

Skills for Technical Diving

Learning to dive involves learning a new set of skills. Mask clearing, buoyancy control, regulator recovery and all the other skills that you learn on an open water

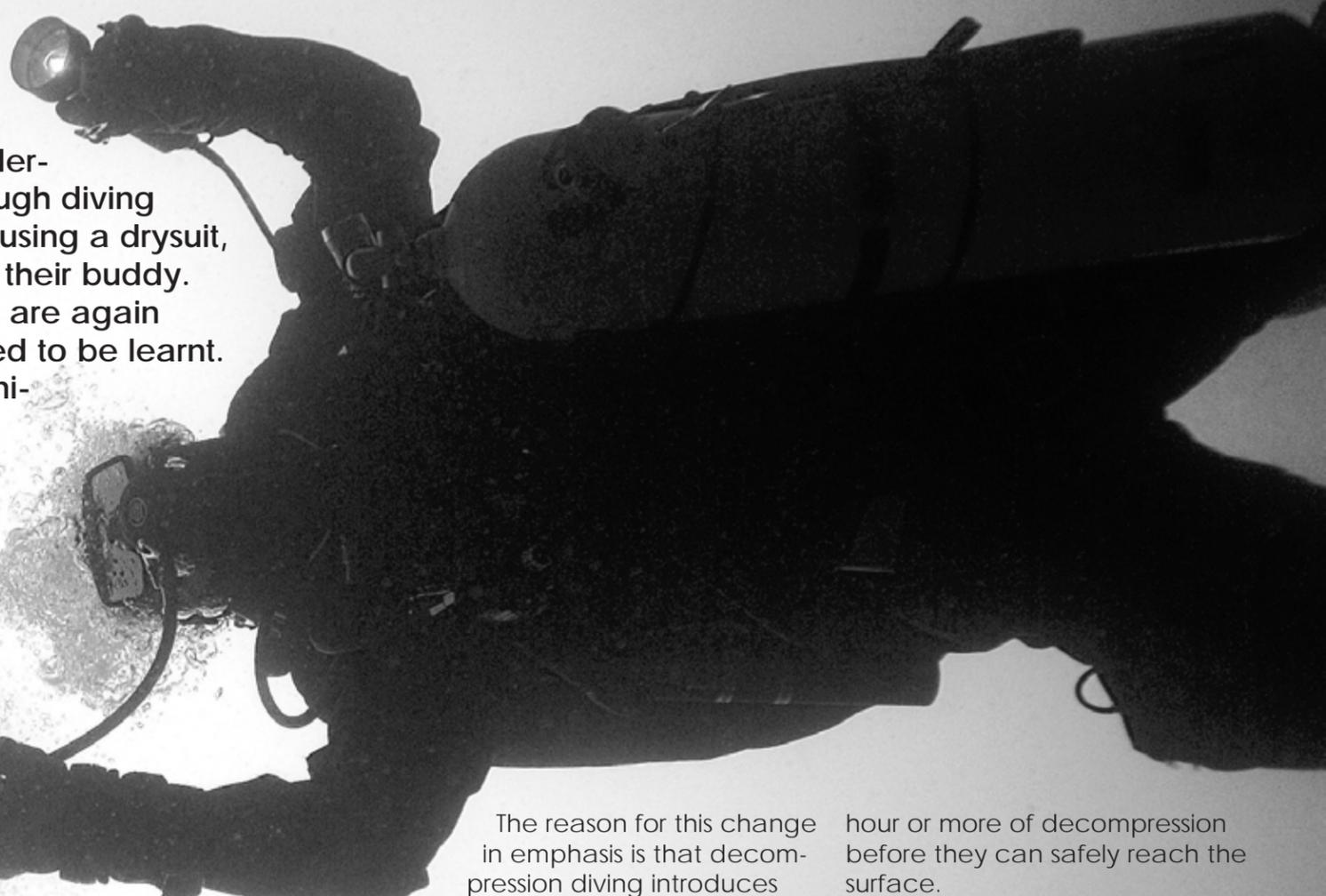
course are essential for dealing with the under-

water world. As a diver progresses through diving they learn additional skills such as using a drysuit, wreck diving or how to rescue their buddy.

With technical diving there are again some new skills that need to be learnt.

In addition with technical diving there is a greater focus

on ensuring that skills are not just learnt but also practiced and mastered.



Using a long hose makes the ascent and decompression stops much easier

The reason for this change in emphasis is that decompression diving introduces what is known as a virtual overhead environment or glass ceiling. This increases the risks of the dive but also increases the consequences should there be a problem. On a recreational, or no-stop dive, the surface is only a few minutes away, and should the diver have to ascend immediately due to an equipment problem, there would be relatively little risk.

On a decompression dive, the diver cannot ascend without risking decompression illness. The diver may need to perform an

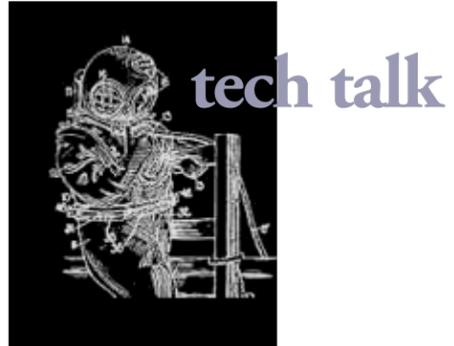
hour or more of decompression before they can safely reach the surface.

As a result, they must be able to deal with any situation that may occur. They must also be able to complete the correct decompression for the dive they have carried out. This means following a specific ascent rate and holding decompression stops even if other things are happening. This can only be safely done if the relevant skills are practiced and mastered.

Buoyancy

Buoyancy control is the essential skill that is fundamental to all div-

Text by Mark Powell



ing. Most divers go through a number of stages in achieving buoyancy control. At first, when they are initially learning, they have little to no control. They don't understand how to change their buoyancy or the factors that are affecting whether they are rising or sinking. By the time they achieve their open water qualification, they should have moved to the second phase where they understand how to control their buoyancy but it is an ongoing effort. They may have their hand on the BCD control constantly and have to make a conscious effort to control it.

After further practice, they reach the third stage where buoyancy control is now automatic. They can swim around maintaining buoyancy with little to no obvious effort and are able to maintain a good level of buoyancy control providing everything is going well. Most divers only ever reach this third level of control and many experienced divers who are considered to have good buoyancy control are at this level.

However, if a problem occurs, or their attention is focused on something else then that buoyancy control starts to become more erratic. Unless a diver has experience of dealing with problem, they are unlikely to be able to maintain their buoyancy whilst at the same time dealing with the problem. Technical divers must reach the fourth stage of buoyancy control where they can deal with one or more problems whilst still maintaining their buoyancy.

Once the technical diver has achieved this point, they can focus on solving the problem at hand. This level of control provides a stable platform for all of the other skills required for technical diving.

Controlling ascent rate

Controlling the ascent rate is one of the key skills of technical diving. This type of diving almost always means decompression diving, and so a controlled ascent rate is essential.

Decompression tables or computers are based on a given ascent rate, and it is essential that the diver sticks to the correct rate. Not too fast and not too slow. There has been a gradual movement towards slowing down ascent rates, and for recreational diving, this can only be a good thing. For technical diving, it is slightly more complicated.

Many recreational divers who move to technical diving end up ascending far too slowly at depth but then too quickly from the last decompression stop. This is the exact opposite of what they should be doing. If the diver ascends too slowly, they may in effect extend their bottom time and end up incurring more of a decompression penalty.

For this reason, the technical diver should always ascend at the correct rate. This doesn't mean fast but just means at the rate prescribed by the decompression model they are using. Many decompression models use an ascent rate of ten meters per minute from the bottom up to the first decompression stop.

Deco stops

Once the diver reaches their decompression stops, they need sufficient buoyancy control to be able to hold these depths. For a safety stop, it is not essential that the stop is made at exactly the prescribed depth or that the diver maintains exactly that depth for the whole of the safety stop.

A diver demonstrates good buoyancy control on a decompression stop

However it is a different story for a mandatory decompression stop. The diver must now be at exactly the depth required. Any deeper and they will not be releasing the gas that has built up in the body fast enough, but any shallower, and they may be releasing it too fast, possibly resulting in decompression illness (DCI). For this reason they need to maintain their stop depth plus or minus no more than half a metre. Clearly good buoyancy control is essential here.

Gas switches

On most technical dives, the diver will switch from the gas they were breathing during the bottom part of the dive to a separate decompression gas. This decompression gas will speed up the rate at which dissolved gas is released from the body and reduce the length of the decompression stops.

The gas used during decompression is a rich Nitrox mix. The danger with using these gases is that if the diver drops below a certain depth there is a risk of central nervous system (CNS) Oxygen Toxicity. In order to safely use these gases, the diver must be able to maintain his depth and ensure they do not drop below the maximum operating depth for the gas.

If more than one decompression gas is carried, each will have its own maximum operating depth (MOD). The diver must ensure that he does not switch to the wrong gas at the wrong depth and risk CNS Oxygen Toxicity. For all of these reasons, the diver must be able to carry out their gas switches ensuring that they always switch to the correct gas whilst maintaining their depth to within half a metre.

Controlling the ascent rate is one of the key skills of technical diving.





Switching to a backup mask

Buddy watch

During the gas switch, it is essential that your buddy checks that you are switching to the correct gas. This is just one example of the level of buddy skills required for technical diving.

The technical diver should always be aware of their buddy and work as a team to anticipate and avoid potential problems. It is all too easy to focus exclusively on the task you are carrying out and forget about your buddy. No matter what you are doing, you should always be aware of your buddy and be ready to assist if they have problems.

The worst case situation is if your buddy runs out of gas and has to share your gas supply. This indicates a serious lack of planning or awareness, as the technical diver should plan their dive and monitor their consumption to ensure that they never run out of gas.

If the worst case does happen and your buddy runs out of gas, then you will need to perform an ascent, carrying out any decompression stops, to the surface or to the point where you can switch onto one of your decompression gasses.

In this case, a long hose on the regulator you donate to your buddy will make this task much easier. Rather than being just a few inches from each other, a long hose allows enough room between the divers to enable a comfortable ascent and decompression stop.

Again this is a situation where buoyancy control is essential if you are to ascend and hold your decompression stops whilst simultaneously sharing gas.

Surface Marker Buoys

Using a Delayed Surface Marker Buoy (DSMB) is a common occurrence on technical dives. Returning to a shot line at the end of the dive is not always desirable, and strong currents decompression on a shot line can be an uncomfortable and potentially

dangerous option.

Procedures vary from one region to another, but the most common method of decompression in the UK is to send up a DSMB from the wreck or near the start of your ascent, and then drift with the current.

With a long decompression, the DSMB allows the boat to track the drifting divers, even in a strong current. A DSMB makes long decompression stops easier for the diver by providing a depth reference. For these reasons, it is essential that technical divers practice sending up a DSMB until they can do it easily.

For deeper dives, it is sometimes the case that the DSMB is not long enough to reach from the maximum depth to the surface. For this reason, it is also important for technical divers to be able to deploy a DSMB from a decompression stop or whilst ascending from one stop to another. In order to do this, it is essential that the diver has mastered both skills individually before combining them.

Know your equipment

As well as their DSMB, the technical diver should also be familiar with all of their other equipment. In the case of a problem, they should be able to easily find and use any piece of equipment. If a diver carries a piece of backup equipment but has never practiced using it, there is no guarantee that it will work as expected when needed.

Many divers carry a backup reel and DSMB but very rarely practice using them. If the main reel has a problem, that is not the time to be trying to remember how the backup works.

Similarly many divers carry a backup mask but have never practiced getting it out and putting it on in the water. If you lose your mask, that is not the best time to find out that it is very difficult to undo the pocket that holds your backup mask.



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Passing a decompression stage to a buddy

Practice makes perfect

It is for these reasons that technical divers frequently practice key skills. The thinking behind this is that if an emergency happens then the worst time to be trying something for the first time is when you need it for real. Equally, if you have not practiced a skill for a long time it is likely to be rusty. The reason we practice these skill is not that we think it is likely that we will need to perform that skill regularly. Quite the opposite, they are practiced because it is hoped that we will never need to use them, but if we do, we will be able to carry out the skill without a problem.

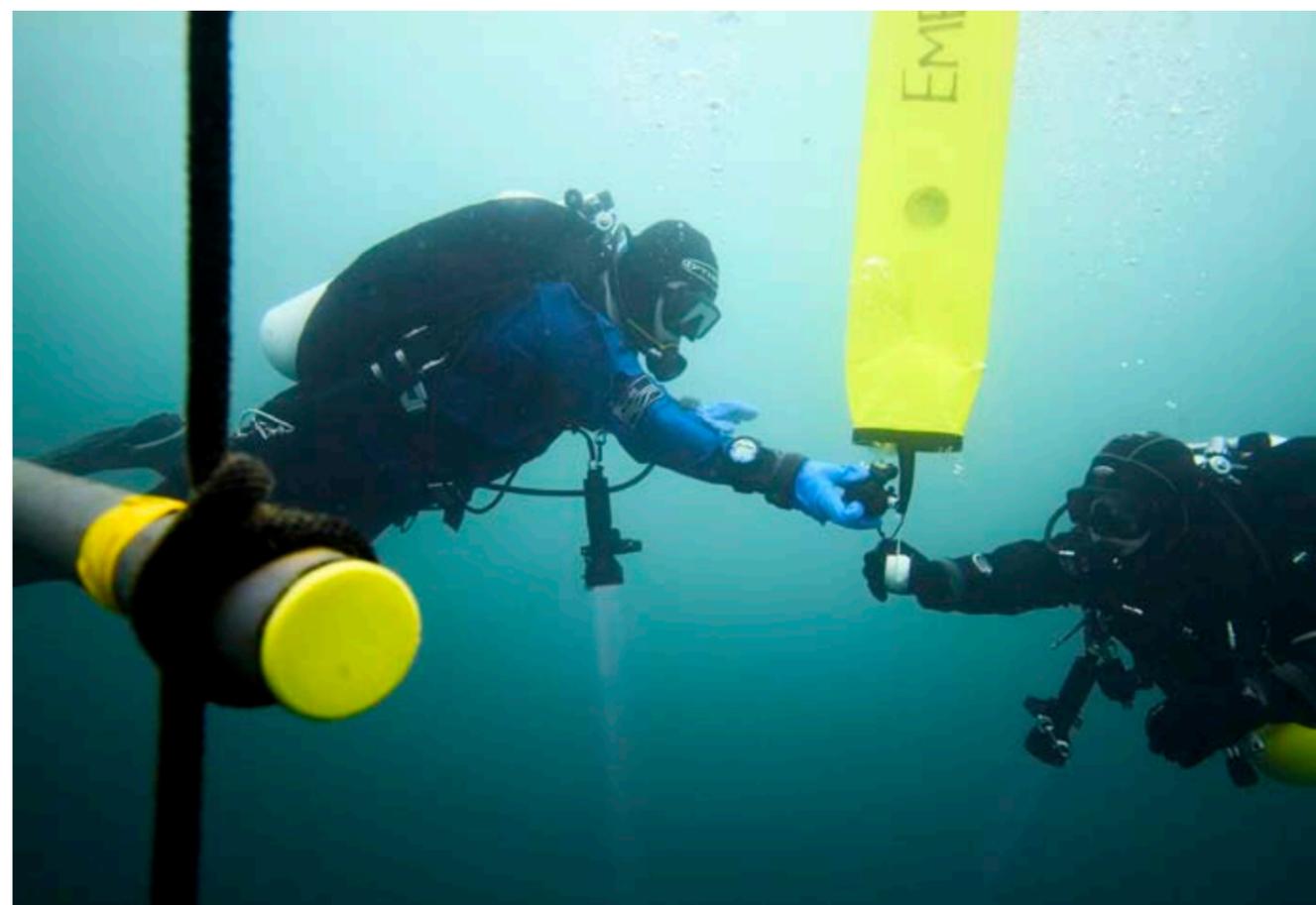
For example, many technical diving courses include practice in removing

the stage cylinder containing your decompression gas and then refitting it. This is not because we anticipate taking it off regularly, there are very few times when you would want to take off a stage cylinder. However, if the diver gets a line tangled around his stage cylinder, or needs to pass off the stage cylinder to his buddy, it will be invaluable if they have previously practiced this manoeuvre.

Technical diving builds on the key skills that are required at any level of diving but as we can see there is more of an emphasis on practicing and mastering each of the skills. The implication of not having mastered a skill in technical diving is potentially more

serious than in recreational diving, but regular practice of skills and planning for the worst case is something that is very useful at all levels of diving.

Mark Powell is one of the leading technical diving instructors. Mark has been diving since 1987 and instructing since 1994. He is a full time technical diving instructor for a number of the leading agencies and teaches all levels up to and including Advanced Trimix. Mark has led a number of expeditions to various parts of the world including the Middle East, Costa Rica, Malta and the Red Sea but is usually found diving the wrecks around the coast of the UK. ■



Sending up a delayed SMB from mid water



whale tales

Edited by Kelly LaClaire

Robots to protect marine mammals down under?

Unmanned Aerial Vehicles (UAVs) are being used over Western Australia's Shark Bay in an attempt to discover if drones could be a better way to monitor marine mammal species than manned aircraft. Dr Amanda Hodgson of Murdoch University in Perth has been funded by the Australian Marine Mammal Centre to head the research. "A huge benefit of UAV is that they eliminate human risk," Murdoch told the Australian Associated Press. "We don't have to have observers flying low over large areas of ocean in small planes. In addition, they should allow more accurate detection, location and identification of species."

Currently, Hodgson and her researchers are working with Boeing's Institutu Pacific (a defense division of the global aircraft giant that utilizes drones for military and commercial applications) and hoping to benefit from the advantages of the unmanned crafts. UAVs can fly at attitudes approaching 6000 meters (around 18,000 feet) and have an operational power source that lasts up to 28 hours allowing surveys of cetaceans to be conducted in ways that traditional airplanes cannot. "Large areas of the Australia coastline have never been surveyed for dugongs or humpback whales and UAVs capable of flying long distances may allow us to access these remote areas." Murdoch's studies are only in their first stages, but conservationists are hopeful the data collected will go far in replenishing depleting whale, dolphin and dugong numbers in Australian waters. ■

SOURCE: SMH.COM



NASA

Taiji to hold meeting discussing dolphin slaughter

Local activists and political leaders in Taiji, Japan, will meet in November to hold the country's first meeting to discuss the annual slaughter of thousands of dolphins and other cetaceans. Made world famous by the Oscar-winning, U.S. documentary, *The Cove*, the whaling village of Taiji is falling under increasing world-wide pressure to end its yearly hunt of hundreds of dolphins and whales sold as meat or waterpark attractions.

According to official organizers the meeting will be attended by Mayor Kazutaka Sangen, senior officials of a local fisheries cooperative and representatives of several anti-hunt groups who have been demonstrating around the town since September when this year's hunt began. The media has been openly invited and each side will have a chance to express their opinions and debate over pre-written questions that will be

decided on before the event begins.

Local fisherman and whaling organizations point out that the annual hunt is a cultural right and 100 percent legal under law and are bewildered that Westerners find the dolphin culls extreme and cruel.

One fisherman who spoke anonymously to the reporters said most of the village's people are descendants of fishing families who have lived there for generations and don't view dolphins any differently than tuna or other fish. "They're food," he says.

A 1994 statement by Taiji Mayor S. Hamanaka directly addressed to environmentalists illustrates the viewpoint of locals succinctly: "We believe we know more about our own sea in Taiji than anyone who lives hundreds or thousands of miles away from us. We also believe we are more concerned with its protection and assume more responsibilities than anybody else in the world. We are sure that the same view is shared by Alaskan Eskimos, Faroese, Greenlanders, Icelanders, Norwegians and Russians in Chukotka as well. We hope many environmentally concerned people in the industrialized nations will understand our views and trust us as rational and humane people, and

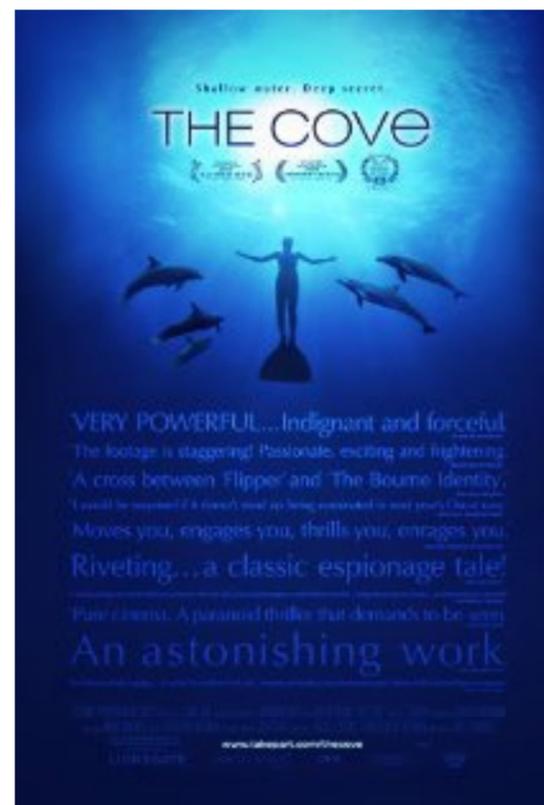


Scene from the annual dolphin slaughter in Taiji, Japan. Photo courtesy of Savejapandolphins.org

stop making whaling a 'scape goat' of the environmental crusade and making inhumane attacks on whaling people."

Activist and concerned environmentalists, however, aren't buying it, especially Ric O'Barry, world famous for his efforts on the issue. O'Barry claims that he was told in private by town officials that tradition is not the real reason for the hunts. "It's pest-control," he told *Japan Focus* reporter David McNeill. "They're over-fishing and want to kill the competition for the fish. That's unacceptable." Other anti-hunt groups agree, as witnessed by the recent activities of the Black Fish, who took credit for sending divers to cut the nets of sea pens holding captive dolphins in an attempt to free as many as possible.

Whatever the outcome of the meeting, groups such as O'Barry's are taking a major win on raising awareness around the globe and consequently bringing the Japanese to the negotiating table. ■



Poster for the film, *The Cove*, directed by Louie Psihoyos



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Hypothetical reconstruction of Hoekman's blunt-snouted dolphin (*Plataleorostrum hoekmani*).

Extinct 'Balloon-Head' Dolphin Discovered

Boasting a short, spoon-shaped nose and high, bulbous forehead, the new species has been identified from a fossil found in the North Sea.

Named *Plataleorostrum hoekmani* after Albert Hoekman, the Dutch fisherman who discovered the skull bone in 2008, the species measured up to to six metres in length and lived two to three million years ago.

As museum researchers Klaas Post and Erwin Kompanje wrote in the museum's journal *Deinsea*, the North Sea has been

a rich source of fossils in recent decades as bottom-trawling has become more prevalent. The practice has yielded tens of thousands of pieces of the fossil record, many of which defy classification.

Oceangoing

What is clear from the singular bone found by Hoekman is that the animal fits into the family of marine mammals known

as Delphinids—ocean-going dolphins that actually includes both killer and pilot whales.

Pilot whale cousin

The bone shows an unusually large tip region containing six teeth known as the premaxilla. This feature suggests the broad, blunt nature of the creature's snout. More specific classification within this family is somewhat speculative.

Based on analyses of similar fossils and modern relatives within the family, the researchers are convinced they have found a new species whose closest living relative is the pilot whale.

The rostrum bone along with a model of the dolphin are now on display at the Natural History Museum, Rotterdam. ■

SOURCE: DEINSEA, VOLUME 14, 2010

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whale tales

Noise pollution limiting habitats of endangered northern right whales

The northern right whale is the rarest of all the large cetaceans on Earth and now, in addition to the dangers of illegal whaling, increasing water pollution and depleting food sources, this severely endangered creature faces yet another uphill battle in its fight for survival. Recent studies at Scripps Whale Acoustic Lab has brought forth evidence that anthropogenic (man-made) ocean noise levels have risen markedly—doubling every decade for the past 50 years—and are diminishing feeding, hunting and mating grounds for right whales and many other species.

To understand the detrimental effects that excess noise levels have on whale species, one first has to have a grasp how whales “see” their environment. According to director of Cornell University’s Bioacoustics Research Program, Chris Clark, marine mammals live in an “acoustic-dominant world” and use sound as their primary means of sensing and measuring their habitats. When noise decibels reach critical levels, the acoustic environment becomes chaotic and foggy with underwater white-noise, negatively impacting a whale’s ability to interpret the surround-

ing environment and perform basic survival activities such as finding food, attracting mates, and communicating with other pod members. As an analogy, imagine your neighbors blasting death metal 24 hours a day while you try to eat dinner, talk to your children or have a relaxing evening on the couch with your significant other, all while blindfolded.

Of chief concern to researchers are low frequency sound waves that travel furthest underwater. Boat propellers, oil rig drills, large diesel engines, etc., create a particularly cacophonous environment for right whales, whose calls are typically softer and easily disrupted by conflicting sound waves, effectively driving them away from fertile feeding and mating grounds. For instance, in Cape Cod, where right whales return perennially, man-made noise has reduced acoustic habitat by as much as 80 percent, said Clark. For a species with a population of only a few hundred, that kind of impact could be the final straw.

Currently, in an effort to

document habitat loss and help revive their numbers, Clark and his colleagues are monitoring right whales in several locations via high-tech sound recording devices on the ocean floor. Hopefully, in the future, this data can be used to help legislators make informed decisions on such things as shipping lanes, marine technology development, cruise ship activities and oil rig placement.

To learn more about Scripps Whale Acoustic Lab visit their website at: Cetus.ucsd.edu. To find information on Cornell’s Bio-Acoustic Program go to: Birds.cornell.edu/brp/research/animal-communication-research.

If ocean noise continues to

increase as a result of human activities, whales may soon have nowhere to go.

The approach is important for conservation because it will help researchers in efforts to document habitat loss, which has legal ramifications under the Endangered Species Act. For instance, such findings will play into decisions about the location, timing and technology of marine development—including cruise and cargo ship traffic, oil and gas rigs and offshore wind farms (which create high levels of noise during construction and moderate levels when operational). ■

SOURCE: SCIENTIFICAMERICAN.COM



Whale strikes prompting U.S. Coast Guard to study shipping lanes

The Farallon National Marine Sanctuary surrounding the entrance to San Francisco Bay, California, USA, is a 1,250 square mile cetacean haven protecting grey, blue, humpback and right whales that migrate through the rich feeding grounds in the spring and summer months. This same area is home to some of the busiest shipping traffic in the western United States and, unfortunately, the whales—as usual—are caught in the perpetual human battle between safeguarding the environment and maximizing profits.

In recognition of the potential environmental fiascos of massive ocean-polluting container ships, California recently mandated that all shipping companies use lower-sulfur fuels when within 24 miles of its coastline. However, this measure, while potentially solving one problem seems to be exacerbating another.

Due to the higher cost of cleaner-burning fuels, ships are trying to reach the 24-mile line as swiftly as possible when leaving port, so they can switch to main engines that run on far dirtier, cheaper fuels. Fast moving ships crisscrossing the feeding grounds of slow moving whales is, obviously, a recipe for disaster.

So far this year, at least six whales have been struck. One incident involved an endan-

gered blue whale and its fetus, while another found a whale impaled on the bow of a ship that wasn’t noticed until the vessel reached port.

Appropriately, the U.S. Coast Guard has begun a “Port Access Route Study” in an effort to minimize the increasing number of whale deaths by large commercial vessels. Meetings to discuss the matter and present possible solutions have been open to public and non-profit organizations.

One oceanic conservation group, Pacific Environment, suggested requiring ships to travel through the Farallons at a slower pace (15 miles an hour) instead of allowing them to travel at higher speeds (around 30 miles per hour) as they do now. While this would be easy enough to implement any regulation purposed risks being met with heavy opposition from at least some shipping companies as delivery schedules are tightly controlled and lost time, as with any business, usually equals lost money.

“They all have a very complicated logistics chain, so it’s planned very carefully and disruptions of it are problematic,” said U.S. Coast Guard Capt. Patrick Maguire. ■

SOURCE: ABCLOCAL.GO.COM



Farallon Islands off California, USA



photo &
video

Edited by
Peter Symes
& Scott Bennett

Text and photos
by Lawson Wood
www.lawsonwood.com

Now that we have our camera system together and are ready to dive, we also have to be conscious of various things: the location; visibility; is it a close-focus type of critter dive or is it a wide-angle beautiful scenery dive; depth parameters; other similarly clad and outfitted photographers also wanting the same final result; time of day, etc. So, let's look at the positive aspects of underwater photography and a few of the techniques that will help you in your quest in taking easy steps into digital photography.

Be prepared

Get yourself and your equipment together. If you are visiting a new site for the first time, then listen to the dive guides; they know where to get the best results with minimal effort. (Be sure to show your appreciation!) Be sure that your dive buddy also knows where you are going and what you are planning.

Subject: Lesley, Candidasa,
Bali, Indonesia. 10mm lens, ISO
100, twin Sea & Sea YS110 flash,
1/100th second at F8

Aspects of Photography Preparation





Subject: Snowy, Jackson Reef, northern Red Sea; 10mm lens, ISO 100, twin Sea & Sea YS110 flash, 1/125th second at F8

Preparation

Good buoyancy technique is essential for successful underwater photography. The photographer must be able to approach the subject matter with ease, lack of effort and be totally neutral in buoyancy.

Position of the sun

As you enter the water check the position of the sun, since this can have either a serious detrimental effect on your photography, as it can totally 'blow out' the exposure, or be superbly beneficial in that it can provide a backdrop for a silhouette type of photograph where the subject colour is lost against the lighter background. Sunbursts always look excellent in well-composed photographs, but sadly, digital photography does not have the latitude that film used

to have, and it is very difficult to get right.

Careful note of the sun's position as you enter the water may benefit a photograph, whilst the luminosity of the sun obviously blow's out the centre top of the photograph; there is sufficient 'fill-in' flash to illuminate the subject matter of the diver shining a light on the corals, thus negating some of the negative effects of the sun burst. 'Blowing out' of digital photographs is a very real problem and certainly this was never a problem when using film. Steps can be taken through Photoshop and careful camera aiming to minimize the effects of such a strong sunburst, but sometimes the effect is still very effective, no matter how strong the sunburst is.



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Technique

Try and stick to only one photographic technique at a time. Do not be disheartened; learn your skill in progressive applications that ultimately push you and your equipment choice to its limit. Perhaps it should be advised here to attend an underwater photography workshop prior to embarking on specific types of photography. Find your aptitude, then exploit it.

Additional light

Lack of colour has always been the problem of underwater photography, and quite often the subject matter itself may be rather drab and colourless. It is better to treat every dive as a potential night dive and take a torch, either strapped onto your flash as a 'pointer' or on a separate arm attached to your underwater camera or housing. This artificial light will allow you to find the critters or fish that have brilliant coloration before you take the photograph. Remember that you lose

the colour red in depths under two metres.

Buoyancy

Taking on the mighty challenge of underwater photography should really only be considered after you have had many dives (in all types of conditions) as you have to have sufficient diving skill to be able to undertake this as second nature. What comes with this skill is an appreciation for the medium and how the effects of pressure also affect the buoyancy of your equipment. For the most part, you will have more fun, use less air and be able to 'fly' around your subject if you are neutrally buoyant. Occasionally, I overweight myself if I am working close to the seabed and need to remain anchored in position.

Subject: Lee Evans, Turtle Reef, Grand Cayman Island. 10mm lens, ISO 100, Twin Sea & Sea YS110 flash, 1/125th second at F11





photo & video

Buddy challenge or a great model

If you are planning on wide-angle photography and are diving with a buddy—who may be your partner, a fellow photographer, a professional model or just someone who has been assigned to dive with you on an otherwise crowded dive boat—get a plan of action worked out. With a fellow photographer you can each take turns being the model. My wife Lesley now knows instinctively that when I am shooting in this format, she will rise slowly above me to gain a further perspective to the photograph, or will even stay out of my way if I look like I am planning another strategy. This knowledge is vital to me, as a photographer. Dive guides also make great models, as they generally stay back and out of the way

of photographers. By encouraging them in closer, you can get some excellent atmospheric photographs, which ultimately set the scene. Dive buddies will also benefit from attending an underwater photography workshop, since modeling, composition and buoyancy are all important factors for their inclusion in a photograph.

At right, dive guide Victoria Belport approaches the bow of a small shipwreck, which is covered with colourful



Getting down on the same level as your subject, or even slightly below it gives a much better perspective for viewing the subject.

Pygama nudibranch, Marsa Alam, Red Sea
105mm lens, ISO 100, Sea & Sea YS180 flash, 1/125th second at F16 (below)

Subject: Victoria Kaiser Belport, Wreck—Cayman Mariner, Cayman Brac, Cayman Islands.
20mm lens, ISO 200, Sea & Sea YS180 flash, 1/80th second at F8 (right)



Preparation



sponges. Note that I gave her a rather old-fashioned mask, which allows greater light to illuminate her face. The position of her arms reflects those of her equipment hoses, and there is a mix of both ambient light and electronic flash.

People invariably set the scene, perspective and scale of the photograph, as this is the only way that we can have any indication of the true size of the subject. For those uninitiated in the variety and size of underwater creatures, some viewers of your photographs may not understand that many of the most colourful of the animals are indeed minute, but that there is also magnificent colour to be found at all depths of the sea. However, as photographers, we have the task of illuminating this artful and difficult subject matter.

Rainbow parrotfish (*Scarus guacamaia*), Theo's Wreck, Grand Bahama Island.
15mm lens, ISO 50, Sea & Sea YS200 flash, 1/80th second at F11

Expect the unexpected

No matter how much pre-planning you do before the dive, you can never anticipate what you will actually come across whilst underwater; the sun may suddenly pass behind a huge cloud bank, almost turning the day into night; the current may be much stronger than realised; and ultimately you must be conscious enough and confident enough to quickly switch tactics and just go with the flow!

This pair of rainbow parrotfish (left) were a sheer fluke! I was researching a Scuba Diving Guide to the Bahamas and as part of the trip, my wife Lesley and I were staying on Grand Bahama Island. We were invited to accompany the staff on a 'Staff Night Dive'. This was to Theo's Wreck, which was considered too deep for tourist divers at night. We had just descended down the shotline to around 21m (70ft) when right before our eyes, this huge 1.5m (5ft) male Rainbow Parrotfish swam in and settled on the deck of the wreck. Seconds later, a second (not quite so large) rainbow

parrotfish swam in and settled directly next to the larger one. Thankfully, I was carrying both close-up and wide-angle cameras that night and quickly adapted to this new surprise subject.

Get in close

Most of the underwater photographs that we admire and would wish to emulate are generally taken in clear, clean water. However, we may live in a part of the world that does not have that luxury, or have chosen to visit a dive location noted for its poor underwater visibility but famous for its exotic macro marine life (such as the Lembeh Straits in northern Sulawesi, Indonesia). Because it has such poor visibility, the Lembeh Straits also lack a lot of light. So, to get those clear water photographs you have to get in close; whether it is with a macro lens or very wide-angle lens, both of which allow us to get closer to the subject matter and remove the water element out of the picture taking sequence. This also leads to additional problems with flash position resulting in



photo & video

Astacilla longicornis on Thiauraria (right)
60mm lens, ISO 100, Sea & Sea YS200flash,
1/60h second at F16

Neoturris pileata, St.Abbs, Scotland (below)
60mm lens, ISO 100, Sea & Sea YS180 flash,
1/125th second at F16

Caribbean Reef Shark (*Carcharhinus perezii*)
Grand Bahama Island. 60mm lens, ISO 100,
Sea & Sea YS180 flash, 1/125th second at F16
(far right)



explored to their full potential and never stall in photographing the subject, or the moment may vanish almost as quickly as the subject.

Baseline

Establishing a baseline for your subject can be quite important, as many good photographs may lack a bit of interest due to the fact that the subject matter may appear suspended on a rather uninteresting background. By showing a baseline, or the bottom starting line of a

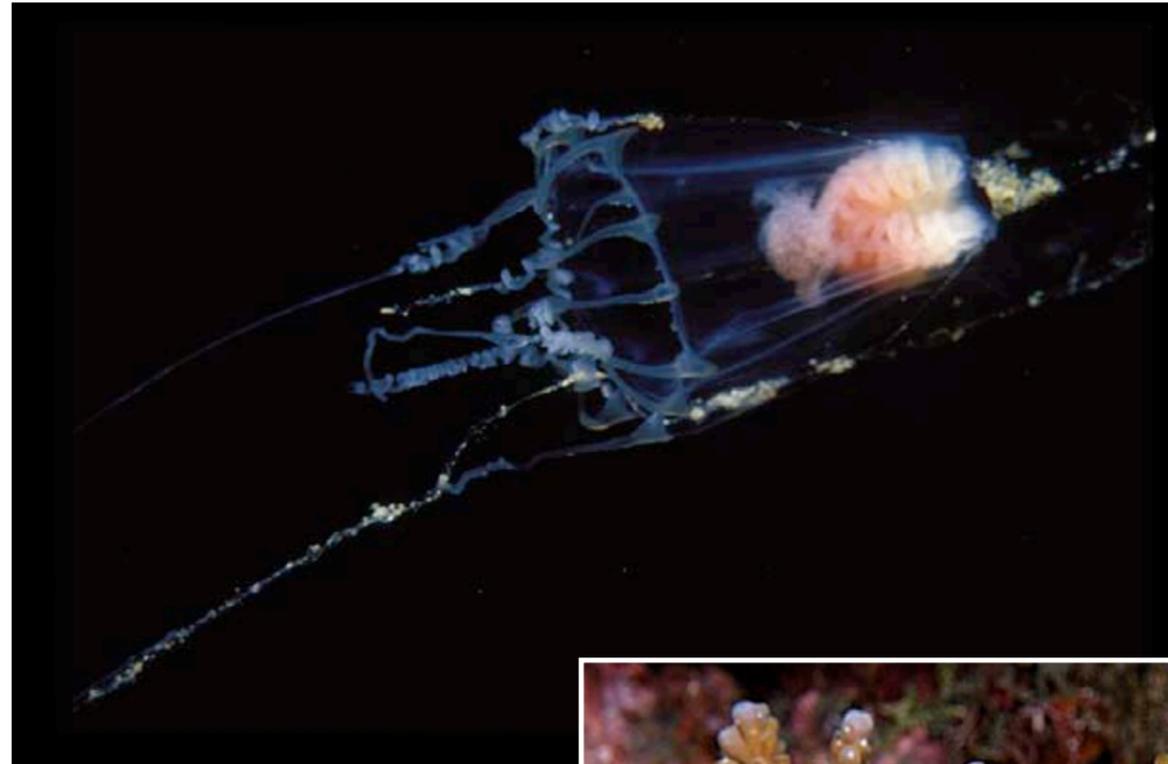
subject, then you can clearly see what it is you are trying to achieve.

Camouflage

Remember that many of the more sedentary species of marine life may well see you before you see them, due to their excellent camouflage. Camouflage is used in two ways, either as a subtle way to disappear, and so not be seen by any predator, or it is used as a ruse, simply to lure prey within their grasp, or in line with their cavernous mouths. Remember that most fish that do not swim away from you have different forms of defense, such as poisonous spines.

At the direct opposite of that spectrum are the brilliantly coloured creatures that advertise that they are poisonous and are warning would-be predators not to

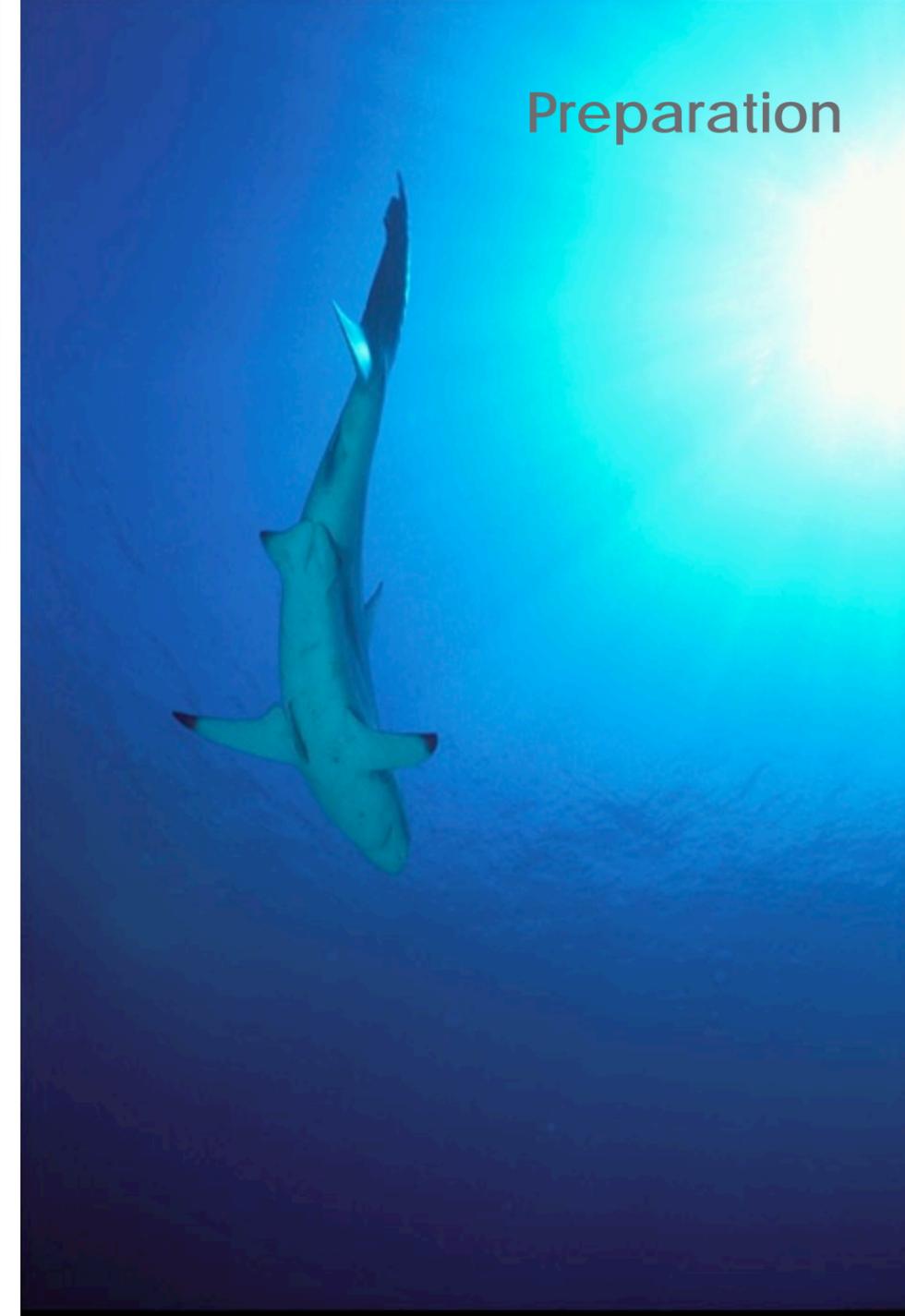
Leaf Scorpeonfish (*Taenianotus triacanthus*), Bali, Indonesia. 105mm lens, ISO 100, Sea & Sea YS180 flash, 1/125th second at F16



unwanted back-scatter, but trial and error, perseverance and the ability to edit as you dive soon helps you overcome this situation.

Subject position

Try not to take photographs of any subject below you, as this location just absorbs whatever available light there is. Always try and shoot horizontally, or slightly upwards. We have already mentioned how a strong sun can blow out the photograph, so be careful of how vertical you take aim. Try and find subjects with an uncluttered background. If possible, also try and get the proper context for the subject matter, which may include its habitat, food species, predators or particular behaviour, which could be unique in the animal kingdom. Wrecks should be



Preparation

eat them. Either way, these colour forms are much easier to see when you use torchlight as a primary illumination.

Danger

As mentioned above, there is always inherent danger when photographing wildlife; not least of all when you are underwater. Those fish that swim away from you when you enter their personal space have little or no dangerous elements to worry about. Those that sit still and ignore you, invariably not only





photo &
video

Green Moray Eel
(*Gymnothorax funebris*),
Cozumel, Mexico.
60mm lens, ISO 100,
Sea & Sea YS200 flash,
1/125th second at F11

Preparation

use camouflage, they quite literally often have a 'sting in their tail'. Lionfish have poisonous tips to their fins, as do scorpionfish. A number of snails have lethal spines especially in the cone shell genus and let us not forget jellyfish—in all of their wondrous complexity. Most species, including even those microscopic species that you do not see, pack lethal and often fatal punches. Jellyfish are also related to corals and quite a

few species of coral also have nasty surprises in store for unwary divers with bad buoyancy technique. Check out Fire Coral (*Millepora alcicornis*), rather, do NOT check this species out—as the name implies, the sting is akin to a nasty burn, which can easily blister and turn septic.

Microscopic jellyfish are a cousin of the true corals and anemones and like all of them they often pack a powerful sting in the form of a barbed harpoon fired by a strong spring!

I will not demean myself to include sharks in this category, as this is such a maligned creature. The general rules in underwater photography for sharks are this: If it gets too close sit still and tuck your arms in. If it is worth pursuing, then swim after it.

Moray eels are another matter, as their eyesight is terrible. Do not feed the fishes! I have been witness to some terrible accidents (not attacks) when a person feeding a moray eel has had anatomical parts

removed because they were just not paying enough attention to this wild creature. However, moray eels are rather timid and sensitive fish and enjoy resting in caverns during the day and only coming out to feed at night. During the day, they are often cleaned of parasites by small shrimps and other fish; this is when they make for great subject matter, as these interesting behavioural aspects tend to outweigh the incipient bad eyesight of the eel. So, PLEASE TAKE CARE.

Unfortunately, most of what can harm us is microscopic, so when diving in tropical waters (or indeed anywhere underwater) always wear a protective suit that will cover most of the body, only leaving the hands and face free.

Lawson 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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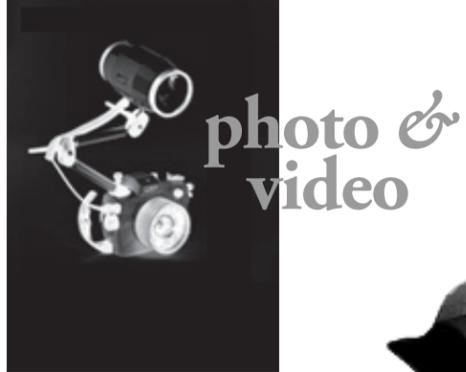


photo &
video



Aquatica Sony NEX-5 Housing

Aquatica has announced the AN-5 Housing for the Sony NEX-5 camera. Photographers looking for a portable and lightweight housing, the AN-5 comes in at 6.5" x 5.5" x 3.3" and weighs in at 2.2lbs. With the recent upgrade of the camera firmware, Sony has enhanced the NEX-5 for underwater imaging, with access to a larger selection of Sony lenses, improved focusing in both still and video, improvement in the aperture priority mode, while video recording and manual focusing has been addressed with an upgraded method.

Special care has been taken to locate every control at the best possible position, with the basic layout of the camera having been reproduced externally to retain the visual comfort of not having to search for a relocated controls. Despite the housing's compact size, Aquatica has built in a quick access lever to bring the internal flash up and down allowing for quickly alternating between strobe illuminated and ambient light. In addition, a pair of built-in dual optical strobe connectors are provided, assuring a sure fire exposure every time and unlikely to become



multi-function mechanism. Rotate clockwise to position 1 to release the port, continue rotating to the end for disengaging the gear rack mechanism, and allow the user to easily pull out the tray-mounted camera and lens with the Focus/Zoom gear attached to it, or simply push on the lever to remove the lens without having to remove the camera. To accommodate the Sony Nex-5 lenses, a series of compact ports were designed as well as an adapter that will allow the mounting of Aquatica's current line of ports. www.aquatica.ca

loose, lost or forgotten like an external adapter.

An innovative approach was taken to secure and release the ports and lenses, all based on a

function mechanism. Rotate clockwise to position 1 to release the port, continue rotating to the end for disengaging the gear rack mechanism, and allow the user to easily pull out the tray-mounted camera and lens with the Focus/Zoom gear attached to it, or simply push on the lever to remove the lens without having to remove the camera. To accommodate the Sony Nex-5 lenses, a series of compact ports were designed as well as an adapter that will allow the mounting of Aquatica's current line of ports. www.aquatica.ca

Easyflash iTTL & eTTL compatible strobe

TTL strobe compatibility was a given in the "good old film days", but in the first few years of digital underwater photography TTL was hard to come by, as the big two manufacturers Nikon and Canon worked to refine their technologies for the digital age. Underwater strobe manufacturers are still catching-up with those refinements. So, is the Easyflash a game changer? Easydive claims that their Easyflash underwater strobe is the first Nikon or Canon compatible flash that works perfectly in both iTTL and eTTL mode.

The flash is housed inside an anodized aluminum body with double o-rings. Four Sanyo rechargeable batteries 2.4V NiMH allow at least 200 shots at maximum power, and on the outside, there is a mechanical rotation control (to use only in the iTTL mode), the cap to charge the batteries, a red LED to indicate the flash is ready and a Nikonos cable connector.

www.easydive.eu



UW Tripod

Anyone who shoots seriously underwater knows that mastery of buoyancy is critical to great images, but deep down we've all

thought we might be more effective, occasionally, if we resorted to using a tripod similar to shooting on dry land. Leave it to the innovators at Ultralight Control Systems to invent what we've all secretly wanted! With lockable and tilt, extendable legs from 11-18", non-slip sharp ends for use on rock, and snap on balls for use in sand and muck, this new tripod fulfills the wish that underwater photographers have long dreamed of. The one hand operation and grip similar to other Ultralight products round out this new offering. www.ulcs.com



Canon PowerShot A490

Fantasea Line's FA490/495 Housing, is depth rated to 60 meters/200 feet, is fully functional and provides photographers with access to all camera controls and functions. There are double o-ring seals on all controls, an anti-glare hood over the LCD screen, a removable flash diffuser and a 46mm threaded lens port, designed to be compatible with a wide range of lens accessories. www.fantasea.com



photo &
video

Medium Format

Nauticam has taken a bold step into the medium format digital camera space and announced their NA-645DF housing for the high end PhaseOne and Mamiya 645DF cameras with Phase One P+ Digital Backs.

The Phase One 645DF is an open platform medium format SLR camera body with professional grade build quality, which uses Mamiya AFD lenses, while the Phase One P 65+ full frame 645 back features a 60.5 mega pixel sensor with 12.5 f-stops of dynamic range that produces an astounding level of detail.

The Nauticam NA-645DF Housing is designed with the photographer's in-water experience in mind. Careful design attention results in intuitive, convenient access to key controls (shutter release, f-stop, shutter speed, AE-L and four digital back push buttons) from the housing handles.

Nauticam
NA-645DF



Leo Multi DSLR Housing

Italian manufacturer Easydive have released a new housing that can accommodate a variety of camera bodies, rather than the traditional

approach of dedicated housings that becomes obsolete as the camera is superseded by the latest model. The

Easydive Leo housing takes a "one size fits all" approach, thanks to a USB Control Panel, which provides remote access to all major controls and avoids the need to build custom mechanical buttons.
www.easydive.eu

Hyperdrive for iPad



Cameratown's Ron Risman has just published his exclusive review of the new Sanho HyperDrive iPad portable hard drive. Ron Risman writes: "Ever since Epson launched their first portable multimedia storage viewer/hard drive about six years ago, I have always wanted to own one. Unfortunately, I could never justify the high price premium, considering their relatively small hard drives and slow transfer performance. Two weeks ago that all

changed with the introduction of the new HyperDrive iPad Hard Drive, and in this review, I'll not only explain why I chose this model but will also detail my experiences, both good and bad, with this new product." The HyperDrive iPad not only allows photographers and videographers the ability to backup their media out in the field, it also provides them a way to preview these files on their iPad.

OnOne Perfect Photo version 5.5. The suite's premier product Genuine Fractals has been upgraded and also renamed to Perfect Resize 7, which operates as a stand-alone program or as a plug-in for Adobe PhotoShop and LightRoom. More control is now available for resizing photos up to 800 percent. New presets and batch processing allow for speedier workflows while resizing photos. A brand new plug-in "Perfect Layers" allows Aperture and LightRoom users to combine two or more photographs into a single file, and allows the usage of blending controls, scaling, rotating and opacity of layers.
www.ononesoftware.com

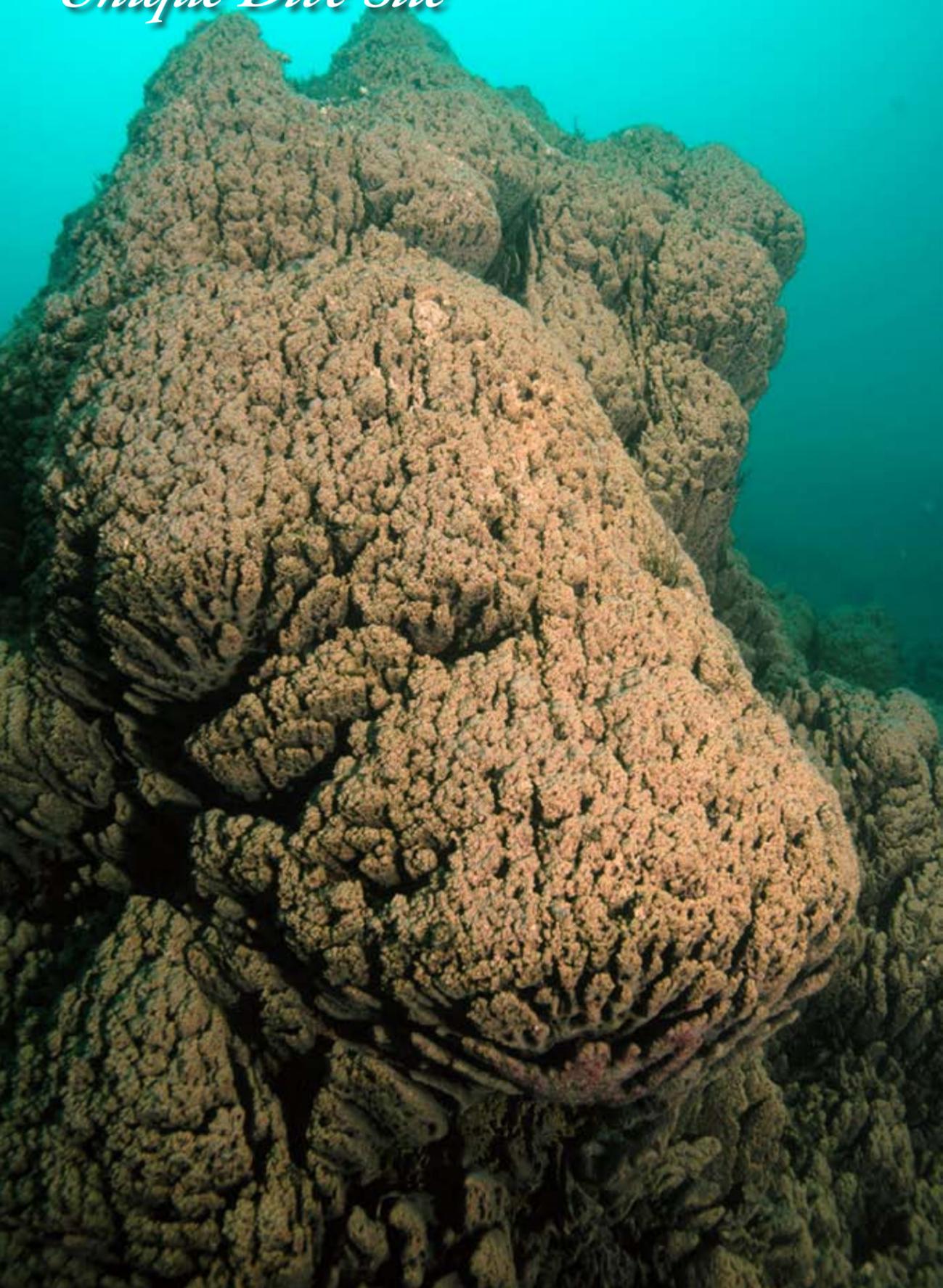


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Unique Dive Site



Innerspace research at

Pavillion Lake

British Columbia, Canada



Text and photos by Barb Roy

I first learned about this unusual lake, nestled in Marble Canyon Provincial Park of British Columbia (BC), Canada, when some friends living in Kamloops asked me to join them for a dive at a local, clear freshwater lake. Since it was only a few hours from Vancouver, I decided to take them up on their offer and headed for the interior parts of BC.

I have always wanted to explore this area and was thrilled even more when they told me of the strange coral-type of life living in the lake. Intrigued, I invited a few more friends to join the excursion: my husband and dive buddy, Wayne Grant and Ron Akeson,

a marine biologist from Bellingham, Washington, USA. Wayne would record the data, I would document with underwater stills and Ron would video the dive with his HD video camera.

We arrived at a part of the lake used by local divers and assembled our gear.

The lake is 4 miles (5.7 kilometers) long and 0.5 miles (0.8 kilometers) wide at an approximate altitude of 2,690 feet (820 meters), with a maximum-recorded depth of 65 meters. Travis Van-mole, who I originally met through Ron, was our host and would also be our under-

Microbialites at 60 feet in Pavillion Lake (above); View from the shore of the lake (right)





Unique Dive

water guide.

"We dive here all the time," said Travis while assembling dive gear. "The ice diving is great here, as well as several other lakes in the area. We have a lake with caves and even know of several more that have the cold-water corals."

According to Ron, the 'cold-water corals' are actually called microbialites, a bacterial type of life that builds a hard carbonate shell or casing. These formations are believed to have begun forming over 10,000 years ago after the retreat of the Cordilleran Ice Sheet.

"There is also a research group of scientists and astronauts from both NASA and the Canadian Space Agency studying the microbialites at the other end of the lake." Travis added.

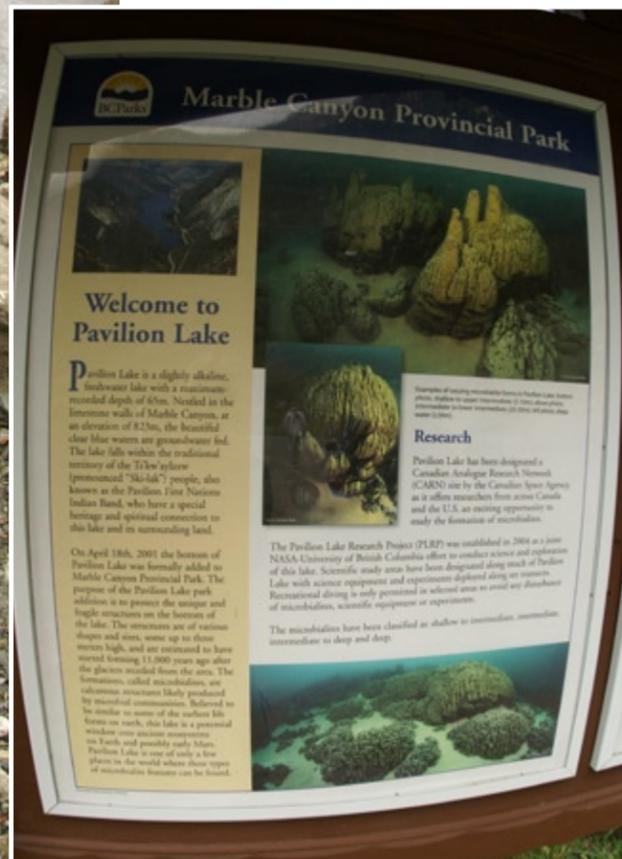
The water was cool and very clear with a fine silt mixture of sub-



strate. Visibility underwater was an impressive 80 feet (24 meters) and the water temperature was in the low 40's F (4.4°C). Not many fish were found, but plenty of vegetation grew abundant in the shallow depths.

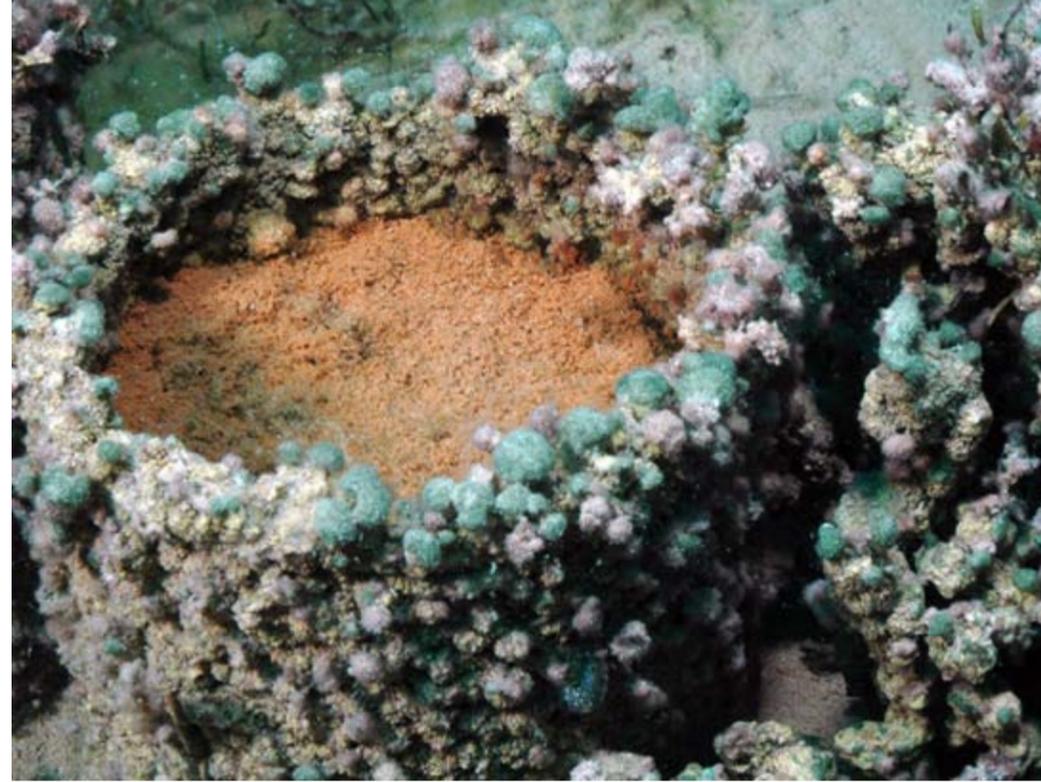
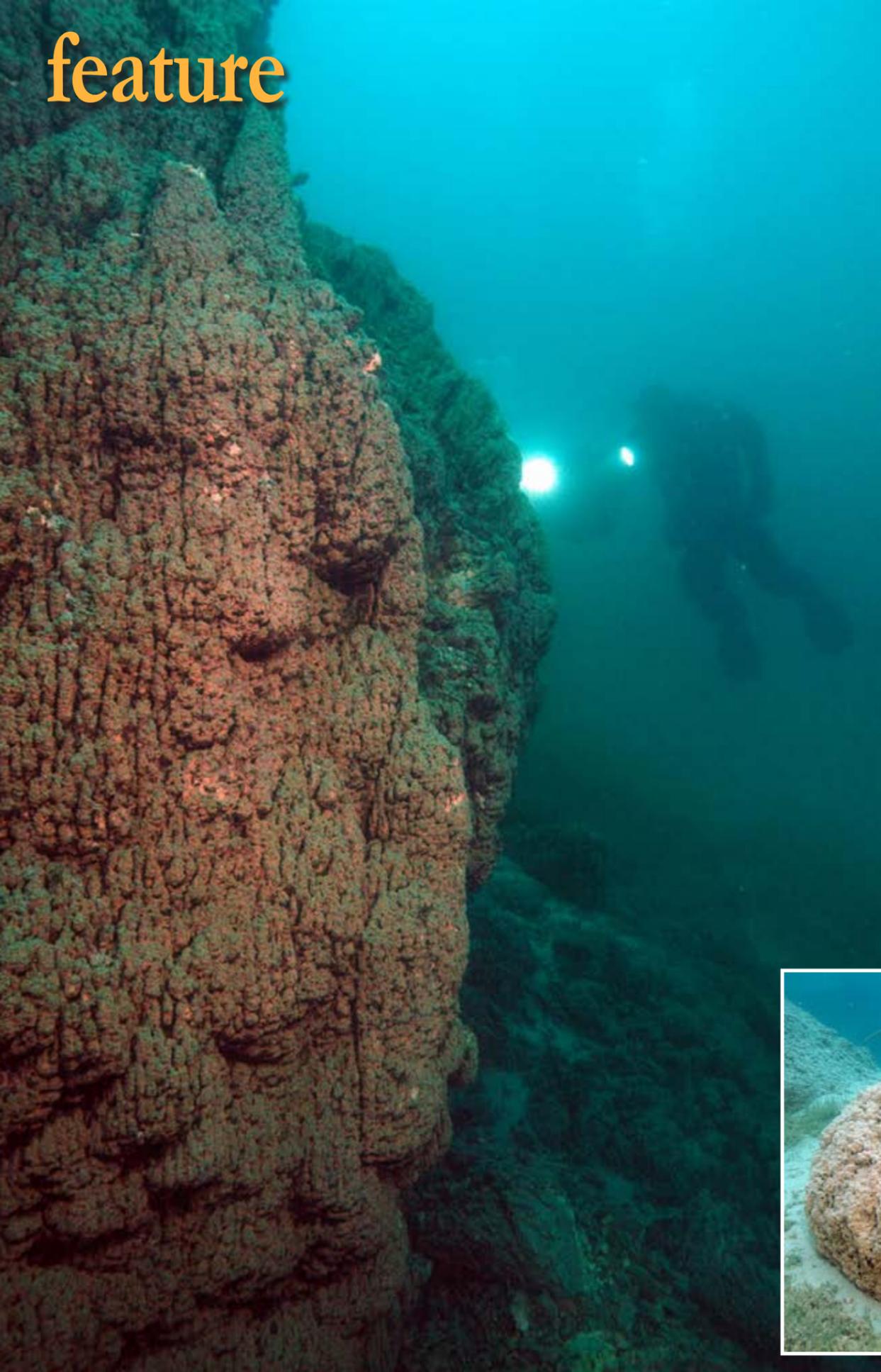
Strange shapes

Travis led us down to 60 feet (18 meters) where we saw the first signs of microbialites. These mounds were tall and cone-like in shape, resembling huge termite mounds found on land. They varied from 5-9 feet (1.5-2.7m) in height and 3-4 feet in width at the base, tapering off into peaks at the top, using the rocky slope to build upon. It looked as if the structures were crafted from mud. No visible life was noticed, which none would be expected if made from a bacterial compound.



Gear on the shore of Pavillion Lake (left)

CLOCKWISE FROM ABOVE: Divers exiting the water after a dive in the lake; Diver Wayne Grant checks out the microbialites; Park information sign provides information on the unique microbialite formations under the surface

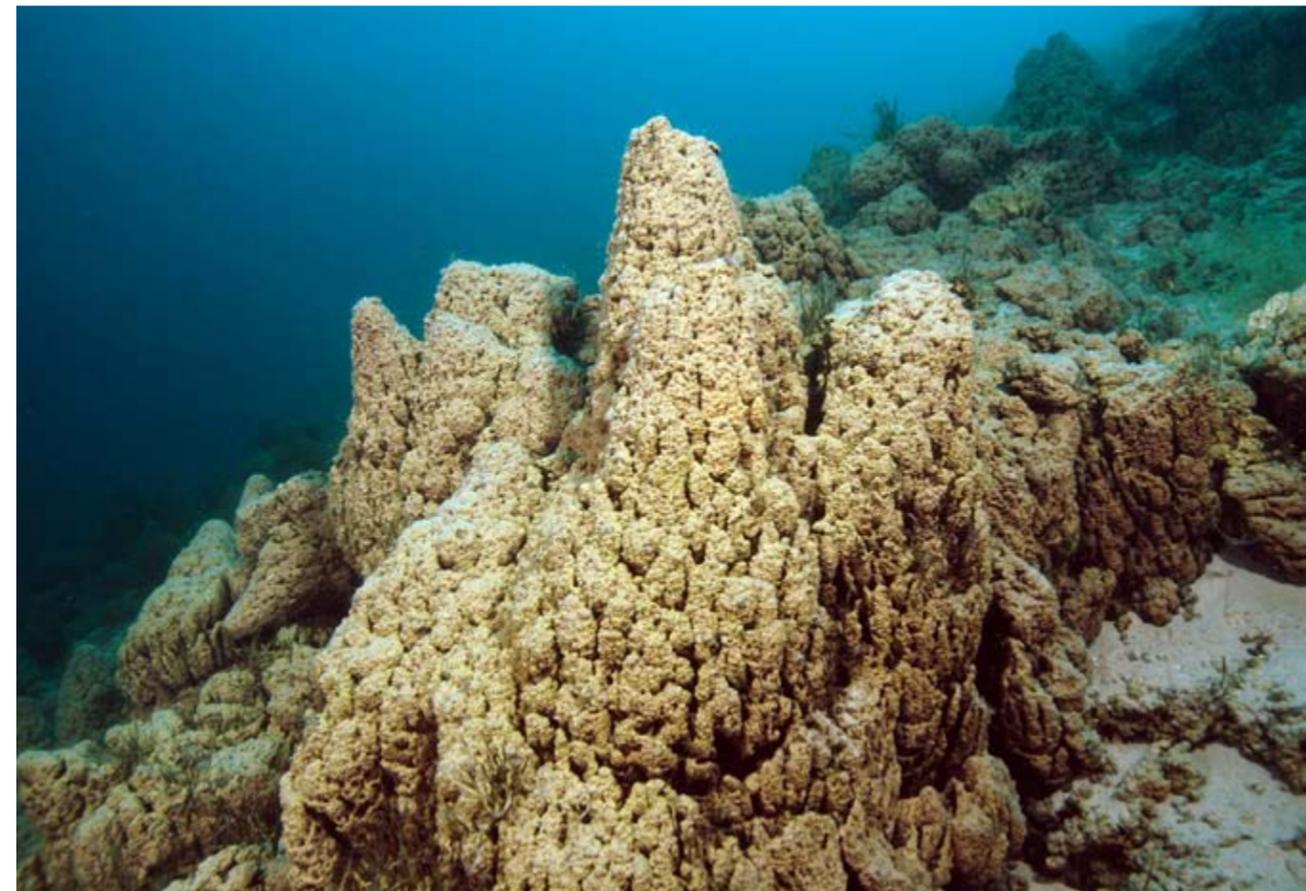


Unique Dive

CLOCKWISE FROM FAR LEFT: Diver Ron Akeson films at 70 feet underwater in Pavilion Lake; Close-up look at microbialites covering a can; Location of Pavilion Lake on map of North America; Microbialite formations at 70 feet depth; Shallow rock covered with microbialites

Travis took us to 80 feet (24 meters) where we found an open area full of more microbialites structures, but much smaller, only a few feet in height. In another section there was another batch of different shaped structures of similar size and appearance.

Our dive took us around a small island near the entry area, and throughout the dive, the microbialites formations were found in patches, where the formations were all very close in appearance. On the second dive I used a 50mm macro lens on the camera for a closer look at the micro-



bialites.

This proved to be quite interesting, especially when we later studied the video and examined my images on a big screen monitor. The subjects were an aqua green and pink in color and seemed to be very

much alive and thriving in Pavilion Lake. In fact, small mud-like formations were growing on logs, boulders and covering fallen trees underwater.



Diver Wayne Grant hovers over a formation of microbialites (left); Cone-shaped microbialites in Pavilion Lake (right)

trying to learn more about the microbialites and what makes this lake such an unusual environment to host the microbialites in.

According to Dr Allyson Brady, principal investigator for the research project specializing in isotope geochemistry, the microbialites are believed to be formed from biological activity representing some of the earliest remnants of life on Earth—2.5 billion to 540 million years ago.

Experts in photosynthesis, robotics, environmental fluid mechanics, planetary science, geology and a myriad of other fields of study have gathered from around

Unique Dive



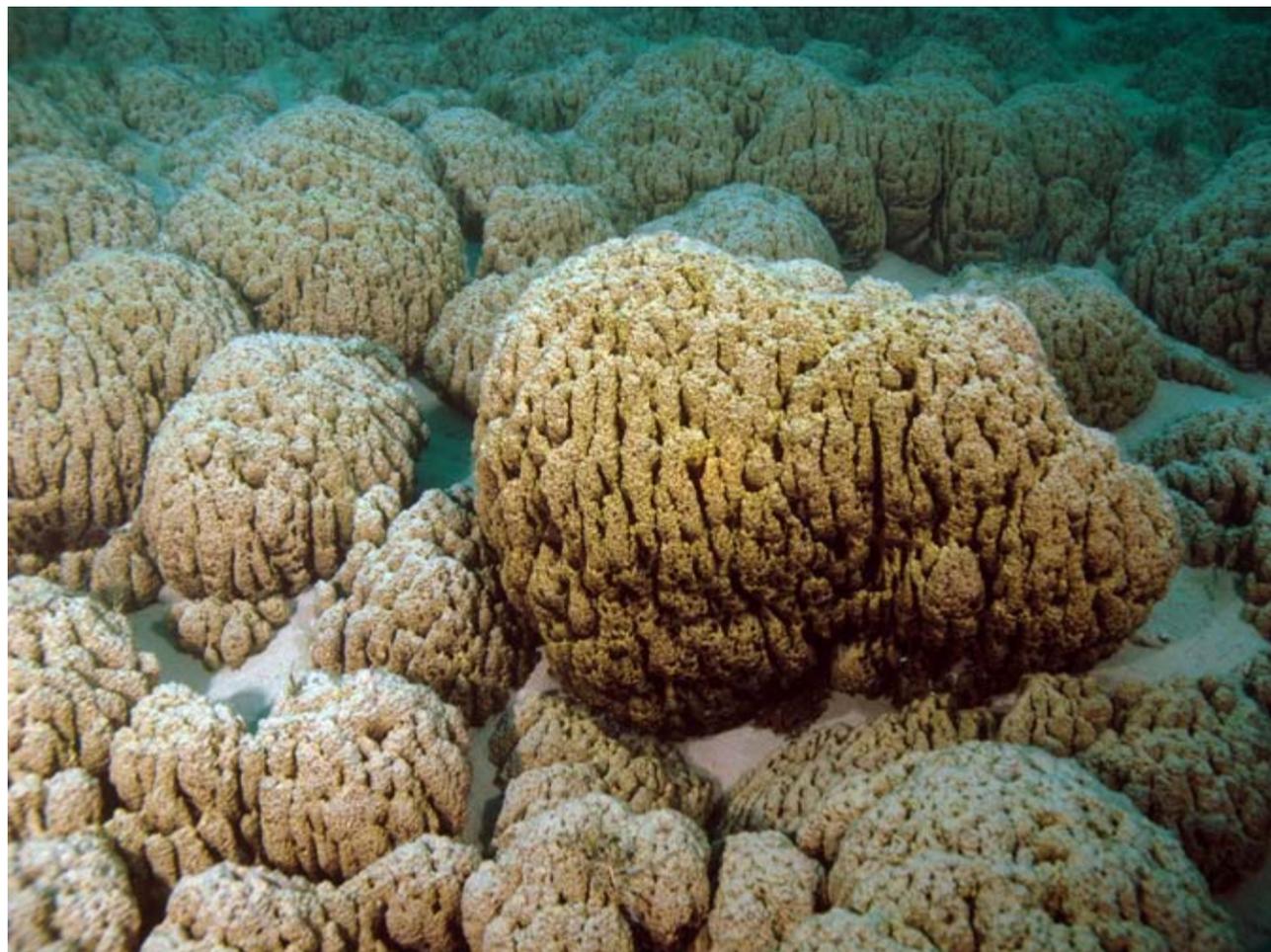
Second time around

During a later trip in the Spring of 2010 when the three of us took this magazine's editor, Peter Symes, up for a dive in Pavilion Lake, I looked around at the steep rocky cliffs surrounding the lake. Remembering Ron had mentioned a receding glacier, the tall rocky structures on the hillside began to make sense, and it was easy to correlate how they resembled the tall underwater structures.

Peter was equally as fascinated with the microbialite formations as we were. During the dive when we were at the tall structures, one of the mounds had toppled at the top portion, revealing a honeycomb interior.

Third time's the charm

During another return trip later in the summer, Ron Akeson and I visited the Pavilion Lake Research Project headquarters where scientists and various experts are



the world to work together to collect data and utilize their joint resources.

One of the things the Pavilion Lake Research team is looking for is bio-signa-

tures that will help explain what ancient microbialites were like and compare them to modern day bio-signatures. Scientists and astrobiologists can then

Rounded microbialites





Unique Dive



what might happen during space exploration and solutions to possible problems," she said.

Donnie Reid, a fellow diver and underwater photographer, is the project's logistics and operations manager.

"By 2050, humans are expected to be on Mars. To get there, however, it will take nine months and nine months to return. Because Mars and Earth share a similar geological history, Mars may also have microbialites.

"To work in this semi-controlled environment has given us the opportunity to estimate what we might find or experience and how to deal with it," said Reid.

We were also able to meet and talk with Chris Hadfield, an astronaut for the Canadian Space Agency and scheduled to command the Space Station in 2012.

Hadfield was prepping for a sub run with Bernard Laval, a physi-

cal limnologist from the University of British Columbia. These analog missions range in duration from 1-2 hours long, depending on the series of test or samples required.

The submersibles used by the team are from Nuytco Research in North Vancouver, called "Deep Worker". These one-pilot subs provide eight hours of power and eight hours of life support.

AUV's (Autonomous Underwater Vehicles) and ROV's (Remotely Operated Vehicles) are also used as satellite-analogues. They are able to take measurements, provide sonar

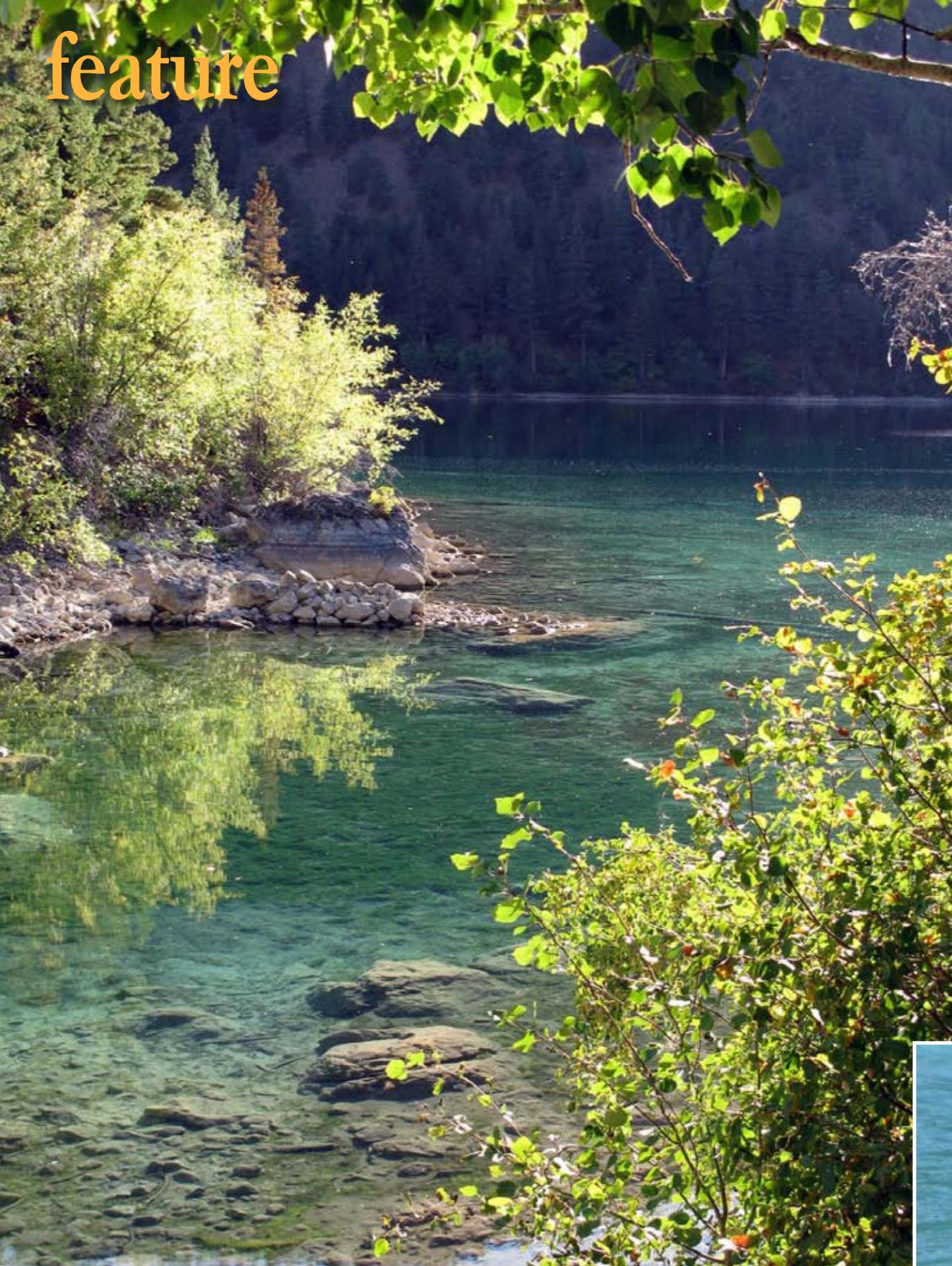


CLOCKWISE FROM FAR LEFT: Scenic drive to Pavilion Lake; Canadian astronaut Chris Hadfield in Nuytco sub; Pavilion Lake Project launches sub; Overview of the Project's site; Sub pilots prepare to dive

apply the context information to their studies of the solar system and learn more about the geologic record of the area.

"At Pavilion Lake we are working in an actual hostile environment," said Brady. "Since we are underwa-

ter, we're faced with similar challenges as space scientists would be, such as limited communications, being on life support and having things break down. By experiencing these problems firsthand in a field setting, it gives scientists an idea of



data, photograph large areas and are used for remote sensing and monitoring.

Currently, the research team is looking into other lakes in the area for 2011. For more information on microbialites and the Pavilion Lake Research Project, check out their website at: www.PavillionLake.com.



humor abounds. The underwater life, no matter where you go, can be as interesting as the breathtaking scenery above water. When planning a trip to BC, you might want to look into the following websites for more information:

- www.HelloBC.com
- www.DiveIndustryBC.com
- www.BCFerries.com ■

Visiting BC

Any trip to British Columbia's interior or coastal destination will provide visitors an unforgettable adventure any time of the year. The people are friendly, and



CLOCKWISE FROM ABOVE: Pavillion Lake view; Wildflowers abound around Pavillion Lake; A mountain goat grazes beside the road; A marmot takes refuge among the rocks on the lake shore; View driving towards the coast of British Columbia; Family of ducks on the lake



Kendahl Jan Jubb



P O R T F O L I O



My artistic motivation has always been the same: to reflect the animal and the natural, to create with patterns and color, revelry in the diversity of form. I wish to elaborate and express the secret depth behind the mundane while I celebrate the garden, forest, river, ocean and desert. I use the natural world to portray human archetypes because of its innocence of expression. The still life is not just a bowl of flowers but expands and contracts with expectations and explosions. All life forms are caught in the same cycles of expansion and contraction, vitality and mortality, revulsion and beautification. The interactive contrast of pattern and content is what fuels my creative fire. — Kendahl Jan Jubb



Edited by Gunild Symes, with Ram Murphy
All images by Kendahl Jan Jubb

American watercolorist, Kendahl Jan Jubb, creates brilliant, colorful works of underwater life. Originally from southern California, she was raised in the Mid-West and studied at an early age with noted St. Louis impressionist, Victor Harles. After a move to Montana in 1978 to study forestry, she changed her focus to art in her first year at the University of Montana.

CLOCKWISE FROM TOP LEFT: *Brilliant Trout*; *Trout Pool*; *Rock Creek*; and on PREVIOUS PAGE: *Nine Koi Pool*—all watercolor paintings by Kendahl Jan Jubb





Jubb

LEFT TO RIGHT:
Rattlesnake Trout
Pacific Aquarium I
Pacific Aquarium II
 —watercolor paintings by
 Kendahl Jan Jubb

Since her first successful one-person show at the University in 1980, Jubb's work work has appeared in over 30 galleries across the United States, as well as Mexico and the Virgin Islands, with commissions from corporations such as the Bonneville Power Administration, The Peabody Hotel, The Four Seasons Hotel in Singapore and the Holland America Line. *X-RAY MAG's* Gunild Symes interviewed the artist to find out the inspiration behind her passion.

GS: Tell us about yourself, why you started painting the subject matter and medium you have chosen, and what inspired you to become an artist.

KJJ: I always loved nature as a child. My brothers and I roamed the hills behind Los Angeles and then the woods in our St. Louis neighborhood. I moved to Montana to major in Forestry and discovered Art soon thereafter. I had a wonderful teacher, Mary Warner, who nurtured my love of watercolor. When I sold several paintings out of my first show, I decided to commit to being a lifelong professional.



GS: What was your training and education like as an artist and how did you develop your personal style? Do you have any role models, artistic, cultural or political influences?

KJJ: I had an impressionistic art teacher as a child of 12, Victor Harles, whose color palette I still use. After leaving the University, after two years to travel, I worked on my own. I was and am inspired by animals

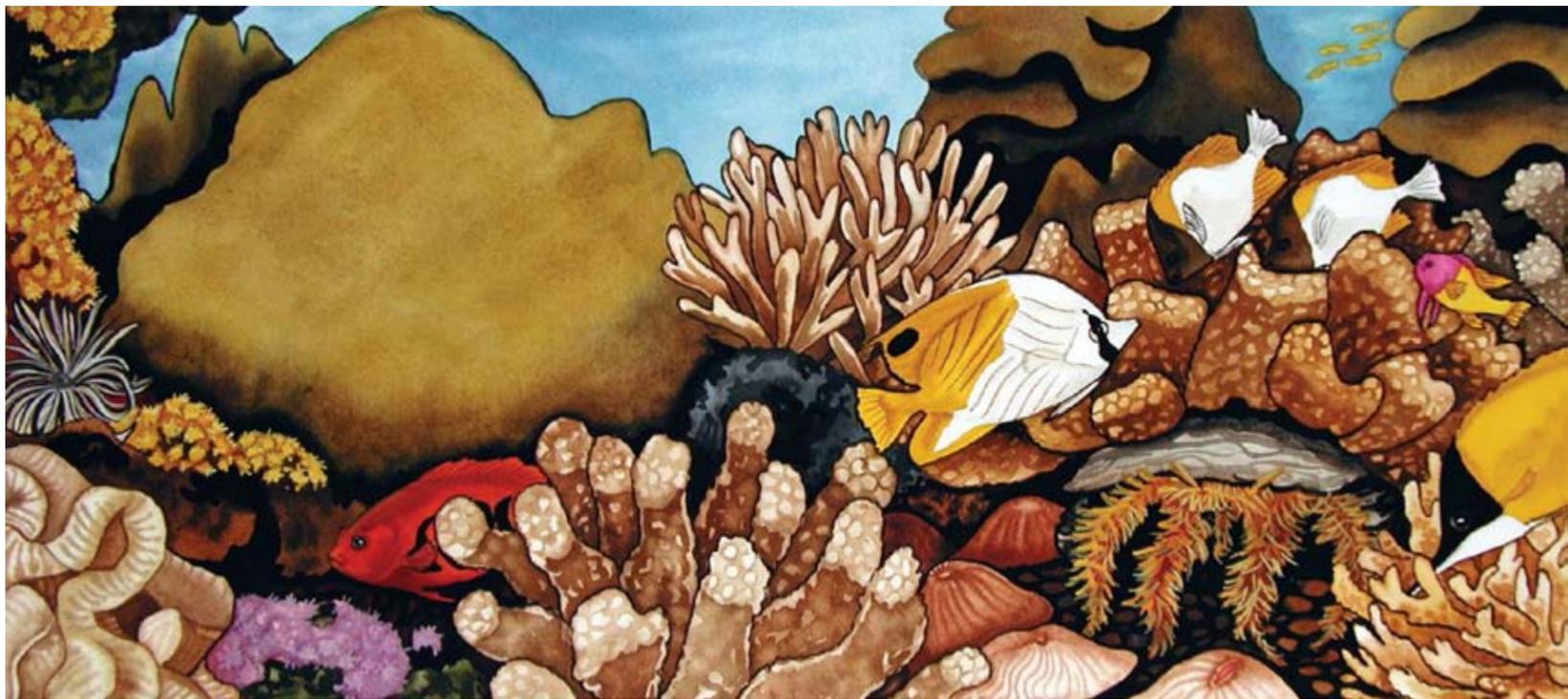


and nature. I love to play with the sensuality of color and contrasting pattern.

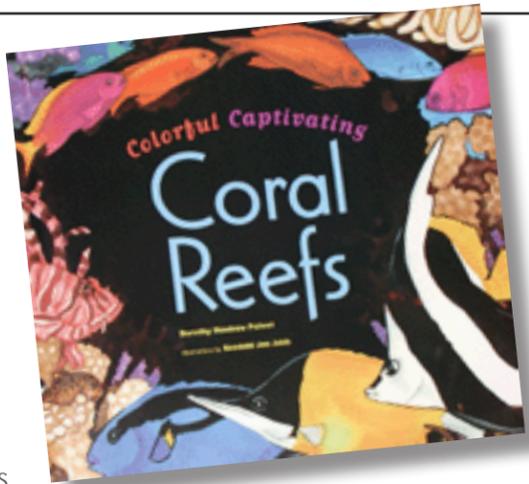
GS: Can you describe for us your artistic method... what is your process,

portfolio

CLOCKWISE FROM BELOW:
Marine Aquarium I watercolor painting
 by Kendahl Jan Jubb; Paintings from the
 children's book, *Colorful, Captivating
 Coral Reefs* illustrated by the artist



Colorful, Captivating Coral Reefs is a beautifully illustrated educational marine ecology book for children ages 6-10 written by Dorothy Hinshaw Patent and illustrated by Kendahl Jan Jubb (cover pictured right). It's chock full of fun and interesting facts about the sea, the reefs and the ocean's critters, providing descriptions, animal behaviors and both common and scientific names. The book even touches upon conservation issues around the world as well as how scuba divers can help protect the reefs. Published by Walker &



Company; Hardcover ISBN 0802788629. Available at: www.amazon.com

how do you choose a subject, compose a painting, etc.?

KJJ: Although now I have a backlog of subjects waiting to be painted, I put up a blank sheet of paper and stare at it until

the image "projects" itself on the paper. My subjects come from my travels, my garden and the Montana environment. I first choose images (from my husband's photography—we take all the photos I use ourselves) then lightly and generally draw everything out in

but I love to snorkel, all of which I have done in Hawaii. Most recently off the Big Island. I'm not much of a fisherman either, but I love to watch trout. We have many creeks that are favorites and sometimes feed them grasshoppers to watch their behavior. I have

a line drawing, then paint. Most of my subjects represent human archetypes and emotions.

GS: Are you a scuba diver? Tell us about your experience under the waves... where are your favorite spots and what most inspires you about the underwater world, the oceans and waterways?

KJJ: I have not scuba dived yet,



The artist, Kendahl Jan Jubb

KJJ: I feel like we all have the responsibility to do what we can to leave the world in a better position than when we entered it and do support a local conservation organization that that buys land, especially in riparian zones, trying to preserve open lands. I've designed a license plate (for cars) for a land conservation organization that raises funds for them. I also feel that the more people can experience the magic and beauty of our environment, the more we'll all try to preserve it.

always intended to snorkel at night with a flashlight.

GS: What are your thoughts on art and marine conservation? How do you see them influencing one another, you and your audience?

GS: Why art? Why is art important?

KJJ: It's a mystery that feeds the soul. I feel that I share, in the form of self expression, the beauty, delight, sensual enjoyment and even fear of



CLOCKWISE FROM TOP LEFT: *Bitterroot Honey Hole*; *Betterroot River Riprap*; and *Magnificent Seven Trout*—watercolor paintings by Kendahl Jan Jubb



CLOCKWISE FROM ABOVE: *Koi Pool*; *Island Koi*; and *Koi Tank*—watercolor paintings by Kendahl Jan Jubb

our natural world. The beautiful fish living in a reef full of dark crevices and then the dark deep mystery of the ocean beyond.

GS: When you teach workshops, what is your focus or mission or point of view you like to share with students?

KJJ: My focus in my workshops is the use of vivid color with watercolor. I have four basic techniques I use

over and over, which I teach. I also support the feeling of joy, which comes from the creative process, so my workshops are non-judgmental, focusing on having fun and learning a few skills along the way.

I have a wide range of natural subject matter but ALSO love to do commissions. They put me in direct contact with my collectors.

For more information and images, visit: www.kendahljanjubb.com ■

OUR NEXT ISSUE

JANUARY-FEBRUARY 2011

Seasons Greetings to All!



STUAR WESMORLAND



DON SILCOCK



WOLFGANG PÖLZER

— from the staff at X-RAY MAG

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