulders with interesting swim-throughs, various shipwrecks parts and simply staggering visibility, as there are no sandy areas to get kicked up by rough waters.

### Best kept secrets

Great emphasis has always been placed on the diving on Grand Cayman and the North Wall is outstanding, plus everyone raves about Bloody Bay Wall

diving locations than both Little Cayman Island and Grand Cayman combined.

Stake Bay is where the island's government administration buildings and museum are located, and there is a huge ramp and stepped slipway to make access nice and easy. This region of the north coast is quite protected and there are some simply massive barrel sponges and ginormous seafans and soft corals.

This site also has two sculpture structures, the first is of dolphins and rays, and the second is a local artist known as Foots and his rendition of his idea of Atlantis. There are statues, columns,



Friendly Hawksbill Turtles are encountered on most dives (above); The local shipwrecks are now heavily encrusted in marine growth (right)

a shore dive that can take you at to the edge of the reef wall, as this is the closest point on the island to undertake this type of dive. The wreck is a favourite site for photographers, and during the summer months, large numbers of rays can be seen.

This location is also superb for night dives, as there is easy access, and the rock pier has overhead lights, which makes things easier for navigation. Here, we always find octopus, squid, juvenile spotted drum fish and many species of shrimp.

### Wall dives

The wall dives are many and varied, but most start around the 18m (60ft) range, making all of those first wall dives going to depths over 30m (100ft).

### East Chute

One of the more popular sites is East Chute, which also has a small wreck called the *Cayman Mariner*, which sits in 18m (60ft) nearby a huge sand chute that rolls over the north wall and into the depths. Eagle rays are common here as well as large schools of pelagic fish

such as Horse-eye jacks and oceanic triggerfish.

The wreckage of the *Cayman Mariner* is a superb as it has become its own little eco-system and is stuffed full of incredibly colourful sponges, sea fans, and tons of invertebrates and small fish species such as pufferfish, wrasse and various blennies and gobies.

### Stake Bay

Further east along the coast at Stake Bay are more superb shore diving sites. In fact, Cayman Brac has more shore

The shallow walls are renowned for their sponge growth and dramatic scenery

# Caymans

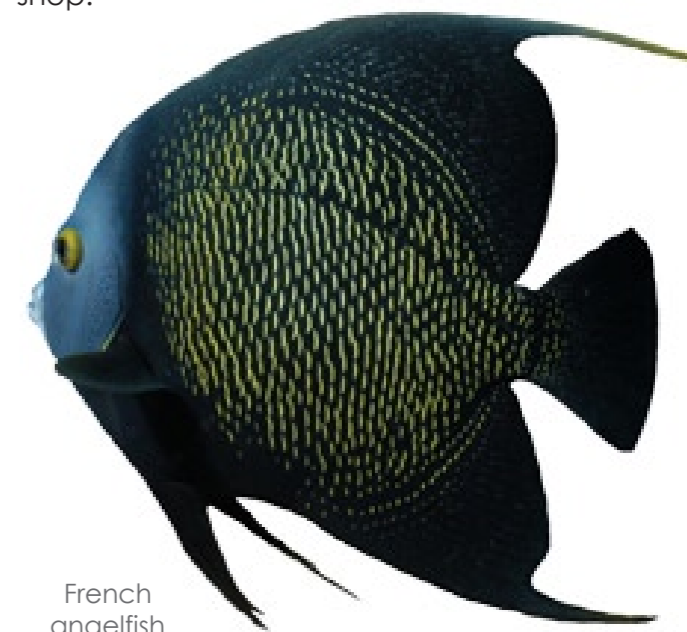
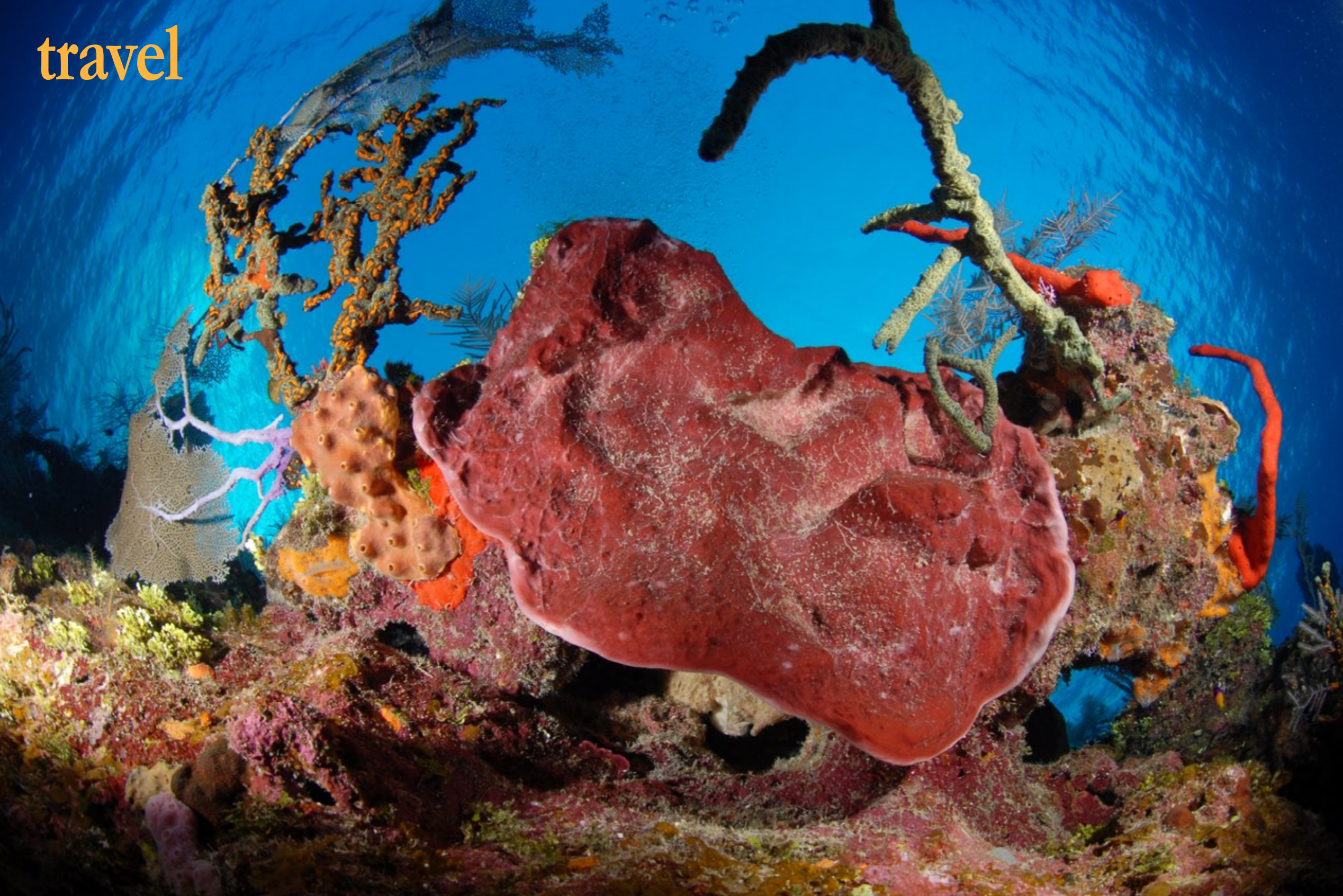
edge to catch those spectacular sunsets.

## Brac Reef Beach Resort [www.bracreef.com](http://www.bracreef.com)

A newly refurbished hotel with comfortable rooms, complete with Wi-Fi throughout the complex, a swimming pool with a raised deck area and a great bar. About 100 metres (300 ft) from the beach. Its own dive centre is situated next to the jetty. Reef Divers has a well-stocked shop and the local Photo Pro, Ed Beaty, is on hand to guide you through the many and varied steps of digital underwater photography and videography. Barbecues are common on the grounds, and at night, downwards facing flood lights attract tarpon, squid and stingrays into the shallows, a perfect end to the day's diving.

## The Alexander Hotel [www.alexanderbrac.com](http://www.alexanderbrac.com)

This is a new hotel located near the beach at the west end of the island. Rooms are modern with Wi-Fi access and bar looks to the east over a large brackish pond popular with wild fowl. The diving concession is organised through Reef Divers at the Brac Reef Hotel and transport is available from the Alexander Hotel to the Reef Divers jetty and dive shop.



French angelfish

on Little Cayman Island, but many fail to appreciate the facts that Cayman Brac has much smaller diver numbers; more shore diving sites making for unlimited shore and night diving; plus, four major wreck sites as shore dives and diving conditions and reefs, which more than match the other islands.

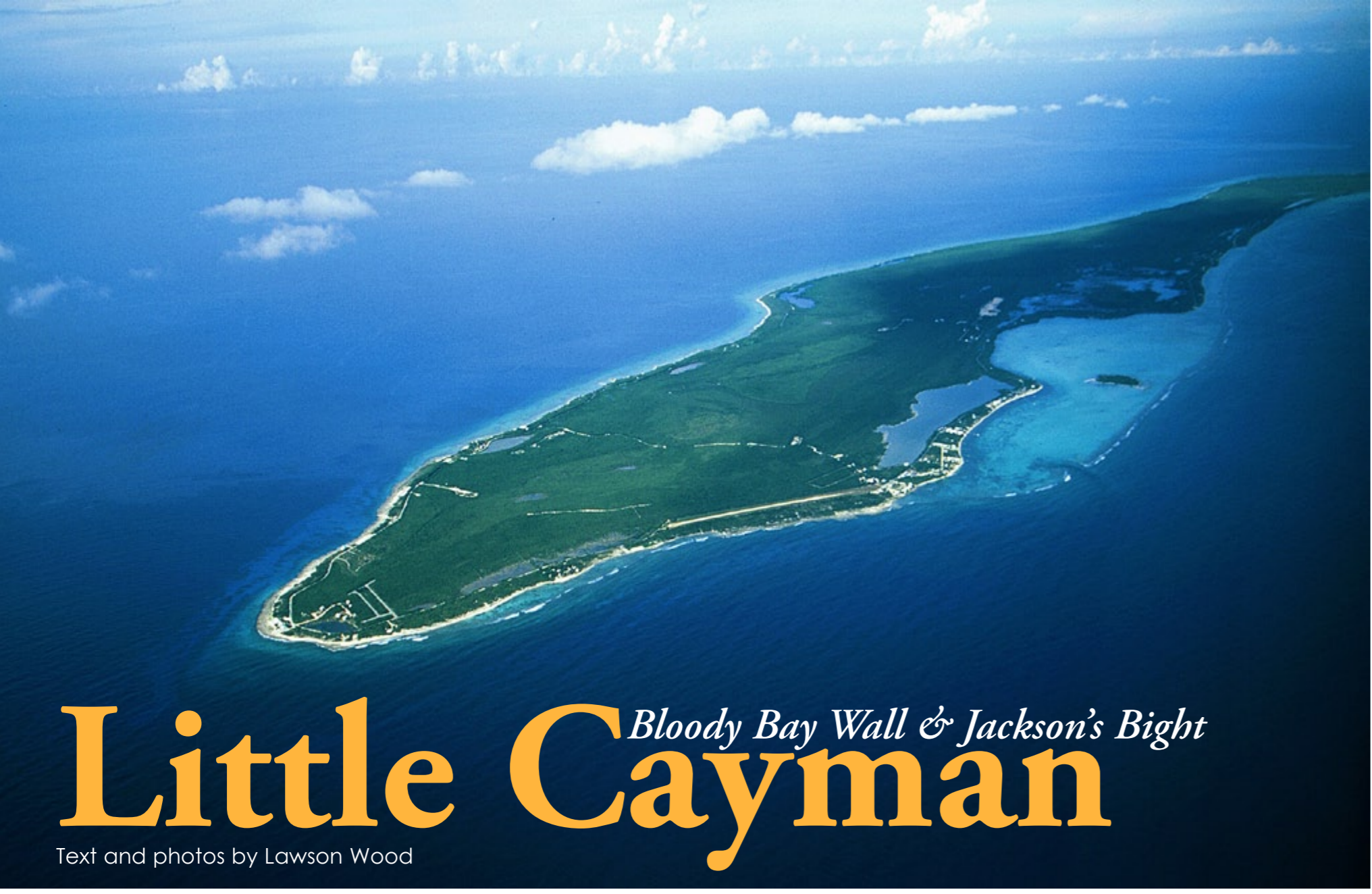
### Where to stay

All of the accommodation is similarly priced and styled. Apart from the individual self-catering apartments and villas, the hotels have good restaurants attached, particularly the Brac Reef Hotel, which is superb. Meals are generally buffet style, and there is plenty

of it, more than enough for the active diver. Lunches tend to be a local spicy dish of fish or chicken, soup, salad and a sweet of some kind as well as fruit and soft drinks.

All of the hotels and dive centres have the same rule. No alcohol until the day's diving is finished and no diving on your

last day before flying off island. Many visiting divers keep the last afternoon free to off-gas and explore the caves and caverns and obviously the local gift shops for a piece of Caymanite jewellery, or perhaps go exploring along the shore to perhaps find your own piece of Caymanite rock or up on the outer Bluff



# Little Cayman *Bloody Bay Wall & Jackson's Bight*

Text and photos by Lawson Wood

Little Cayman Island—a jewel in the clear Caribbean Sea (above); Banded butterflyfish (right inset)

**Jacques Yves Cousteau described Bloody Bay Wall off the northwest shore of Little Cayman Island as one of his top ten dives in the world.**

Little Cayman Island is the smallest of the three Cayman Islands at only 14.4km (9 miles) long by 1.6km (1 mile) wide. It is located 120km (75 miles) north east of Grand Cayman and only 11.2km (7 miles) across the narrow channel west of Cayman Brac. Predominantly scrubland and flat in nature, there are a few brackish ponds in the south west of the island with virtually all of the resorts found in

this location as the shoreline is protected by a large shallow lagoon with an outer fringing reef. For those with time on their hands, there are only a few vehicles for hire, other than getting around by bicycles, which are available at the resorts. The National Trust has a large visitor centre overlooking Booby Pond where booby birds, frigates, egrets and various storks, herons and waterfowl can be observed. Owen Island can be found just offshore in the South Sound, and many visitors enjoy the leisurely snorkel out to this remote location. Bonefishing is also popular within this sheltered stretch of water, where pirate vessels once anchored. Midway along the north



shore, Cayman Islands Marine Research Centre is located. This facility opened by HRH Prince Edward conducts on-going research into the coral reefs and its inhabitants around the Cayman Islands, including important research on the alien invasion of lionfish

(*Pterois volitans*) which have swept through the Caribbean and western Atlantic.

Discovered by Christopher Columbus back in 1503, the island was used as a revictualling base where passing ships

would harvest the abundant local turtles and teaming fish stocks. Subsequently, there are a number of historic shipwrecks around the island, but very little of their remains can now be found except for the occasional anchors and other heavy



Bloody Bay Wall is world renowned and is one of the most colourful in the Caribbean





THIS PAGE: The walls of Little Cayman's north shore are stunning and packed with marine life from the largest turtle to the smallest banded coral shrimp or goby

With this in mind, visiting divers must take notice that every dive can be a potential deep dive as the vertical wall is either the main feature of the dive, or just within a short swim from any location. The unlimited depths along this coast are indeed a temptation, and dives should not be taken lightly or unsupervised. Shore diving within the marine park is discouraged, but is still available for those who wish to go it alone. Any night divers must leave notice at their resort of their intention, their location and when they will return.

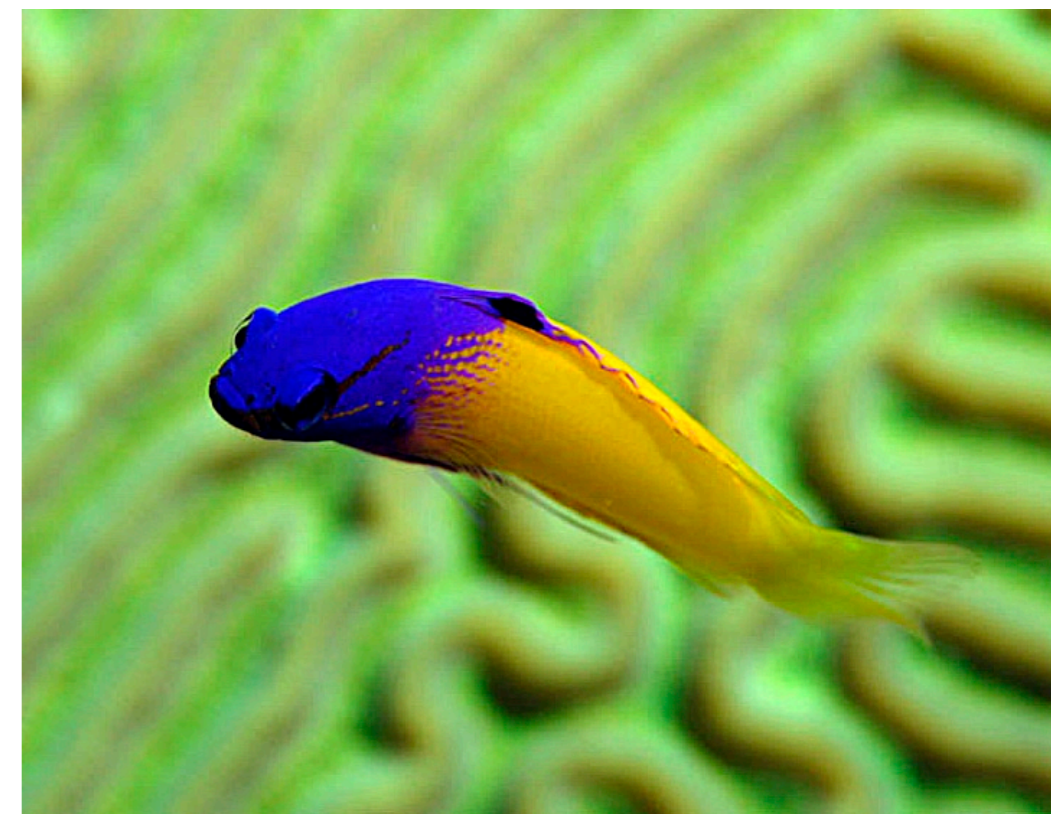
The entire zone is a protected marine park,



metal parts. Whilst these sites are still incredibly interesting, virtually the entire emphasis of diving is concentrated around Bloody Bay Wall and Jackson Bight found at the north west of the island and stretches over 4.8km (3miles).

These two reef structures are co-joined, but separate in structure and shape by an ancient fault line and fresh water source. The Bloody Bay Wall is as described in the name: a vertical wall, often undercut that starts around 5m (17ft) and drops way into the depths well beyond any sports recreation or technical divers limits. Jackson Bight, however, consists of an inner mini wall directly out from the shore with a wide sand plane and then a further outer buttress reef cut with many swim-throughs, caves, caverns and sand chutes.

and this is particularly obvious with the large numbers of friendly Nassua grouper (*Epinephelus striatus*) and sightings of hawksbill turtles (*Eretmochelys imbricota*) on every dive. Bloody Bay Wall has around 13 dive sites and Jackson Bight a further 15 sites all marked with mooring buoys for dive boats to tie up to without damaging any of the corals with unprotected anchor drops. As you travel from





Diamond-backed bellies (top left) and Peacock flounders (left) are seen on most dives and love them or hate them; Lionfish are now regularly seen on dives, as they are on most Caribbean islands (above)

west to east along the wall of Bloody Bay, the reef is fairly uniform in structure, rather barren on top except for small knobby corals and seafans, until you get to the edge of the wall where larger sponges predominate amidst more delicate corals such as wire corals, lace corals and black corals. Finger sponges, strawberry sponges, vase sponges and a variety of tube sponges area found all along the wall in all varieties of colour and size. Couple this backdrop

with an amazing variety of colourful reef fish and you can instantly see why this wall is so popular with divers and underwater photographers.

At the confluence of the two zones of Bloody Bay and Jackson's Bight is a dive site known as Mixing Bowl. This site gives the divers the best of both types of reef structures with a vertical wall to the west and a more sculpted and convoluted wall to the east cut with numerous fissures and canyons. On the corner

of the wall is a large black coral tree where arrow blennies and fairly basslets are found. Typically, you can also find French angelfish, Queen angelfish and various wrasse, parrotfish and groupers. The top of the wall usually has large numbers of flamingo tongue shells (*Cyphoma gibbosum*) on the seafans and lettuce-leaf nudibranchs (*Tridachia crispata*) which graze of the algae covered dead corals.

Towards the eastern end of Jackson



Bight, the mini wall is very interesting with large sea fans and plumes, and the area is patrolled by eagle rays and stingrays. The sand plane has garden eels, conch shells, sand divers and razor fish. At sites such as Cumbers caves, huge sand chutes and canyons cut under the outer buttress reef and disappear into the depths. At a site known as Paul's Anchors, there are at least 15 different anchors to be found stuck hard into the reef and overgrown with coral, there is even an ancient canon in the shallows.

on the reef tops, you can find many large anemones with their host fish species the diamond-backed blenny (*Malacoctenus boehlkei*). This fish appears to have a similar lifestyle to that of the clownfish found in Indo-Pacific waters.

For those avid divers who wish to sample some of the best diving in the Caribbean in an idyllic very quiet setting, you can find out all about where to stay, how to get there from the Cayman Islands Department of Tourism.

Sadly, the coral reef structure here has taken a battering over the years and is nowhere near as good as it once was. El Niño struck rather harshly over two winter seasons as well as several crushing hurricanes, resulting in large areas of dead corals overgrown with algae. It is slowly recovering, but the reef fish here are mainly algae eaters such as wrasse. However,



THIS PAGE: The Cayman islands are also renowned for their 'little critters'. Here, you can find (clockwise from top left) Arrow crabs; Pygmy filefish; Yellow-head jawfish; All the representatives of butterflyfishes, blennies and gobies; Sharpnose pufferfish; Frogfish

# USS Kittiwake

—*New Artificial Reef off Grand Cayman Island*

Text and photos by Lawson Wood





With a touch of déjà vu, I sat on the dive boat supplied by Red Sail Sports to witness and document the creation of a new dive site off Seven Mile Beach on Grand Cayman Island. I was on a similar boat in September 1996 for the sinking of the former Russian frigate #356 off the north shore of Cayman Brac. That sinking took over seven hours; I guess Russian frigates are not designed to sink easily! Now seven years in the conception, planning and culmination of this new project spearheaded by Nancy Easterbrook of Divetech, the *USS Kitiwake* (ASR 13) was slowly filling with water for a (very) controlled sinking by the crew of the United States Tugboat America.



Reputedly one of the cleanest boats ever to be sunk as a dive attraction, due to the constantly evolving laws and regulations regarding artificial reefs, the Cayman Islands Tourism Association said that they had ensured that all the precautions were strictly followed to ensure hazardous materials, paint, lubricants, oils and fuels were removed prior to sinking so there would be no harm to Cayman marine life or waters. This included a final scrub down of the outside of her hull just three weeks before her final journey to prevent any foreign marine species, which may have attached to her hull, from entering Cayman waters.

Additional safety measures included the removal of all loose wiring and hatch covers as well as any features that would deteriorate quickly in salt water such as carpets, ceiling tiles, wooden fixtures and all light fittings. Many safety cut-outs were installed throughout the ship for the safety of divers and to allow natural light to reach virtually



THIS PAGE: Going, going, gone! The *USS Kitiwake* sinks to its new life underwater off Seven Mile Beach on Grand Cayman Island





THIS PAGE: Intact and upright and as diver friendly as can be, the shallowest parts of the ship are only one metre below the surface

all areas of the ship. Undoubtedly these same measures will also contribute to the colonisation of marine life on the ship and provide safe refuge for many different species of fish, corals, algae and invertebrates.

Finally, sinking began at precisely 2:34pm—six minutes ahead of target. All of the local boats, dive charters, attending tugs, barges and marine authorities signalled her final sinking with blasts from their ships' whistles.

Now sitting with a slight list to port,

the overall height of the ship for divers is 52ft (15.5m) from the seabed to the top parts of her superstructure, and since she is lying in only 55ft (16.5metres), the rear section of her superstructure is only one metre below the surface. This makes the *Kittiwake* perfect for snorkelling and indeed for all levels of divers, as she is just a short swim from the edge of the wall on the northwestern shore of Seven Mile Beach.

Entering the water immediately after her sinking, we witnessed the

total transformation of this ship. She appeared almost serene surrounded by her initial cloud of exhausting air bubbles, tiny bits of floating detritus and eager divers. Local stingrays cruised in to see what the fuss was all about, and an eagle ray passed over the ship as if it had always been there. Very quickly some of the local reef fish swam over to investigate the rather rude appearance of this somewhat angular addition to their coral reef.

Snorkelers from the surrounding craft



THIS PAGE: The Honorable Cline Glidden, project leader of the sinking of the *USS Kittiwake* Nancy Easterbrook, and her husband Jay, enjoy a moment in the wheelhouse (left) and take a peek into the interior (right)



soon discovered the immediate attractions of such a shallow shipwreck and enthused over her fine lines and accessibility for everyone.

Every level of the ship is accessible and you can even enter at the top of the smoke stack and descend directly down through the entire ship into the engine room. I swam past two open recompression chambers, banks of disused air tanks, winches, cranes,

derricks, submarine escape pods, the machine shop, kitchens, crew galley, wheelhouse (complete with wheel and compass binnacle) and all manner of really interesting bits, just ready for marine colonisation and diver interest.

The second day's diving was spectacular, with over 30m visibility, and the sea was that exceptional clear blue colour so synonymous with the

Cayman Islands. Being so shallow in parts, you could see the entire ship from the surface, what a sight the arriving visitors will get when they fly into the island as the *Kittiwake* is directly under the flight path.

Traversing through the ship at every level, we were asked by Nancy Easterbrook to take note of any marine life already on the ship. We listed many juvenile butterflyfish and

angelfish, small blennies, barracuda, small schools of jacks, hogfish, creole wrasse and several stingrays rooting about on the sand next to the hull.

Just a short swim away is the massive buttress reef and the wall, making this site a perfect dive for everyone. I have to say that I loved the dive and look forward to the transformation and colonisation in years to come.

This former Chanticleer-class submarine rescue ship is the first U.S. military vessel to be acquired by a foreign country. Joining the former Russian frigate sunk on Cayman Brac, the *USS Kittiwake* is undoubtedly the new star attraction of diving in the Cayman Islands and is destined to be one of the top artificial reefs in the Caribbean.



THIS PAGE: The ship is accessible to all levels of diver and now—marine life!



Lawson Wood was raised in the Scottish east coast fishing town of Eyemouth and spent his youth exploring the rock pools and shallow seas before learning to scuba dive at the tender age of 11. Now over 44 years later, Lawson has been fortunate to make his passion his career and has authored and co-authored over 45 books mainly on our underwater world. Lawson is a founding member of the Marine Conservation Society, founder of the first Marine Reserve at St. Abbs in Scotland, and made photographic history by becoming the first person to be a Fellow of the Royal Photographic Society and Fellow of the British Institute of Professional Photographers solely for underwater photography. ■



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POINT & CLICK  
ON BOLD LINKS



Edited by  
Rosemary 'Roz' Lunn

# Equipment

## *Too Hot to Trot'*

### Quick Cuff System

SI Tech's popular Cuff System has been around for over a decade. They have now worked in concert with Waterproof, who were keen to fit a ring seal system to their new D1 hybrid drysuit.



As a result the Quick Cuff System (QCS) was born. Waterproof wanted an 'easy to take apart and put back together in the field', ergonomic, low profile, light, practical, 'small as possible' ring system. In addition the QCS needed to accommodate a large variety of diver's hands without impacting on their movement and dexterity. To achieve this Si Tech designed a two piece elliptical or oval ring system using a combination of polyurethane and microblend. The weldable polyurethane is soft and easily adheres to the drysuit cuff material, whilst the microblend is a good thermal plastic that works well in all marine environments. What is so nice about this material is that it doesn't get affected by different temperatures.

[www.sitech.se](http://www.sitech.se)

### Xtreme Diving Hoses

Miflex have extended their range of Xtreme LP regulator and inflator hoses with the recent launch of two new eye-catching cool colours, a vivid red and a bright white. Both colours were added following customer requests and have already snapped up by divers across the world. The red colour has proved especially popular with drysuited divers. Perhaps it is because it's so much easier to see a Miflex Xtreme red hose during vital buddy checks, as well as being a more obvious way to locate a red drysuit inflator hose in a surface rescue situation.

[www.miflexhoses.co.uk](http://www.miflexhoses.co.uk)



### Fourth Element Halo 3D

The HALO 3D is Fourth Element's most technically advanced undersuit for drysuit diving. Utilising body mapping to locate state of the art compression resistant materials and high density fleece panels, the design takes account of the usual horizontal position of a diver in the water to provide optimised thermal protection. The design of the HALO 3D means that it is lower in bulk and buoyancy than comparable traditional drysuit underwear. The HALO 3D had been tested as part of a layer system with a Xerothem base layer by IANTD's Technical Director, Phill Short, in temperatures down to four degrees for dive times of over 60 minutes. His conclusion: "low bulk, low buoyancy. Outstanding thermal protection." Available from April 1.

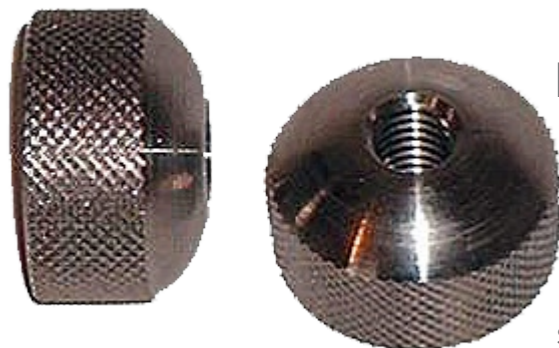
[www.fourthelement.com](http://www.fourthelement.com)



### Knurled Nuts

As your diving gets more adventurous, your hands and more specifically your fingers can take a bit of a pounding when it comes to setting up and donning equipment. One particular nut—the Wing nut—used for mounting a backplate to a single or twinset can really scratch and catch fingers, especially when you're not concentrating on the task at hand.

Enter stage left, Kent Tooling's £15.00 Dome Nuts. These low profile knurled nuts are a much better solution. They're easier to hold, simpler to tighten (and subsequently undo) and they don't require a washer either. [divingproducts.co.uk](http://divingproducts.co.uk)



### Oceanic's BioLite

Oceanic has launched a multi purpose ultra light BCD that doesn't greedily gobble up divers luggage allowance. Weighting in at a meagre 5.5lbs (size Large) the Oceanic BioLite benefits from a clean straightforward design that focuses on providing the diver with comfort and convenience. Whilst the BioLite is one of the lightest BC's in the world, it certainly is no 'lightweight'. Today's modern diver demands high-quality durable materials, and Oceanic's patented low profile BioFlex bladder and Cordura construction delivers that. Weight integration and trimming has also been considered with the streamlined 'Quick Drop' Weight System accommodating up to 14 lbs, whilst dual 5 lb trim weights can be added to the tank band. [oceanicworldwide.com](http://oceanicworldwide.com)





### Sidemount the Hollis Way

Cave divers have been sidemount diving for more than half a century, partially because it gave them a sleeker streamlined profile, and therefore, the access to explore confined spaces. However, this configuration has been largely overlooked until recently. When Hollis launched their SMS100 Sidemount System there was an immediate renaissance—probably because it's so easy! Sidemount diving enables divers to achieve spot on buoyancy within minutes, and as a result they attain a more streamline profile (when compared to a traditional BCD and cylinder). In addition, the diver benefits from a safe alternative for gas management allowing them to see and easily reach their cylinder valves and regulators. Finally, it makes diving off RIBs and donning/doffing cylinders a dream. [www.hollisgear.com](http://www.hollisgear.com)



### Cathx Ocean

The Euphos widebeam dive light from Cathx Ocean is designed as a compact underwater video light with an integrated battery and lighting head "all in one" package. The rough clear anodized and acetal body and through case charging ensures no seal failures. The output is rated at 4,000 lumens with 75 minutes of burn time at full power, but the Euphos will last up to 12 hours in saving mode. The compact unit weighs under 400g in water. [cathxocean.com](http://cathxocean.com)



### Ri 1-100ccn

After two and half years of research, development and testing, O'Three is proud to launch the Ri 1-100ccn drysuit with resin impregnated, 1.1mm thick, constant compression neoprene. This combination should appeal to both neoprene and membrane users who seek a durable flexible suit that maintains warmth and has minimal buoyancy changes at depth. Fans of O'Three will be pleased to hear that the outer lining is still resin impregnated. This treatment improves the suits drying capabilities thereby reducing wind chill and keeping the diver warmer. The inside of the suit has also been laminated with O'Three's new Contained Core Laminate (CCL) to give support and strengthen the 1.1mm thick material. As a result, the Ri 1-100ccn is not a travel suit—it's been specifically engineered for extreme diving. [othree.co.uk](http://othree.co.uk)

### Commando Escape

The Commando Escape is a light-weight travel BCD that utilises bespoke new materials to deliver heavy-duty quality, comfort and performance—all under 3kg. The Escape is a single bladder construction made from a unique material specially commissioned by AP Valves to provide the best possible balance between quality and weight. The resulting fabric—OceanSeal 800—is a tough and unique material, high-frequency welded and double-stitched at the seams which offers an extremely rugged yet light-in-weight BCD. Available in five sizes: S, M, L, XL and XXL. [apvalves.com](http://apvalves.com)



### Mini Manta

We found this new finger spool from Manta Industries, which was just spotted at a dive expo, is very compact and can be stowed in pretty much any pocket. Comes with white or yellow line in lengths of 75, 100 or 150ft. It is also available with crank. [Manta Industries](http://Manta Industries)



### Recreational DPV

With a dry weight of less than 12 pounds and a five pound negative buoyancy, this unit is said to have the highest thrust to weight

ratio in its class. By simply moving your head and body, the Pegasus provides divers with a comfortable and easy option for underwater maneuvering. The unit, which is submersible to 100m (325 ft), is propelled by a 12-volt DC motor and has a 35-45 minute continuous run time. [pegasusthruster.com](http://pegasusthruster.com)

### SMS underwater

The UDI device from Underwater Technologies Center (UTC) combines two-way digital messaging technology, SOS and homing capabilities, a state-of-the-art dive computer and 3D compass. The technology is based on a system of networks. Each network links up to 14 divers via individual units worn on the lower arm with an elastic strap or attached on the inflator. A boat unit supports up to four networks using four different frequency ranges. [utc-digital.com](http://utc-digital.com)



### Sola 600

Light and Motion's Sola dive lights have a factory sealed body, so you never need to worry about flooding. Control is accomplished through a magnetic coupled slider on the top of the body. Slide forward or back to turn on. Hold forward or back to turn off. Three indicator lights behind the bezel report the power (high=3 lights, medium=2 lights, low = 1 light). Indexing back changes mode between 'spot' and 'flood'. Indexing forward increments the power levels. [lightandmotion.com](http://lightandmotion.com)



### Seac Ice

Seac's latest regular offering, the X-10 Ice, has been specifically designed for cold water diving. The first stage comes complete with 2 HP and 4 LP ports and has been finished in shiny chrome. It looks as though this first stage will allow for elegant hose routing. [seacsub.com](http://seacsub.com)



### SportRebreather

Due for release summer 2011, VR's SportRebreather has been specifically designed for the upcoming recreational rebreather diving courses from PADI and SSI. The design is a unique hybrid allowing the use of a single nitrox gas without the historic complications of semiclosed rebreathers. The pre-dive sequence is automated and a simple plug and play CO2 filter makes it easy to use. The unit, which is depth limited to 40m (130ft), comes complete with cylinder, regulator, BCD and an on-board decompression computer. The expected retail price is approximately GB£3,000.00 [technologyindepth.com](http://technologyindepth.com)



### Stretchy Bare

The SB SYSTEM drysuit is a revolutionary performance inspired trilaminate constructed from a proprietary blend of fabrics exclusive to Bare. This unique trilaminate drysuit uses a special blend of fabrics. They deliver a four-way stretch for that "next-to-skin" fit and breathability for a balanced body temperature on the surface before and after your dive. [baresports.com](http://baresports.com)

# Team Diving

Text and photos by Mark Powell

—Technical diving instructor, Mark Powell, discusses the idea of team diving and explains why good buddy divers make good team divers.

Recreational diver training agencies have always encouraged divers to adopt the buddy system and always dive in buddy pairs. Diving in a group made up of more than two people has been described as undesirable, while most agencies explicitly ban solo diving. The 2005 BSAC incident report explicitly raises the risks of diving in a trio, and one of its four main conclusions is that “fatal incidents associated with solo and trio diving continue to feature”.

This view must be balanced against the teachings of the technical diver training agencies who encourage divers to dive as a team and often cite three as the optimum team size. Technical divers carry out a large number of challenging dives to depths well in excess of the recreational limit in this team format with obvious success. What makes them choose this style of diving if the recreational industry is so set against it?

There are a number of reasons for the apparent contradiction between recreational and technical training agencies. By examining these reasons we may be able to adopt some of the best practices from

Good lights make communication between team members easier

A team of technical divers discuss their dive plan



One diver in front of the other works well when swimming through a wreck



be teamed up with whom, and there is no preparation, planning or practice. In this case, we end up with a haphazard trio, which is certainly going to cause more problems than a traditional buddy pair. If an incident occurs, then the third person adds confusion to the situation rather than helping to resolve it, and there have been a number of cases where two divers become involved in a situation and subsequently become separated from the third. In these cases, the divers are not following a team diving approach but are simply jumping in as a trio.

The buddy system also has its disadvantages. It can lead to buddy dependence where we always assume our buddy is there to get us out of trouble. This is not always the case. In the case of a problem, underwater buddies are often too far apart to be able to help each other or do not pay sufficient attention to their

team diving for use in recreational diving. We will also see that many of the concepts of good buddy diving are the same as those of good team diving.

**Pros and cons**

Team diving has a number of disadvantages if you are not familiar with diving in this way. Most recreational divers have little experience of this type of diving and usually express a dislike of diving in a three. This is not surprising as all recreational training focuses on diving in buddy pairs, and for most divers, their subsequent diving has all been focused on buddy pairs. So, it's no wonder that diving in a trio is uncomfortable, as you have never been trained to or practiced diving in this way.

In the recreational world, a trio is often put together at the last minute due to odd numbers. Very little thought is put into who should



Preparing for a decompression dive

buddy to notice that they have got tangled up in fishing line or have experienced some other problem.

The buddy system is often followed in name only with so called "same ocean buddies" who jump in together and will spend time somewhere in the vicinity of each other without really expecting to stay together. These divers are effectively solo diving but without the equipment, training and experience to deal with a problem on their own.

Poor buddy skills often go unnoticed on recreational dives, but for technical dives or on dives with three divers, these buddy or team skills become much more important. It is possible to get away with poor buddy skills when there are only two divers, but this becomes less feasible as the number of divers increases or the complexity of the dive increases. In this

case, additional techniques and training are required to ensure things go to plan.

**Team style**

Effective team diving clearly involves more than just diving with more than two divers. Team diving involves a style of diving where diving in a trio or larger group is a conscious decision, which is planned in advance and where adequate training, practice and preparation has already been carried out.

In a buddy pair you only have one other person to keep track of, this makes things fairly straightforward. When diving in a trio you now have two others to keep track of, and so you spend more time looking for the third person. As you are unfamiliar with diving in a trio, all three of you are likely to be moving around and looking for the other two,



Diving in a team can be a very safe and enjoyable way to dive

# Team Diving

which makes the task even more difficult.

If you are diving in a four, then you now have three other divers to look for, and now you spend more time looking for the other divers than looking at the wreck. It's no surprise that your first experience of diving in a four is likely to put you off ever doing it again.

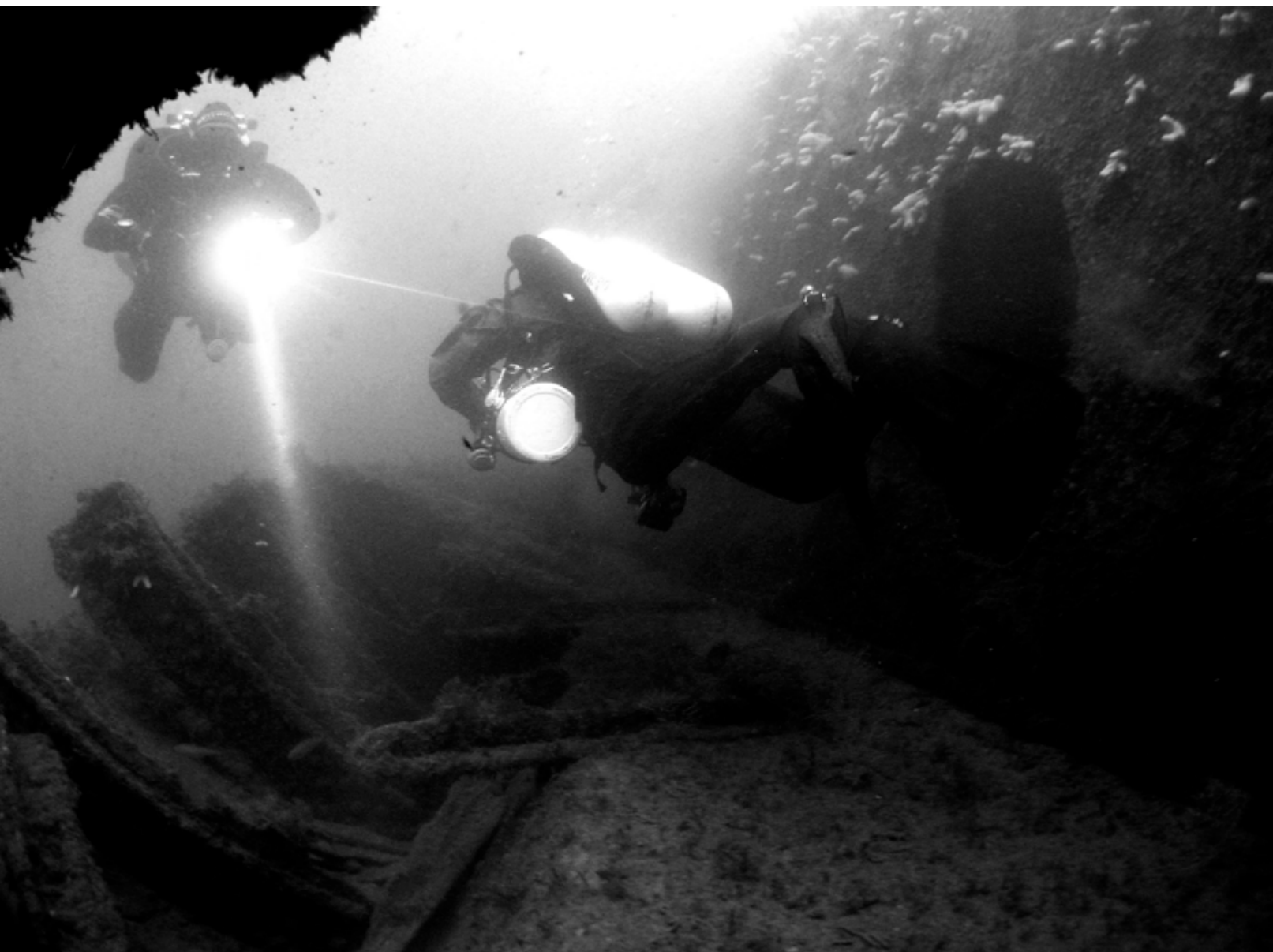
## Positioning

This problem occurs because divers don't usually know where to look for the other divers, especially in a trio or more. One of the key principles of team diving is having agreed positions. This simplifies things immensely as, if you know exactly where the other two divers should be, it's very easy to confirm that they are indeed

in the spot you expected without having to look 360 degrees around and then above and below to find them.

Common positions when diving in a three are to dive in a line, either one in front of the other or side by side, or alternatively in an arrow head position.

Swimming side by side works well for drift dives or well broken



up wrecks where you are swimming over the top of the wreckage. In this case, the person on the left only has to keep track of the person in the middle—no different to a buddy pair. The person in the middle has to keep an eye on the person to their left and right but equally has two people keeping an eye on them. The person on the right just has to keep an eye on the person in the middle.

On the other hand, one in front of the other works well for swimming along the side of wrecks, reefs, through restricted areas or on wall dives. In this case, the person in front only has to keep track of the person immediately behind them—again no different to a buddy pair. The person in the middle has to keep an eye on the person in front and the person behind. This is more work, but again, they have two people keeping an eye on them.

The person at the back just has to keep an eye on the person in the middle, however, this is the most exposed position, as there is no one looking at them unless the person in the middle looks back to monitor them. Of course, this is no worse than a buddy pair where one buddy is in front of the other.

An arrow head position can work in a number of situations. In this case one person is in front at the tip of the arrow head and the other two are side by side behind the lead diver. This is more like a buddy pair with one person in front and so may be more comfortable for divers used to buddy diving. This is preferable to the single person being behind the other two as in this case it is all too easy for the two in front to concentrate on each other and forget about the diver behind.

If diving in a four then diving in a line easily scales up to four or

more divers. The first person still only has to keep an eye on the person behind and the similarly the last person also only has to keep an eye on the person in front. The divers in the middle again have to keep an eye on two divers but they also have two divers watching them. The alternative is to have two pairs diving in a box formation. Again this may be more familiar to divers used to diving in a buddy pair.

In each case, it is essential that each diver is monitoring the relevant member(s) of the team closely enough to stay in contact and to be close enough to assist should they get into trouble. A high level of awareness is required in order to achieve this. If this awareness is present then the team can easily become separated leading to many of the problems associated with trios. The use of powerful torches for signaling can make keeping track of

Team diving requires good buddy awareness



other members of the team much easier. If you can see the torch beam of the diver behind then you don't need to turn around in order to check that they are still there. In addition the diver behind can use their torch to signal the diver in front if they need to get their attention.

### Practice makes perfect

The strongest teams usually consist of experienced individual divers with good self sufficiency and self awareness skills that have practiced working together in a team. Training and practice are essential in order for team diving to work successfully. Each member of the team should have similar views, so they are following the same general approach. In addition, good teamwork only comes with practice. You can see this with national sports teams. Each player is amongst the best player in the country, yet unless they train together as a team, they will not be able to perform well as an effective team.

When team diving is carried out by experienced, trained divers, then it is a very safe way of diving. In the case of a problem, you have more options available to help out, more gas available, more chance of spotting the problem and more ideas on how to solve it.

In the case of an incident, one member of the team can be initiating a rescue while the other sends up a delayed SMB and another provides a visual reference to ensure the rest of



the team can maintain depth. It is when problems occur that the benefits of diving in a team become apparent.

### Standardisation

Diving in a team becomes much easier if each member of the team standardises certain aspects of their diving practice. Communication is much easier if all signals are standardised, and it is common to expand the standard signals to include others that may be relevant to the type of diving you are doing.

Standardising gases is also common, if one of you is on air and the other is on nitrox then no stop times are going to vary. The diver using nitrox will be unable to take advantage of extended no-stop times, as they have to take into

account the other members of the team.

At a very minimum each member of the team should be on the same gas mixture, and many teams standardise on set gas mixes for pre-defined depth ranges. Some teams even go so far as to completely standardise all of their equipment. Even if you don't go for identical kit, then it is still worth standardising on certain aspects, such as low pressure inflator fittings so that spares can be shared.

The idea of team diving can be further extended to all the divers on the boat so that all dive teams work together in terms of dive planning and surface support. For this type of diving, the boat skipper and crew would also become an integral part of the team.

The lead diver knows can keep track of his buddy if he can see his torch beam

## Team Diving

### Skill set

The skills required to be a good buddy are the same as those required to be a good team diver and vice-versa. By adopting some of the team diving methods used by technical divers we can become better buddies even if we are carrying our a recreational dive no-stop dive.

Recreational dives with three divers can be made easier by adopting a fixed position and using torches for signalling. The other aspects of team diving can

still be adopted even if diving in a traditional buddy pair. Each buddy should be self sufficient but at the same time fully aware of their buddy and ready to help out should it be needed.

Effective communication between buddies will help them stay together and avoid any potential problems. In this way, we can take some of the aspects of team diving and increase our safety on all of our dives.

*Next Month: Mark looks at the risks of nitrogen narcosis and how technical divers avoid this dangerous condition. ■*



Buddy skills should be practiced regularly

# Improve your personal diving at TEKCamp 2011

Text by Rosemary "Roz" Lunn  
Photo by Jason Brown

**Sponsored by Fourth Element, the inaugural TEKCamp will be held 25-29 July 2011. Join ten of the United Kingdom's top technical diving instructors for five days of solid diving, lectures, presentations and of course fun at Vobster Quay, Somerset, United Kingdom.**

"Time and again when a diver is considering going down the technical route, they always ask the same question, 'who should I train with'?" said Martin Stanton, owner of Vobster Quay. "The consistent, sensible answer given is that it's not a specific training agency but down to the quality and ethos of the individual instructor.

"Until now it was a bit of a catch-22 situation. The only way to find out if a specific instructor's teaching style was for you was to physically book into and take a course. At Vobster, we therefore decided that an opportunity to 'speed date' some of the United Kingdom's foremost tech instructors from the leading agencies would be the way forward, with the emphasis focused on a week's personal improvement diving.

"Every TEKCamp student gets to take part in a daily in-water workshop with three of their TEKCamp peers covering everything from





Dive Training



**“Rich has a relaxed, progressive, effective teaching style which enables him to thoroughly prepare divers for the rigours of ‘real life’ diving”**



**Rich Walker**

High quality training using the best curriculum available

[www.wreckandcave.co.uk](http://www.wreckandcave.co.uk)

or further their technical diving training. And it helps them decide if this type of diving and certain teaching styles are appropriate for them. Some divers benefit from a more military approach adopted by some instructors, whereas others respond to a more pragmatic, down-to-earth instructor.

“We are delighted to say that for TEKCamp 2011, we've secured the services of the *crème de la crème* of U.K. technical diver education—ten really experienced instructors from the four top training agencies. We'll be announcing the full dream team shortly, although we're proud to announce that names already signed up include Phillip Short (IANTD UK Training Director), Rich Walker (GUE UK Training Director), Martin Robson (IANTD, NSS-CDS and NACD) and Richard Stevenson (TDI and IANTD) — luminary figures not only involved in teaching but also known for diving at the very cutting edge of expedition-level tech.

“Whether you're a recreational diver looking to take on a whole new challenge or an experienced technical diver looking to broaden your diving horizons, this is an unique opportunity to learn from and dive with some of the biggest names in technical diving.”

Rich Walker of GUE UK said, “The opportunity to work alongside the UK's best tech instructors was too good to miss. The way in which the event is structured will allow divers interested in moving to tech diving to get a real picture of the different approaches and styles of teaching available. I can't wait!”

During the week, TEKCampees will also benefit from a five day guest pass to Vobster Quay including unlimited day diving, two half hour lectures every lunchtime (each Instructor will deliver one lecture), a guest speaker every evening, the ability to dive equipment from key manufactures, six days onsite camping, and a BBQ every evening where divers can spend time and chat with the instructors informally. TEKCamp 2011 will culminate in a celebratory Hog Roast on the Friday night.

Places are limited at TEKCamp 2011. To book your place simply log onto [www.tekcamp.co.uk](http://www.tekcamp.co.uk). Divers should have, at minimum, a Sport Diver or Rescue Diver certification with 50 logged dives, preferably with a Nitrox Qualification. For those who are not nitrox certified, Vobster will run a special course on Sunday, July 24. ■

go quietly, amid the noise and haste...



[ 3 hours @ 20m - no deco ]



the rebreathers of choice from 6m to 160m



- third party test-house approved
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- the equipment of choice for underwater photographers, film-makers, marine biologists, cavers, under-ice explorers, deep dive specialists, deep support teams, expedition divers and sport & technical diving enthusiasts worldwide - all achieving time and depth profiles previously unthinkable

### You're invited to the PADI TecRec Xplor Day!

On Monday, 28 March 2011, PADI Americas will host a TecRec Xplor Day at the Secaucus Recreation Center the day after the Beneath the Sea consumer show. The day's events will include presentations from some of the biggest names in the tec industry as well as demonstrations from different equipment manufacturers. You will also have the opportunity to jump in the pool and try the equipment out first hand. ■

To register for the event, visit: [tecexplordaysecaucus-tecrecblog.eventbrite.com](http://tecexplordaysecaucus-tecrecblog.eventbrite.com)



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Image by Ray van Eeden of Prodivers, Kuredu, Maldives



Edited by  
Gunild Symes

CLOCKWISE  
FROM RIGHT:  
Fishermen face  
rough seas  
at dawn in  
small wooden  
boat; A bull  
shark is hauled  
onboard the  
fishing vessel; A  
giant guitarfish  
caught on  
longline

## Shiver—A Finning Crisis in Mozambique

Text by Aaron Gekoski ([www.aarongekoski.com](http://www.aarongekoski.com))  
Photos by Aaron Gekoski and CJ Coetzee  
Watch the full documentary film here:  
<http://aarongekoski.com/documentary-videos.html>

Over recent years the Mozambican waters have become a haven for shark fishermen, capitalising on the escalating demand for fins from increasingly influential Asian nations. But in the process, they risk wiping out one of the ocean's apex predators, endangering marine ecosystems and poisoning their own people. Aaron Gekoski was behind the scenes during the filming of SHIVER, the first documentary to focus on Mozambique's shark finning crisis. Here he gives us a glimpse into this brutal world and in the process sheds a little light on the fascinating world of filming shark documentaries.

On just another dozy sunny morning in Tofo, Mozambique, Dave Charley and his business partner, Chris Scarffe, received a tip-off that was to change their lives and alter the future of Mozambique's marine realm. Whilst their source was vague on the details, the claim was definitive: just north of Tofo lay a remote fishing community who were actively targeting sharks for their fins.

Dave, a cheeky, effervescent 31-year-old with long blonde surfer locks that belie his upbringing in the Malvern Hills of England had been based in Tofo for the past six years, where he set up Mozambique's first underwater film company, Sangue Bom/



AARON GEKOSKI



CJ COETZEE / MOZ IMAGES



CJ COETZEE / MOZ IMAGES

Moz Images. Sangue bom means *good blood* in Portuguese.

Over this period, he witnessed a steep decline in shark populations. "On a double tank, you used to see hammerheads, bull sharks, nurse sharks, white tips and black tips," said Dave. "Now sharks sightings are becoming increasingly rare. People are aware that sharks are being targeted, but know little of the details—where shark finning is occurring, which species are being targeted and where the fins are headed."

Armed with cameras, Dave and Chris—a fiercely ambitious and passionate cameraman and filmmaker who at 6ft 3in and a skinhead cuts an imposing figure—began their journey north.



CJ COETZEE / MOZ IMAGES

CLOCKWISE FROM FAR LEFT: Presenter Carlos Macuacua examines a giant guitarfish; A finned bull shark's carcass is thrown overboard; Flim crew at work filming at dawn; Fins cut from shark catch

What they found was, it turned out, a camp like so many in Mozambique: a small fishing community that uses longlines—stretches of line attached with a multitude of baited hooks—to catch the sharks. Braving often perilous conditions and armed with only small wooden boats, the fishermen set the lines, leave them overnight and return at the crack of dawn to pull in their catch.

Longlines do not discriminate between species; spotted eagle rays, guitar fish, reticulated rays, baby tiger sharks, bull sharks are all caught on them, many of which have perished

by the time the fishermen return. In order to breathe, most sharks must continue pumping water through their gills. Once caught on a line, many quickly entangle themselves and either suffocate or become stressed and die. Certain sharks, such as hammerheads are known to become distressed quickly and death may occur more rapidly than in other species.

Any survivors left on the line are hauled onto the boat where they are crudely butchered and left to suffocate to death, the carcass brought back to shore where the fishermen are met by the local



CJ COETZEE / MOZ IMAGES

community, their wives and children.

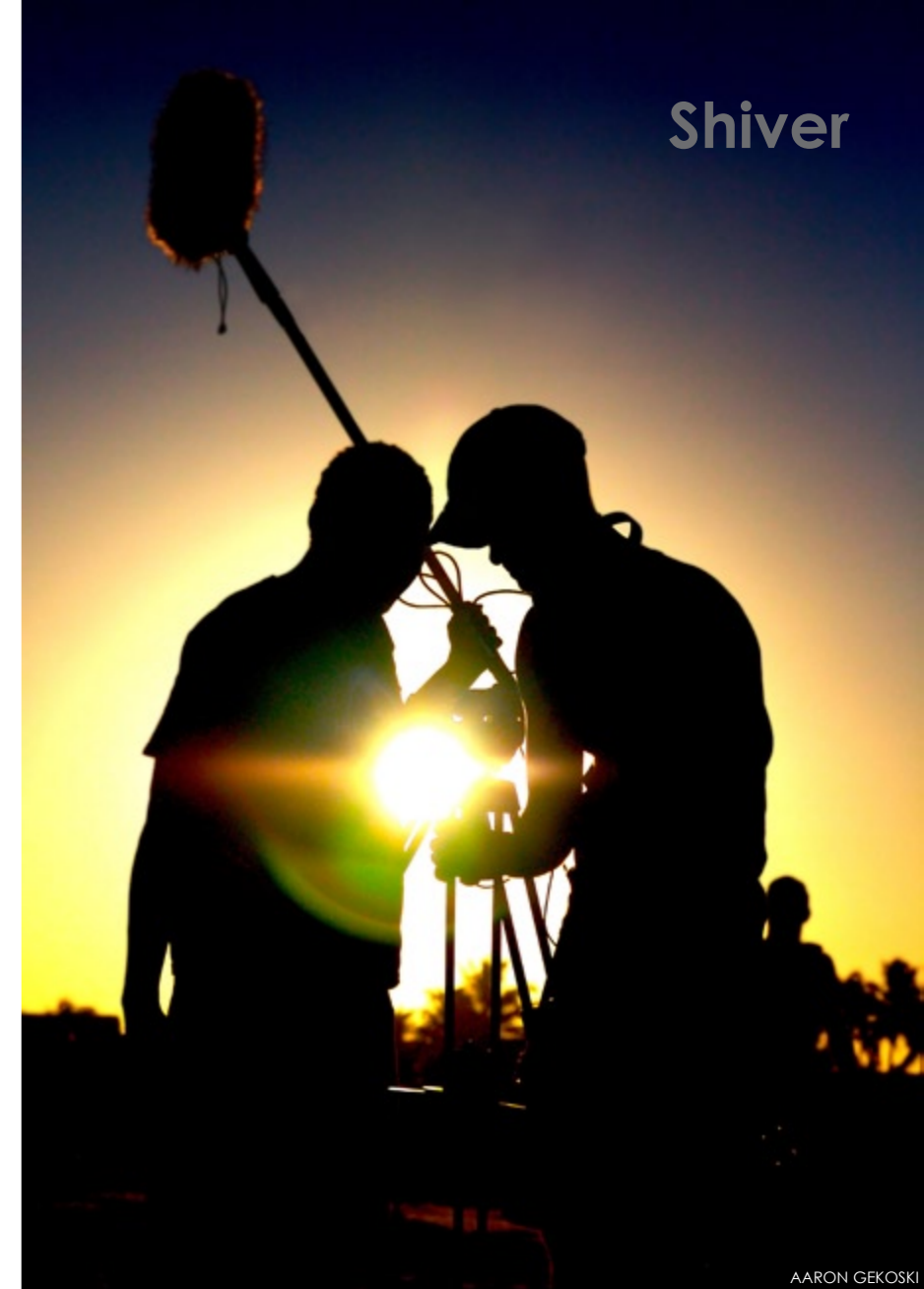
On the beach the fins are removed and taken away to be dried, before being sent on to a middleman. The fishermen remain blissfully unaware of where the fins end up, many mistakenly believing that the fibres in the fins are used to create the metallic

strip in banknotes, or to line the decks of boats. As for the remainder of the shark, its body is cut up and distributed amongst the women and then either sold at local markets, or used to feed their families.

"The remote settings, the conditions the fishermen braved day in day out, the ruthless efficiency of the longlines, the vast array of species being caught, the scenes as the women argued and wrestled for the resulting catch. This was powerful stuff. We came away with breathtaking and deeply moving imagery," remembered Chris.

### Pilot

Back in Tofo, this footage was turned into a short film and formed the basis

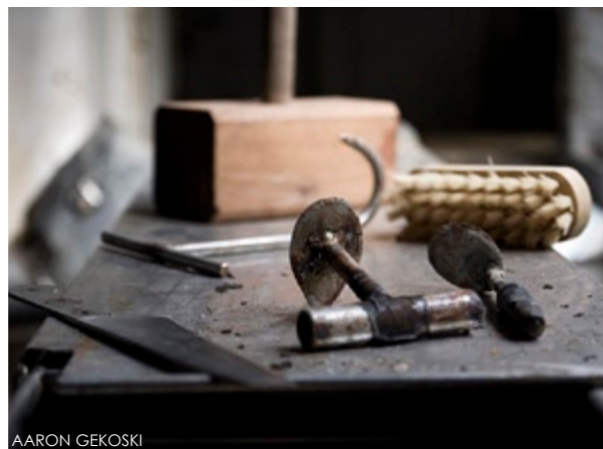


AARON GEKOSKI

# shark tales



Implements used to butcher sharks, found onboard the *Antillas Reefer*



AARON GEKOSKI

Presenter Carlos Macuacua (left) holds up a dried shark fin and another fin, ready for cooking; A fishing hook (below) used to catch sharks, found onboard the *Antillas Reefer*

their fins that have become the prized possession, one kilogram fetching as much as US\$700 per kilogram on the Hong Kong market. This trade, coinciding with an increase in the numbers of fishing fleets, plus ever sophisticated machinery and fishing methods has ensured that approximately 30 percent of shark species are listed as threatened—many of them critically. A startling 90 percent of large predatory fish have been eradicated in the last 50 years.

In Asia, shark fin soup is viewed as a delicacy (to others it's actually a nasty, gelatinous concoction, the gristly needles in the fins merely ruining what would otherwise be a perfectly good broth) and is served up at weddings, banquets and business functions, its consumption used as a tool to demonstrate wealth and social status. Along with China's rising

power and influence on the world's economic stage and the subsequent growth of affluence amongst its citizens, shark fin soup has increasingly become desired by the growing middle class. This has ensured demand for shark fin soup has escalated to uncontrollable levels.

In order to meet this demand, the trade has been spreading across African waters, countries trading their fishing rights in return for roads, hospitals and



AARON GEKOSKI

schools. Many of these are poor nations, desperate for the infrastructures that are being put in place for them. And now, with its endless coastline and vast array of marine life, it would appear that Mozambique is very much on Asia's radar, with local fishermen for the first time in their lives beginning to target sharks for their fins.

Touching on these sensitive issues, Dave and Chris's documentary pitch was snapped up by the World Wildlife Fund (WWF) in Maputo, Alice Costa WWF's National Director and keen marine conservationist recognising at once the critical nature of the subject matter. With funding in place, all Sangue Bom/Moz Images needed was a charismatic presenter, someone who could tie the documentary together.

## Filming

Towering five inches over Chris, Mozambique's first ever scuba instructor and local hero Carlos Macuacua's hands, shoes, laugh and



AARON GEKOSKI

personality are all gigantic. Whilst undertaking his instructor's course, he resided in a tiny, rusty caravan that had been left abandoned for years. For a man of Carlos's dimensions, life in a caravan must have been far from easy, but in his typically optimistic, easy-going way, Carlos refers to this period as one of the happiest of his life. With a passion



AARON GEKOSKI

## Shiver

LEFT: The owner of a Chinese restaurant in Maputo, Mozambique's capital, prepares a shark fin for cooking

CENTER IMAGE: A shark fin as it is prepared for shark fin soup

for the ocean as large as his stature, in Carlos, Sangue Bom/Moz Images had their presenter.

I was lucky enough to arrive in Tofo just as Sangue Bom/Moz Images were assembling their team and was happy to lend my experience in filming underwater and help in anyway possible. Chris was upfront about the dangers. Sharks



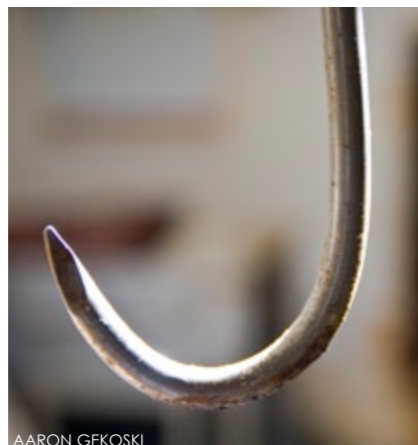
AARON GEKOSKI

of a pitch to shoot a larger documentary, entitled, *Shiver*—which is the collective noun for sharks in Mozambique.

"Clearly, Mozambicans were catching on that shark finning could be big business. We wanted to find out the extent of the problem, but without pointing fingers," explained Dave. "Many people rely on the protein-rich meat to feed their families, and the income generated by selling the fins far exceeds the average national monthly wage (estimated at R700), so can we really blame them?"

## Sharks endangered

Worldwide, sharks are being targeted by fishermen for the oil in their livers, their cartilage, teeth, skin and flesh. But due to the demand from South East Asia, it is



AARON GEKOSKI



AARON GEKOSKI

Crew films presenter Carlos Macuacua and Dr Simon Pierce examine stingray catch on a beach in a remote village





IMAGES AT RIGHT:  
Cameraman Chris Scarffe  
and a giant guitarfish  
caught on a line

BELOW: Presenter Carlos  
Macuacua (far left) inter-  
views the fishermen, with  
Dr Simon Pierce (far right)

caught on longlines are understandably a little unpredictable and don't always appreciate having a camera stuck in their snout. Mozambique's waters are also notoriously volatile, with ripping currents and poor visibility common place. And as for the shark camps themselves? "Well, there was this one incident involving a film crew and machetes," insinuated Chris, asking me in the next breath, deadpan: "Are you in?"

From January to March 2010, we embarked upon filming, our visits to shark camps studded with incident and drama. Doing almost anything in Mozambique is infinitely more difficult than it should be, red tape and overzealous officials make filming an arduous task. You need a permit for this, a document for that, and a permit for that document. On multiple occasions

we were to see Dave's self-styled 'Charley Charms' working overtime, arm around one uniformed inspector or official, utilising his admirable grasp of the local dialects.

It was shattering work, conducted in 40°C and 70-80 percent humidity. Filming frequently involved 16-hour days, with 3:00am wake up calls to ensure we could film the fishermen launching their boats. The sea air, salt, sand and sun battered our equipment.

During our gruelling shooting schedule, reports began to surface of manta rays being caught in large numbers in another remote fishing village. Pictures started to circulate via email of the rays caught in fishing nets and being cut up on the beach. It was rumoured that the photographer's dog had been mutilated and his wife threatened in response



CJ COETZEE / MOZ IMAGES



Shiver

CJ COETZEE / MOZ IMAGES



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to the photos being sent out. These particular fishermen, we pondered may be slightly tougher opposition. So once again we loaded our equipment and rather nervously headed to the camp.

The fishermen turned out to be a far cry from the wild-eyed butchers we'd been anticipating, and in fact, were reasonably accommodating to our needs. They were also in a hurry, so if we wanted to film them bringing in the nets, we had to be fast. They made it abundantly clear that there would be no second takes—"If you could just fin that shark again for me please sir? Sir?"

### Fishing trip

No sooner had Carlos and I kitted up and been dropped off, than the fishermen began to haul in their nets from all

around us. Fins, camera, regulators—anything that stuck out was caught.

This was the ultimate fish-eye view, and it became abundantly clear that once caught up in the nets, there was no escape. More than two hundred metres of the stuff was dotted with various species of marine life, their bodies glistening, caught by sporadic beams of sun that traversed the water. Some, a Spanish mackerel, a small school of king fish, a couple of trevallies were

dead, their bodies twisted, tangled in the ruthless barrier. Others, like a devil ray were still alive, its desperate flaps in vain as the fishermen pulled it towards the deathly suffocating vessel.

One specimen in particular caught Carlos's eye, and he dived down to inspect an unfamiliar shark caught in



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Close-up (above) of the teeth of the rare snaggletooth weasel shark (right) caught by fishermen; Fishermen carrying nets; Dr Simon Pierce and presenter Carlos Macuacua take meat samples to be tested for Methylmercury (below); Presenter Carlos Macuacua measures the dorsal fin of a giant guitarfish (left)



CJ COETZEE / MOZ IMAGES

the net. It was unlike any shark I had seen before, streamlined, with larger than average fins, its bottom teeth protruded much like that of the ragged tooth shark.

Back onboard the safety of the boat, the rest of the crew seemed equally bemused by the unusual shark. The fishermen appeared particularly excited, though their motives clearly differed to ours. "Muito grande!" they exclaimed, pointing at the shark's dorsal fin.

The crew discussed the possibility that the shark onboard might be from the same species that had been filmed for the first time, just weeks before at a dive site off Tofo beach. That shark

had been identified as a fossil shark, commonly referred to as a snaggle tooth weasel shark.

The shark onboard the boat certainly was a little weasely looking. It also had snaggly teeth that jutted out in all directions. Intrigued with our find, we agreed a price of 1,000 meticaís (about R200) with the fishermen, strapped the increasingly stinky shark to the roof and



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Shiver

set back on our way to Tofo, informing marine biologist, Dr Andrea Marshall, to get her dissection kit ready.

"When the guys brought the shark to me, I was left in no doubt that it was a snaggle tooth," recalled Marshall. "It's quite a distinctive looking species, specifically because of the long dorsal fin and teeth. This represented a once-in-a-lifetime opportunity to learn more about a very rare shark. It blows my mind to think of what species the fishermen are bringing in on a daily basis that could be of great important to science."

**Toxic meat**

We were beginning to bear the fruits of our endeavours. Now to address one crucial question: by targeting sharks and eating the meat, thought to be laden with dangerous levels of toxic heavy metals, were the fishermen poisoning their own families?



CJ COETZEE / MOZ IMAGES



CJ COETZEE / MOZ IMAGES



C.J. COETZEE / MOZ IMAGES



C.J. COETZEE / MOZ IMAGES



C.J. COETZEE / MOZ IMAGES



C.J. COETZEE / MOZ IMAGES

On one of our trips we were joined by eminent shark scientist and amiable Kiwi, Dr Simon Pierce, whose job it would be to take a sample of meat and send it for testing. The meat in question was to be from a large decomposing bull shark that had been left on the line for two days.

At three metres, it barely made it onto the boat. As the new kid on the block, I was instructed by the producer to jump off our pleasant, spacious, specially decked out filming boat and swim out to the rather less appealing tiny wooden fishing vessel filled with a rotting shark. The stench of death on the boat permeated my senses, seeming to seep into my very soul.

With another shark on the line and Chris filming in the water, Dave shouted at me to get out of shot by any means possible. The only option was to squeeze myself into the bottom of the vessel currently occupied by the dead shark, into a foot of shark blood that sloshed violently from side to side, containing piles of dead eels that had been used as bait. I threw up

relentlessly—on my camera, on my shirt, on the shark. The huge, giant guitarfish that had been so valiantly fighting for its life was finally brought up—its throat hacked at with a machete and its body still twitching, was dumped on top of mine. Its cavernous eyes blinked at me disbelievably, as if it wished it possessed the capacity to scream.

**Methylmercury**

Back on the beach the fishermen were met by the women from the local community. The specimens were unloaded, and before the women could wrestle them off him, Pierce removed some of the bull shark's flesh and placed it in a plastic bag, which was put on ice and shipped to Johannesburg where it would be screened for levels of dangerous heavy metals.

There was one toxin we were particularly interested in, one of the most biologically active and dangerous toxins to humans: Methylmercury.

Being the ocean's top predator, there are very few fish a shark will not consume: tuna, bass, mackerel, sail fish, marlin—they're

all on the menu. But being top of the food chain is not without its disadvantages. Large predatory fish such as tuna absorb significant amounts of heavy metals into their system, including lead and mercury.

The toxin of most significance to humans though is Methylmercury. This particular poison is especially dangerous for pregnant women, as it bypasses the mechanism that separates the mother's bloodstream from the embryo's developing brain and other vital organs. This can lead to problems in the nervous system, kidney failure, and in extreme cases severe mutations and brain damage.

Methylmercury is lethal stuff—and the levels of this toxin found in Mozambique's bull shark were to blow our minds. The test results



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COUNTER-CLOCKWISE FROM ABOVE: A woman from the local community sits with shark meat, which she will sell at the market; Fishermen risk stormy seas in small wooden boats; Women celebrate after seeing the fishermen's haul; Locals assist the fishermen bring their catch ashore; A guitarfish is gutted, before being cut up and distributed

# shark tales



Boys (right) playing draughts using pieces of shark vertebrae; Loan fisherman casts net to catch sharks at sunset (far right)

showed that the 100-gram sample contained almost 20 times more Methylmercury than is recommended for human consumption. If the average serving of shark meat is 300 grams, that meant the meat contained a staggering 5,500 percent more than our daily safe intake.

In short, the targeting of sharks for their fins and consequent consumption of the meat means that Mozambique's fishermen are unknowingly poisoning themselves, their families and future generations. And in turn, they are also disrupting delicately balanced ecosystems.

## Ecosystem balance

It isn't possible to remove an apex predator without having dramatic knock-



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on effects on an ecosystem. Imagine if you will for a moment, the human race being systematically destroyed over a relatively short space of time and the ecological mayhem that would ensue (we'd be overrun by those methane-producing windbags, cows for a start). The marine world is no different.



CJ COETZEE / MOZ IMAGES

Carlos Macuacua watches as fisherman cuts fins off the carcass of a shark



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# Shiver

Take this case in the North Atlantic, one typical example of how finely balanced marine ecosystems can be tipped. During the 1980s to late 1990s, the region's virtual elimination of sharks resulted in an increase in cownose rays, which the sharks typically preyed on. Cownose rays (demonstrating remarkably good taste) have a penchant for scallops—the resulting feasting decimated scallop populations, putting many local fisheries out of business.

Currently, we find our oceans in a bit of a mess. Sea temperatures are rising due to global warming, causing coral beds to reluctantly dispense of polyps that provide their kaleidoscope of colours. Our oceans are unceremoniously used as dumping grounds for the vast quantities of waste that we produce. And they are being emptied of fish, their life force. The good news is that although it would take decades for our seas to recover, it isn't too late to do something about it.

For Mozambique, Carlos is at the

forefront of campaigns to raise awareness at a local level, regularly travelling the country and giving talks to rural villages about the ocean. "I hope these sessions help people understand a little more about why Mozambique's waters are so special. Most people here have an innate fear of the sea—and in particular sharks. They have no idea of the global importance of these creatures."

## Conservation efforts

Local initiatives such as AMAR's (a Mozambican NGO) Day of Diving, when all Mozambicans get the chance to experience the marine realm by going out on dive boats, and other events organised by Eyes on the Horizon, who work tirelessly to help preserve these waters, are having an impact. Dive schools are employing more Mozambicans than ever before and, increasingly, locals are getting involved in diving and are becoming ambassadors

for the ocean, educating friends and family.

However, Carlos is quick to point out that whilst local initiatives will help, it is the bigger industrial vessels that continue to have the most significant impact on the levels of fish in the sea. A few years ago an illegal vessel, the Antilles Reefer, was caught with two tons of shark fins onboard, 47 tons of shark meat and over 500 miles of longlines. It's little wonder divers are seeing fewer sharks. But with nearly 3000 kilometres of coastline to monitor and possessing only one patrol boat, the government faces an unenviable task in monitoring what happens out in the deep blue.

One option at the government's disposal is to create marine parks that will regulate fishing in certain bodies of waters. Unbelievably, presently only the turtle and dugong are protected under Mozambique's maritime law. Though talks are currently underway to protect whale sharks and manta rays, it still isn't illegal







for fishermen to kill these species.

Mozambique could learn much from neighbouring South Africa, one example of a nation successfully using its marine life to its economic advantage. It is estimated that great white tourism brings between US\$10 to 15 million into the economy every year. And while some may criticise cage diving, claiming it contributes to sharks associating humans with food, there can be no doubt that the industry has raised awareness of the shark's plight, the people who do it coming away with the respect of these magnificent creatures and a greater awareness of the threats they face.

To change perceptions, much relies on education and the altering of attitudes that have been formed over many generations. Whilst some countries (such as the Pacific Islands) attach a mythical significance to sharks, the West has typically viewed them with fear.

The media's portrayal of sharks has done



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untold damage to their reputation. Steven Spielberg's 1975 film *Jaws*, which whilst no doubt a profitable endeavour, merely served to sensationalise the shark and whip up unwarranted hysteria. Sharks were (and by many, still are) viewed as the ultimate predator that like nothing more than to snack on a good human.

But as anyone with an interest in sharks will tell you, we are way more likely to be killed by our Christmas tree lights or a toaster than a shark. Despite this reality, the shark has become synonymous with violence, blood—and ultimately—death.

Sharks do not sing soulfully or nurture their young like whales. They do not waddle and bark comically like seals. Nor do they coexist playfully and lark about like dolphins. The shark is solitary, has questionable maternal instincts and sports a fearsome appearance that has been finely honed over the past 400 million years. But nowhere in our deserts, fields, ice plains or vast expanses of ocean does such evolutionary perfection exist.

And whilst we must concede that people may find it difficult to empathise with or anthropomorphise sharks, it is up to us as advocates of the ocean to spread the word—in what would surely go down as one of the greatest tragedies of

the modern era, the shark could very soon be consigned to the history books.

Producing *Shiver* was a genuine labour of love. Sanguie Bom/Moz Images worked tirelessly for years to make a documentary to help abate the slaughter of Mozambique's sharks. In doing so, they risked the backlash of fishing communities and an influential Asian presence. They filmed in dangerous conditions and deprived themselves of sleep for weeks on end.

Our planet, our oceans are lucky to have dedicated marine conservationists such as Chris and Dave who often work in the face of extreme adversity for little financial gain, spurred on by a worthy cause and the passion to make a difference. We need more of them, before our oceans are damaged beyond repair. As for Mozambique, we can only hope their endeavours will instil a sense of pride, for these seas, and all they contain, are truly remarkable.

For more information on *Shiver*, a joint Sanguie Bom and Moz Images ([www.mozimages.com](http://www.mozimages.com)) production, please email [shiverdocumentary@gmail.com](mailto:shiverdocumentary@gmail.com) ■



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The *Shiver* film team

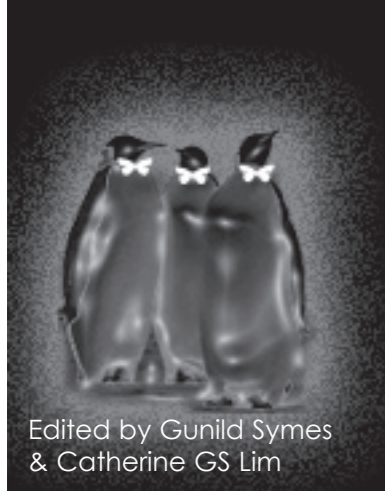


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THIS PAGE: Large crowd of locals and their children watch film screening at a shark-finning camp. A proud moment (above) as the crew watches the film screening in their home town, Tofo

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**POINT & CLICK  
ON BOLD LINKS**



Edited by Gunild Symes & Catherine GS Lim

# Inspired by the Sea Oceanic Design



## Glowing Fish

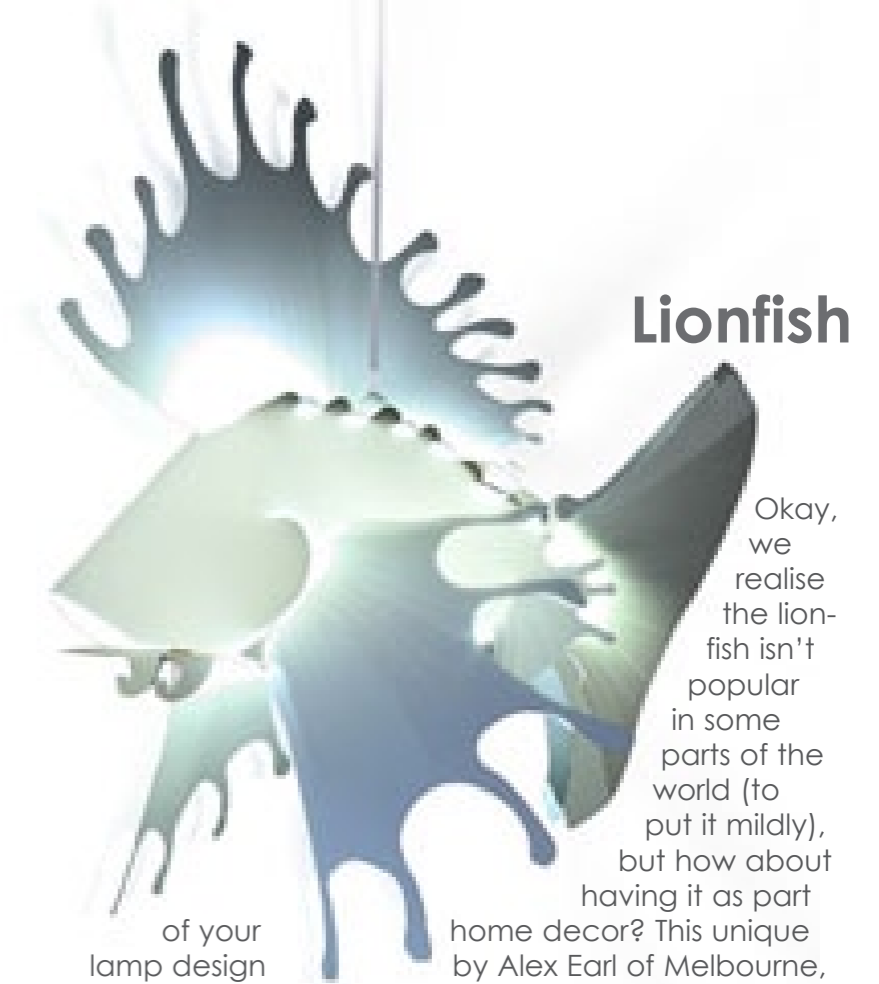
At first glance, this table lamp by ZZZOOLIGHT looked like a stranded fish that leapt onto a boat by mistake. Yet it didn't take long for its soft delicate radiance and unique design to capture the heart. Measuring 34cm x 17cm x 21cm, its size makes it perfect as a centerpiece or in a child's room as a whimsical nightlight. Indeed the website states that ZZZOOLIGHT has created the lamp that makes your children dream. Polypropylene-sheet shade, unbreakable and resistant, certified children-proof.

[www.officinacrea.it](http://www.officinacrea.it)



## Fishy Forks

Getting the kids to help set the table at meal-times won't be such a chore if you use this whimsical set of cutlery called, *Gone Fishin'*, by Yamazaki. Established in 1918 in Tusbame, Japan, near the north-west coast of Honshu Island about 200 miles from Tokyo, this family operation once produced functional items in copper, silver and brass. It is now renown for its high quality stainless steel wares. Designed in the form of sea creatures, the set from the Art of Dining collection comprises a dinner knife and fork, salad/dessert fork, soup spoon and teaspoon. Now, if only it came with instructions on which spoon to place beside which fork... [yamazakitableware.com](http://yamazakitableware.com)



## Lionfish

Okay, we realise the lionfish isn't popular in some parts of the world (to put it mildly), but how about having it as part of your home decor? This unique lamp design by Alex Earl of Melbourne, Australia, is made from polypropylene or heat-bent acrylic. The lighting pendant comes in a variety of colours and sizes to suit your specific preferences. So, fancy a couple of lionfish floating through the blackness of space over your bed at night or watching over you as you dine? [www.alexearl.com.au](http://www.alexearl.com.au)

## Sea Urchin Bowls

Banish all boring, mass-produced bowls from now on! Spice up your dinner table with these beautifully hand-rendered porcelain sea urchin bowls crafted by Christie Chaplin-Saunders of Chester, Nova Scotia, for Northern Tides Gallery in Maine, USA. You can indulge freely, savouring in the knowledge that the delicate seeming bowls are lead-free and suitable for use in the microwave and dishwasher. Available in green or blue, and in equally-authentic mussel shell design. Price: US\$45.00-135.00.

[www.northerntides.com](http://www.northerntides.com)





### Coral chops



We know the rule is not to buy any coral products, but we'll make an exception with the Michael Aram Coral Reef Serving Set. For one thing, it's not real coral, but black or red lacquer over aluminium, topped with high-polished tops. Each spoon or fork measures 12 inches. There is also a complementary stainless steel bowl with a coral-patterned base.

[www.trendir.com](http://www.trendir.com)



### Reef Lamp

Sea coral patterns inspired the design of the REEF lamp by Tanja Soeter for Freedom of Creation (FOC), Amsterdam, a pioneer in 3D printing. The half dome shaped light has two organic layers of uniquely shaped cells and provides gentle lighting for walls or ceilings, creating dramatic shadows with its delicate structure. Diameter 320mm; Height 150mm. Laser Sintered Polyamide. Price: €696.99. [www.tanjasoeter.nl](http://www.tanjasoeter.nl)



### Coral Chair

It's fire-retardant, UV-resistant, ergonomic, recyclable, stackable and durable. Made from nylon with fibre glass reinforcements in a design inspired by coral reefs, the Coral Chair designed by Ton Haas of Harechare in the Netherlands is available in seven different colours and can be used outdoors. What more could you ask for in a chair? [www.harechair.com](http://www.harechair.com)

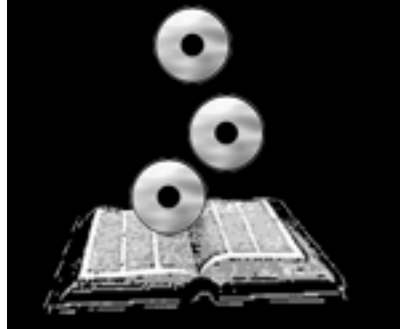


### Dolphins

Get this coffee table expertly handcrafted by artist and designer Derek Pearce, and you'll always have dolphins dropping in for tea. The design seamlessly integrates the dolphins into the structure of the table in a playful manner. Other designs feature the hippo, frog, duck, sea otter and seal. Pearce has made pieces for celebrities such as Michel Roux, David Jason, Julian Clary, James Dyson and John Cleese. Prices start at GB£1,800. Pearce's studio is part of the Made at Kew Bridge collective of artists at the Kew Bridge Steam Museum in Brentford, London, England. Open house: March 10. [www.watertables.net](http://www.watertables.net)



DEREK PEARCE



## Sharks

Sharks have had a bad rap as mindless, vicious man-eaters for many years. Author Ila France Porcher wants to dispell this notion with her recent book, *My Sunset Rendezvous*, which

came out in December 2010. After years of studying the local blackfin reef shark population in Polynesia, Porcher discovered the kinder, gentler side of these misunderstood animals. Together with scientific colleague, Arthur A. Myrberg Jr., Porcher found the first evidence that sharks can think and what social creatures they are, with some strange and startling observations. But in 2003, a company from Singapore started finning her beloved sharks, and Porcher saw the devastation underwater that resulted from this cruel

and wasteful practice in which sharks are finned alive and dumped back into the water to sink to the bottom where they suffocate in a horrible death. With lots of hard work and determination, wildlife advocates in Polynesia finally got protection for the sharks in 2006. Originally a wildlife artist and painter from British Columbia, Canada, Ila France Porcher now resides in Tahiti, French Polynesia, where she writes wildlife books.

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 ISBN-10: 1609118103  
 ISBN-13: 978-1609118105



## Madeira

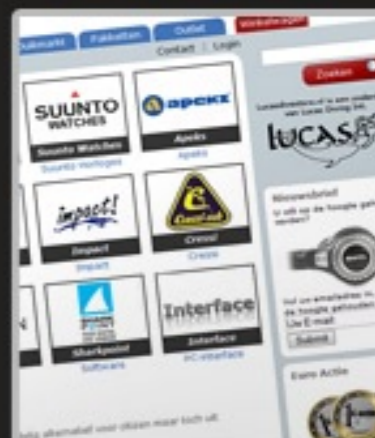
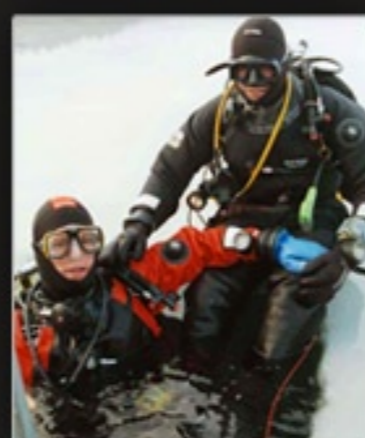
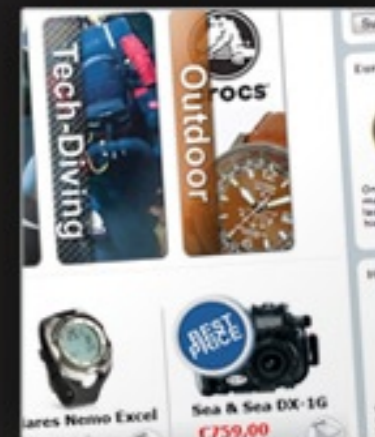
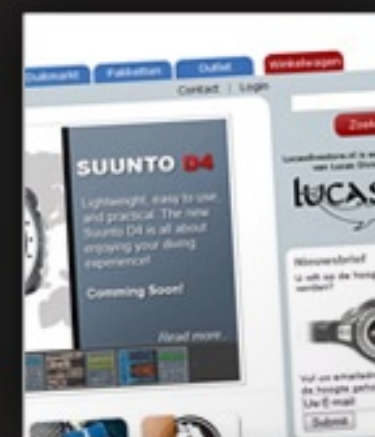
This diving guide is the result of 45 days of awesome diving, which the photographer, Nuno Sá, experienced in the warm waters of Madeira—a Portuguese archipelago found just north of the Canary Islands in the North Atlantic—with the marine biologist, Joana Almeida, who wrote the text. It's pages contain detailed descriptions of Madeira's 20 best dive sites. Images of Madeira's marine life species include big pelagic fishes, manta rays, sea turtles and marine mammals, plus shipwrecks on the sandy bottoms sheltering numerous species, that have become oasis of life. Madeira's waters are host to 360 sea vegetable species, as well as 550 fish species, 21 marine mammal species and various invertebrate species. Born in Montreal, Canada in 1977, Nuno Sá returned with his family to Portugal at age 11 where he fell in love with the sea and received his diving certification in 1997. After studying law for several years, he moved to the Azores where he pursued his love of the sea and worked as a professional photographer specializing in marine life since 2004. Sá is now part of the team of top nature photographers participating in the Wild Wonders of Europe nature photography project sponsored by the National Geographic Society.

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# Halmahera

*—A Diver's Haven in the Maluku Islands*

Text and photos by Don Silcock



Halmahera

Diver and giant clam at Mios Kon near Raja Ampat (left); Fishing along the coast near Raja Ampat (above)  
PREVIOUS PAGE: Superb soft corals and sponges at Pantai Sago reef on the southern side of Tifore

The sands of time have long since washed over the remote East Indonesian province called the Moluccas. Home to less than two million of the archipelago's 227 million in population, and spread out over nearly 1,000 islands, the area is little known within the country and few foreigners could even point to it on a map with any degree of certainty. Hard to believe then, that just over 500 years ago, the Moluccas were the trigger for the so-called "age of exploration"—a two hundred year period when the major powers of Europe sent fleets of sailing ships to find and then control the fabled Spice Islands of the far east.

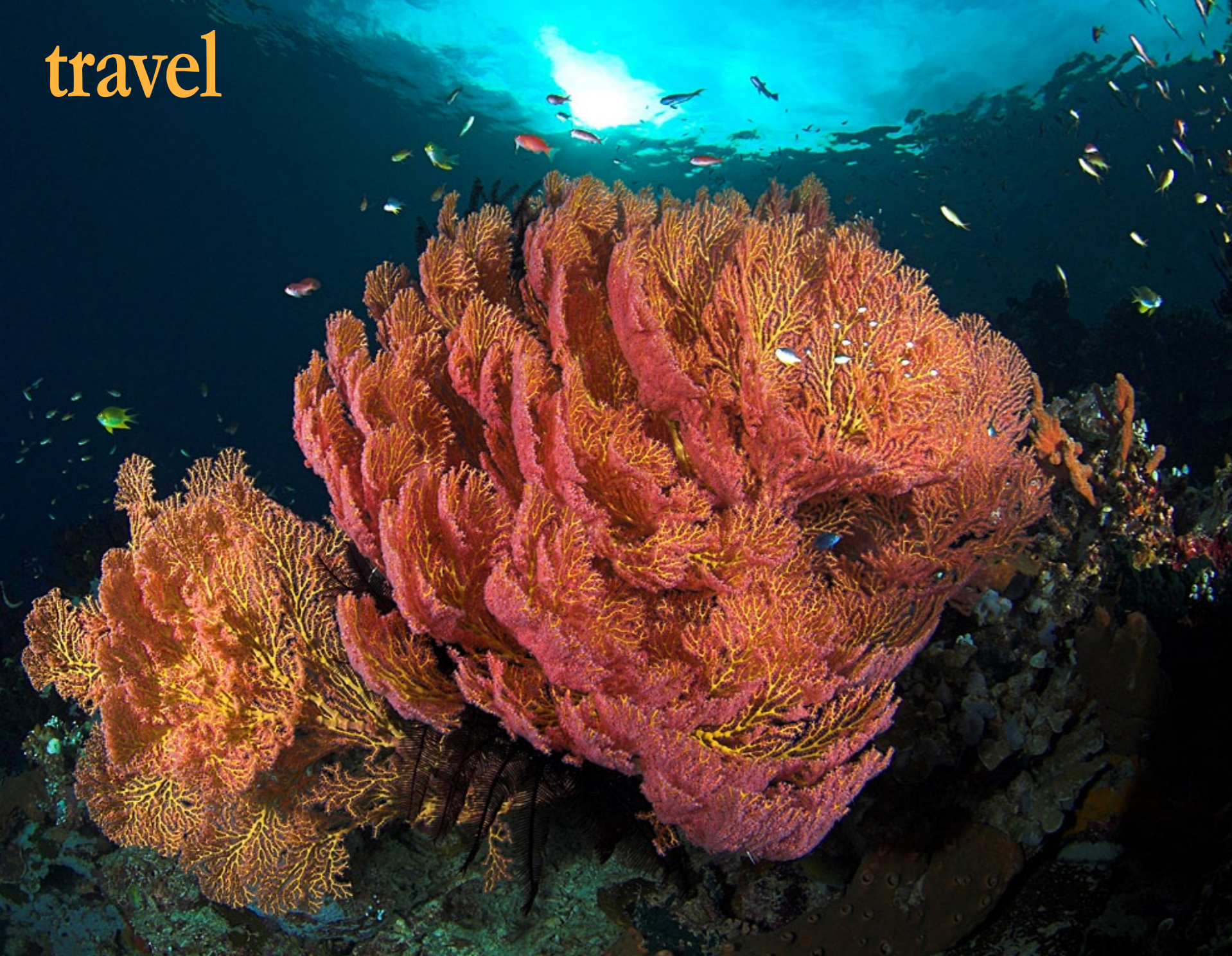
For it was only in the Moluccas, with its equatorial climate and rich volcanic soils, that the aromatic spices of cloves, nutmeg and mace could be found. Perceived to offer protection against the horrendous great plagues that ravaged 16<sup>th</sup>

century Europe and providing the only way at that time to preserve and flavor meat, these exotic spices were so valuable that they were literally worth their weight in gold.

In the great race to find and then control their source, Christopher



Mike's Point



Columbus discovered the New World of the Americas, Ferdinand Magellan's expedition circumnavigated the world for the first time, and Vasco Da Gama rounded the Cape of Good Hope at the tip of Africa and established the sea route to the Indian sub-continent.

Today, those spices are a common supermarket commodity and the Spice Islands, a group of five volcanic islands located off of the west coast of the island of Halmahera and the Banda Islands—some 500km to the southeast—are quiet outposts in the huge Indonesian

archipelago.

These days, a new breed of adventurer is exploring the Halmahera area of the Moluccas. Instead of spices, explorers are looking for exciting places to dive. Ironically, many of the liveaboard vessels in this area are local Pinisi boats modeled after the European sailing ships that came looking for the spices in the 16<sup>th</sup> century.

### The Indonesian Throughflow

— *A Phenominal Force of Nature*  
Northern Indonesia first established

itself on the international dive map with Bunaken Marine Park on the west coast of North Sulawesi near Manado, and then, the critter Mecca of the Lembeh Straits on the east coast, followed by the Raja Ampat area on the northeastern tip of Irian Jaya—the Indonesian eastern half of the island of New Guinea—which has established an almost legendary reputation in recent years as a must-dive location.

The diving in these areas is particularly special because of what is known as the “Indonesian Throughflow”—the

## Halmahera

phenomenal flow of water from the Pacific Ocean to the northwest of Indonesia into the Indian Ocean to the south of the archipelago. (See sidebar next page.)

### Off the beaten track

The sheer size of Indonesia means that any journey to its more remote regions involves a fairly significant amount of travel, and to experience the Halmahera region means being prepared to go the distance—and roll with the punches.

My personal journey involved an overnight flight from Sydney to Singapore followed by the morning flight with Silk Air to Manado and an overnight stay—well sort of... we had to check out of the hotel at 2:00am to get to the airport in time for the 4:30am departure with



CLOCKWISE: Superb fan corals in the Proco Channel of the Patintie Straits; The SMY Ondina under full sail; Airborei pier



## THE INDONESIAN THROUGHFLOW

The Indonesian Throughflow is the result of monsoonal weather patterns and oceanic currents that combine to create higher water levels and temperatures in the Pacific Ocean, which together with its lower salinity, result in a flow of water so large that traditional measurements are not big enough to measure it!

The *Sverdrup*, named after the Norwegian scientist Harald Sverdrup who invented it, is used and one Sverdrup is one million cubic meters of water per second. A popular analogy used to visualize this flow of water is if you imagine a river 100m wide, 10m deep and flowing at four knots. Then imagine 500 similar rivers—that's one Sverdrup.

It is estimated that the total amount of seawater that passes through the Indonesia archipelago because of the Throughflow is 20-22 Sverdrups, or 10,000 of those fast-flowing rivers.

A basic understanding of the Throughflow mechanism, together with a look at the map quickly puts into perspective why parts of northeastern Indonesia offer such fantastic diving.

Northeast Sulawesi, together with Raja Ampat in Irian Jaya and the largely unexplored area of Halmahera in the Moluccas is where the flow of water from the Pacific Ocean first touch major landfall.

There is a very simple principal that applies with the world's oceans and seas, and the marine biota that inhabits them, which is when something dies, it usually sinks to the bottom. This detritus of the sea, rich in phosphorus and nitrogen from the decayed organisms, would remain on the bottom were it not for the effect of the Throughflow.

The tremendous flow of water resulting from the Throughflow produces cold water upwellings from the deep trenches and basins to the north of Indonesia, which bring the rich nutrients that are a significant part of the reason why those areas of Indonesia, which are exposed to it, are so rich and biodiverse. ■



Luscious soft corals at Sardine Reef





Striped sweetlips at Mike's Point (above); Manta Ray at 3m near Raja Ampat (top right); Schooling Fusiliers at Mike's Point (right)

Merpati Airlines to Sorong in Raja Ampat. I did not complain though, as several of my new best friends on this trip were from the United States and had already been traveling for over 48 hours at that point in time.

Arrival in Sorong at 7:00 in the morning meant that, first of all, we were finally there and able to board our waiting liveaboard, the MV *Ondina*. Secondly, we still had a full day ahead of us and a chance to sample some of the superb diving in the area before starting our journey towards the strangely-shaped island of Halmahera and onwards to our final destination of the Lembeh Strait in North Sulawesi.

## Raja Ampat

Much has been written about Raja

Ampat in the last seven to eight years, and the area has achieved almost cult-like status in the diving community. There is absolutely no doubt that Raja Ampat truly is one of the last frontiers in global diving, and I have personally enjoyed some of my most memorable dives in the area.

On this trip, I was lucky enough to revisit two of my personal favorite locations—Sardine Reef and Mike's Point.

Sardine Reef is a large circular seamount located to the east of Kri Island on the northern side of the Dampier Strait, which means that it sits right in the path of the Indonesian Throughflow, as it surges through the Strait. Its eastern tip is where the current hits the seamount, and diving

the site is a kind of like the Goldilocks and porridge situation—not too hot, as it's incredibly difficult to do much more than hold on to your mask, and not too cold, otherwise the phenomenal fish life goes off the boil.

Sardine is a very “fishy” dive, and when it is at its peak, it is hard to take in the sheer volume of pelagics schooling in the rich current—so many in fact that you will often hear the so-called “fish thunder” phenomena produced by cavitation in the water column when a large volume of fish moves rapidly.

Mike's Point is also near Cape Kri on the northern side of the Dampier Strait, but rather than being a submerged seamount like Sardine, it makes its presence felt by breaking



LEFT TO RIGHT: Diver poses with soft coral at Pantai Sago reef on the southern side of Tifore; Beautiful fans and sponges at Rennie's Rock in the Goweba Channel in the Goraici group of islands; Goraici Islanders rowing home at sunset



the surface with a small rock roughly 30m in diameter. So strong is the current that can flow past it, that U.S. forces surveying the area in WWII thought it was the wake of a camouflaged Japanese ship and bombed the island!

There are two things that I think make Mike's Point really special in an area that has some pretty incredible diving—the massive aggregation of sweetlips on the southern wall and the sublime coral garden in about 10m of water, occupying what appears to be a large crater from the WWII bombing.

Exploring the wall and the sweetlip aggregation make for an exhilarating first part of the dive. Then, taking an extended deco stop in the coral gardens—with the sun streaming down creating a cathedral light effect—is to die for.

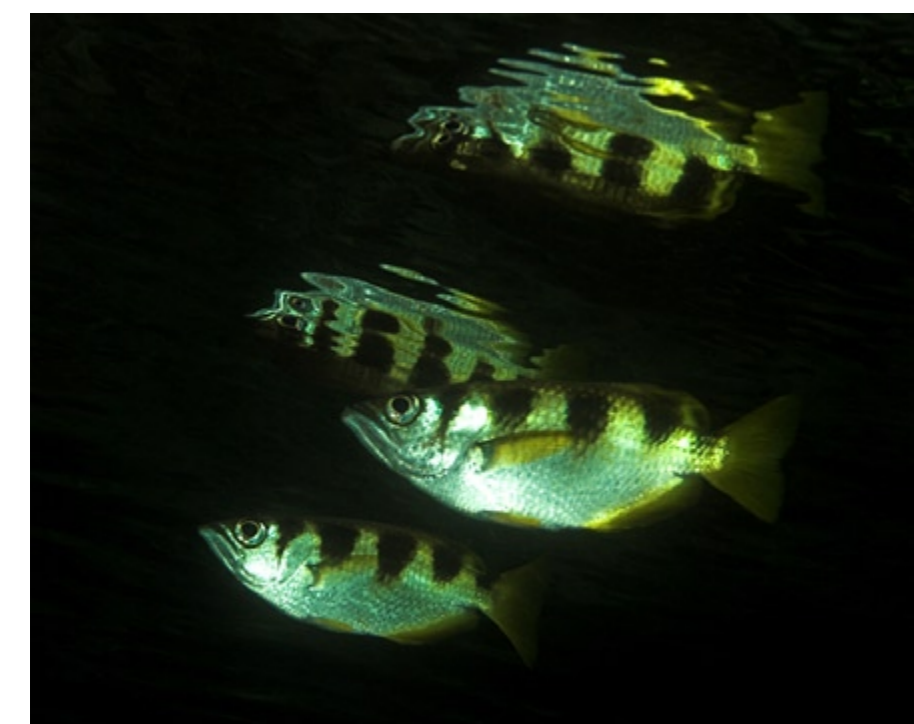
**Misool**

From Raja Ampat and the excitement of diving the Dampier Strait, our journey to Halmahera took us southwest on an overnight 12-hour cruise to the western tip of the large island of Misool and the

group of six small islands called the Blue Water Mangroves.

As the name suggests, these low-lying islands are densely covered in mangroves, but unlike many other such habitats, their position in the Halmahera Sea and their close proximity to each other creates a situation whereby they are flushed with clear blue water on every rising tide—creating a pretty unique dive location.

Mangroves are normally associated with the word *swamp* because of the high concentration of sediment and



Archer fish in the gin clear water (top left) of the Blue Water Mangroves of Misool; A pair of archer fish and their reflections (bottom left); Soft corals at Airborei pier (above)

other organic detritus, which means that diving in them is not a particularly rewarding experience. But the Blue Water version at Misool is quite extraordinary, and diving them provides a unique insight into these special ecosystems, because you can actually see what is there.

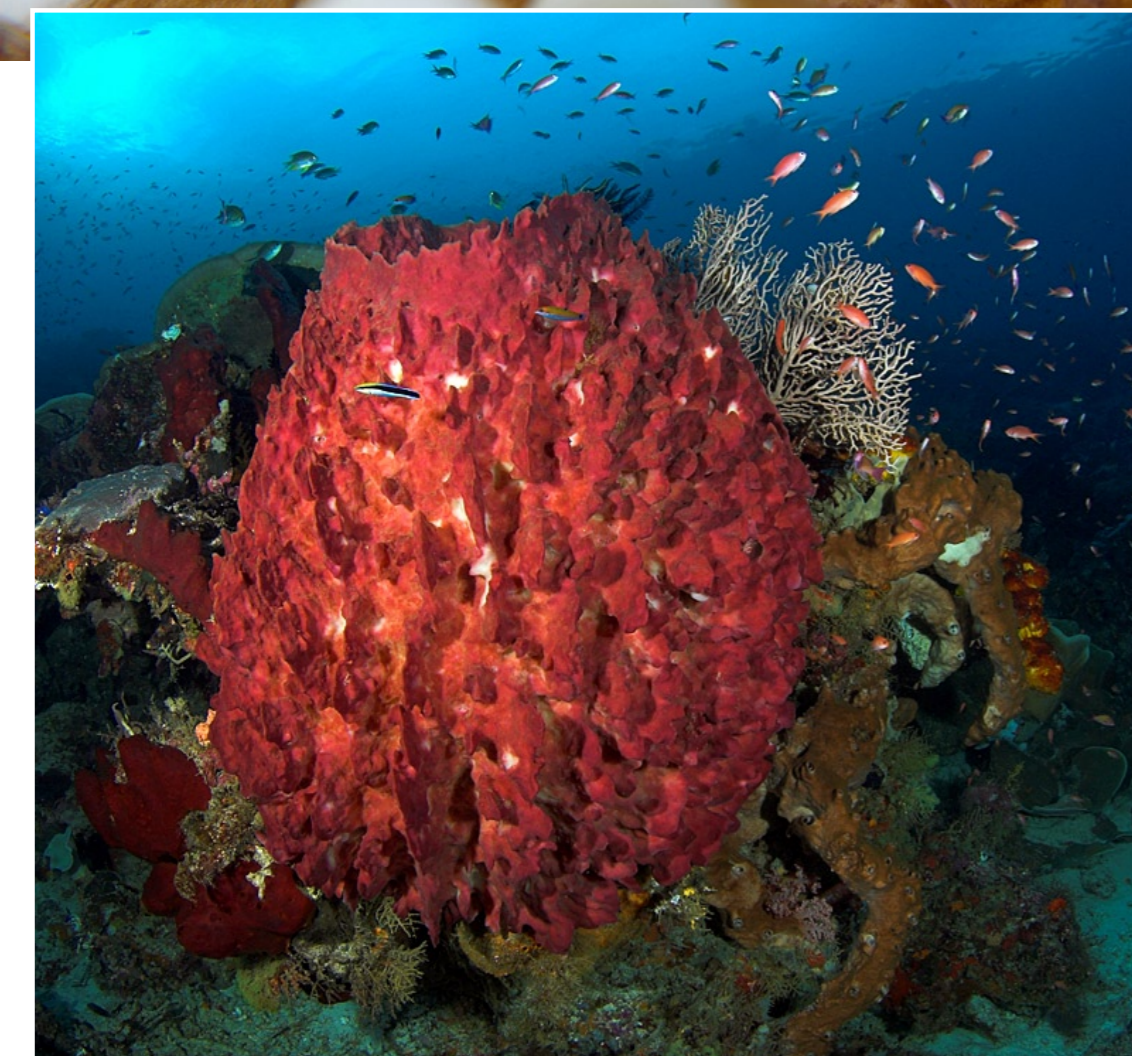
Of particular interest are the coral growths on the mangrove, which are quite spectacular when backlit by an overhead sun streaming through the dense canopy. Also, in the inlets that reach deep into the mangroves, numerous archerfish are to be found practicing their special method

of catching insects with a deadly accurate jet of water spat at high speed from their mouths. Penetrating these inlets on a rising tide is quite surreal, as the water is so clear and so still that it's difficult to tell where the underwater world ends—the archerfish seem to float

through the leafy mangroves above the water. It's also a rather tense experience, as the mangroves are also the perfect habitat for the salt-water crocodile, and a diver was actually attacked by one in April 2009. He lived to tell the tale, but the moral



CLOCKWISE FROM FAR LEFT:  
Translucent anemone shrimp;  
Anemone fish; Amazing sponge  
garden in the Proco Channel  
of the Patintie Straits; Beautiful  
barrel sponge in the Proco  
Channel of the Patintie Straits



of the story is always let the dive masters know where you are going and be very vigilant.

### Out there

In the middle of the Halmahera Sea roughly equidistant between Misool and Halmahera Island, and a six-hour sail northwest from the Blue Water Mangroves, is the large banana-shaped island called Pisang and the nearby two smaller islands called Batuaner Kecil.

All three islands rise steeply from the deep waters of the Halmahera Sea and are richly coated in dense vegetation. Underwater, the two Batuaner Islands and connected by a reef, which is extremely vibrant and covered in hard and soft corals in a kind of mirror image of the dense vegetation above water.

The three islands sit right in the path of the Indonesian Throughflow and, as it passes around them, their shapes and underwater topography produce the



perilous downdrafts that are a constant potential danger when diving the best sites in Indonesia.

Diving such locations requires what Ricard Buxo, the Spanish cruise director of

*MV Ondina*, calls a rapid negative entry whereby everybody in the dive tender is geared up and ready to go. The tender then positions itself up-current of the site, and on the signal, the engine is killed and



everybody rolls backwards at the same time, grab cameras and get down quickly before the currents take you away.

The trick is to get to the front of the site where the current hits it, central enough and deep enough to avoid being pulled to the side or taken over the top by the flow of water. This is where the effect of the current is reduced and the best action is to found, plus further down is often where the "big dogs" can be found.

### Halmahera Island

From Pisang Island, it was another six-hour overnight sail to Djorong Island, at the

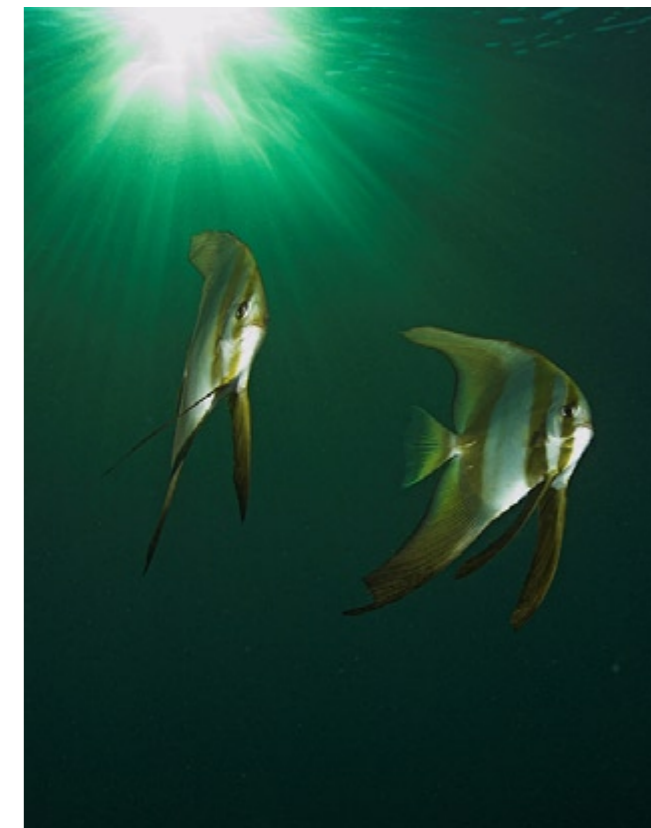
southern tip of Halmahera, where over the next few days we dived the reefs of Karang Dorobi, Ganone and Nenas, and then several sites in the Patintie Strait between the eastern side of Halmahera and the large island of Bacan.

Most of the sites in the Patintie Strait and particularly the ones in the Proco Channel, between two small islands that sit out in the Strait, are classic big current dives requiring the rapid negative entry and a pair of vigilant dive tenders.

On several of these dives, I tagged on behind Ricard Buxo as he centralized himself where the current hit the reef and then

went down to around 40m looking for the "hot spot" where the current first touches the reef, bringing with it cold water from the deep rich with the detritus of the sea. Plankton feeders love this "sea soup" and gather where it hits the reef, which creates the foundation of a mini-ecosystem as the other layers of the marine food chain work the area.

Although quite deep, and pretty exciting because of the larger predators that gather there, the current is quite manageable, as it only really gathers intense velocity as the depth reduces. We saw numerous large gray reef sharks cruising the current



Delicate soft corals (left) can be found decorating the mangroves; Batfish at sunset underneath Airborei pier (above)

had one more treat in store—Tifore Island in the middle of the Molucca Sea halfway between Halmahera and North Sulawesi and just about as remote as it gets!

On the southern side of Tifore is a reef at Pantai Sago known for a school of barracudas said to number over a 1,000. We dived the southeast face of the reef where the current hits the reef. It is really a great dive, with superb hard and soft corals down deeper, and huge shoals of schooling fish.

The day we spent diving Tifore before the final nights sailing to Lembeh was the perfect end to a fantastic trip through Halmahera—remote locations, big currents and fantastic diving.

Hard to beat...

*Don Silcock is a dive writer and underwater photographer originally from the United Kingdom, but now based in Sydney, Australia. For more information on diving in Indonesia, Papua New Guinea and Australia visit: [www.indopacificimages.com](http://www.indopacificimages.com) ■*

and down deep, way beyond the limits of recreational diving, were the unmistakable profiles of great hammerheads.

### The Goraici Islands

From the Patintie Straits, another overnight sail took us further to the northwest into the Molucca Sea and the

Goraici group of islands.

The Goraici's are about 75km south of Ternate and Tidore—the original main Spice Islands off the west coast of Halmahera, and the only place in the world where cloves could be found.

The people of the Goraici's have an enviable reputation as pragmatic environmentalists who have succeeded

in keeping their reefs healthy and in good condition by preventing the twin scourges of dynamite and cyanide fishing that has done so much damage elsewhere in Indonesia.

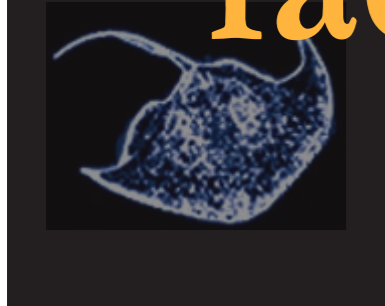
The area is indeed rich in marine life and at Tagani Bay on the northwest tip of Kayoa Island is where the celebrated ichthyologist Jerry Allen had his highest

fish count of 303 species on one dive. Our dives in the area were notable for strong currents, clear blue water, healthy reefs with rich hard and soft corals and cruising sharks and pelagics.

We spent two days diving the Goraici Islands, but could easily have spent a week in the area. However, our journey was coming to an end, and yet, we

# fact file

## Indonesia



SOURCES: CIA.GOV WORLD FACTBOOK, STARFISH.CH

**History** In the early 17th century, the Dutch began to colonize Indonesia. From 1942 to 1945, Japan occupied the islands. After Japan's surrender in WWII, Indonesia declared its independence, however, it took four years of negotiations, recurring hostilities and mediation by the United Nations for the Netherlands to finally agree to transfer sovereignty in 1949. 1999 marked the year of Indonesia's first free parliamentary election after decades of repressive rule. The world's third-largest democracy, Indonesia is the world's largest archipelagic state. It is also home to the world's largest Muslim population. Current challenges include: improving education, alleviating poverty, curbing terrorism, initiating economic and financial reforms, controlling corruption, holding the military and police accountable for human rights violations in the past, addressing global warming, and controlling bird flu. An historic peace agreement with armed separatists in Aceh was reached in 2005, which led to democratic elections in Aceh in 2006. However, the government still faces sporadic armed resistance by the separatist Free Papua Movement. Government: republic. Capital: Jakarta

**Geography** Indonesia is an archipelago of islands located in Southeastern Asia, between the

Indian Ocean and the Pacific Ocean. Coastline: 54,716 km. The terrain is mostly coastal lowlands with interior mountains on the larger islands. Lowest point: Indian Ocean 0m. Highest point: Puncak Jaya 5,030m. Note: Indonesia is made up of 17,508 islands of which 6,000 are inhabited. It straddles the equator in a strategic location adjacent to major sea lanes from Indian Ocean to Pacific Ocean. Piracy and armed robbery has been known to occur against ships in the territorial and offshore waters in the Strait of Malacca and South China Sea.

**Climate** Indonesia has a tropical, hot, humid climate with more moderate temperatures in the highlands. Natural hazards include severe droughts, occasional floods, earthquakes, tsunamis, volcanic activity and forest fires.

**Environment** Deforestation; water pollution from industrial wastes, sewage; air pollution in urban areas; smoke and haze from forest fires. Indonesia is party to agreements including:

Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94, Wetlands. The country has signed, but not ratified Marine Life Conservation.

**Economy** As a vast polyglot nation, Indonesia has been able to weather the global financial crisis relatively smoothly due to its heavy reliance on domestic consumption as the impetus for economic growth. To counter the effects of the crisis, the government used fiscal stimulus measures and monetary policy and offered cash transfers to poor families. Consumption was partially buoyed by campaign spending in advance of legisla-

tive and presidential elections in 2010. Economic advances and significant reforms in the financial sector, including tax and customs reforms, the use of Treasury bills, and capital market development and supervision, were made under President Yudhoyono. Increasingly robust GDP growth and sound fiscal stewardship has steadily reduced Indonesia's debt-to-GDP ratio in recent years. Persistent challenges include poverty and unemployment, inadequate infrastructure, corruption, a complex regulatory environment, and unequal resource distribution among regions. Natural resources: petroleum, tin, natural gas, nickel, timber, bauxite, copper, fertile soils, coal, gold, silver. Agriculture: rice, cassava, peanuts, rubber, cocoa, coffee, palm oil, copra; poultry, beef, pork, eggs. Industries: petroleum and natu-

ral gas, textiles, apparel, footwear, mining, cement, chemical fertilizers, plywood, rubber, food, tourism.

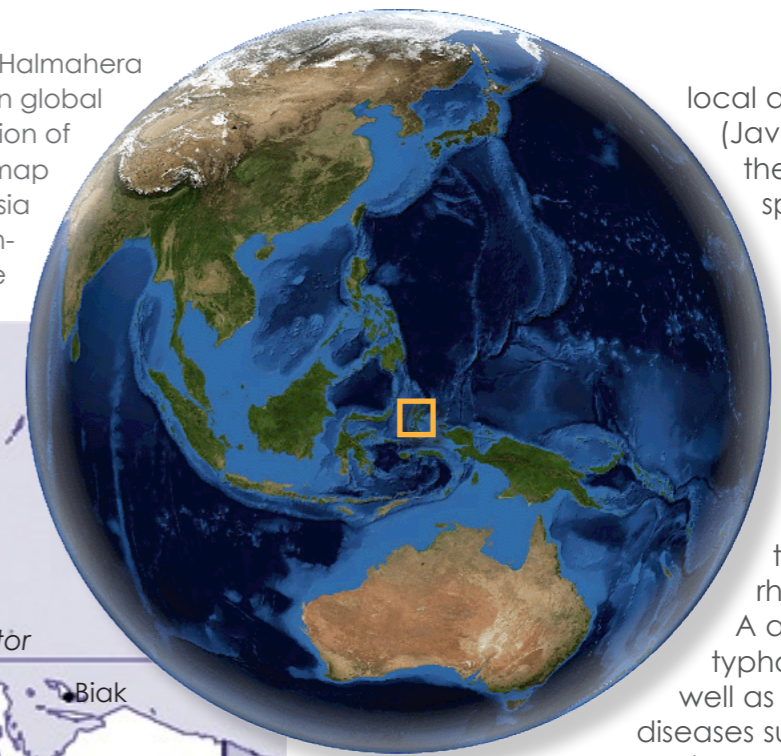
**Currency** Indonesian Rupiah (IDR). Exchange rates: 1EUR = 11,715.31 IDR; 1USD = 8,980.00 IDR; 1GBP = 14,032.15 IDR

**Population** 240,271,522 (July 2010 est.) Ethnic groups: Javanese 40.6%, Sundanese 15%, Madurese 3.3%, Minangkabau 2.7%, Betawi 2.4%, Bugis 2.4%, Banten 2%, Banjar 1.7%, other groups 29.9%. Religions: Muslim 86.1%, Protestant 5.7%, Roman Catholic 3%, Hindu 1.8%, other religions 3.4% (2000 census). Living with AIDS/HIV: 270,000 (2007 est.) Below poverty line: 17.8% (2006). Internet users: 30 million (2008)

**Language** Bahasa Indonesia (which is the official, modified form of Malay), English, Dutch,



RIGHT: Location of Halmahera Island of Indonesia on global map. BELOW: Location of Halmahera Island on map of Indonesia. BOTTOM RIGHT: Clownfish in anemone



local dialects (Javanese is the most widely spoken)

**Health** There is a high degree of risk for food or waterborne diseases such as bacterial diarrhea, hepatitis A and E, and typhoid fever, as well as vectorborne diseases such as chikungunya, dengue fever and malaria. Note: There have been cases in Indonesia of the highly pathogenic H5N1 avian influenza. However, it poses a negligible risk to visitors.

ral gas, textiles, apparel, footwear, mining, cement, chemical fertilizers, plywood,

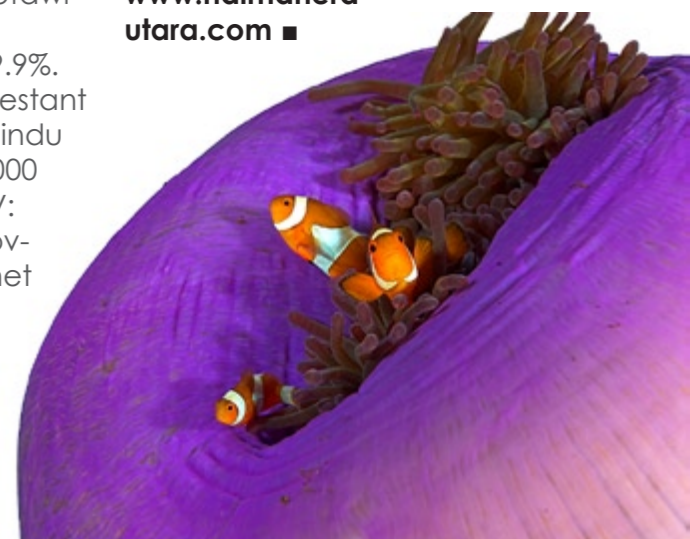
malaya. Note: There have been cases in Indonesia of the highly pathogenic H5N1 avian influenza. However, it poses a negligible risk to visitors.

### Hyperbaric Chambers

Manado (Sulawesi): Malalayang Hospital, tel: 0812-4302970; and Professor Dr Kan-dou Hospital, tel: (+62) 8134-0000840  
Makassar (Sulawesi): Rumah Sakit Umum Wahidin Sudirohusodo  
Tel: (+62) 0411-584677

### Websites

Tourism Indonesia  
[www.indonesia.travel](http://www.indonesia.travel)  
Halmahera Island Tourism  
[www.halmahera-utara.com](http://www.halmahera-utara.com) ■



# turtle tales



Edited by  
Bonnie McKenna

## Last year a deadly time for turtles

More sea turtles were killed or injured in the Gulf of Mexico during the months following the BP oil spill than any other time in the past 20 years.

The National Wildlife Federation suggested that as many as 600 turtles were hurt by the spill, but it is not clear how many died as a result to ingesting the crude or how many drowned in fishing nets as the fishing industry scrambled

to catch as much fish and shrimp as they could before the oil spoiled them. Some turtles also died as a result of extreme cold.

The Federation scientists said the turtles suffered more than any

other species because their populations are already low, and it takes turtles a long time to reach maturity. It takes turtles 10 to 30 years to reach maturity, meaning it could take decades to restore their population.

During the spill, wildlife officials and volunteers undertook Herculean efforts to try to save to save the turtles. Hundreds of loggerhead nests, containing approximately 15,000 hatchlings, were successfully transported and later released into the Atlantic Ocean. ■



## New legal settlement means fewer Loggerheads will die

Under a new agreement between environmental groups and the government, fewer sea turtles will die on the swordfish industry's longlines. The Turtle Island Restoration Network, Center for Biological Diversity, and KAHEA sued the National Marine Fisheries service for allowing 46 loggerhead turtles to be hooked last year; the new settlement caps the number at 17 per year. Meanwhile, the Fisheries Service is deciding whether loggerhead turtles need more protection under the Endangered Species Act.

For leatherback turtles, the bycatch limit is 16 per year. In 2010, eight Pacific leatherbacks and seven loggerheads were caught in the long line fisheries. In 2011, there have already been four loggerheads captured; this has the sea turtle

conservationists concerned.

KAHEA said that this is a victory not just for the turtles, but for the people of Hawaii who rely on a healthy ocean ecosystem.

"Pacific loggerhead sea turtles are nearly extinct, so this bycatch rollback helps right a serious wrong," said Teri Shore, program director at Turtle Island Restoration Network.

Swordfish long line vessels trail up to 60 miles of invisible fishing line, suspended in the water with floats and with as many as 1000 baited hooks. Sea turtles, sea birds and sea mammals become hooked as they swim through this curtain of hooks in search of food; the result is drowning or serious injury. ■

Baby loggerhead sea turtle



## A record breaking cold in Texas results in 1,040 sea turtles needing rescue

Corpus Christi, Texas has experienced a record breaking cold. The number of cold-stunned green sea turtles that have been rescued in a two day period has risen to 1,040.

"We are snowed under with sea turtles," said Donna Shaver, division chief of Sea Turtle Science and Recovery at Padre Island National Seashore.

Kevin Weatherbee spent two days rescuing 42 cold-stunned turtles, sometimes wading into chilly water to bring them into his bait shop. There were so many turtles he ran out of blankets and towels to wrap them in.

"We've had hundreds of volunteers find more turtles in two days than have been found on the Texas coast in any individual year," said Shaver.

Because turtles are reptiles their body temperature

fluctuates with the temperature of the environment, cold stuns the turtles. It leaves the turtle motionless, and they float to the surface. If not found, they cannot raise their heads out of the water, and they drown.

"We're working really hard, and I feel optimistic at this point that we've done a really good job," Shaver said. "Those turtles are going to get back into the wild safe and sound in a few weeks." ■



Leatherback sea turtle hatchlings head to the sea

## Leatherback nesting beaches in Costa Rica are threatened by development

A letter was delivered to Costa Rican President Laura Chinchilla from scientists opposed to legislation that would weaken protections for sea turtles in Las Baulas National Park, one of the last nesting beaches for critically endangered leatherback left in the world.

The scientists are concerned that the proposal will downgrade the national park to a wildlife refuge. Losing national park status will allow the building of beach houses hotels and other structures along the sensitive nesting beach. A vote on the proposal has not yet taken place.

Costa Rica's reputation for protecting leatherback turtles, preserving wildlife and planning for climate change would experience a major setback if the law were to be enacted.

The nesting beaches in Las Baulas National Park are critical to the survival of the leatherback sea turtle. Their populations have crashed by at least 95 percent in the past two decades and are not recovering. ■

USNPS

JEFF POLLIN/MARINE PHOTOBANK

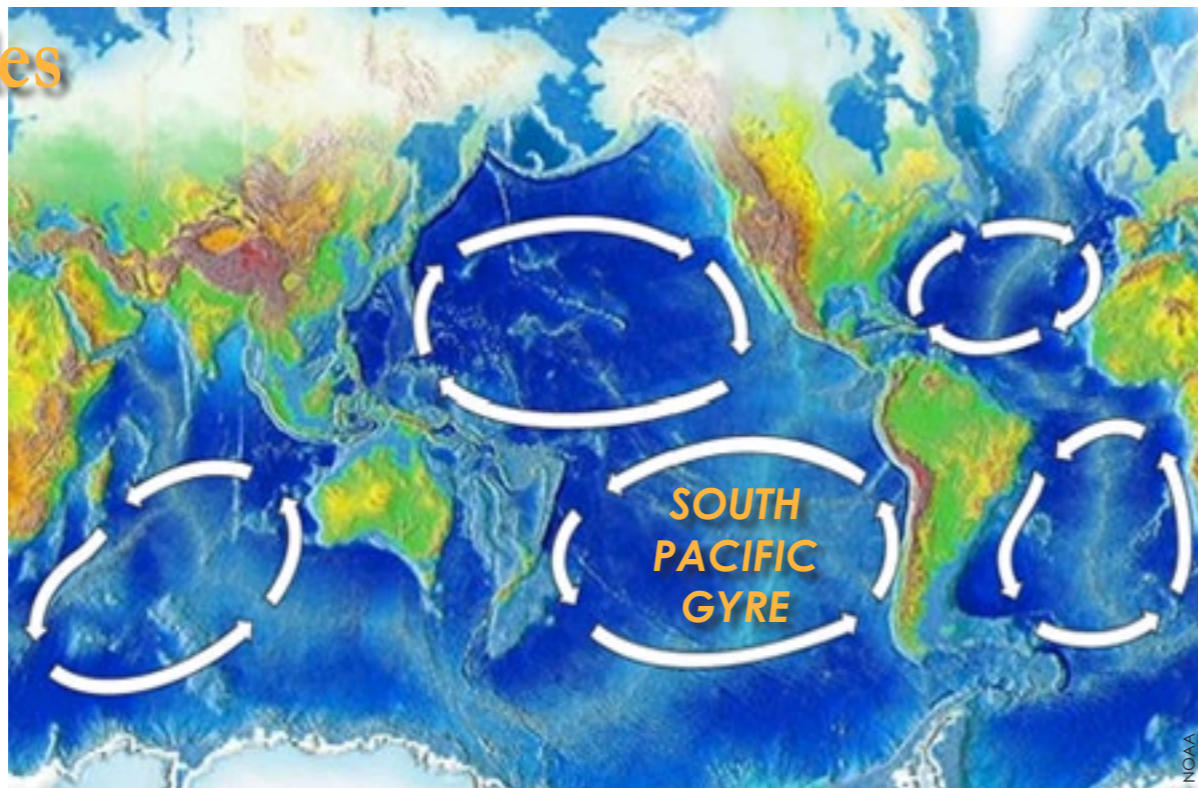




# turtle tales



The South Pacific Gyre is a clockwise-swirling vortex of ocean currents located in the South Pacific Ocean



## Why leatherback turtles linger in the South Pacific Gyre

New data from a five-year project of tagging and tracking leatherback sea turtles are providing information into their behavior, explaining why they congregate in one of the most nutrient-poor regions in the oceans, the South Pacific Gyre and also helps predict their movements in the ocean.

This new information may offer a way to keep the turtles out of harm's way and give their population a chance to rebound.

Because only limited information is available concerning the diversity, abundance and distribution of the leatherback's favorite prey—jellyfish—within the South Pacific Gyre, no one knew whether the turtles had food there or not.

Data that came back from the tagged turtles suggests that there may be plenty of jellyfish there to feast upon.

Scientists saw a distinct reduction of swimming speed as the turtles approached the gyre, they made more turns, diving more frequently and diving deeper, all suggesting

feeding behavior.

Another piece of evidence was the timing of the dives. Jellyfish engage in daily vertical migrations, moving to shallower depths at night and returning to deeper depths during the day. The leatherback's dives mirrored those movements. The nighttime dives averaged 38 meters while daytime dives averaged 65 meters.

The deepest reported dive in this study was to a depth of more than 900 meters, for approximately 84 minutes, the longest dive on record.

One of the biggest hazards leatherbacks face is longline fishing. The problem for the turtles is that the areas attractive to commercial fisheries are also attractive to leatherbacks and other non-targeted species know as bycatch.

Hopefully, the data will help scientists pinpoint areas where fishing activity is most likely to coincide with turtle activity and determine what mitigation measures would be most effective.

Temporary closure of certain areas: breeding zones, migration routes and foraging habitats may be one possible measure. Modification of fishing techniques, such as deploying hooks at depths that are least likely to be occupied by turtles is another suggestion.

Another piece of data that has confounded scientists, in this study, involves some synchronized swimming. When the turtles hit about 35 to 37 degrees latitude south of the equator, the turtles stop swimming south and fan out along a belt east to west hundreds of miles apart. Then, in concert, responding to some unknown cue, they would swing northward, all at about the same time.

The scientists hope that these findings will further humanities efforts to develop workable solutions for reducing our impact and insure the survival of this unique, enigmatic and critically endangered leatherback turtle. ■

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# Sea turtles' magnetic sense

Migratory sea turtles are capable of sensing longitude, using almost imperceptible gradients in Earth's magnetic field.

A variety of animals regularly return to relatively precise locations after migration or displacement, homing pigeons being perhaps the best known example. This behavior seems to imply a *map sense* from which the creatures read either absolute or relative location from at least two coordinates. Direction is one thing but how about position? Latitude is fairly simple to judge, and there is good evidence that animals have this variable well under control. The elevation of the pole point at night, for example, gives the latitude directly; memorizing the constellations allows at least some spe-

ed in systematic variations in the Earth's magnetic field. Those differences, however, are far greater by latitude than by longitude. Travel north or south from Earth's magnetic poles, and their pull weakens noticeably. Travel straight east or west, and the pull doesn't change. Instead, the pull's angle changes, and only to an infinitesimally slight degree. That turtles and other migratory animals could detect such a small

allows turtles to detect latitude magnetically," said biologist Ken Lohmann of the University of North Carolina, who

them, a "dual clock" mechanism analogous to human methods of calculating longitude, which sailors perform by comparing precise differences between the time locally and at an arbitrary longitudinal line, such as the Greenwich Meridian. No such mechanism has been found, however.



## Putting it to the test

Researchers led by Lohmann, placed hatchling loggerhead sea turtles from Florida inside pools of water surrounded by computer-controlled magnetic coil systems. By varying the currents, Lohmann and Putnam could precisely reproduce the geomagnetic characteristics of two points at identical latitude, but on opposite sides of the Atlantic. Into each pool they placed the hatchlings, which in the wild would instinctively follow a migratory path from their home beach and into the currents that circle the Sargasso Sea and loop around the Atlantic.

Turtles exposed to a field like

described the turtle's power in *Current Biology*, February 24. "Up until now, that was where the story ended," he said.

Several nonmagnetic explanations were proposed, foremost among

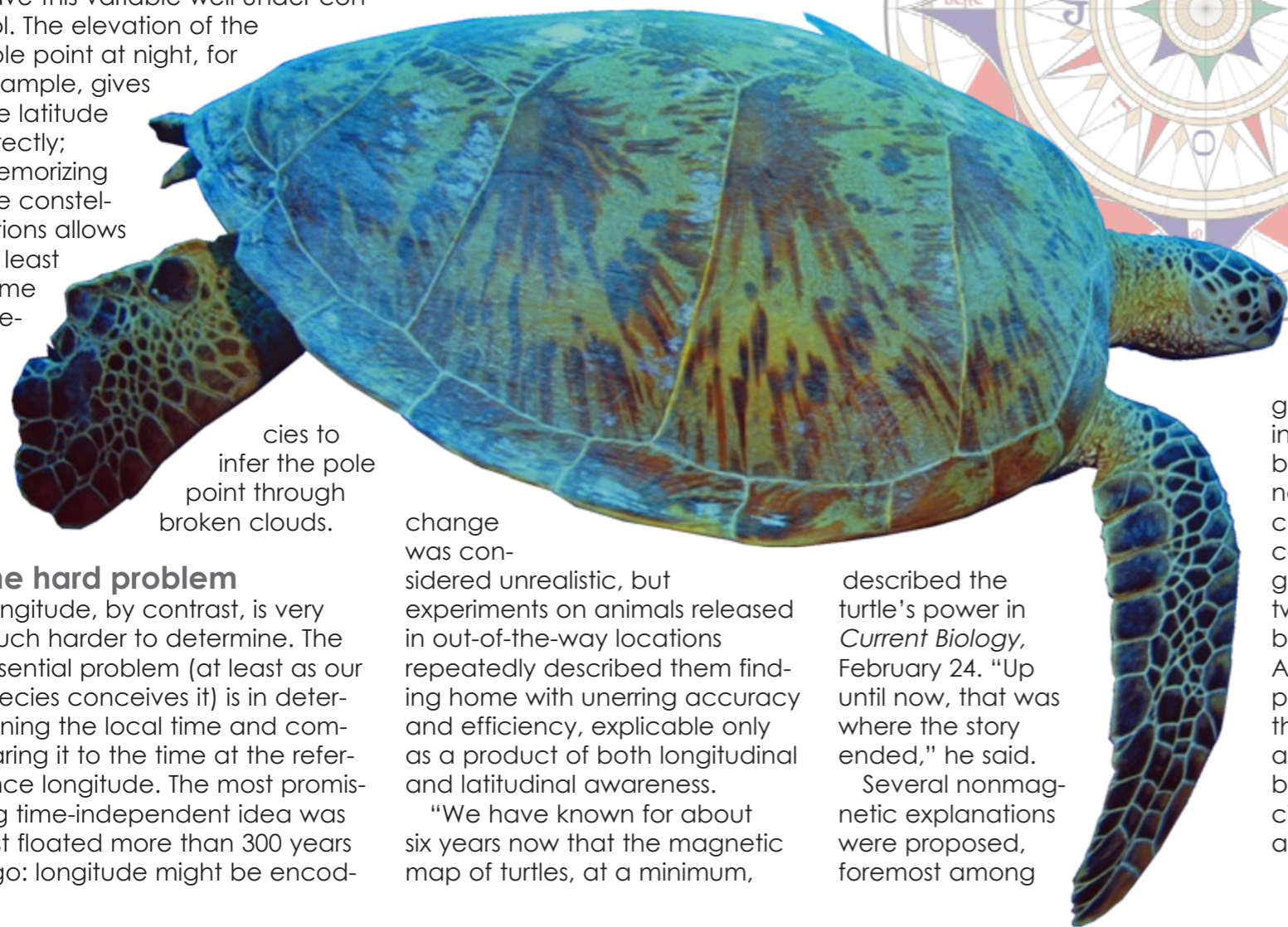
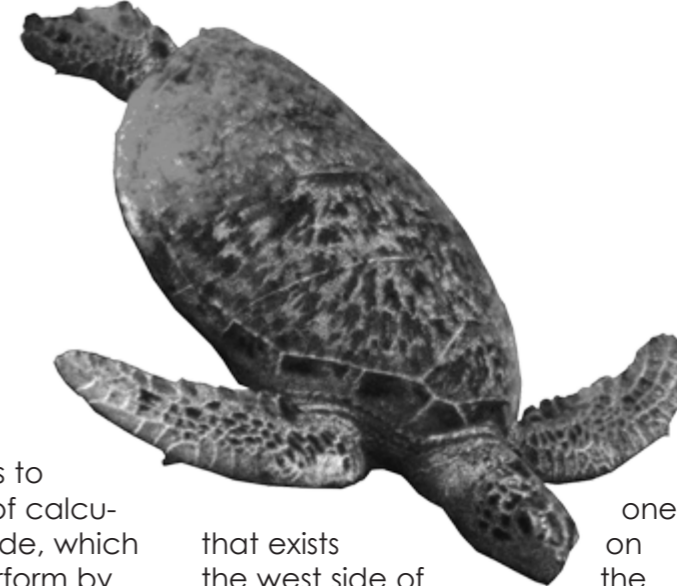
change was considered unrealistic, but experiments on animals released in out-of-the-way locations repeatedly described them finding home with unerring accuracy and efficiency, explicable only as a product of both longitudinal and latitudinal awareness.

"We have known for about six years now that the magnetic map of turtles, at a minimum,

cies to infer the pole point through broken clouds.

## The hard problem

Longitude, by contrast, is very much harder to determine. The essential problem (at least as our species conceives it) is in determining the local time and comparing it to the time at the reference longitude. The most promising time-independent idea was first floated more than 300 years ago: longitude might be encoded



## Welcome to Papua New Guinea



one that exists on the west side of the Atlantic near Puerto Rico swam approximately northeast. Those exposed to a field like one that exists on the east side of the Atlantic near the Cape Verde Islands swam approximately southwest. ■

SOURCE: PUTMAN ET AL., LONGITUDE PERCEPTION AND BICOORDINATE MAGNETIC MAPS IN SEA TURTLES, *CURRENT BIOLOGY* (2011), DOI:10.1016/J.CUB.2011.01.057

*The results demonstrate for the first time that longitude can be encoded into the magnetic positioning system of a migratory animal. Because turtles also assess north-south position magnetically, the findings imply that loggerheads have a navigational system that exploits the Earth's magnetic field as a kind of bicoordinate magnetic map from which both longitudinal and latitudinal information can be extracted.*

**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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# marine mammals

Edited by Kelly LaClaire

## Humpback spotted in Hawaii has odd and disturbing injury

While flying over the shallow waters of Port Allen in February, Gerry Charlebois, owner of the Birds In Paradise Flight School, spotted something he never thought he would see—a humpback whale that appeared to be “bent in half.”

“It was freaky,” said Charlebois. “One of the most disturbing sights I’ve ever experienced while photographing whales . . . the poor guy was in trouble”



GERRY CHARLEBOIS

The pictures the flight instructor managed to take confirm his assessment. Besides the obvious malformation between the dorsal fin

and tail, the sickly looking whale was light-colored, emaciated and had begun to slough skin in areas—all indicators of failing health.

At first, Charlebois thought the whale had experienced a kind of severe, blunt-force trauma, possibly from a ship strike, but after reviewing the photos experts believe he is suffering from scoliosis or curvature of the spine. That’s a rare disorder in cetaceans but scientists say they have seen it in other marine mammals.

The National Oceanic and Atmospheric Administration’s marine mammal response coordinator, David Schofield, says officials are confident the whale was either born with the condition or acquired it somehow over the course of its life and that a traumatic collision is not responsible, saying it’s not plausible an animal hit by a boat would have retained the shape of such an injury. ■ SOURCE: STARADVISOR.COM



SPACEBIRDY / MYNDIR / GFDL CREATIVE COMMONS

On January 14, Nami, a female killer whale who was the main attraction at Japan’s Port of Nagoya Public Aquarium died after prolonged illness. Initially it was suspected that the orca’s death was caused by inflammatory bowel disease but necropsy (animal autopsy) results now show that Nami lost her life from a large number of ingested stones.

An amazing 81.4kg (180lbs) of rock were found in the whale’s stomach. The largest stone was 17cm long and

weighed just over 2kg. A total of 491 various sized stones were found during the autopsy and is the official cause of death.

The rocks eventually caused stomach inflammation and later ulcers as well of bleeding of the animal’s spleen. According to official findings, one pocket of her stomach was sagging from over 70kg of pebbles jammed into it. She had also contracted pneumonia, and the combination of these ailments is thought

of killer whales in large aquarium and theme park shows are speculating that the stress of captivity and boredom caused Nami to begin eating the stones and have called for a review into captivity practices.

The Port of Nagoya Aquarium has stated it will conduct a full investigation with expert scientists later this year.

Nami was captured at the age of three just outside Taiji, Japan, now notorious for its annual dolphin and whale hunts filmed in the documentary *The Cove*. She was kept for 24 years at the Taiji Whale Museum as their star performer. It was here that she is believed to have slowly swallowed the stones, as her habitat was rocky and made to look like a natural cove.

Nami was sold for roughly five million U.S. dollars to the Aquarium in Nagoya where she was supposed to be part of breeding program in June of 2010 but started showing signs of illness only a few months later.

Although female orcas can live up to 80 years in the wild, Nami was only 24 years old. ■ SOURCES: BBC NEWS, WDCS UK, THE ORCA PROJECT

## Six rare dolphins found dead

Environmental authorities reported the death of six rare and endangered Indus River dolphins found along the banks in Pakistan.

Although the exact cause of death has not been determined by official investigation, Wildlife Department deputy head, Ghulam Mohammad, a vocal advocate of the endangered species, blamed the deaths on a combination of extremely low river levels and local fisherman—pointing to their nets and certain toxins used as the culprit.

Local fisherman, such as Meer Ali, who recently talked with a Middle Eastern newspaper, are known to use

certain chemicals to aid catching large amounts of fish but they insist the solutions used are safe and neither contaminate the water nor harm the fish. “The chemical which we use to catch the fish makes them hover over the surface of the river; it does not kill them,” said Ali.

The problem of the chemical’s alleged toxicity is being exacerbated by the severely low water levels of the Indus. Just a small amount of poison would contaminate large sections of the river. The river dolphin is an extremely rare breed of cetacean, living only in the lower reaches of Pakistan’s Indus River and

is nearly completely blind. Having eyes that can only differentiate between light and dark, they rely almost exclusively on echo-location to find prey. These dolphins also employ a side-swimming technique that allows them to hunt in extremely shallow waters and is seen in only one other dolphin species in the world.

Over the last few decades the blind dolphins have battled decreasing habitat, river pollution, fishing nets and, with the construction of irrigation systems fed by the Indus, danger-

ous canals that trap individuals. As of 2006, according to surveys completed by the World Wildlife Foundation, less than 1,300 remain. Some estimates today put the number at more like 1,100.

To find out more about the blind Indus River dolphin and conservation efforts to help replenish its numbers, please visit [www.worldwildlife.org](http://www.worldwildlife.org) ■

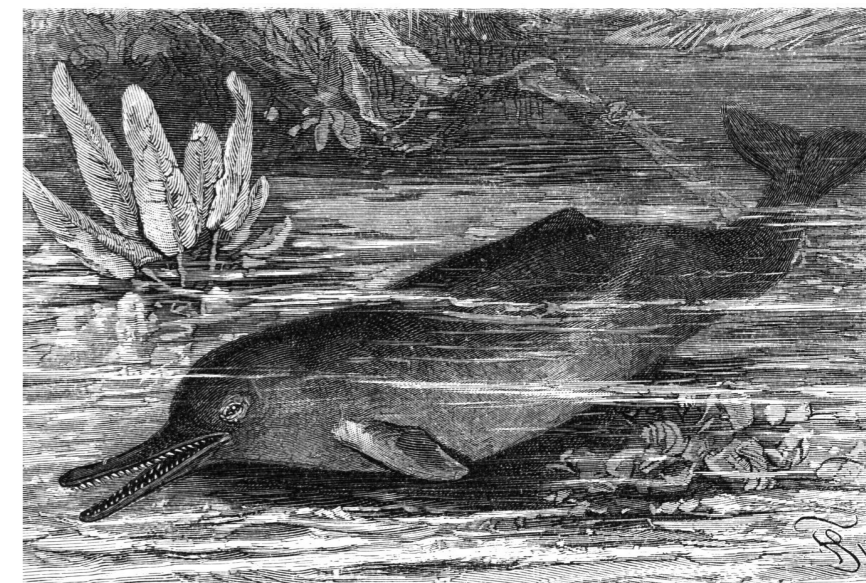


Illustration of Indus river dolphin by Friedrich Specht, 1927





## marine mammals

# Japanese whaling suspension may be a bluff

—Activists prepare for further entanglements

You may have seen Captain Paul Watson commenting on Sea Shepard's recent victory over the Japanese whaling fleet on our X-RAY MAG website. Here's the rest of the story.

In mid-February, Tokyo announced to the world that they would temporarily suspend whaling activities in Antarctica after being relentlessly hounded by the Sea Shepard vessel, *Bob Barker*.

In addition to shadowing Japan's factory ship *Nishin Maru* (a vessel where the dead whales are processed, cut, and frozen), making landing whales on board nearly impossible, Sea Shepard activists also threw rancid butter, smoke grenades and stink bombs on board and deliberately tossed a rope into the ship's propeller to slow it down.

As a result, only a small fraction—reports of 30 to 100—of the 945 whales Japan said it was hunting for scientific research were landed, prompting this statement from Tatsuya Nakaoku, an official with Japan's Fisheries Agency: "The fleet has halted scientific whaling for now. We are currently considering what to do hereafter. We find Sea Shepard's harassment extremely regrettable."

Alex Cornelissen, captain of the world famous *Bob Barker*, was more than enthusiastic about Tokyo's decision. "I think this year will mark the most successful year in (Sea Shepard's) history," he told the New Zealand Press Association. "And we can only hope that this will be the turning point, that this will be the moment the Japanese whaling fleet will decide to throw the towel in and this will be the end of Japanese whaling on the Antarctic."

But Paul Watson, captain of Sea Shepard's vessel, *Steve Irwin*, said he remains suspicious that Japan's announcement may be a bluff to throw environmentalists off their trail. From recent reports and sightings, the *Nishin Maru* was last seen in the Drake Passage between South America and Antarctica, but Watson told Radio New Zealand he fears they may be secretly returning to the Southern Ocean by a circuitous, hidden route. "I believe they may be trying to head across the South Atlantic and into the Indian Ocean to come on the other side of their whaling grounds to start again, and they'll send their harpoon vessels west."

Watson went on to promise that

if it were necessary, he would follow the whalers right around the globe. "We're going to have numerous conflicts with them. Our tactics worked last year, they worked the year before that, and they're working even better this year."

As world-wide awareness of the issue increases, more and more governments are applying pressure to whaling countries still actively hunting, namely Japan, Iceland, Norway and Denmark.

Latin American members of the International Whaling Commission recently urged Japan to end its hunts and respect whale sanctuaries while Australia, one of the world's most vocal whaling opponents, filed a complaint with the international court of justice in The Hague in an attempt to get the hunts banned.

So, how are the Japanese people reacting to all of this? According to the Dolphin and Whale Action Network, the amount of whale meat at storehouses across Japan is estimated to have topped 6,000 tons as of the end of August, a record high.

The rising stocks most likely reflect a falling public demand for whale flesh. Wholesale prices have been cut in the past two years, and the pace of decline in stocks has been slowing more and more, as Japanese people are moving away from whale meat as a regular part of their everyday diets.

Slow sales of wholesale meat combined with fewer and fewer animals being landed due to international pressure and harassed boats may prove to be the final straw for Japan's whaling industry. ■ SOURCE: REUTERS, NEW ZEALAND PRESS ASSOCIATION

Captain Paul Watson of Sea Sheperd



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# Snoots

Text by Keri Wilk  
Photos by Keri Wilk and Alex Mustard

**When I began shooting underwater 15 years ago, the underwater photography world was much smaller than it is today. Traveling with oodles of slide film, being restricted to 36 exposures per dive, and requiring an intimate understanding of how light works are just a few factors which kept underwater imaging from being widely popular.**

Now we're in the digital era, and there have been some drastic changes: high-capacity memory cards allow photographers to shoot until their trigger finger is callused; large, bright LCD displays give instant image feedback, making it easy to nail proper exposures, focus, composition, etc; high-quality compact cameras and housings have been made affordable, even to penny-pinching divers.

What was once a very niche hobby, pursued only by the most determined and passionate individuals, has now become almost as common as scuba diving itself. Okay, maybe that's a bit of

an over-exaggeration, but my point is that the digital revolution has caused an explosion in the number of underwater photographers in the last several years.

Image hosting websites (i.e. Flickr, Smugmug, Picasa, etc.), personal websites and social networking sites have all provided outlets for images to be easily shared with the world. Since photography is often an inspiration-based art, and since there are so many images available at one's fingertips, there is a tendency for images to be imitated—yawning frogfish, pygmy seahorses, silhouetted divers pointing a torch, soft corals hanging from mangrove roots... the list goes on and on. Your photos will blend in with the crowd, unless you do something different. You can either hope for a trip filled with high-impact subjects, or you can put a different photographic spin on ordinary subjects.

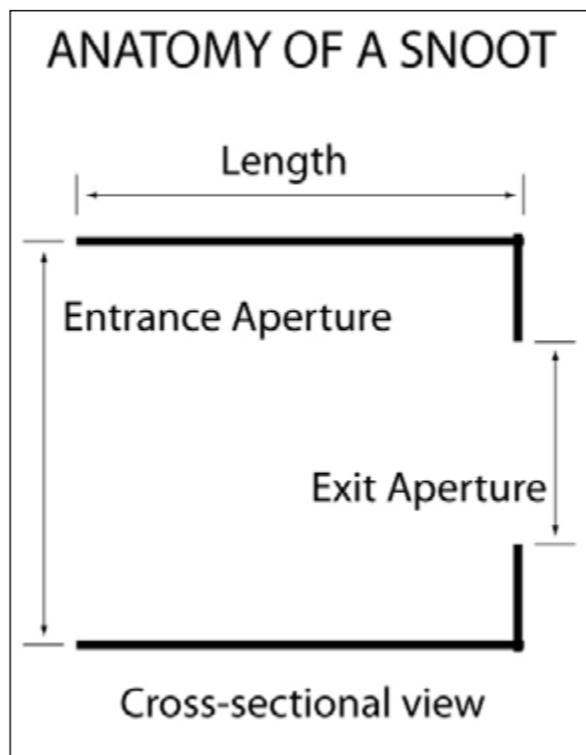
Enter the snoot.

### What is a snoot?

Snoots are devices used to reduce beam angles from light sources in order to provide photographers with more control over the illumination of photographic subjects. In their simplest form, they can be no more complicated than conical or cylindrical pieces of tubing that attach to the front of light sources. Some designs incorporate a fine grid

(egg crate works well), resembling the grill of a car, at the snoot's aperture, to further direct the exiting light beam. They can be constructed very easily from common household items such as: toilet paper rolls, funnels and PVC piping. Take a look around the room you're in right now... chances are that something there can be made into a snoot!

The diameter of a snoot's entrance/exit aperture and its proximity to the light source are two factors that affect the angle of the beam that will be projected from it. The smaller the aperture,



A sailfin blenny meets the tip of my snoot



This sand-coloured snake-eel normally blends in with its surroundings. Snoots allow subjects like this to stand out from their sometimes drab backgrounds



photo & video



© 2011 KERI WILK

This porcelain crab was in a cloud of silt, but, by using a snoot, only a small amount of backscatter was illuminated in this photo

Photographers often strive to create images with black backgrounds to make the subject in the foreground “pop”, but it’s sometimes difficult to prevent strobe light from hitting the background as well. The use of a snoot can solve this problem.

**Minimize backscatter**

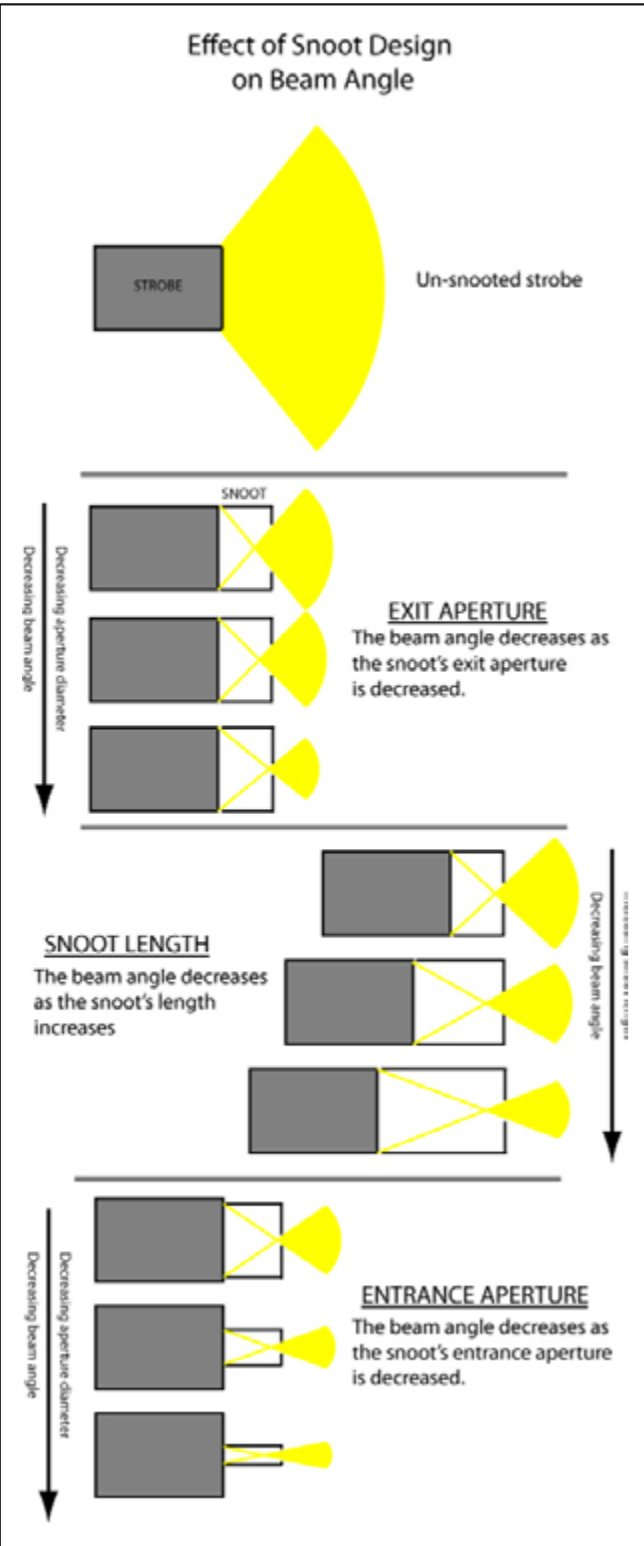
Backscatter is seen in images when stray strobe light illuminates suspended particles between the camera’s lens and the subject. By snooting a strobe, you decrease the beam angle, make it easier to control stray light, and minimize backscatter.



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and farther away it is, the narrower the beam—and vice versa.

The intensity (energy per time per area) of a snooted light beam is highly dependent on the reflectivity of the internal surfaces of a snoot. When constructed from highly reflective materials (white colour, or mirrored), it’s possible to create a more concentrated light beam than the un-snooted strobe, so battery life can be prolonged. Conversely, when constructed from highly absorptive materials (black), you may need to boost the strobe power to maximum in order to obtain well-illuminated images.

**Background**

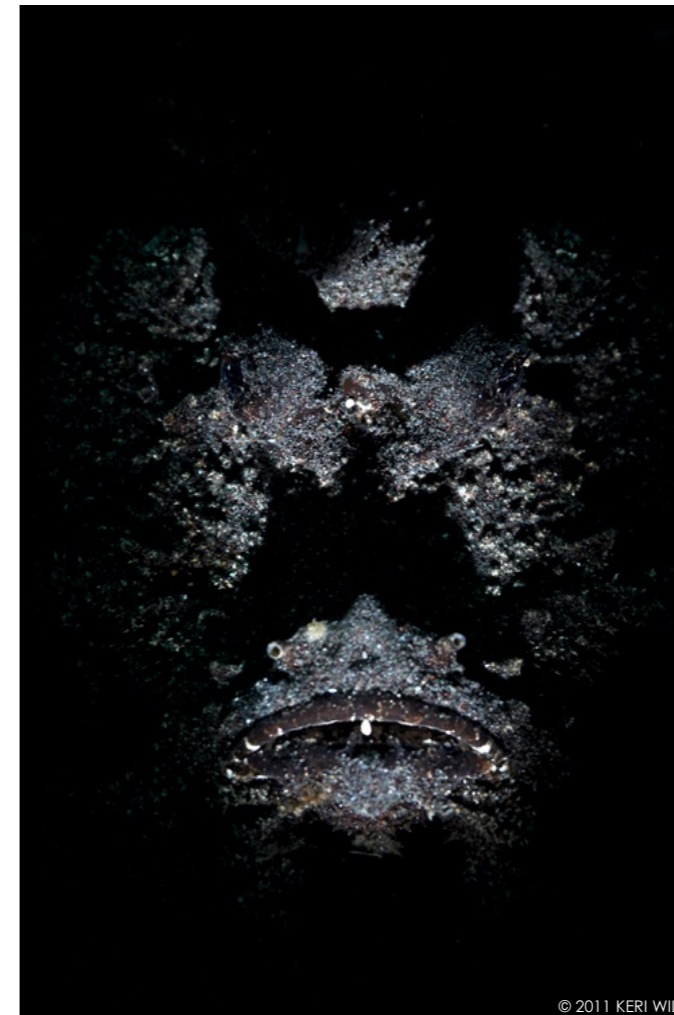
Light-shaping tools such as umbrellas, baffles, grids, diffusers, reflectors and snoots, are commonly used by studio photographers. The restrictions imposed by an underwater environment make some of these tools much less practical for underwater photography. Snoots, in particular, have been experimented with by many underwater photographers and videographers on their strobes and video lights. To my knowledge, most of them have had mixed success, and usually abandoned them out of frustration after a few failed attempts. Their main

drawback is the time and effort required to aim them correctly. For those who do most of their shooting in tropical destinations, the thought of “wasting” several dives trying to light a subject just right isn’t the most appealing idea. For these reasons, snoots have been regarded more as novelties than as useful tools, and have stayed under the radar.

About a year ago, I started doing my own experimentation with snoots. The nervous tick in my left eye, and the bald spots scattered over my head attest to the notorious difficulty of aiming them... but the results were shockingly worthwhile. Now, you’d be hard-pressed to find me diving without my beloved homemade snoots.

**Why use a snoot?**

—*Isolate the main subject*  
Since a snoot greatly restricts a strobe’s beam angle, light can be projected exactly where you want it, eliminating distracting background/foreground elements or giving a spotlight effect.



© 2011 KERI WILK

A single, heavily-snooted strobe casts a strong directional beam of light over the face of this devil scorpionfish, creating strong shadows



First Jury Prize  
Epson Red  
Sea 2009

### Directional lighting

Light coming out of a heavily-snooted strobe is much more directional than without the snoot—as if it were coming from a source that is much farther away. Because the snooted light rays are more parallel, they create harsh, sharp-edged shadows when cast over a textured surface (almost like rays from the sun). The

narrower the beam, the sharper the shadows. This property can be used to emphasize textures of corals, create dramatic shadowy images, or give common subjects unusual moods.

They can create unique images. The above-mentioned uses of snoots can be combined to create exciting, thought-provoking, and most importantly, unique images. Even the most common subjects can be given a “wow factor”, which can make your trip’s image gallery instantly more memorable than others.

Although snoots may not be especially important to casual underwater shooters, they currently have great relevance for shooters interested in entering photo contests. For the

past year, a pair of home(depot)-built, variable-aperture micro snoots (pictured next page) have been a bit of an ace up my sleeve in the competition circuit. Here are a few shots that wouldn’t have been possible without my snoots.



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Snoots

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First Place, Black and White, Antibes 2009

Second Place, Young Underwater Photographer, Scuba Diver AustralAsia 2009

Directional lighting brings out the textures of this coral head adding drama to its abode





Last year, I publicly posted some of my macro and super macro snoot shots on Wetpixel (wetpixel.com). As I mentioned in the introduction, the internet is very effective for sharing images and techniques, so I wasn't surprised by the large number of photographers who contacted me for advice regarding this technique as a result. The way I see it, one of two things will happen: snoots will ride a wave of popularity and then fade back into obscurity, or they'll become essential tools for any passionate underwater photographers.

### Design and Application

Snoots can be used in both wide angle and macro/super macro photography. However, their design and method of application for each of these branches of photography differ greatly.

#### Wide Angle

Wide angle snoots are the simplest to construct. In most cases, sharp-edged beams aren't necessary, so very short and wide-aperture snoots are often enough to do the trick.

When I first took a stab at this lighting technique, my snoots were made from old wetsuit sleeves that were cut into 6-inch bands, and held on my strobe heads with trusty zip-ties. The amount of beam restriction could be controlled by the distance the neoprene snoot was extended. The ability to vary the beam angle like this is an important characteristic of any snoot, since it expands your creative possibilities.

Aiming strobes with laser precision isn't necessary; you can usually eyeball proper alignment relatively easily. Don't be afraid of taking some initial test shots to make sure that light is being directed where you want it—but when the time comes for the money shot, make sure you keep the framing consistent with the test shots, or else you may end up back

at square one. If your strobe has a strong modeling light, switch it on and use it to simplify the aiming process. If the subject you want to photograph is somewhat deep, you might want to take a single photo of it with "normal" lighting (for your reference), and then find a shallow area where you can putz around with your lights all day long, using a simple non-moving subject as a stand-in. Such use of a reference image combined with experimentation in the shallows should reduce the bottom time you need to spend with the actual subject.



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TOP TO BOTTOM: First Place, Macro Traditional, Our World Underwater 2010; First Place, Super Macro Traditional, Our World Underwater 2010; Second Place, Macro, Beneath The Sea 2010





© 2011 ALEX MUSTARD

Proper control of the ambient light in a scene can really showcase what snoots are capable of. By increasing the shutter speed and/or decreasing the lens' aperture appropriately, the main subject can

be well exposed by the "spotlight" from the snoot while the rest of the scene is intentionally dark, thereby creating a sharp contrast that draws attention to the subject. Alternatively, by using two



© 2011 ALEX MUSTARD

Use a snoot that is further away from the source and has a much smaller aperture for macro shots (above); Use two strobes, one snooted and one not, to gently add color to the foreground and still have the main subject "pop" (left)

strobes – one snooted and one not – you can gently illuminate the general foreground to add colour, but still have the main subject pop out of the scene.

**Macro/Super Macro**

Since the field of view in macro photography is very small, you'll need a correspondingly small beam of light to selectively illuminate a portion of it. This requires the use of a snoot that is further away from the source and has a much smaller aperture (compared to wide angle snoots).

The "micro snoots" that I put together consist of a few mutilated plumbing components that I roughly pieced together while wandering the aisles of Home Depot, and refined to their current state back in my workshop. I designed these snoots in such a way that they can accept various custom-designed variable-diameter tips (also known as "chopped-up black pens"). With one of these snoots, at normal



© 2011 KERI WILK

My snoot. The white pieces are removable to widen the beam. Additional pieces can be inserted in the end to narrow the beam

shooting distances, I can produce a directional spot of light as large as 30cm



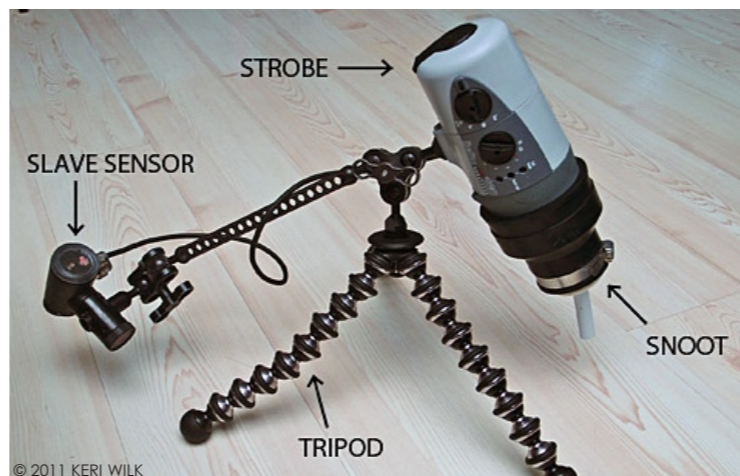
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My Ikelite DS160 strobe (right top), fitted with my "micro snoot", and mounted on a tripod (Gorillapod). It is connected to an Ikelite EV controller, which remotely fires the strobe when hit with a flash of light; A narrow beam of light (right center) escapes the small snoot tip; A small ribbon eel investigates the tip of my snoot (right bottom); Portrait of a goby (far right)



# Snoots



(12") in diameter or as small as 2mm (~1/16") in diameter!

As with wide angle snoots, to maintain creative freedom, it's very important to have the ability to vary the beam's angle... so keep this in mind if you're trying to design your own.

Aiming snoots for macro imaging is far more difficult, frustrating,

and time-consuming than snooting wide angle images. This is especially true for super macro photography, since subjects are often no larger than a grain of rice.

When you intend to shoot a macro scene with a broad, directional lighting effect (explained above), you can follow the same aiming procedure as explained for wide angle snooting.

However, if you want to effectively and accurately create macro/super macro images with a spotlight effect, you'll have to follow a very different (and somewhat impractical) route.

Trying to hit a 2cm subject with a 1cm (1/2 inch) beam of light is no easy feat. While it is possible to aim a mini-beam like this with the strobe still attached to the housing, I find it *far* easier to detach the strobe from the camera system

altogether. Being able to move the camera without disrupting the strobe configuration makes a world of difference. Life can be made even easier if, instead of hard-wiring your snooted strobe to your camera with a sync cord, you connect it to a remote trigger—this gives you total freedom... literally, no strings attached! You can even take it one step further, and mount this remote strobe on a tripod (Gorillapods fitted with a ULCS ball-head works very well), allowing you to position the strobe in just about any orientation, with a rock-steady base.

Even with this elaborate setup, aiming can still be a big headache. You need to choose subjects which are very slow-moving, or better yet, that don't move at all—scorpionfish, frogfish, stargazers, coral polyps, etc.

### Conclusion

The relatively small underwater photography world is now noticeably saturated with "typical" images. Without bringing new

tools/techniques to the table, the art of underwater photography will quickly become stagnant and boring. This is precisely why tools like the snoot are essential—to advance this discipline. Whether they're used to create black backgrounds, spotlighting or hard-edged directional lighting, there's no doubt that snoots are very capable tools for creatively lighting subjects underwater.

However, as capable as they may be, they can be (usually are) a pain in the butt to use. Aiming them for macro/super macro photography is often mind-numbing, and finding slow-moving/motionless subjects suitable to use them on is up to the scuba gods... so, to successfully use snoots, you'll need to have plenty of patience, and a little bit of luck. If you're looking to expand

your underwater photography skills, you might want to consider the snoot.

If you're interested in having a set of custom snoots designed and built for you, let me know.

Keri Wilk is an award-winning underwater photographer and dive writer based in Canada. For more information, visit: [Reefnet.ca](http://Reefnet.ca)



Portrait of a frogfish



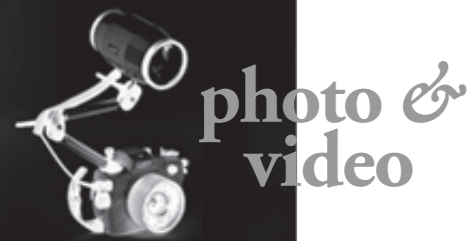


photo & video

Edited by Don Silcock

## Ikelite Lumix LX-5 Housing

Ikelite has released a version of its Compact Digital Housing series for the excellent Panasonic Lumix LX-5 camera. The housing features Ikelite's proprietary conversion circuitry, which allows two-way communication between the camera and Ikelite Substrobes, providing true Panasonic TTL exposure. In addition to providing the most accurate automatic exposure, this ensures a faster recycling time and longer camera battery life as compared to fiber optic TTL systems. All camera controls except the Flash Open Switch are fully functional through the housing and depth rated to 200ft (60m). An included flash diffuser improves lighting quality when the camera's built-in flash is used. A built-in flash is effective between 1-3 feet (0.3-0.9m) from the subject in clear conditions. [www.ikelite.com](http://www.ikelite.com)



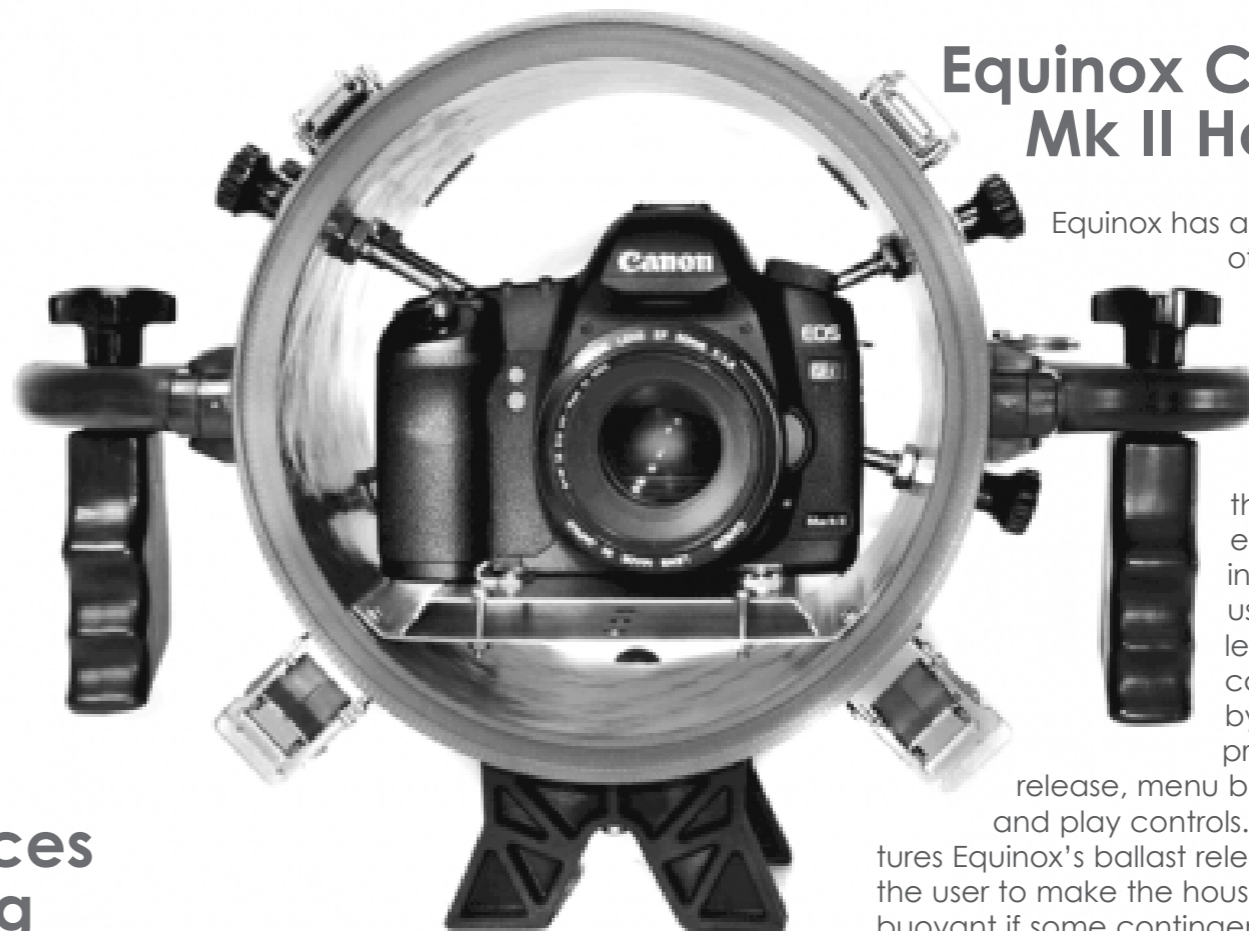
## Sea & Sea announces MDX-D7000 housing

Sea & Sea has announced the release of the MDX-D7000 housing for the Nikon D7000 camera. It is machined from a solid block of aluminum, protected by a highly corrosion-resistant coating. Other features include: A port lock mechanism, two fiber optic ports and one optional electronic port and a built-in leak sensor. [www.seaandsea.com](http://www.seaandsea.com)



## Equinox Canon 5D Mk II Housing

Equinox has announced the release of a housing for the Canon 5D Mk II camera. Somewhat of a departure from the company's line of video specific housings, this reflects the popularity of the camera for video rather than stills use. The housing is designed around the use of a Canon 16-35mm lens, although other lenses can be accommodated by special request and it provides access to shutter release, menu button, menu select/scroll and play controls. The housing also features Equinox's ballast release handles, which allow the user to make the housing positively buoyant if some contingency demands it. [www.equinoxhousings.com](http://www.equinoxhousings.com)



## Fantasea 3D Housing and Camera Package



Fantasea has announced the release of a package containing the Fujifilm FinePix REAL 3D W3 camera and the RecSea WHF-3D W3 polycarbonate housing. The housing was released at DEMA last year, and has a depth rating of 40m, and a fiber optic mounting port. The Fujifilm FinePix W3 features 10 megapixel resolution and is capable of shooting both conventional and 3D stills and video. [www.fantasea.com](http://www.fantasea.com)

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## Canon Announces Two New SLRs and Two New Speedlights

Canon has announced the release of the Rebel T3i (EOS 600D) and Rebel T3 (EOS 1100D) SLR cameras and the 320EX and 270EX II Speedlights. The T3i features: Canon's EOS HD video capture, 18-megapixel resolution, a three-inch vari-angle clear view LCD screen, scene intelligent auto mode, video snapshot technology and feature guide instructions. The T3 is cheaper, and features HD movie capture, 12-megapixel resolution and the feature guide. In addition, Canon has announced the release of two new Speedlights: the 320EX and 270EX II. [www.usa.canon.com](http://www.usa.canon.com)



## Amphibico releases a new line of video housings dedicated to sea turtles

PRESS RELEASE—Ron Hand, owner of Amphibico, and the "Amphibicans" have supported saving the sea turtles for over 20 years. They use a stylized turtle as their company logo. Amphibico was the first and continuing corporate sponsor of the nonprofit Foundation, Save Our Leatherbacks Operation (S.O.L.O.), beginning in 2005.

The TURTLE video housing is available in six hot tropical colors at a price that should shatter the market for excellence in value for money. Some of the features include marine grade aluminum with stainless hardware, fully anodized with a hard coat of polyurethane paint, depth rated to 330ft (100m), fixed front glass (no port—your camcorder does the zooms and focusing), a rear 3.5 inch digital LCD monitor, an electronic right hand pistol grip with one touch white balance. Amphibico guarantees shipment within 72 hours of order and payment receipt—or they pay the shipping. Optional add ons are available to make this housing even more as the "best underwater housing



deal in town".

The TURTLE is designed to fit a wide variety of video camcorders and cameras; Amphibico has an ever expanding list of those listed on their web site: [www.amphibico.com](http://www.amphibico.com)

With the production of this set of tropical color housings filled with technology developed by Amphibico, the manufacturer is donating a portion of the sales revenue to S.O.L.O. so the organization can continue proven conservation activities.

This decision is quite humbling to S.O.L.O. and comes at a juncture in our scope of activities, where added donated funds are needed. Having developed a set of activities that does "reverse extinction" of this highly endangered species, S.O.L.O. is expanding its activities to assist all sea turtle conservation activities where our methods may assist on a case basis. Please add your donations to those of Amphibico to assist us. Ninety-five percent (95%) of all moneys raised goes directly to the project. No salaries or wages are paid anyone in the foundation.

— Larry McKenna, S.O.L.O., [Leatherbackturtles.org](http://Leatherbackturtles.org)

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# Sayaka Kajita Ganz



## P O R T F O L I O



Edited by Gunild Symes  
All sculptures by Sayaka Kajita Ganz  
Images courtesy of Sayaka Kajita Ganz

**My working process is reminiscent of my experiences growing up in several different countries, of being disconnected from the place I was born. Then, I began searching for a new community where I truly belong. I find discarded objects from peoples' houses and give them a second life, a new home.**

For my sculptures I use plastic utensils, toys and metal pieces among other things. I only select objects that have been used and discarded. The human history behind these objects gives them life in my eyes. My goal is for each object to transcend its origins by being integrated into an animal form that seems alive. This process of reclamation and regeneration is liberating to me as an artist.

By building these sculptures I try to understand the human relationships that surround me. It is a way for me to contemplate and remind myself that even if there is conflict right now, there is a way for all the pieces to fit together. That even if some people don't feel at home here and now, there is a place where they belong and that they will eventually find it.

— Sayaka Kajita Ganz



*Flare*, by Sayaka Kajita Ganz, 2010. Reclaimed blue and pink plastic objects, wire. 14 x 24 x 8 inches  
PREVIOUS PAGE: *Jaws*, by Sayaka Kajita Ganz, 2010. Reclaimed plastic objects, wire. 9 x 21 x 6 inches

*Whirl*, by Sayaka Kajita Ganz, 2010. Reclaimed stainless steel objects, wire. 28 x 15 x 16 inches



*Flare II*, by Sayaka Kajita Ganz, 2010. Reclaimed blue and pink plastic objects, wire, 16 x 27 x 10 inches

**GS:** Tell us about yourself and your work. How did you develop your unique style and what is the philosophy or mission behind your sculptures?

**SKG:** I was born in Yokohama, Japan. My family moved to Sao Paulo, Brazil, when I was nine years old, and we lived there for almost five years. We went back to Japan when I was 13, then moved to Hong Kong when I was 17. I graduated from high school in Hong Kong and came to the United States to attend university.

Up to high school, I never graduated from the same school I started in. All these relocations have affected my thinking, made me flexible and also made me crave a sense of belonging. I get great comfort from fitting things together, perhaps partially because of these experiences.

My philosophy is that beauty is all around us, but

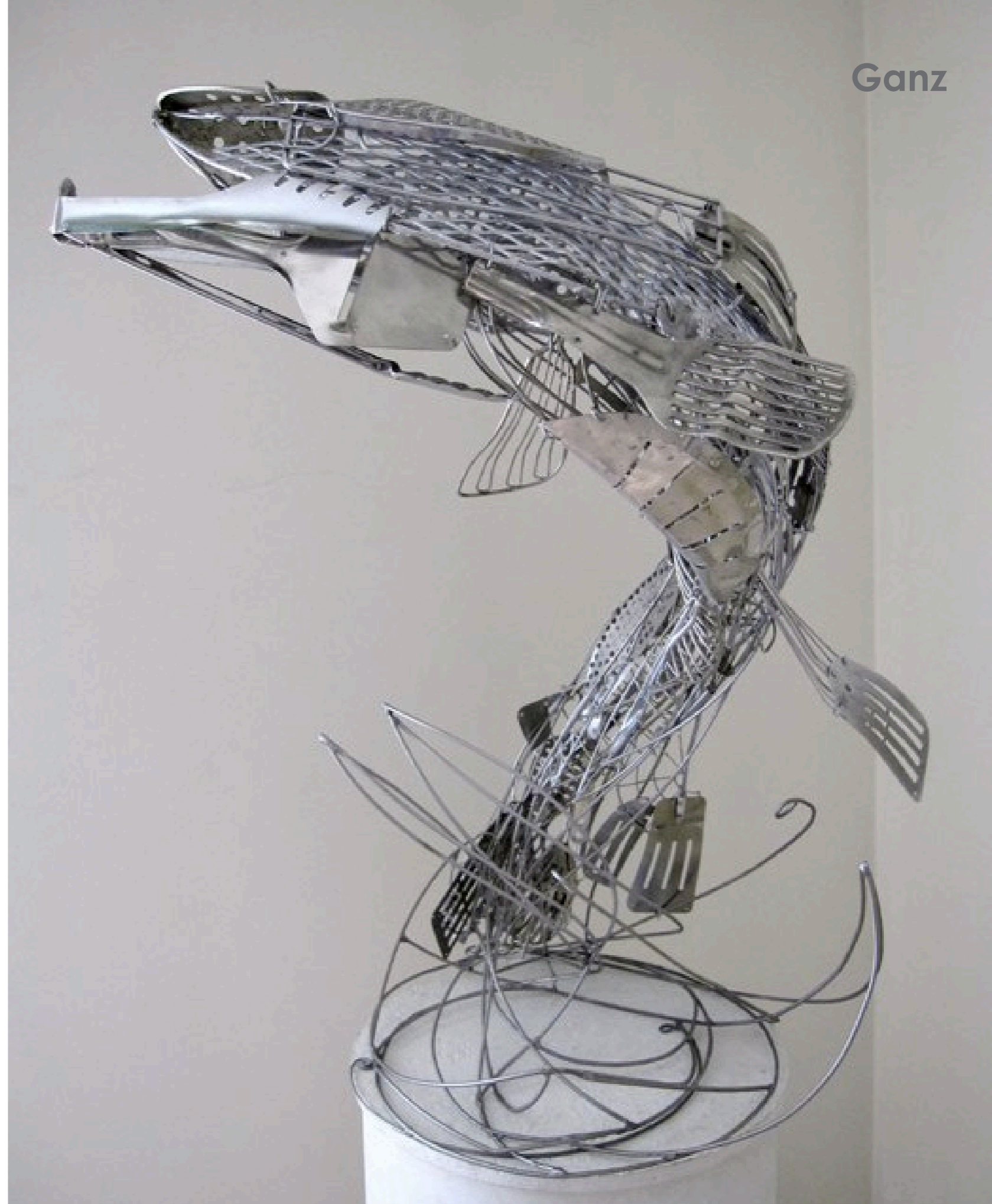
sometimes a shift in perspective is necessary to find it.

**GS:** Where do you get your inspiration?

**SKG:** I get the inspiration from the discarded objects themselves. The human history behind each piece is very interesting—someone designed and created this object, someone used and later discarded it. I am also inspired by nature and life energy of animals—the motion, wind, water current, waves and time.

**GS:** Why did you choose fish as a subject?

**SKG:** I love the fluidity of their form and motion, both individually and in a school. I try to focus my attention on the motion and direction rather than



*Undulate*, by Sayaka Kajita Ganz, 2010. Reclaimed white and clear plastic objects, wire. 17 x 27 x 17 inches

the details of scales and fins, so that the viewer can share the sense of life energy.

*GS: Why do you use the materials you use and where do you get them?*

SKG: I collect plastic objects from thrift stores, mostly here in Fort Wayne, but when I'm on the road, I make a detour to visit other locations as well. I never buy new objects, only second-hand objects from thrift stores or by donation. I have them sorted by color in about 30 storage bins in the basement, and the collection is an on-going process. I start a project when I have enough objects of the right color.

*GS: Tell us about your training and education. Who has inspired you, artistically speaking?*

SKG: I went to Indiana University Bloomington for BFA in Print-making, and Bowling Green State University (Ohio) for MFA in 3D Art. My greatest inspiration growing up was my mother. More recently, the artists I admire are Choe U-ram, Theo Jansen, Edouard Martinet, Tara Donovan, Deborah Butterfield, Jean Shin, Tomoko Konoike and my husband Christopher Ganz.

My mother had many craft hobbies when I was a child. She would always encourage me to draw and take me to kids' craft project booths at department stores whenever we went shopping to Yokohama, a big city about 20 minutes away from where we lived. Because of her hobbies, I always had scrap materials to experiment with, and I think that's how I developed the taste for us-



ing found objects.

Theo Jansen and Choe U-ram are both kinetic artists. I admire how their creations seem so alive with the beautiful fluid motion.

Edouard Martinet uses metal objects very similarly to how I use plastic, but his work is very clean, tight and flush in joints, and he makes the objects seem as if they

have been destined to become his sculpture all along.

Tara Donovan uses thousands of the same common household objects to create beautiful and

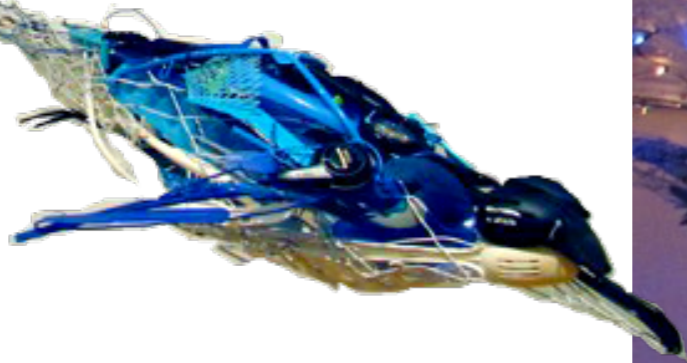
monumental installations. I admire her vision.

Deborah Butterfield, famous for her beautiful horse sculptures, has been my inspiration since when I

was using scrap metal for materials. I had already started making animal forms when I first saw her work. I love her work, but she also inspired me to go and look for



Detail of the sculptures in the installation, *Plunge*, by Sayaka Kajita Ganz, 2010



my own style instead of trying to make my work more like hers.

Jean Shin uses discarded materials, usually hundreds or thousands of the same, so in that sense, her work is similar to Tara Donovan's. Her philosophy is very intriguing, however, she tries to explore the nature of each object both in form and in intended function.

Tomoko Konoike is a Japanese female artist who makes mysterious fantastic drawings, sculpture, animation and more. She has created a whole world of her artistic vision, and she works in so many mediums.

My husband Christopher Ganz does large-scale charcoal drawings that depict multiple self-portraits in various (industrial, consumer, medical, to name a few) situations. He is also a great printmaker; he teaches printmaking at a university here in Fort Wayne. His prints are smaller and sometimes more experimental versions of his drawings. Chris is my best advisor, critic, friend and encourager in art. We share the basement studio in our house,

so we are constantly bouncing ideas off each other.

*GS: Are you a scuba diver or a snorkeler? If so, where have you dived and what is your favorite place to dive?*

SKG: No. I have gone snorkeling once when I was a child. I would LOVE to try scuba diving.

*GS: Tell us your relationship to the underwater world, the sea and the reef. What inspires you about the ocean and the underwater realm?*

SKG: I grew up going to the beach often and digging around or exploring to look for sea creatures. I was always more interested in finding them than in swimming. What intrigues me about the underwater realm is that you can see and feel the life energy of not just the individual fish, but the entire school, the entire ocean current, the entire planet.

*GS: What are your thoughts on the role of art in conservation*



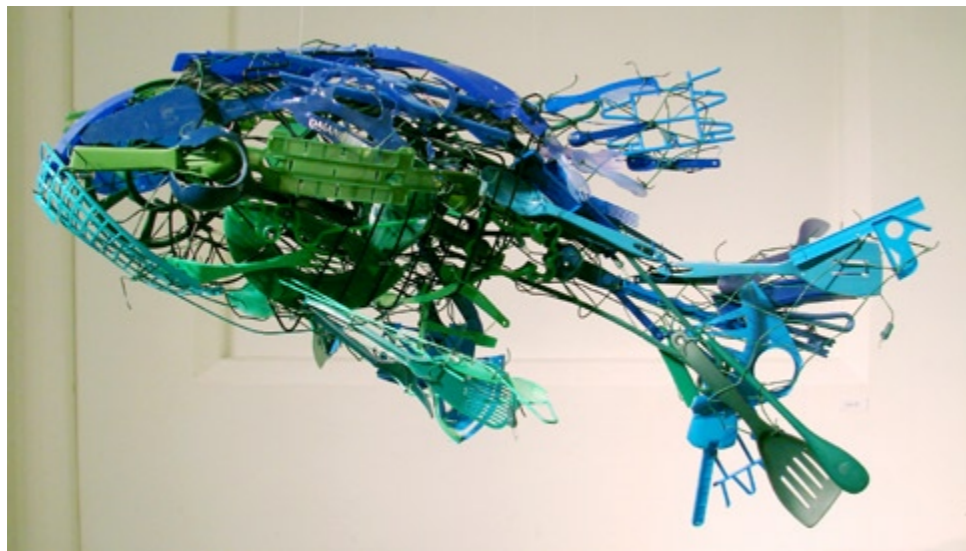
*Plunge Installation*, by Sayaka Kajita Ganz, 2010. Mixed media installation: Reclaimed plastic objects, rabbit fence, chicken wire, wire hangers, borrowed Christmas lights, shower curtains, reclaimed linens, sand

# portfolio

*Stream*, by Sayaka Kajita Ganz, 2008. Reclaimed metal objects, 6 x 7 x 3 inches

Ganz

*Deep Sea* (right and below) by Sayaka Kajita Ganz, 2008. Reclaimed blue and green plastic objects, wire. 32 x 42 x 28 inches



SKG: I am currently working on a collaborative project with my friend Jim Merz who is a kinetic artist. It will be a 20-foot-long spinning LED chandelier made of goblets and bowls from the thrift shops. I'm in a group exhibition in Washington D.C. in March; I have a commission to create four horse sculptures at the Isle of Man in October; and I might also make a wall mosaic for the Monterey Bay Aquarium using plastic debris from the ocean in 2012. Incidentally, I have visited Denmark three times because my aunt, uncle and cousin live in Copenhagen. I am working with my cousin's company Ay-

anomimi [www.ayanomimi.com](http://www.ayanomimi.com) and I hope to have an opportunity to show my work in Copenhagen in the near future.

GS: Do you teach art? If so, what is your approach?

SKG: I teach drawing and design (3D) at Indiana University - Purdue University Fort Wayne.

My teaching philosophy is to help students get to know themselves and amplify their abilities to become more like themselves, not more like me.

To learn more about Sayaka Kajita Ganz or to purchase art and order commissions, visit: [www.sayakaganz.com](http://www.sayakaganz.com). ■

and environmental awareness?

SKG: I want my work to offer an alternative to throwing away unwanted household objects.

GS: Why art? Why do you think art is important? What do you want to say with your art?

SKG: Art can inspire viewers into wanting to take action, wanting to see more, wanting to find solutions. This is important because sense of duty and guilt can only take us so far.

GS: What future projects do you have planned?

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