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Equipment *down in the deep*



Seacub P-Synchro

High reliability, safety, sturdiness, durability, and simplicity make P-Synchro the ideal regulator for the intense activities of schools and diving centres. Tests conducted by RINA, the Italian certification board, confirmed excellent performance with an extremely low respiratory exertion.



Aqualung betters its BCD's

Aqualung packs new improvements into two popular BCD's. Aqualung has updated the Libra (women's) and Balance (men's) BCD's with the latest technology innovations. Sporting a new streamlined design places the air cell behind divers along with new flat designed air dumps to offer better stability and ease of venting. Aqualung has added four patented features to make the new BC's unique to Aqualung: SureLock™ II mechanical weight release system (patented); Low profile flat valves (pat. pend.); Stainless steel triloaders (patented); New shoulder swivel buckles (patented); A completely redesigned pull down pocket.

Nocturnal Lights M220 LED Dive Light

This great three-watt LED light that operates on three AA batteries produces 220 lumens of bright white light. It is submersible up to 100 meters (328 feet). It is just one part of an extensive line-up of lights for underwater photo/video and technical diving. See their website for a list of retailers and a complete online catalog: Store.nocturnallights.com



Oceanic OC1

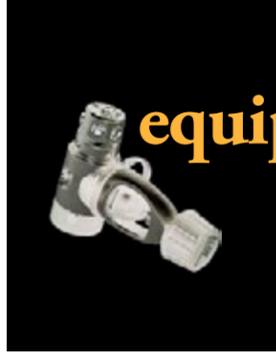
In a new limited edition—only 1000 of these will be produced—comes a dive computer that is truly art mixed with science. Offering a dual algorithm (Spencer/Powell data basis, or, Buhlmann ZHL-16C) for tailoring your diving from conservative to aggressive. With a titanium-forged case, advanced digital compass, switching between three transmitters (check buddy gas pressure), deep stops countdown, gauge mode, and user upgradeable firmware. To round off the package each unit comes with the book *Diving Pioneers and Innovators* by Brett Gillam. The book is personally signed by diving pioneer, Jim Hollis, who inspired the design of the OC1.



Titan Cylinder

Tilos announces its Titan Cylinder Regulator. Definitely in the category "why didn't someone think of this before?" With the first stage built together in to the tank valve, we have an integrated valve and first stage unit. Perfect for deco and stage bottles, the compact unit is all that you need in a bare bones design. A pressure gauge and one low pressure port for your favorite second stage (or how about for a dry suit inflator valve?). The unit comes nitrox ready.





equipment



DiveCaddy Travel Bag System

Using a patented tri-fold compression system, the DiveCaddy utilizes your dive gear you put into the bag as its structure. The system features dramatically less weight as a result, and your dive gear is held safe in place in its rigid padding system. With a unique tri-fold design your gear is organized and quickly available. To see a video of the unique "Compress, Protect and Go!" system, visit their website at: Divecaddy.net

Tusa IQ-950 Zen

The IQ-950 is Tusa's most advanced and full-featured wrist-mounted dive computer. Built on the design platform of the IQ-900, the Zen Air has additional features hose-less air integration along with the ability to program up to three transmitters and mixes from 21-100 percent O₂. The computer displays tank pressure, no deco time remaining, safety stops, and deep stops. Enjoy trying to decide from brushed metal finish or limited edition black chrome. See all the details at: Tusa.com



Poseidon Wet Suits

From the cold waters of Scandinavia come a new line of wetsuits to keep divers warm. With three new models offered: The Journey (a shortie), the Traveller, and the Visionary. There are now models to protect divers in a wide array of environments. See the complete line-up of suits and other fine scuba equipment at: Poseidon.com



Scuba Tank Night Drop

Now Dive store owners will be able to solve one of the most redundant tasks of owning a dive store. The Scuba Tank Night Drop allows divers to leave empty cylinders after or before store hours for fill ups. This will allow dive store owners to be more efficient at the fill station preventing a log jamb at the fill station and the frustration of divers in a hurry for a fill up. Diversplatform.com



Viking's new orange is black

by Robert Sterner, www.sternereditorial.com

Divers can get the protection of a Viking drysuit without the Hazmat orange color in the company's new ProVSN suit. Available in front- and back-entry models, the ProVSN has Viking's vulcanized rubber core that is coated on both sides with black Armatex Nylon. While the coatings are intended to improve durability and comfort, they are more difficult to decontaminate than rubber so the company does not recommend this suit as protection from hazardous materials. Viking seals the seams with glue and tape before the suits are vulcanized to ensure that seams are thoroughly sealed. Black rubber reinforcements cover the knees for added durability. Rubber-coated neoprene boots attached to the legs have fin-strap retainers to keep fins from coming off during dives. Internal suspenders help with crotch adjustment. The shoulder inflation valve and chest deflation valve swivel to the best positions for the diver's kit. Beyond front- and back-entry options divers have several ways to customize the suits. A latex or neoprene hood can be permanently affixed to the suit. Either latex or neoprene neck and wrist seals are available. Wrists also can be fitted with permanent or changeable cuff rings for use with dry gloves. Cargo pockets can be added as well. Suits come with an inflator hose, repair kit, suspenders, zipper care tools and a user's manual.

www.vikingdiving.com



Cruise Ship Diving



Text and photos by Mike Keleher

Diving from a cruise ship? How do you enter the water? Must be a heck of a drop if you roll in backwards!

You may have never considered taking a cruise boat vacation as a dive vacation. Taking big white ships the size of aircraft carriers has never gotten much attention as a venue for divers. Yet they are hauling and accommodating divers every week to great dive islands in conjunction with their vacation itineraries.

Luxury travel on fabulous cruise boats has got to be the most overlooked way to travel to exotic dive locations in temperate waters. Travelling on major cruise lines for a dive vacation has got to be the "ultimate" in live aboards! You can book dive trips through the cruise company or make your own arrangements with preferred local operators.

It may not have the intimacy of small sailboat or live-aboard trips... but the luxury accommodations, outstanding service, and 900 employees devoted to guaranteeing your comfort and pleasure can certainly make it a great trip. Almost every time the ship stops for the day to let the other tourists off to collect T-shirts, eat ice cream and get their hair braided by locals, you can go scuba diving instead.

The whole concept of a "dive vacation" on a major cruise lines may not

Try diving on a cruise—the ultimate in live-aboard trips



THIS PAGE: Cruise ships provide very reasonably priced accommodations that allow you to travel in obvious comfort and elegance while you dive a variety of stunning locations in the Caribbean

compute, but they have quietly been putting divers in the water every week for many years. On a seven day vacation cruise, the big ships stop at three to five islands in the Caribbean, Mexico and Hawaii, and most are prime dive sites. The cruise lines offer excursions directly through their company for SCUBA (to include full equipment rental) and many other water-related activities like snorkeling, SNUBA and an underwater scooter with a big bubble helmet called Breathing Observation Bubble (BOB).

Benefits

For me, the terms "adventure travel" and "diving" usually conjure up thoughts like, "Am I going to get a clean place to sleep," and "I hope I can find some good food along the way". Traveling on a major cruise boat pretty much eliminates those worries! Very reasonably priced accommodations allow you to travel in obvious comfort and

elegance. They deliver you on-time to a different island each day, feed you 24 hours a day, and entertain you at night. With your own cabin stewards, droves of waiters and over one hundred cooks on board, they treat you like royalty a week at a time—what more could you ask for? Ah yes, let's not overlook the obvious here—if we are around that much warm water in a foreign and exotic locale, we naturally are going to want to dive in it.

Major cruise lines like Royal Caribbean, Celebrity, Holland America and Carnival among others, are taking divers to great dive locations every week of the year without much notice or fanfare. They are obviously not advertising as traditional "liveaboards" or "all inclusive resorts" and are not directly competing with such operations for divers. However, they do offer a unique and non-traditional way to get to dive locations in comfort—very cushy comfort at that!



Features

If you have not been on a cruise ship, you may be surprised to find many of the large ships have actual "dive shops" on board (along with the rock climbing walls, in-line skate tracks, surfing wave pools and ice skating rinks—yes, ice skating). The on-board dive shop has several functions to benefit guests who wish to dive. They arrange excursions for dive

trips at pre-designated islands, may sell a limited amount of gear on-board, and have an in-house Dive Master to shepherd the "cruise divers" to various pick up sites or in-water excursions.

The larger ships that offer diving excursions may also offer unique on-board certification training for guests who want to get certified en route to the dives sites. The book work and pool work is actually

done on the ship while it is at sea. They then arrange check-out dives with a traditional dive shop on one of the various islands they visit. On that day, the guests are picked up, taken to the dive shop, complete the in-water portion in the warm blue Caribbean, or off the coast of Hawaii or Mexico...instead of back home in a rock quarry in the Midwest...or in one of the Great Lakes!

Dive sites

The list of islands and dive sites where scuba excursions are offered are well known in the dive community. The routine cruise boat itineraries hit islands and locations like George Town in Grand Cayman, Costa Maya and Cozumel in Mexico, Key West and Fort Lauderdale in Florida, the Bahamas, Charlotte Amalie in St. Thomas, Philipsburg in St. Maarten, Montego Bay in Jamaica, San Juan in Puerto Rico, St. Johns in



Antigua, Basseterre in St. Kitts, Castries in St. Lucia, Bridgetown in Barbados, Margarita Island in Venezuela, Willemstad in Curacao, Oranjestad in Aruba and the Hawaiian islands.

Hey, those destinations sound pretty familiar! Cruise lines arrive at those cities each week and contract with reputable dive shops to take their guests for two tank dives. One of the strengths in booking dives via the cruise boat is the fact the cruise companies hold the local dive operators to the same level of mega customer service as provided on board the ship. If customers are not treated well, the cruise lines will quickly find a new partner willing to accept guaranteed money from 20-30 divers delivered to their doorstep several times a week.

Much like the rest of cruise boat vacations, the company takes a lot of the worry out of making dive arrangements. If one of their contracted

dive operators has a problem getting you back to the ship, the cruise line will take responsibility for you and getting you back on board or keeping the ship in port until they recover all passengers. If that happens with an excursion you booked on your own, you may just be standing on the dock watching the big white ship with your entire luggage and all that food sail away while you wonder how to get home or to the next island! (Although cruise lines have staff reps at each destination that can help guests make arrangements to catch up with the boat).

Experienced Cruise Boat Vacationer Note: When the cruise line says be back on board at 5 PM...they mean it! It's quite an impressive sight to be on deck during a departure and watch for late arriving shipmates. Most vacationers really enjoy seeing a couple loaded

down with t-shirts and drunken gringo hats sprinting down the dock only to skid to a stop after the gang plank is up. Be sure to point and wave politely at those people as you steam out of the harbor. They will catch up at the next port, but whoo-boy, will there be some angry inter-couple conversations about "whose fault" it is that they missed the boat.

Special arrangements

If you have a preferred dive operation at a certain island, you are of course free to make your own reservations in advance. I have found the operators are quite willing to pick you and your gear up pier side and work within your ship's port time parameters for half day or all day trips. My "adventure wife" prefers making these types of reservations via the internet and telephone, and they have worked out well. You can get a lot

of information in advance from the dive operators directly, vice booking through the cruise line with an operator you won't know until you are pier side with your borrowed boat towel and gear in hand.

One of the other benefits of pre-arranged private bookings is that you can insure you will not be subjected to cattle-boat/mass-tourist diving and snorkeling trips. Cruise boat booked excursions may end up being a big boat combining snorkelers and divers that dump 30-40 snorkelers in the same location with the eight or ten divers. Kind of luck of the draw there, and you won't know until you are on the big boat how they run their trips. (Nothing against snorkeling... I hope we as divers all still look kindly upon snorkelers, and may still dabble ourselves... if compressed air is not available). Most of the private dive bookings



LEFT TO RIGHT: In between dives, guests can enjoy a huge water slide and swimming pool on deck; Dives are arranged by the cruise ship; View of the boats docked at St Thomas



The *Carnival Dream*
View of the harbor at one
of the cruise ship stops in
the Caribbean (below)

Cruise Diving

book ship excursions from home and it turned out the ship's 10 or 12 slots had all been reserved well in advance of the sailing. So live and learn—book early!

We have also learned one other booking trick associated with cruising. If you have not made reservations ahead of time, or the ship trips are already booked, you may still have a last minute chance to dive once the ship arrives at a suitable island. Local tour operators of all descriptions will be waiting on cruise boat piers hoping to get tourist dollars for historical tours, ATV and Jeep rides, jungle excursions, zip-lines, beaches, party boats, snorkeling and even scuba diving. If you have a C card in your pocket, someone will route you to a dive operation. These last minute deals are generally cheaper than pre-arranged trips, and you may have some haggling leeway, but it is balanced against the fact that your ship visit will only last six to eight hours, and any diving has to fit within those parameters. Not my favorite way to book a dive, but is an option if everything else fails.

My adventure wife and I have been diving from cruise boats for a number of years and enjoy the opportunity to see so many different dive islands and dive locations in a week's trip. It is not the same as getting to spend a solid week on one island diving every day, but it is kind of a scuba sampler platter, and helps us look for places we would like to return for a more extended stay, as well as meet some great dive operators we would do business with again.

All of this diving, surrounded by absolute luxury accommodations, top knot service, unbelievable food and nightly entertainment at about US\$100 a day per person on the ship (excursions and drinks are extra)... what's not to like? If you have a non-diving spouse or partner, it is a very enticing way to have a very nice vacation and get you into dive togs with no muss or fuss, and you definitely dominate the formal dining table discussions with answers to the nightly question: "So, what did you do today on the island?" ■

we have made ended up with 2-6 divers and very attentive staff/operators who can lavish me with attention instead of having to deal with first time snorkelers...

Having booked through the cruise lines and private operators, we find the private bookings are usually cheaper by US\$10-20 dollars, and we get very good service with the smaller companies. Caribbean dive prices routinely run US\$100-130 including full rental gear for a half day two-tank dive. Taking your own gear can knock US\$10-20 off the price of the dive.

To bring or not to bring gear

We usually haul our full gear along on cruise/dive vacations with a wheeled bag to get on and off the piers. It adds about 50 lbs of gear for two people, and

you have the comfort of using your own gear, and post dive, you can clean it in your cabin shower, and then drape it attractively about your cabin and/or balcony where the cabin steward can admire it while making up your room three times a day.

This year, with airlines charging extra baggage prices for checked luggage, and the considerable extra bulk of BCD's, regulators/computers, wet suits, etc, I finally decided to leave everything except mask, fins and snorkel at home for a 7-day cruise.

Conceptually, it was hard for me at first, but paying the extra US\$10-20 to the dive shop for full gear rental turned out quite well. I was very pleased with the quality of the rental gear, and the dive operators even threw in shorty wet suits

for us at each location for free. The rental equipment all worked well. Plus, I got an unexpected benefit of getting to wear a lot of different manufacturers' gear day after day and making my own comparisons. It was also very nice to hand it all back at the end of the dive for them to maintain, while I just walked away with a net bag of fins/mask and snorkel.

Lessons learned

On this particular trip, the ship stopped at five different islands, and we pre-booked with private operators via the internet and telephone in St Croix, St Kitts and Barbados and unsuccessfully tried to book another island dive via the cruise ship once we were on board—since we could not get an operator on the island to respond to us via email. You can pre-



Shifting Baseline Syndrome: Are you afflicted?

Text by Christina Ward-Paige, PhD, with Catherine Muir

It's early afternoon. The sun is beating down and mosquitoes are humming. Another decent day's catch is unloaded, men sweating with the effort. If it weren't for the breeze, the stench would be unbearable. Today's tally: more than 100 sharks, some weighing close to 1,000 pounds and reaching nearly 20 feet in length. The catch includes leopard (tiger), dusky, hammerhead, nurse, sand sharks and sawfish—nothing unusual in the shallow (15 feet) waters surrounding Big Pine Key.



Sharks were processed for leather and oil in the Florida Keys in the 1920s and 1930s. The most commonly caught sharks included tiger, sandtiger, nurse, hammerhead, bull, lemon, sharpnose sharks and sawfish, some of which are extremely rare today. Photo circa 1930. Photo: Monroe County Public Library, Key West, Florida, gift of Jack Thompson



Sawfish were regularly caught in shallow nearshore waters off Key West Florida until the 1940s. Today, a diver would be considered extremely lucky to observe a sawfish anywhere in the wild because they are amongst the most vulnerable marine fishes and are listed as Critically Endangered by the IUCN. Photo: Monroe County Public Library, Key West, Florida, courtesy of Loren McClenachan

As a diving enthusiast, you may be thinking, wait a minute, back up here. Over 100 sharks in 15 feet of water, many of which have vulnerable, threatened or endangered status according to the IUCN and are on my dream list of species to see? Where is this Big Pine Key and how do I get there?

For those who are familiar with Big Pine Key and know that it is located in the middle of the Florida Keys in the southeastern United States, you may be thinking that this story is made up. Yes, you have seen some sharks in the Florida Keys, possibly more than you have seen elsewhere, but not 100 in one day. And definitely not the combination of species mentioned.

Unfortunately, you're right. A story like this could not be told today, and with good reason, because it describes a scene from the 1920s, commonly documented in newspapers and other publications of the day.

To seasoned divers and fishers that know the local shark 'hotspots' around the world, it may seem like there are a lot of sharks still living today—to see them, one just needs to know where to look! However, in most places there are dramatically fewer sharks than there were just a few decades ago. In fact, what most of us don't realize is that what we expect to see on even the very best dive may be quite different from what our parents or grandparents would have seen a generation or two ago in the same location.

This change in perspective is referred to as the *shifting baseline syndrome* where an individual's baseline is the perceived natural condition of an environment based on their first visit, photographs or descriptions.

Marine biologist, Jeremy Jackson, probably puts it best when discussing divers' perceptions of coral reefs in his 2007 article in the scientific journal, *Coral Reefs*. "The

problem is that everyone, scientists included, believes that the way things were when they first saw them is natural. However, modern reef ecology only began in the Caribbean, for example, in the late 1950s, when enormous changes in coral reef ecosystems had already occurred. The same problem now extends on an even greater scale to the scuba diving public, with a whole new generation of sport divers who have never seen a 'healthy' reef, even by the standards of the 1960s. Thus there is no public perception of the magnitude of our loss."

History

This *problem* recognized by Jackson was first identified by fellow marine biologist, Daniel Pauly, in a 1995 article in the journal, *Trends in Ecology and Evolution*. The perception of what we see in the water today (or at any point during one's lifetime) can some-

times be mistaken for what is natural. What is within one's living memory, or the living memory of those around them, is a 'baseline' against which they compare other experiences.

But does it really matter how a specific marine animal population has changed over time? As Pauly and Jackson identify in their writings, the problem comes when these shifting baselines are the norm rather than the exception, and when this shift in perspective begins to affect not only an individual's perception but

the statistics used for policy creation and conservation measures. How can realistic catch limits or recovery targets be made for the management and conservation of marine species, like sharks, if we don't know what the 'natural' or 'pristine' abundance of sharks used to be? Or if the reference points we use today are ten or one-hundred times less than the actual numbers really were?

The current state of North Atlantic baleen whale populations, including humpback, fin and minke whales, dem-

onstrates the importance of reconstructing accurate baselines for marine animal populations. The current baleen whale population is ~214,000-217,000. These populations were thought to be recovered and close to carrying capacity until 2003, when Joe Roman and Stephen Palumbi published a novel study in the journal, *Science*. Using DNA analysis, this study showed that current populations are a small fraction of the past numbers, which are estimated at 865,000 for these three species in the North Atlantic.

Effects

Unfortunately, the shifting baseline syndrome not only affects our perception of abundance but also the size and variety of species seen. Fishers proudly posing with their 'trophies' following sport fishing events provide valuable insight into this change in perception. Loren McClenachan and colleagues, in a 2008 paper in the journal, *Conservation Biology*, used historical trophy-fish photographs in the Florida Keys dating back to the 1950s. This study showed that the

Shifting Baselines

average size of trophy fish declined substantially between the '50s and the present day. The average length of sharks caught dropped from 195cm in the 1950-60s to just 91cm in 2007—that's 100cm shorter than just half a century ago!

This same study also revealed changes in the types of sharks caught over the years. Of the 16 individual sharks caught and photographed between 1956 and 1960, there were four hammerheads and three great white sharks. But between

FOURTH ELEMENT TEAM DIVER, Pete Mesley
in Truk Lagoon, June 2010
Pete wears: PROTEUS wetsuit.

PROTEUS

fourth element
EQUIPMENT FOR ADVENTURE

Although the shifting baseline syndrome does not necessarily signify a loss in number or size, it is unfortunate that most shifts observed the world over are overwhelmingly declines.

Decline

In 2003, scientists Ransom Myers and Boris Worm published a paper in the journal, *Nature*, showing a 90 percent decline in large predatory fish biomass over the last 50 years in the oceans globally. The same year in *Science*, Julia Baum and colleagues showed that within just 15 years, with the exception of mako sharks, all recorded sharks species declined in abundance by at least 50 percent and that several large pelagic and coastal shark species declined by more than 75 percent in the Northwest Atlantic.

The Mediterranean Sea provides another example. Francesco Ferretti and colleagues published a paper in *Conservation Biology* in 2008 showing that hammerhead, blue, shortfin mako, porbeagle and thresher sharks have all declined between 96 and 99.99 percent relative to their abundance before human impact; therefore, these sharks now only occur at less than five percent of their original abundance. Sadly, the loss of marine predators, of which sharks form a large percentage, has been a global phenomenon.

In addition to chronicling the declines of sharks, scientists are increasingly demonstrating their importance in the functioning of marine ecosystems. The loss of sharks has been shown to cause cascading effects that change marine life across several trophic levels and has resulted in the destruction of economically important fisheries. Plus, the problem of declining shark populations is exacerbated by the fact that sharks are slow to recover, due to their low reproductive rates (they produce relatively few young), meaning that their ability to compensate for low population size dramatically slows their recovery time.

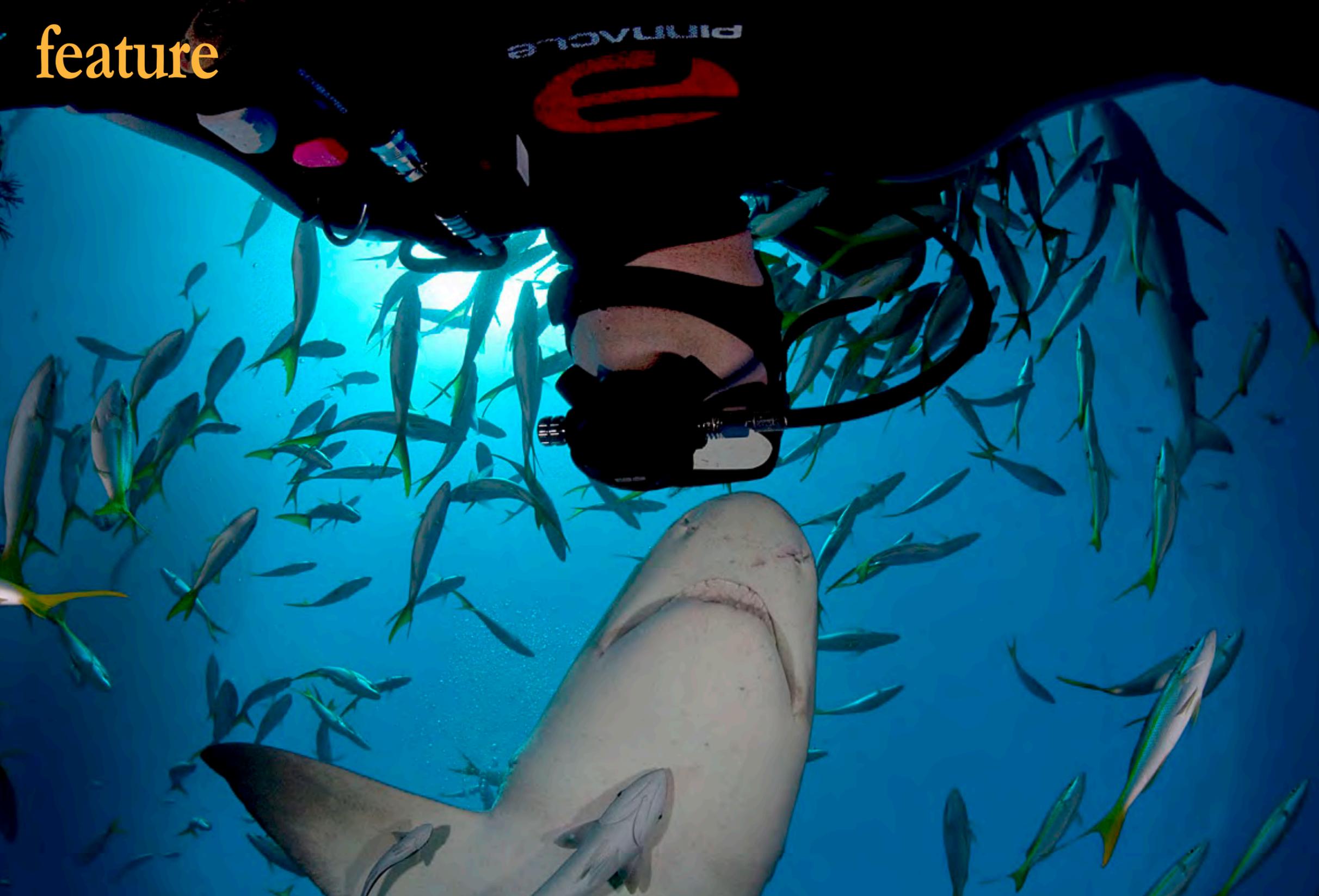
Divers line up to get up-close and personal with a bull shark in Fiji. Once considered among the most common fishes, the main way of observing sharks today is through shark feeds where they still occur, a practice which draws tourists from around the world. Photo: Bob McNearney, 2009

1965 and 1979, there was only one hammerhead and one great white shark caught, though the same total number of sharks was photographed. In 2007, no large sharks were caught, and there was a shift to small, immature sharpnose, reef and bonnethead sharks.

Ironically, those proudly displaying their almost two-meter-long catches including hammerheads and great whites as trophies in the 1950s were likely also victims of the shifting baseline syndrome, since heavy exploitation undoubtedly had an impact on the ecosystem much earlier.

For example, as described in the opening paragraph, in the 1920s, a shark processing facility on Big Pine Key operated for several decades, with 50 or more sharks caught and killed every day for products such as leather, fertilizer and shark oil. Other commercial fishing operations for

reef sharks also operated in the area in the 1930s-40s. And for centuries before that, the fishing communities of the Florida Keys were subjected to commercial, recreational and subsistence fishing by Native Americans and Europeans.



WHAT CAN DIVERS DO TO HELP?

Scientists are actively assessing shark populations, but they can only do so much, due to the vast size of the world's oceans and limited scientific expertise dedicated to such tasks. But the tools for aiding in this assessment are not as difficult to obtain as one might think. In fact, anyone with a snorkel or a regulator can help.

It's simple—the Diver Survey takes only 1-2 minutes per area, or decade of diving, to complete. Just submit your observation to the Diver Survey portion of the Global Shark Assessment. The project is ongoing, and the data will be used to determine the response of shark populations to fishing and protection, and to identify which areas need immediate protection.

The Current Sighting Survey is essentially an online log book, where you report your shark or ray observations—even if you have never seen one. Anyone who has ever dived or snorkeled in the ocean can participate in this survey, and those who have done more than 20 dives in an area can contribute to the Historical Sighting Survey.

The survey range is global—so ocean-going divers everywhere can participate! www.globalshark.ca

A diver comes face to face with a shark. As a diver you can help assess and monitor the state of shark populations. See Sidebar for details. Photo by Bob McNearney, 2010

their populations. Obtaining good estimates of populations today, even where they no longer occur, is integral for having good reference points for future monitoring and for investigating how well our conservation efforts are protecting sharks. ■

Sharks are important

In addition to their ecosystem importance, sharks provide a valuable source of food protein and income from tourism for millions of people around the world—the majority of whom are impoverished. Plus, as divers, we too benefit

from healthy shark populations—we love to see sharks and other large fish in their natural environments and will pay top dollar for the opportunity to do so. For all these reasons, promoting healthy shark populations by preventing overexploita-

tion and prohibiting illegal poaching is essential.

Considering the broad importance of sharks along with our continually shifting baseline of what is 'natural', researchers are increasingly emphasizing the importance of understanding past and

present populations. As we improve our descriptions of baseline shark populations we become better equipped to recognize their role in marine ecosystems. Moreover, with shark populations in a state of flux, it is essential that we gather as much detail as possible to monitor

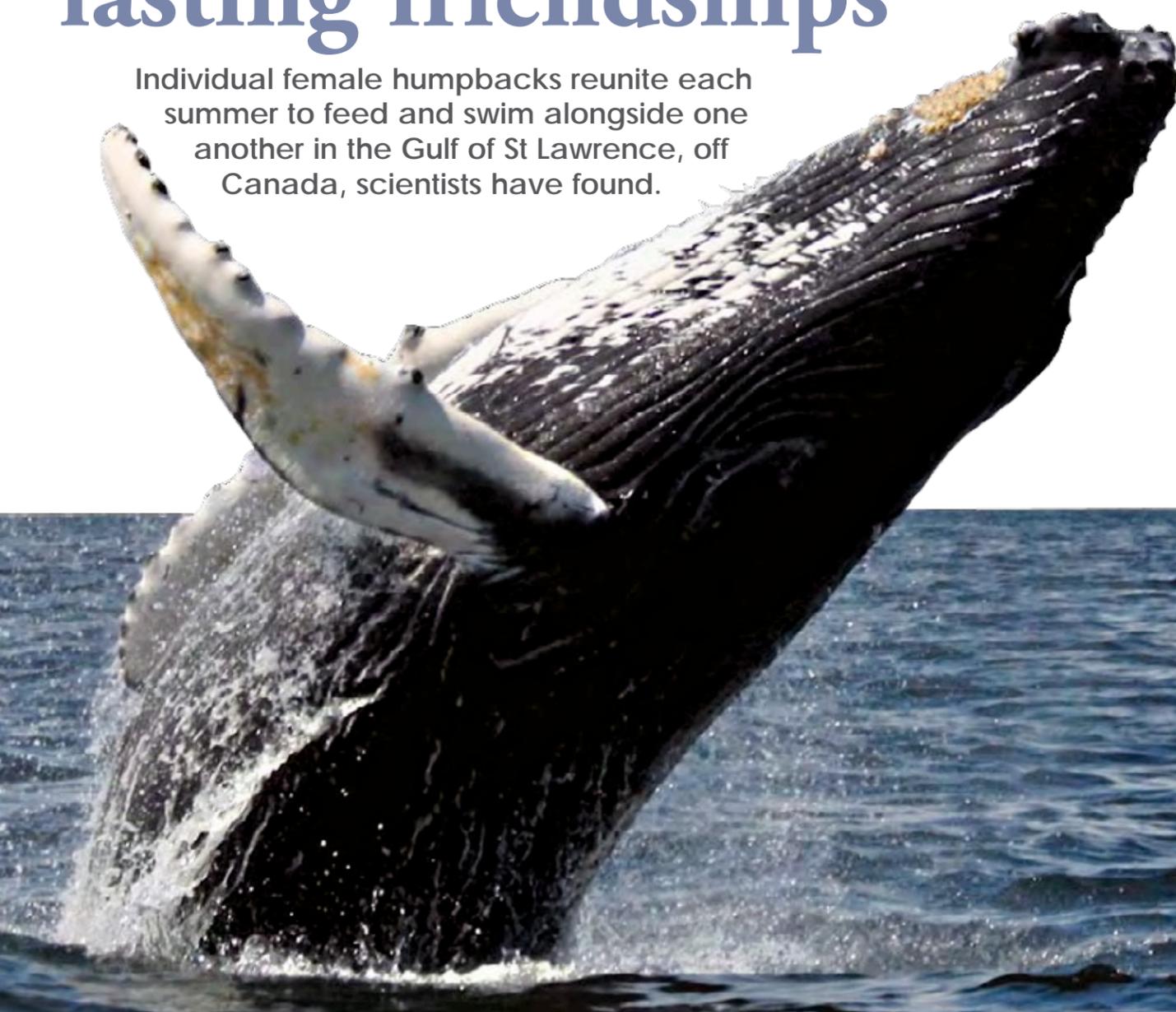
Dr Christine Ward-Paige is a researcher with the Global Shark Assessment, a scientific group launched in 2003 at Dalhousie University in Canada to assess how global shark populations have been affected by industrial fishing since it began as well as global climate change.



Edited by Peter Symes

Humpback whales form lasting friendships

Individual female humpbacks reunite each summer to feed and swim alongside one another in the Gulf of St Lawrence, off Canada, scientists have found.



Toothed whales, such as sperm whales, associate with one another, but larger baleen whales, which filter their food, have been thought less social. The finding raises the possibility that commercial whaling may have broken apart social groups of whales.

Having spent the rest of the year apart migrating and breeding, individual humpbacks somehow find each other again in the open ocean each summer, spending the season feeding together. The longest recorded friendships lasted six years, and always occurred between similar-aged females, and never between females and males.

Dr Christian Ramp and colleagues of the Mingan Island Cetacean Study group based in St Lambert, Canada have been studying whales in the Gulf of St Lawrence since 1997. Using photographic identifica-

tion techniques, the researchers can spot which individual whales appear from one year to the next. During this study, they have found that the same humpback whales reunite each year.

Forming such friendships clearly benefited the female humpbacks, as those that had the most stable and long-lasting associations gave birth to the most calves.

Ramp and his colleagues suspect that the whales form bonds to improve their feeding efficiency each year.

“Staying together for a prolonged period of time requires a constant effort. That means that they feed together, but likely also rest together. So an individual is adapting its behaviour to another one.”

How the whales find each other each summer is also an enigma. ■

“I was very surprised by the prolonged duration. I was expecting stable associations within one season, not beyond. I was particularly surprised by the fact that only females form these bonds, especially females of similar age.”



“Krill smells like boiled cabbage.”

Unlike most whales, bowheads have separate nostrils, which suggest they may be able to sense the direction a particular smell is coming from

Whales have a sense of smell

The finding could change our understanding of how baleen whales locate prey, as scientists suspect the bowhead whales sniff out krill swarms.

Bowhead whales have a relatively large, developed olfactory bulb that appears similar in structure to that in other animals with a developed sense of smell. Previously, whales and dolphins were thought to lack the ability.

The whales' sense of smell was revealed when scientists dissected their bodies and found olfactory hardware linking the brain and nose, and functional protein receptors required to smell.

The researchers also found that bowheads have mostly functional olfactory receptor proteins, which toothed whales do not. These provide the biochemical infrastructure for the marine mammal to sample odours.

“It is remarkable that this animal, which appears to have very little use for olfaction, retained that sense,” said Professor Hans Thewissen, a cetacean expert with the Northeastern Ohio Universities College of Medicine. “We speculate that they are actually able to smell krill and may use this to locate their prey. Krill smells like boiled cabbage.” ■

Lone Right Whales Yell Over the Ocean Din

North American right whales increase the volume of their calls as environmental noise increases. And just like humans, at a certain point, it may become too costly to continue to shout, warn marine and acoustic scientists.



Whales produce upcalls, sometimes called contact calls, when they are alone or in the process of joining with other whales. An upcall begins low and rises in pitch. It is the most frequent call produced by right whales.

American research associate Susan Parks of Pennsylvania State University and her colleagues, Mark Johnson and Peter L. Tyack of Woods Hole Oceanographic Institution and Douglas Nowacek of Duke University, looked at short-term modifications of calling behavior of individual North Atlantic right whales in varying envi-

situations. They report their results in *Biology Letters*.

It appears that right whales increase the amplitude, or the energy in their calls, directly as background noise levels increase without changing the frequency. This suggests that right whales can maintain the signal to noise ratio of their calls in moderate levels of ocean noise.

"To our knowledge, this is the first evidence for noise-dependent ampli-

tude modification of calls produced by a baleen whale," said Parks.

Increased risks

Changing calling patterns can, however, incur costs including increased energy expenditure, alteration of the signal and the information it contains, and increased predatory risks. With increased noise the effective communication range for feeding or mating will shrink and stress levels on individual animals may rise.

"Whether they can maintain their communication range in noisier environments still needs to be tested," said Parks. "Ocean sound levels will probably continue to increase due to human activities and there is a physical limit to the maximum source level that an animal can produce."

Whale poop is good for the climate

Southern Ocean sperm whales have emerged as an unexpected ally in the fight against global warming, removing the equivalent carbon emissions from 40,000 cars each year thanks to their faeces, a study has found.

Australian biologists estimated that the estimated 12,000 sperm whales in the Southern Ocean each defecate around 50 tonnes of iron into the sea every year

after digesting the fish and squid they hunt. The Southern Ocean is rich in nitrogen but poor in iron, which is essential for phytoplankton. The iron is then eaten by phytoplankton, which suck up CO₂ from the atmosphere through photosynthesis.

As a result of the fertilisation, the whales remove 400,000 tonnes of

carbon each year, twice as much as the 200,000 tonnes of CO₂ that they contribute through respiration. The whales' faeces are so effective because they

are emitted in liquid form and close to the surface, before the mammals dive, according to the paper, published in the British journal *Proceedings of the Royal Society B*. ■



ARCHIBALD THORBURN

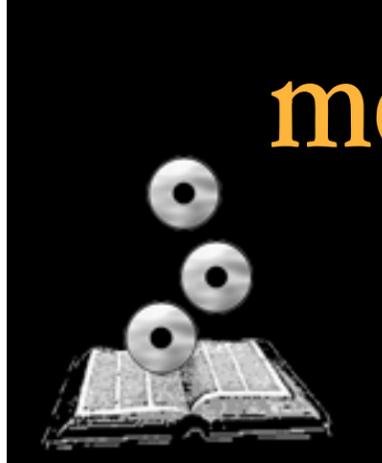
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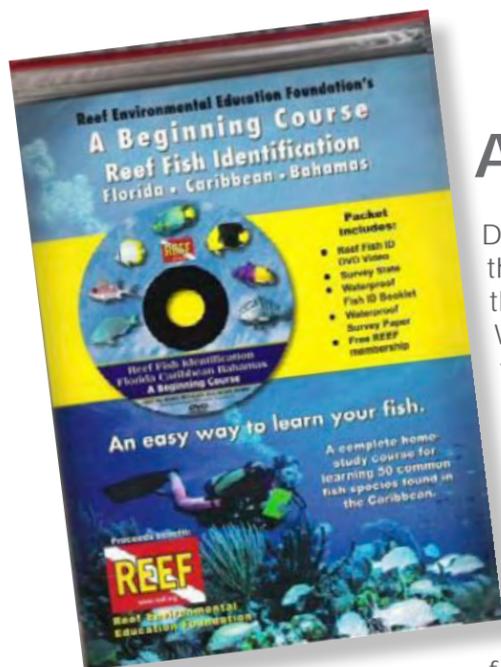
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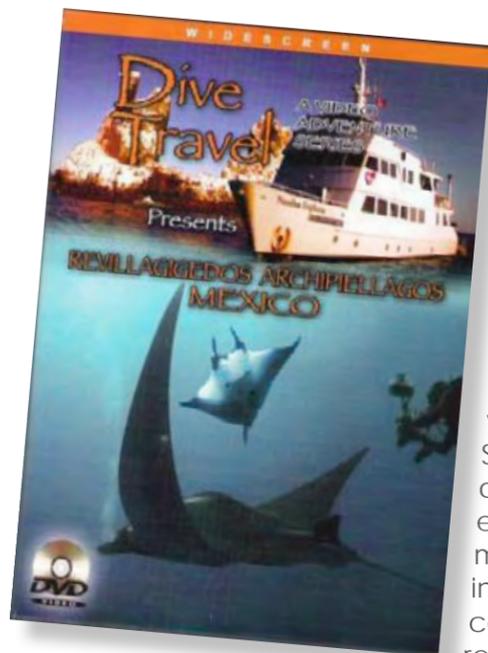
A fish, of course

Dive trips are more fun if you know the destination's locals, the critters that is, not the resort staffers. New World Publications in conjunction with the Reef Environmental Education Foundation has a series of DVD-based curricula to get travelers up to speed before they head to Florida, Caribbean or Indo-Pacific destinations. Authors Paul Humann and Ned Deloach developed the educational material that can be used as

for home-study or to supplement a

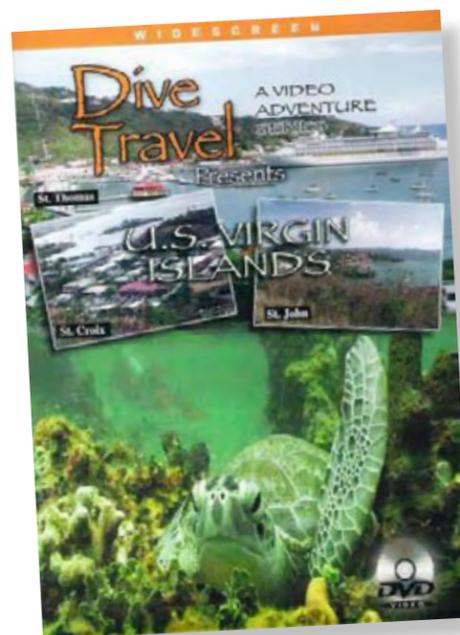
classroom underwater naturalist certification course. Fish are sorted into "chapters" in the DVD, with each presenting in-depth descriptions of the species' identifying markings, behavior and other traits. The information is accompanied with footage of each creature in situ. Also included with the package is a waterproof ID book that can slip into a buoyancy vest pocket, a slate to log sightings underwater and a survey log to track discoveries. The survey can be sent to REEF for compilation in the non-profit organization's fish count data base. The DVD was incompatible with a couple computers in the office, but was entertaining and educational once a proper program was found to decode it.

www.REEF.org



Dive the big picture

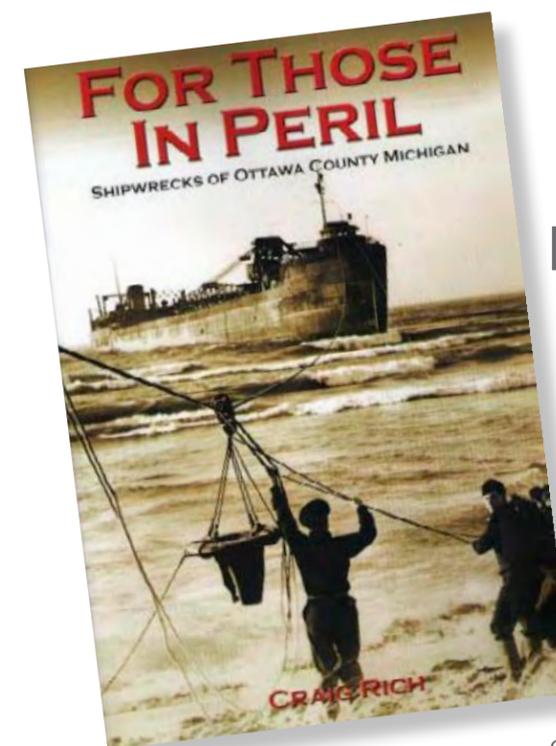
Divers searching for a chance to see big pelagics might want to virtually test dive the Revillagigedos Archipiellagos of Mexico by viewing Gary Knapp's Dive Travel video on the destination. The uninhabited volcanic dots in Pacific are 250 miles off the tip of Cabo San Lucas, and visited by liveaboard dive boats such as the *Nautilus Explorer*, which took Knapp on an eight-day trip there. Besides the islands of Socorro, San Benedicto and Roca Partida, the divers visited pinnacles that rise to within ten feet of the surface. Surrounding these lands is water that plunges to thousands of feet of depth that is a crossroad for international travelers of the oceans. Manta rays with wingspans of 20 feet or more and weighing some 5,000 pounds approach divers for interspecies interactions. Whales cavort here, among other cetaceans and whale sharks. White tip, hammerhead and reef sharks call the place home. In between gaping at Mr. Big, Knapp trained his video on morays, spiny lobster and swarms of colorful tropical fish. As with other videos, he called attention to top-side activities at Cabo San Lucas from which the boat departs for dive adventures. There would be plenty to amuse non-divers left ashore while the dive party heads to sea. www.DiveTravelDVDs.com



Peek at Virgin Island diving

Divers considering a trip to the U.S. Virgin Islands might want to pick up a copy of Dive Travel's DVD on the destination. The 36-minute video offers quick overviews of St. Thomas, St. Croix and St. John, the three main islands of the 50 or so dots of land that comprise the islands that the United States purchased from Denmark in 1917. Since it's a U.S. territory, the islands can be visited by U.S. citizens without a passport, unless they want to also see the British Virgin Islands nearby. Gary Knapp interviews operators and shows topside attractions to take in on non-diving days, like the Cruzan rum distillery and the Whim Plantation, once one of the many operations that relied on slave labor to produce cane sugar. However, most of the focus is on what's beneath the waves off each island. Pinnacles, ledges, valleys and shallow reefs of St. John were packed with everything from spider

crabs to parrot fish, but he caught none of the big pelagic creatures that sometimes visit the destination. St. Croix included shots of the Fredrickstad Pier, where divers encounter herds of seahorses, octopi and the usual crabs, as well as the *North Star* and shallow shipwrecks. St. Thomas was represented with ledges, wall reef and the *Cartanzer Senior*, the ship that united local divers in one of the world's first artificial reef projects. A rare algae bloom carried north by the Gulf Stream from Venezuela's Orinoco River gave the water a greenish tinge that would make Northeast divers feel right at home, especially on the wrecks. www.DiveTravelDVDs.com

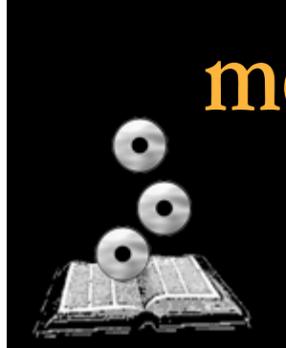


In-depth look at Huron wrecks

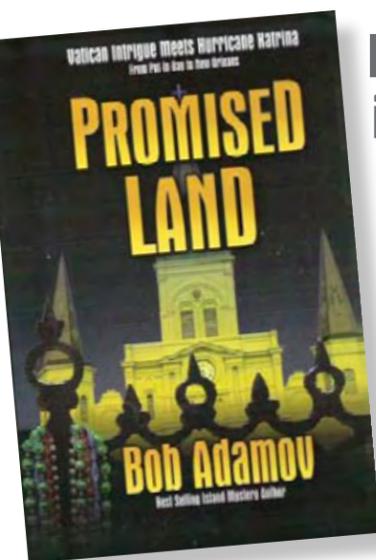
Wreck divers and maritime historians will have a hard time putting down *For Those In Peril* by Craig Rich.

The 136-page soft cover is produced

by In-Depth Editions, the publishing partner of Michigan Shipwreck Associates. It chronicles the dangers of sailing the North American Great Lakes, describing more than 100 ships that became imperiled off Ottawa County, Michigan, or while en route to or from its busy ports of Holland, Port Shelton and Grand Haven. Rich, an avid diver, is just describing his back yard. Besides being a co-founder of the shipwreck associates, he's served as a Holland City Councilman. He's divided the book into ten chapters that document wrecks from the 1850s through recent times, more or less by decade, which allows readers to trace changes in shipping as evolved from wooden boats in the age of sail to modern 1,000-foot-long ships. The book closes with a bibliography and a list of Web sites that point readers to additional information about Great Lakes maritime history. It also has a comprehensive index to ease finding information about the hundreds of vessels explored in this book. Historic photos of the vessels and crew plus site maps drawn by local divers help to bring the stories of the ships and their crews' harrowing experiences to life as does the layout by Valerie van Heest. ISBN: 978-0-9801750-2-8. www.in-deptheditions.com



Books



Dive into a New Orleans mystery

With the oil disaster putting New Orleans back in the news again, it's a good time

to pick up Bob Adamov's novel *Promised Land*, a 268-page hardcover from Packard Island Publishing. A cross and hidden message of a Vatican envoy murdered in 1805 resurface after Hurricane Katrina, drawing Adamov's intrepid protagonist Washington Post reporter Emerson Moore into an investigation of serial murders in the French Quarter and on Lake Erie's Put-in-Bay Island. A parade of unsavory characters from defrocked rogue priests to a sexy Creole detective perk up the plot as Moore digs for facts in New Orleans' Garden District, Pearl River and in documents stolen from the Vatican's secret archives. Along the way he is up to his neck in corrupt cops and swamps full of poisonous snakes and alligators until he finds a document that could destroy the legitimacy of the United States. Although it's not as much of a diving-related book as some of Adamov's other novels, *Promised Land* keeps close to the water, and the plot is as rich and spicy as filé gumbo. ISBN: 978-0-9786184-0-7. www.packardislandpublishing.com



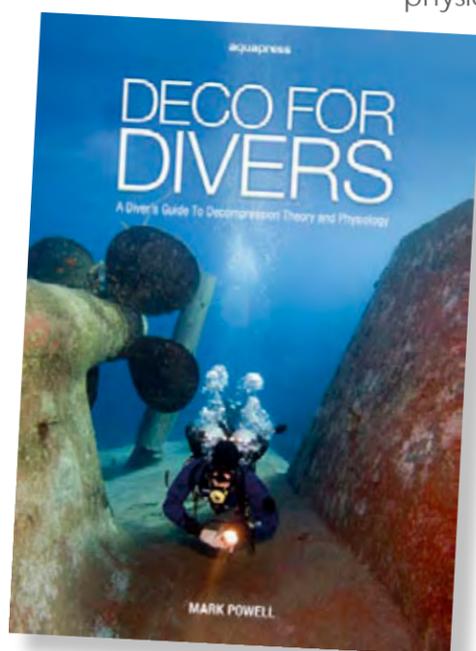
Online Tutorial

Now you can learn underwater photography and image editing on your own time and at your own pace in the convenience of your own home, 24/7. Photo pros, Jack and Sue Drafa, have created a new website, Underwaterphototutorials.com—a unique subscription service offering easy and convenient online underwater

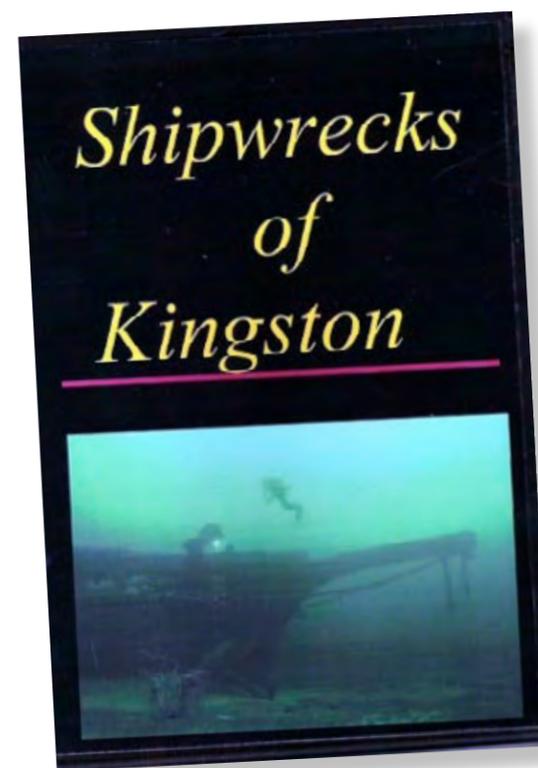
photography instruction as well as tutorials in the use of Adobe Photoshop, Lightroom and Elements. With more than 35 years of photographic experience and image editing, the Digital Duo Jack and Sue make it fun and easy to learn digital underwater photography. Whether one uses a simple point-and-shoot camera or a more versatile digital single lens reflex camera, subscribers will benefit from tutorials covering composition, shooting macro photos, using RAW files, presenting images professionally, and much more. Just to wet your pallet, you can try a sample tutorial for free. Cost for the subscription service is US\$199 per year and includes tutorials on Photoshop (CS2 and newer versions such as CS5), all versions of Lightroom, and Elements versions 5 through 8. Advanced access to Adobe tutorials covering new content is available to subscribers whenever Adobe releases software. Plus you get tips and tricks from well-known industry photographers such as Ernie Brooks, Stan Waterman, Carl Roessler and Geri Murphy. So, get on the web and get shooting. Visit: www.underwaterphototutorials.com

Deco for Divers

This thorough book provides a comprehensive overview of the principles underlying decompression theory and physiology. Tech expert, Mark



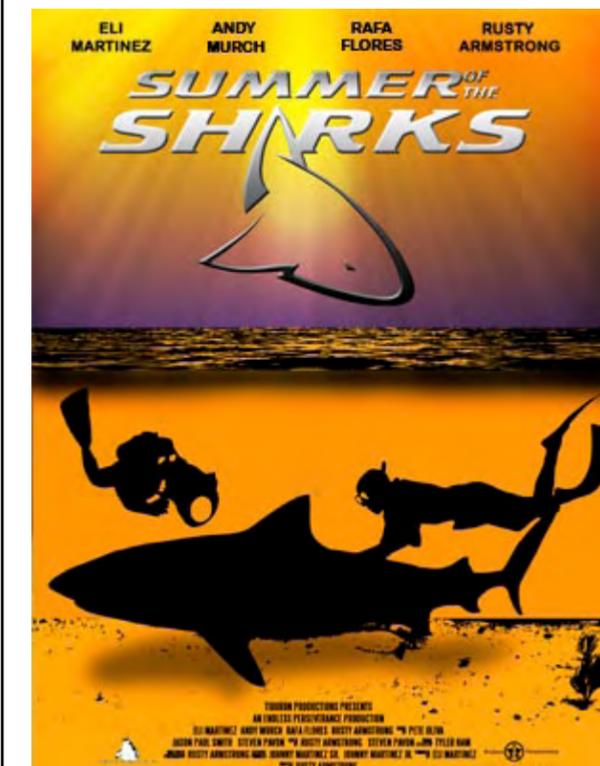
Powell, has written a technical guide book that, for the first time, allows the average diver to fully understand the principles behind this engaging and critical aspect of diving. In addition to examining air decompression, the author also discusses decompression using nitrox and mixed gases. Benefit from up-to-date information on the latest developments including deep stops and advanced bubble models. Suitable for new as well as highly experienced divers, *Deco for Divers* bridges the gap between introductory texts and specialist scientific journals. "It explains decompression in a way that normal divers can understand." — Mark Powell www.dive-tech.co.uk



A video fit for a Kingston

Wreck divers especially will enjoy *Shipwrecks of Kingston*, a 30-minute video from Peter Venoutsos' P.V. Images Productions. It opens with an overview of the North American Great Lakes, the inland seas that enabled the maritime commerce, which built the heartland of the Americas. Kingston, Ontario, in the northeastern corner of Lake Ontario, was and still is a major hub of this commerce. Hundreds of shipwrecks lie on the bottom near this harbor, most within range of scuba divers although some require technical training. Venoutsos chose four within recreational depths to highlight—the *Wolfe Islander II*, *Munson*, *Comet* and *Marsh*—giving viewers a sample of wrecks that span

from the mid-1800s to 1985. Although there are a few topside images that are tied to the wrecks, the video is mainly still and video footage of the wrecks as they are today. Divers glide through green waters over these zebra-mussel covered time capsules while Venoutsos narrates their stories in a rich baritone voice accompanied with soothing guitar sounds that contrasts the story lines. Except for the *Wolfe Islander II*, which was sunk as an artificial reef for divers, all of these wrecks sank in harrowing conditions and, except for the *Comet*, with the loss of all or most onboard. www.AmericanScubaAdventures.com



Summer of the Sharks is a behind-the-scenes look at the crew of Shark Diver Magazine and their life on the road, doing what they love best... chasing sharks and having fun. The movie takes the viewer into their world on an amazing ride with the guys, highlighting the beauty and dangers of the underwater world that these champions of the sharks crave. www.sharkdivermag.com



Recently released:
Diving With Legends
Behind the pages with author Dr Pete Millar

Text by Bonnie McKenna
 Photos courtesy of Dr Pete Millar



— Millar gathers stories of diving legends

Dr Pete Millar is a red-headed Irishman with a crazy-fun sense of humor. He is a man of juxtaposed interests and endeavors.

He was born in Scotland, but holds an Irish passport and loves Korean food, especially bibimbap. Millar has a string of university degrees—his father once remarked that Peter had more degrees than a thermometer—including a doctorate in engineering that takes him to the noisy, dangerous ‘hard-hat’ offshore oil world, which he finds irresistibly exciting. On the other side of his life, there is the calm clean world of being a doctor of chiropractic medicine. But his dream job would be movie correspondent for the New York Times. He has a home in Chicago, but lives on the other side of the world in Baku, Azerbaijan, working as the in-country manager for a huge BP contract in the Caspian region.

Millar says he likes to write. He claims he is not a writer, but he is a published author of several books.

“I wrote *The Eve of Armageddon*, a spectacularly unsuccessful science fiction novel. I did a book for my children called *Goldensocks and the Three Hares*, which, years later, my daughter illustrated. When my father died, I did a book, just for my family, on his life with images and stories about life growing up in Northern Ireland and our travels in the Middle East and China,” Millar said.

Millar claims he couldn’t even be described as a “legend in his own lunchtime”. He says he is famous for very little other than writing *DOXA SUB—Forty Years 1967-2007*, a history of the DOXA dive watch.

Any fan of Dirk Pitt will immediately recognize the name DOXA as the orange-faced dive watch that is mentioned in all of Clive Cussler’s books featuring the irrepressible exploits of Pitt.

“When I finished the DOXA book, I was pretty much at a loss. I looked at the information I still had and thought about

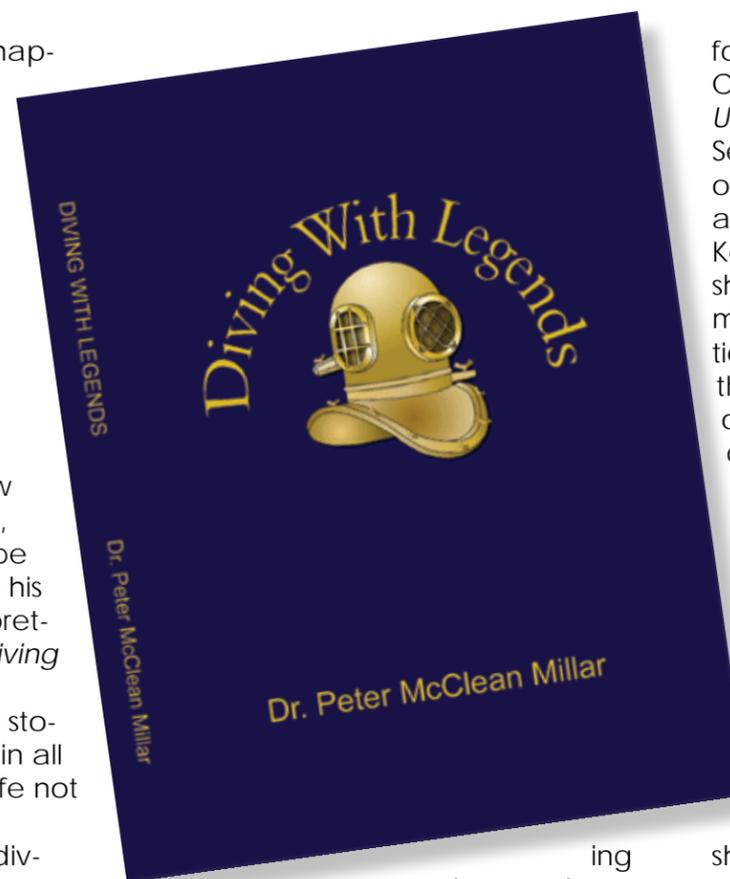
a later update, especially on the chapter of SUBs currently in use. I also thought about the information I had from Stan Waterman about the days when he wore the vintage DOXA. I wanted to expand on his adventures underwater. I guess I had one of those eureka moments when I thought, what if

I asked Stan to tell me about his best dive or greatest adventure, or what he wanted to be remembered for. I knew I could write about him, but how cool would it be if he told me his story in his own words? That was pretty much the driver for *Diving With Legends*,” Millar said.

Millar wanted his new book to tell stories about courage and innovation in all aspects of diving and underwater life not just SCUBA diving.

This is not a book about actually diving with legends, but about divers that have made an impact on diving and have become legends. All of the divers featured in this book have contributed to the dive industry by increasing our knowledge of the underworld and/or by push-

Millar wanted his new book to tell stories about courage and innovation in all aspects of diving and underwater life not just SCUBA diving.



for film and documentary work; John Chatterton and Richie Kohler, not only for *U689*, but also their television series *Deep Sea Detectives*. Dan Crowell’s shows on the Military Channel were awesome and he had a tie-in with Chatterton and Kohler. Leigh Bishop, first to explore a shipwreck deeper than 100 meters using mixed gas. Carl Spencer, whose expeditions to *HMHS Britannic* are considered the benchmark in research explorations of historical shipwrecks. Jarrod Jablonski, one of the world’s most capable and talented exploration divers who holds the record for the world’s longest and deepest cave diving penetrations. Burt Webber’s search for the Spanish galleon *Nuestra Senora de la Concepcion* that sank in 1641 made a great treasure seeking tale.

“Some stories sort of landed in my lap. Henry Joyce sent me his father’s diaries about the *USS Sealion*—the only allied submarine to sink a battleship in World War II. From big submarines, submersibles brought me to Graham Hawkes, an ocean engineer/inventor responsible for the design of manned underwater vehicles. He holds the world’s record for the deepest solo dive of 304 meters, piloting his *Deep Rover* submers-

ing the envelope while performing fetes of skill on the very edge of life itself.

“I wanted people who were famous in their own realm. Stan Waterman and Howard Hall were obvious choices



LEFT TO RIGHT: George Bass; Leigh Bishop; Jon Chatterton; Dan Crowell; James Delgado; Martha Watkins Gilkes; Tony Groom; Howard Hall; Graham Hawkes

