



ISSUE 32

# ADVANCED DIVER MAGAZINE

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- Rouse Simmons

**Deep within the  
Mysterious Cay Sal  
Blue Holes**



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# Publisher's Notes

This summer has been a busy dive season with excursions from the Florida Keys and Silent World's Wreckfest 2009 where we explored some of the deeper shipwrecks in the upper Florida Keys. Then it was on to the rough scrub jungles of the Dominican Republic where we beat the bush and crawled through every small subterranean hole we could discover in search of virgin cave passages. And we found more than we could have hoped for! The discovery of ancient animal fossils, extinct in all of the Caribbean islands, would bring us back a month later to recover these unique artifacts for the Dominican Republic's archeological department and the Museum of Dominican Man. Finally, southeast to the amazing Blue Holes of the Cay Sal Bank where divers pushed some of these mysterious giants to extreme depths.

Of course, in addition to traveling to all these far-flung points of the globe, there was the gathering of editorial materials from ADM writers and contributors, the operations of Rebreatherworld.com, and continued promotion of the ADM Exploration Foundation. Add in the hundreds of hours that are required for me to complete the magazine layout from cover to cover.... If that's not enough, toss in my other full-time job at Sarasota County Fire Department, and being a full-time dad, and that explains why I am again sitting here at my desk at 1:30 a.m. working!

I know you feel sorry for me because I travel the globe, dive cool places, and have the wonderful opportunity to make some interesting discoveries. Okay, I am betting that you are not feeling any actual sympathy! Well, why not follow suit and come join me? The end of 2009 and beginning of 2010 are quickly filling up with numerous dive adventures, and I'd love to share with you the excitement of new caves, deep wrecks, and the planet's most amazing locations!

We are scheduling many rebreather and non-rebreather events for the spring and summer of 2010, which will be open to the adventurous diver. Hope to see you and your best dive buddy on one of these excursions!

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**Publisher ADM**



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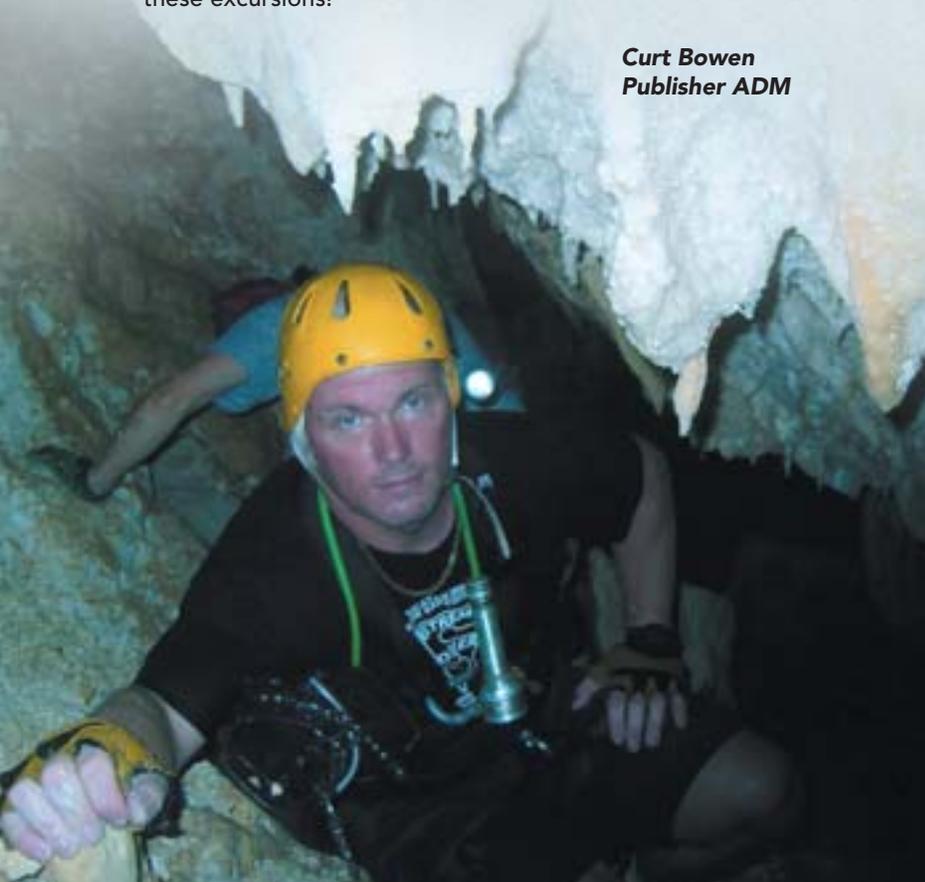
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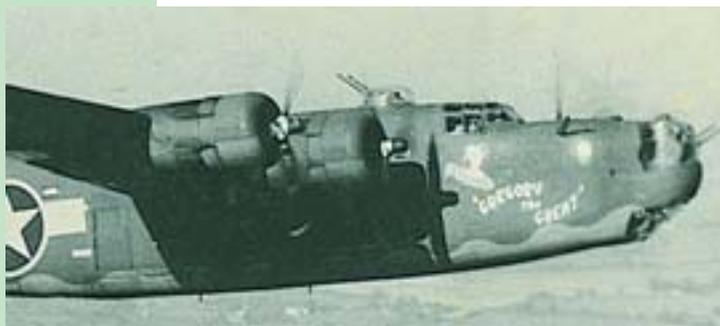
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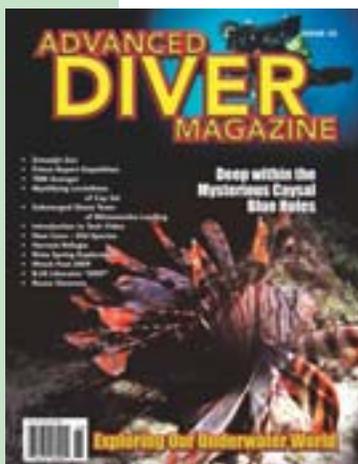
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# Zrmanjin Zov

Exploration to 205m / 672ft

Editorial by Luigi (Gigi) Casati

Going to Croatia has been a regular occurrence over the last few years. Over time, the growing friendship with Tihi and the DDISKF members have allowed us to optimize the organization of our explorations in this amazing country.

On July 21<sup>st</sup>, the Zrmanjin Zov expeditions (Zrmanja is the name of a canyon, Zov means "view") is officially launched with a short speech from the organizer Tihi, the notes of the Croatian national anthem, and a nice party that everybody enjoys, including the cave divers and representatives from the local authority.

The first target of the expedition is a spring that is new to us, although it was explored some years ago by a Frenchman up to the depth of -50 meters. On the morning of July 22<sup>nd</sup>, we leave the base camp in Obrovac and head in the direction of Donja Suvaja, about an hour's drive distant. The journey offers some fascinating landscapes, as does all of Croatia.

Upon arrival, we set up the forward camp on a local trout breeder's property. We take the equipment down from the cars, and prepare everything for a first scouting dive. The equipment is arranged into speleological bags, and is carried by ten speleologists to the Vrelo Une spring, a fifteen's minute's walk which first climbs sharply then heads down to the lake. While walking, I am able to

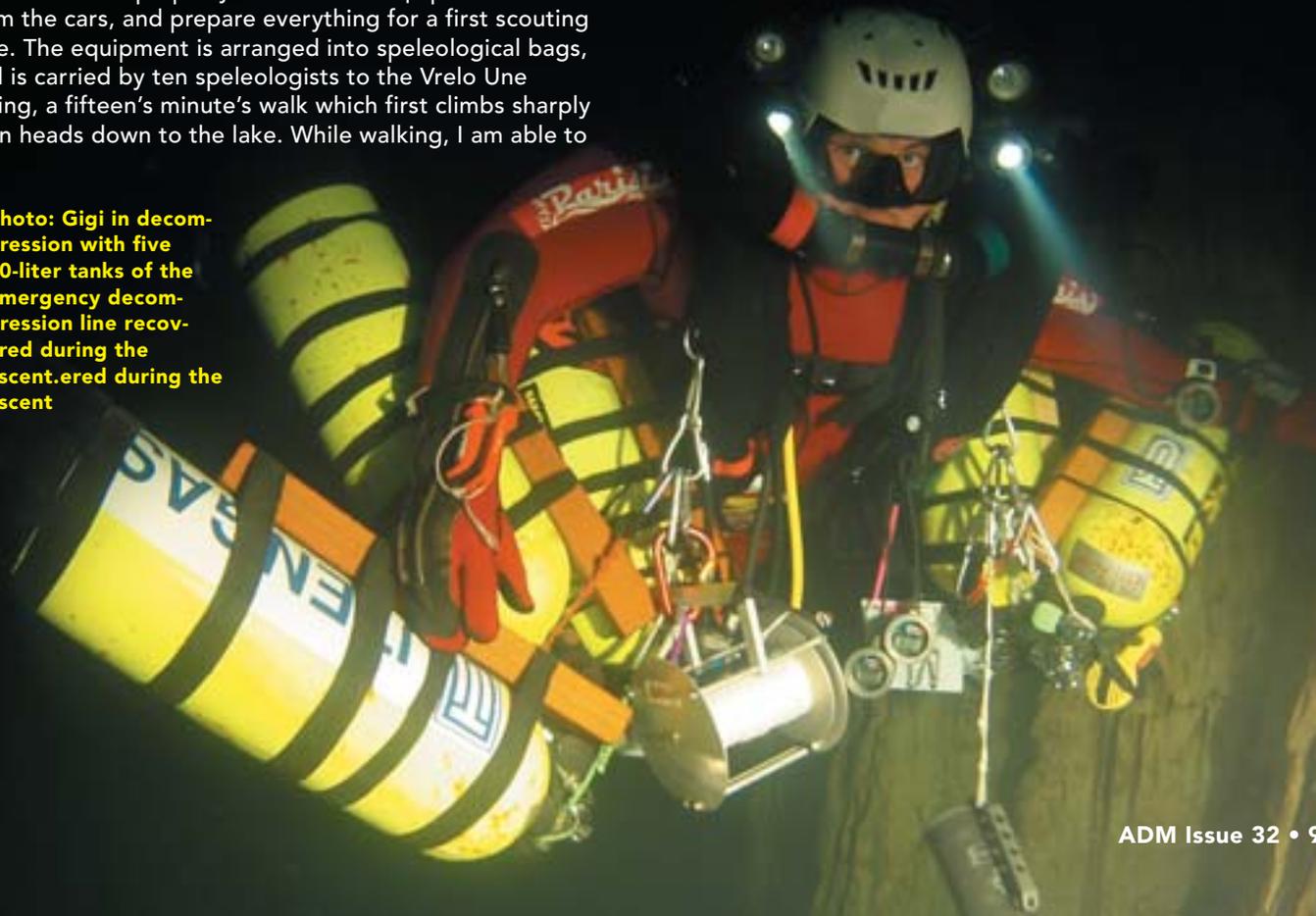
catch a glimpse of the small lake in between the thick wood. The dark blue of the water creates a strong contrast with the vivid green of the trees, and I feel the adrenaline rising inside me. I can't wait to explore that cave!

Around the small lake, the mountain wall rises vertically for more than 100 meters against the clear blue sky. The lake is about 50 meters wide and 20 meters long, the water temperature is 9 degrees Celsius and, at first sight, visibility doesn't look too bad. Once we finish installing the regulators on the safety tanks that we will put into the water for possible emergency situations (such as technical problems with our rebreathers), the long awaited operation of putting on the dry suit and the rest of the equipment finally comes.

Alen and I go in first in order to position the tanks along the way. To begin, I take care of positioning the safety rope and tanks for the deep dive; Alen follows me and sets a 10-liter oxygen tank at -6 meters, a 15-liter 50/20 nitrox tank at -21 meters, and a 15-liter 36/36 nitrox tank at -36 meters depth. Our team member,

**Photo: Gigi in decompression with five 20-liter tanks of the emergency decompression line recovered during the ascent.**

Photo by Lorenzo del Veneziano





# Vrelo Une



Photography by Luigi Casati  
Illustration by JJ Bolanz

Alan, gets into the water with his camcorder to take some shots of the cave preparation, and swims around me with his video camera taking advantage of all the times I need to stop to fasten the rope or to prepare the knots to secure the tanks. I set one last 15-liter 25/60 tank at -50 meters, and I keep going from there toward the unexplored areas. The cave has a very vertical development, many tree trunks create fascinating and mysterious shapes and shadows, and the wall appears incredibly eroded. Everything makes me believe that a long time ago this spring was a swallowing pit.

I reach -70 meters and place a 20-liter 20/70 tank. Alan stops here while I let myself fall into the abyss. I can't see the entire tunnel, nor can I guess at its size, so I just follow one of its walls. The visibility is approximately six meters, due to the relative darkness of the wall's rock. I soon find myself at -90 meters, where I leave the last 20-liter 15/75 relay tank, keeping one 20-liter extra tank and one 7-liter tank for my rebreather. But I am not yet satisfied, and so I let myself sink down to -103 meters, a distance of 140 meters from the cave's entrance, and there I finally make the decision to stop the exploration...leaving the reel hung up in the void.

After twenty minutes, as I start to go up, I look around to try and understand how big that hole in the rock is; more or less, it should be 20-30 meters by 5-10 meters. I surface in just under an hour, thrilled by the experience and with one single thought in my mind: reset the equipment for tomorrow!

The following morning, after the arrival of Jean Jacques Bolanz, my partner of so many adventures, we go to the spring where I want to immediately continue the exploration. A number of problems occur that delay my start. First there is a problem to a sensor, which is quickly solved by borrowing one from Jean Jacques. Next, I realize that the HID lights don't work because they had flooded the day before. Then – *dulcis in fundo* – I am missing the connection between the condom and the P-valve of my dry suit. Therefore, since I can't do anything else, I go down to secure the safety tanks on a 7mm rope at -90 meters. I am

not comfortable with the idea of leaving them hanging in the void on a tiny 2mm exploration rope.

On July 24<sup>th</sup>, I take the day to rest while Jean Jacques prepares to begin the topography. I propose that Jean Jacques choose between doing the topography and continuing with the exploration. Immediately, and with the enthusiasm of a teenager despite his 67 years, he replies that he is definitely for the exploration. With Alen and Alessandro, we take all the material to the spring where Alen will assist Jean Jacques during the decompression, while Alessandro drives into the cave to familiarize himself with it.

With his usual calm, Jean Jacques gets ready and soon disappears beneath the surface. After 160 minutes, he resurfaces with the happiest look in his eyes and tells me that he reached -123 meters, at the very bottom of the pit, and that his main helmet lights went off. Soon after, we notice that his canister had flooded, too. At dinner, Jean Jacques describes the dive in detail. Listening to him, I start thinking that after a certain point the cave changes direction and probably heads up towards the surface.

On July 25<sup>th</sup>, it's again my turn to continue the exploration. After a good breakfast, we get to Vrelo Une where all our gear and equipment are already set for the dive. In addition to the rebreather and its 7-liter 5/85 tank, I take two 20-liter safety tanks with two different gas blends, one with 12/80 and the other with 8/85. Once under the surface, I go down quickly, reaching -70 meters in three minutes and -123 meters in five minutes; the reel waits on a rock at the beginning of a creek that keeps going down. The night before, we had talked about going beyond that point....

**Photo: JJ Bolanz congratulates Gigi after he surfaces from the 205 meter/673 feet exploration dive.**

Photo by DDSKF



I smile, and start going down. I finally reach a tree trunk to which I secure the rope before going further. Another tree trunk with a diameter of 70 centimeters lies crossways in the creek; a glance to the depth gauge shows I am at -150 meters. I feel all right, so I decide to continue the descent, observing in detail the surrounding morphology. At the depth of -163 meters, 230 meters away from the cave entrance, I leave the reel at the base of an enormous rock. It's taken me only ten minutes to get there. Taking a look around, I can see side walls of hard rock, below and in front is the most absolute void. Where I leave the reel there are many rocks of various sizes; the steep slope is a clear warning to not touch anything with the fins.

I start to go back up. At -120 meters, I take a quick tour around what seems to be a large cave with the bottom covered by an impressive composition of tree trunks and branches; but I stay only briefly, as I don't want to waste time and accumulate decompression minutes.

Exactly one hour after my departure from the surface, Alessandro reaches me with a new battery for my electric jacket and a flask of fresh water with miner-

als. Alen comes to see me at the second hour and, given that everything is going well, he decides to stay with me till the end of the decompression time. I get back to the surface after 147 minutes of dive, and I find thirty people interested in our adventure and ready to congratulate me for the achievement.

On July 26<sup>th</sup>, Jean Jacques and Alessandro start to draw the topography of the cave beginning from the depth of -58 meters up to entrance. Alen explores some small tunnels at a few meters of depth.

On July 27<sup>th</sup>, they continue the topography to the depth of -107 meters, and check out other secondary tunnels and caves, which don't lead to any relevant exploration.

On July 28<sup>th</sup>, after two endless days spent watching the other guys diving, I am finally ready for a new exploration attempt. We get to the lake later than usual, it's almost noon. I had prepared everything the day before, so the only things I have to do are to perform a final check of the analyzers' calibration and to put on the gear and equipment. Once in the water, I go down to -6 meters to check the sensors. A quick return to the surface to say that everything all right, a greeting to everyone, then I swim across the lake looking for the exact point where the vertical hole is more direct and free.

Just before going down, I empty completely the counter-lungs of my rebreather to exhale all the oxygen; I open the dry suit's valve, and I start my fast descent. I get to the depth of -40 meters in one minute, then I need to use the fins to push myself deeper to -70 meters; from there, I am able to go down vertically to -123 meters. During this last trunk, I keep the PpO<sub>2</sub> at



Photo by Lorenzo del Veneziano

Photo: Explorer, Gigi showing the profile of the dive on his computer during decompression

0.6 to avoid generating too much oxygen in the gas blend, which would force me to perform a cleaning cycle of the rebreather. Past that point, I set the PpO<sub>2</sub> to 1 and continue to go down quickly. I use a diluting mix 3/90, and by doing so I am able to keep the PpO<sub>2</sub> easily under control; even if, at times, I have to close the oxygen flow. I stay a few meters distance from the rope in order to better observe the hole, and to use the fins without worries. In eight minutes, I reach the reel that I left at -163 meters.

I feel so strongly the attractiveness of the unknown that it is like a loud scream inside me, but I keep it under control. I pick up the reel and unlock it while I look at the slope that continues below me. I kick myself down by pushing the fins on the floor to gain some speed, but this turns out to be a very bad move as the pressure on the rock generates an immediate landslide. In front of me there is a huge rock and fearing it can fall on me, I move horizontally to the side for a few meters in the creek while holding the reel strongly in my hand. The clay lifted by the landslide is swallowed from the bottom of the cave, and I decide to stand there and wait, suspended in the void, still. After three long minutes, when the anger of the rocks seems to cool down, I hear three nerve-wracking thuds — as if huge rocks had landed violently on a floor far below.

I go a little further down, but at -175 meters, I must stop. Below me there is a very thick cloud of clay that is impossible to penetrate. So I lock the reel and leave it hanging in the middle of the creek. I realize then that one of my three analyzers has mysteriously turned off.

When I begin my ascent I have been in the water for only thirteen minutes. I have plenty of time during the decompression to reflect on my mistake. It's very well known that being in a hurry can lead to irrational behavior and increase the possibility of making mistakes. I also have plenty of time to record on a small whiteboard the exact depth where the tree trunks lie, and other interesting things about the environment in the cave. At the

depth of -120 meters, my analyzer "magically" turns on again. The two assistant cave divers, Alen and Alessandro, are punctual and efficient as usual throughout the entire decompression time. I get back to the surface after 186 minutes.

On July 29<sup>th</sup>, Jean Jacques prepares for the exploration of the big cave at -120 meters, but at the lake we are disappointed to learn that visibility is down to about 50 centimeters. During the last few days little water has flown through and the weather conditions have been stable, so the only plausible explanation of this major change in the water conditions is that the cloud of clay I lifted had drifted up to the surface, brought by the current overnight. We spend the day fixing the equipment damaged during the past few dives. We identify and solve the problems with the battery packs; I replace the battery of the analyzer; I check some of the regulators; and we spend the remainder of the day reading and writing the expedition report.

On July 31<sup>st</sup>, we can see the safety tank at -6 meters, so hope for good conditions underwater. The sky is cloudy and the air temperature is 10 degrees Celsius, perfect conditions to wear the heavy undersuit without sweating. While getting ready, I mentally go through the key reference points of the cave and the key operations to perform so that I can anticipate every single movement of my body. I will go down as fast as I can, and this time I don't want to make any mistakes.

In four minutes, I reach -123 meters. I know that I need to control the power in my legs to avoid an increase in breathing frequency. Visibility here is about four meters, very different from the previous days. I keep going down to -163 meters and maintain, this time, a good distance from the bottom. I get to the vertical point where I had left the reel. I hold it in my hand while the thin layer of mud that was covering it flows around me like a cloud. The walls, too, are covered by at least half a centimeter of clay that could easily mix up in the water at the slightest touch or water pressure.

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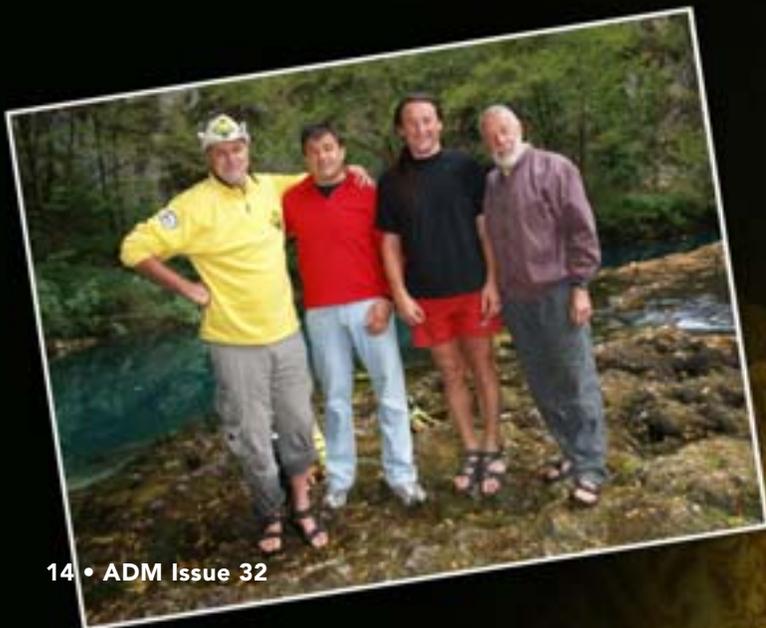
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At the depth of -180, I find another tree trunk. How unbelievable it is to find one down there, given that the creek is not fully vertical from the surface. Continuing my descent, at -190 meters I can see the bottom: a steep slope of gravel below me. I go further down moving on a diagonal to gain depth with the least effort possible. One of the analyzers turns off, but this time I have four on me to feel safer. I go down a few extra meters to search for a secure anchor point for the rope. My hands shake, HPNS or fear, I don't know. But my mind is vivid clear. I decide to take the shears out of the elastic band, cut the rope, make the knot, secure the reel, use again the shears and, finally, to go up a bit. I then look at the depth gauge: in twelve minutes, I have reached the depth of -205 meters at a distance of 290 meters from the surface.

The little clouds of clay I go through during my ascent create a surrealistic atmosphere. I can't avoid thinking of the three strong thuds I heard during my last dive. This can't be the point where the big rocks landed because, with the steep slope and the gravel on the bottom, the noise should have been softer. Who knows what's below that...?

I do a first stop of one minute at -160 meters exactly above the big rock. Taking a close look, I notice that it is a conglomerate of rocks. A de-pigmented shellfish with long antennas, which for sure has no problems with HPNS nor with decompression, comes to make me a kind visit. At -123 meters, I pick up the 20-liter tank that I had left for a possible emergency. After 25 minutes, at -117 meters, I reach Lorenzo who is with us to make photographs starting from the deep area at -120 meters; an extra deep stop to capture a few images, and then we go slowly up together filming the most interesting spots.

**Left to right: Tihomir Kovacevic, Lorenzo del Veneziano, Luigi Casati, and Jean Jacques Bolanz.**



On my way up, I also pick up the other two 20-liter tanks at -90 meters and -70 meters as well as the rope to which they were secured. In recovering the rope, I believe I generated fatigue to the forearms and, consequently, as soon as I get around -40 meters I start feeling some pain. I slow the ascent a bit in order to address the problem while remaining as deep as possible. I manage to stay at -21 meters for thirty minutes at a PpO<sub>2</sub> of 1.6. Suddenly, the pain vanishes. I get rid of the five 20-liter tanks; I drink and eat some watermelon slices. I have all I need for a relaxing decompression.

After 295 minutes, I get to the surface happy and satisfied: the explorative dives are over. We take most of the equipment to the cars, leaving at the cave only the minimum set necessary to complete the drawing and to recover the gears.

I already dream of the day next year when I will be back in Vrelo Une to try to continue the deep dive exploration, and to see how wide that attractive wall creek really is. And, who knows, to maybe find the place where those rocks landed....

Participants: Alan Kovacevic (preliminary dive to -55 and video), Alen Milosevic, Alessandro Fantini, JJ Bolanz (topography), Lorenzo Del Veneziano (photos), Luigi Casati and, above all, Tihomir Kovacevic and the DDISKF, his speleoclub.

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**Photo: Explorer Gigi in decompression near a big stone trapped in the root of a fallen tree.**



Photo by Lorenzo del Veneziano

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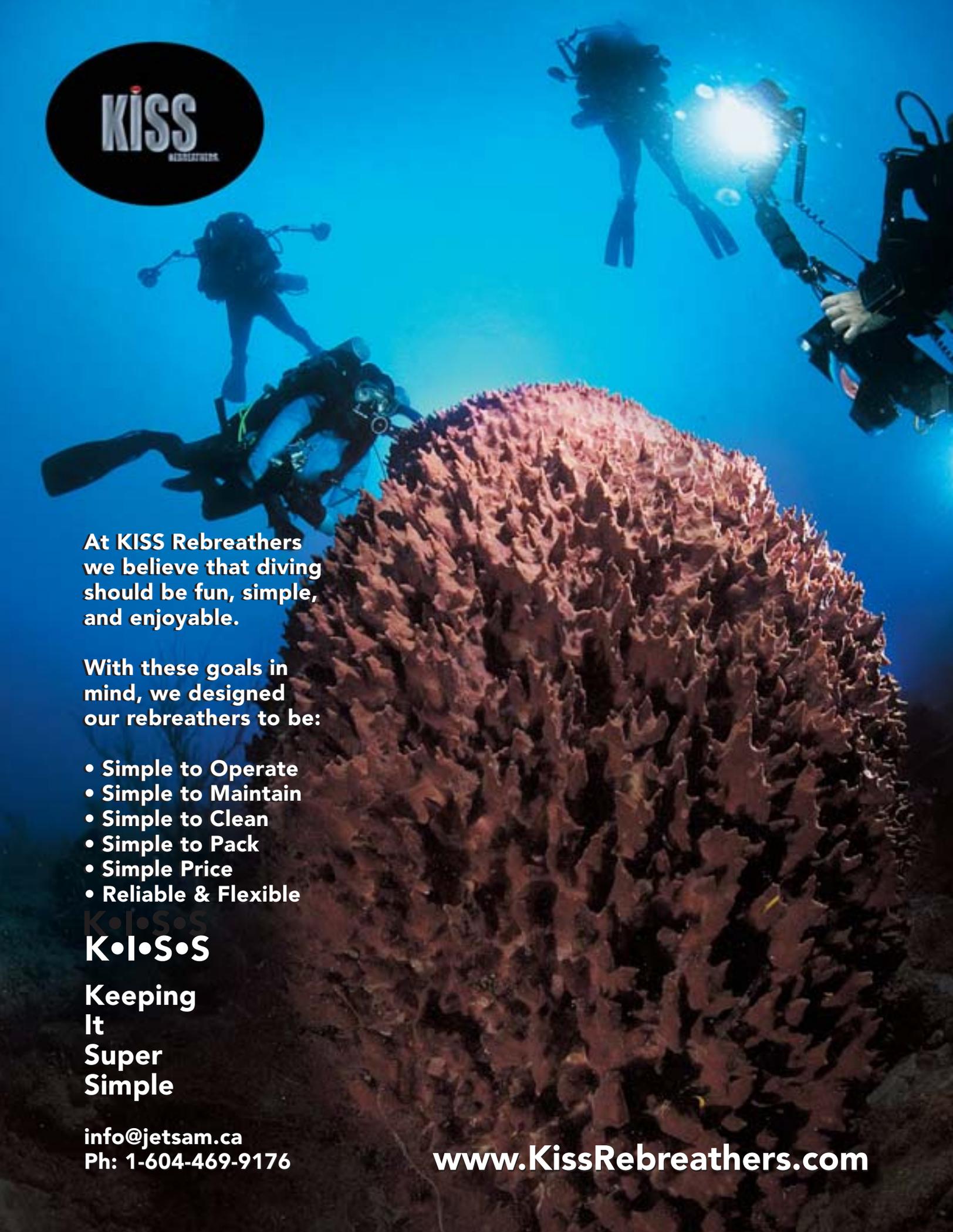
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An underwater photograph showing several divers in silhouette against a bright blue background. They are swimming over a large, textured, reddish-brown coral reef. One diver in the upper right is holding a bright light, illuminating the scene. The overall atmosphere is serene and professional.

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# Gateway to the Wilderness

## Prince Rupert Expedition

Article and photos by  
ADM Chief Staff  
Writer John Rawlings

The day dawned with the sun attempting to fight its way through the morning mist, the dense trees lining the shoreline appearing as dim shapes through the thick, wet fog. Absolutely everything seemed to be dripping – the result of both the mist and heavy rains the night before. The piercing shrieks of a pair of bald eagles broke the silence – perhaps a “lovers’ spat” over a choice piece of salmon – but otherwise all was silent except the soft lapping of the waves against the hull, and the sound of my steady breathing into my Classic KISS CCR as I pre-breathed it in anticipation of the dive. Everything was as I had envisioned it in my mind’s eye, and I grinned in anticipation at my friend and dive buddy, Josh

**Left: Tucked into a secluded island anchorage, *Bold Spirits*, a tough and practical former fishing vessel, was the ADM team’s home base during the expedition.**

**Below: Its bright blue color in vivid contrast with surrounding orange anemones, a male Kelp Greenling, *Hexagrammos decagrammus*, stares back at the camera lens as the author floats by in the current.**





Smith, sitting opposite from me with his COPIS Meg CCR. No trace of civilization was visible; it was as though we had gone back in time and only the wilderness beckoned. We were waiting for slack water at a site named Watt's Narrows, a thin channel of water where the current normally runs between four and five knots. Earlier we had asked our hosts, Mike and Almudena Miles, about this site and had received the exciting answer, "We don't know. As far as we know, no one's ever dived it. But from what you told us yesterday about what you were looking for, we thought this might be a good one, eh?"

Laden with gear, I staggered clumsily towards the stern and watched as the last of the tidal swirls faded – an indication that slack had arrived. From behind me, I heard Mike say, "Anytime you're ready, John." With a quick giant-stride, I plunged down through the surface. Mike passed me my camera system; and soon, with a loud splash, Josh joined me in the water – both of us feverish with anticipation. In places, Watt's Narrows is only about 100 to 200 feet across yet has depths surpassing 100 feet. In the Pacific Northwest when such a site is combined with a constant influx of nutrients brought by high currents, the probability of a colossal amount of invertebrate life is extremely high.

The moment I put my face into the water, I knew that we were in for a wondrous dive – even near the surface the rocky face of the wall was literally coated with color and life. As we descended the wall, the invertebrate life became thicker and thicker – almost seeming to be in layers. Giant acorn barnacles were present in large numbers, their tendrils fanning out into the now fading current. Huge swaths of bright orange plumose anemones appeared like giant stripes between patches of their fluorescent white "cousins" – reminding us of the pattern seen in the orange/white creamsicles we enjoyed as children. Yellow, red, orange, and white patches of encrusting sponge covered the rocks, making the scene look like a haphazard quilt. Through all of this "stationary" color darted tiny hermit crabs and shrimps of various species, their rapid scurrying movements catching my eye as we slowly descended down the wall and moved further up the Narrows, the slight current sweeping us along. As my eyes swept the ledges, the bright fluorescent red, orange, and blue colors of a Puget Sound king crab suddenly burst into view when the beam of my light touched it. I managed to get off a quick portrait shot of it before the current carried me away.

We hit the bottom of the channel at approximately 110 FSW and, to our surprise, discovered a huge sunken tree, its roots splayed out into the current. Clustered amongst the root structure was a bright school of shiner perch glistening like gold in the beams of our lights. While pausing at the sunken tree, we began to feel the current subtly switch directions. Turning to allow it to sweep us along on our "return trip" down the wall, Josh signalled me to follow him across the base of the channel to the opposite side – the thought of a completely "new" wall was impossible to resist!



As we slowly ascended this second wall, we discovered huge clusters of northern feather-duster worms, their bright blue and purple plumes dancing in the slowly increasing current. A shiny gray and blue male kelp greenling nestled on a ledge surrounded by bright orange anemones glared at me as I drifted past. A species normally shy of divers, this one didn't know what to make of me with my "silent" CCR, and I was able to get off a couple of good shots before he slowly swam away into the current. Josh shot his bag at 50 FSW to let our surface support know where we were, and slowly we moved away from the face of the wall into mid-channel for pick up. Even from mid-channel, we could still catch glimpses of the walls on either side of us as we drifted along, the fluorescent white of the plumose anemones shining in the gloom. Ambient light made the water a rich emerald green as we neared the surface. As we burst into the gray daylight, both of us shouted out loud whoops over what we had seen. The rain had picked up again and splattered the surface of the water as we clambered up the ladder into the covered area of the boat. Even before we began doffing our gear, we began to excitedly tell Almudena and Mike about the raw beauty of this site as they grinned from ear to ear...a new site...just one of many that await discovery....

**Left page top: A *Flabellina verrucosa nudibranch* slowly makes its way across a rocky wall, seeking its next meal.**

**Left page center: A Basket Star, *Gorgonocephalus eucnemis*, extends its hundreds of arm branches, gathering food from the passing current.**

**Left page bottom: A Scalyhead Sculpin, *Artedius harringtoni*, darts among a tiny forest of billowy white plumose anemones.**

## Background and History

"Where Canada's Wilderness Begins"....definitely a phrase designed to catch your interest. It certainly caught mine when I first began exploring the possibilities of diving the waters around Prince Rupert in Northern British Columbia. Wilderness has always had a special appeal to me, and any opportunities for travel and diving at locations off the beaten path have lured me like a moth to a flame. Contacting the department of tourism for Northern British Columbia, I asked them for contacts and suggestions for diving in Northern BC, with heavy emphasis on marine biology expertise. With their assistance, the first steps were taken for an adventure-laden trip that left us awe-stricken with the raw beauty we encountered, both above the surface and beneath the area's rich green waters.

Centuries before the arrival of the first European explorers and traders, the Northwest coast was among the most densely populated areas of North America, with a huge variety of rich and vibrant cultural traditions. The city of Prince Rupert is, in fact, located within the traditional domain of the Tsimshian First Nation. Well before European contact, what is now the harbor at

**Above: A group of Humpback whales, *Megaptera novaeangliae*, feeding using a tactic called "bubble-netting." The whales get beneath a huge school of herring and circle them from below while releasing bubbles from their blow-holes. The bubbles form a "net" around the herring, scaring the prey toward the surface. The whales will then come up all at once together with their mouths open, swallowing thousands of herring within moments. This method of feeding has been observed only in the frigid waters of British Columbia, Alaska, and the Arctic.**



Prince Rupert was the most densely populated area to be found anywhere in North America north of Mexico. The archaeological record, as well as oral tradition, indicates that there has been continuous occupation of the Prince Rupert area, specifically by the Tsimshian First Nations people, for almost 5,000 years – and that there have been inhabitants there stretching back for almost 10,000 years. Other First Nations peoples in the area are the Nisga'a, Gitksan, Heiltsuk, and Haida, each with its own distinct language and traditions, many of whom reside in Prince Rupert as well as in a number of small traditional communities found along the coastline. The famous monumental art of their cultures, exemplified by majestic Totem Poles, is widely recognized around the world. Their art reflects a firm belief in the natural interconnectedness of all things, as well as the great strength of their individual families and clans. Often during our adventure, we found ourselves completely stunned by the overwhelming beauty of their art as well as its clear and obvious linkage with the natural world surrounding it.

What is now the Prince Rupert area came to European attention during the great "Age of Discovery," during which the major European powers constantly competed with each other and tried to expand their control of sections of the Pacific coast. It was the fur

trade that brought them into direct and long-term contact with the First Nations peoples, with British and American ships in particular arriving regularly to trade for desirable and luxurious sea otter pelts for which there was a worldwide demand. The Hudson's Bay Company eventually established several permanent trading posts in the area, greatly expanding their influence, and the European "development" of the area had begun.

The city of Prince Rupert was named after Prince Rupert of the Rhine, a cousin of King Charles II of England. The prince was born in Prague, Czechoslovakia. Because of his family relations, he was named as the first governor of the Hudson's Bay Company...even though he never managed to ever set foot in Canada! Now approaching its centennial, the city was incorporated in 1910 and started life as a construction camp for what eventually became the Canadian National Railway. The city's founder was Charles Melville Hays, general manager of the railway. He was filled with grandiose ideas for the future of Prince Rupert, amongst them the construction of huge berthing facilities for ocean liners. Perhaps it is the height of irony that his plans for Prince Rupert as a great passenger ship terminal died along with him when he lost his life at sea as a result of the Titanic disaster in 1912.

During the Second World War, Prince Rupert began a bit of a “boom time” as thousands of Allied troops and tons of equipment passed through on their way to combat the Japanese first in the Aleutian Islands of Alaska and then throughout the greater Pacific theater. The boom continued after the war as the city enjoyed the benefit of a worldwide need for food, commercial salmon and halibut fishing becoming major industries along with logging. By the mid-1980s, Prince Rupert had two major export terminals and a booming local economy. With this newfound prosperity has come culture and tourism, the city literally being at the edge of the wilderness and providing access to opportunities for sport fishing, whale watching, and wildlife viewing that rival any other location on the planet. With the wonderful combination of First Nations and other cultures from around the world, this small city (population estimated 12,500 – 13,000) has developed cultural and dining opportunities that are world-class and second to none. Trust me on this – ever since we left, our ADM team has been fantasizing about going back to this city that boasts such wonderful food, culture, interests...and diving!

Our hosts at Prince Rupert were Mike and Almudena Miles, owners and operators of Oceanwild Nature Expeditions. Mike has been a commercial diver/underwater harvester for over 27 years and has over 10,000 dives along the British Columbia coast. Almudena holds a biology degree from the University of Victoria and has worked extensively for both Fisheries and Oceans Canada and several First Nations organizations in BC. Almudena has been diving for 17 years in BC and holds a PADI Instructor rating. As a team, they have a huge store of knowledge of the underwater habitat, flora and fauna of Northern British Columbia. Together they founded Oceanwild Nature

**Left page: A Fish-Eating Anemone, *Urticina piscivora*, closed in upon itself, possibly the result of having captured and ingested food. The bright colors of this species are always incredibly striking.**

**Above right: A beautiful White-Spotted Rose Anemone, *Urticina lofotensis*. Named for its resemblance to a brightly-colored rose as well as the white spots adorning its column, this species is always a favorite for Pacific Northwest photographers.**

**Above center: A bull Steller Sea Lion, *Eumetopias jubatus*, gathers his harem around him at one of several large rookeries in the Prince Rupert area. The largest of the eared seals, Steller Sea Lion bulls can weigh up to 2,500 pounds and, with a lighter color than other species of sea lions, resemble huge sea-going Grizzly Bears.**

**Bottom right: ADM Team Member Josh Smith examines an ancient petroglyph laboriously carved by scraping stone on stone. Impossible to date exactly, there are many explanations for what is commonly known as “The Man Who Fell From Heaven.” The story that the ADM Team was told was of a young man that had been exiled from his village. He returned days later and told his people that he had journeyed to the sky and observed many wonders and feats of magic. He explained that he could have remained in the heavens forever, but instead he had fallen and plunged from the sky. He showed them the crater his body had made when he struck the rock, and the elders of the village were so impressed that he was given a position of honour as their shaman.**



Expeditions in September 2008, and specialize in organizing trips that combine diving with whale watching and wildlife viewing of such animals as grizzly bears and wolves. Mike and Almudena own three different vessels that they utilize for their coastal expeditions, each one designed to handle the varied conditions of weather and sea as well as meet the specific needs of clients. The *LQ Prevailer* is a 22-foot long aluminum vessel; its construction designed to handle such things as the floating logs commonly found in BC waters, and can safely and quickly get divers to all expedition sites. Additionally, Oceanwild Nature Expeditions has a 36-foot live-aboard vessel, the *Bold Spirits*, for extended expeditions such as ours, along with a high-speed 21-foot zodiac that is utilized as a tender. During our expedition, we had occasion to use each of their three boats and we found them to be superbly functional for our purposes and well maintained. This is virgin territory for divers, and they are constantly seeking new dive sites. The area is known for wrecks – with a history spanning the Age of Exploration, the Fur Trade, the Gold Rush, and the Second World War one can only imagine the possibilities. Our team is already planning a second expedition with Oceanwild in 2010 to the Queen Charlotte Islands...but that will be another story!

Those desiring more information about Oceanwild Nature Expeditions, the city of Prince Rupert, and Northern British Columbia, should contact the following – they won't steer you wrong!

**Oceanwild Nature Expeditions**

Ph: 250-622-7659 [www.oceanwild.ca](http://www.oceanwild.ca)

**Tourism Prince Rupert**

Ph: 800-667-1994 [www.TourismPrinceRupert.com](http://www.TourismPrinceRupert.com)

**Northern British Columbia Tourism**

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



Above: A Tsimshian First Nations Chief dances as he welcomes guests to a winter feast ceremony. Held loosely in place by sea lion whiskers, eagle down has been placed atop his headdress, and drifts downward as he dances. Eagle down is regarded as a symbol of peace by First Nations peoples, and its use in ceremonies is an indication to all that even enemies will be welcomed and treated as treasured guests.





# TBM AVENGER

## SAN DIEGO – A TECH DIVING MECCA

By ADM Staff Photojournalist Mel Clark

This story is like most of mine as it starts with a plane ride somewhere. This time, the flight takes me to sunny San Diego and the gentle, clear blue, warm waters...well, not quite so. The water was hardly warm at 45 F on the bottom, the visibility reminded me of home (Seattle) most of the time, and gentle is not the term I would use for the ripping currents. However, as I am a cold-water diver armed with a scooter, none of this bothered me that much. Like most of my flights, TSA had their hand in making my trip interesting, to be polite. Luckily, the eight hundred dollars worth of damage they caused to my scooter was on my return trip and had no impact on me diving the TBM.

The TBM Avengers entered into service in 1935, and played a key role in many ensuing battles. Post-war, the TBMs served as anti-submarine and electronic countermeasures training planes. The TBM3S2, bureau number 53439, was assigned to the Air Anti-Submarine Squad-

ron-23, NAS San Diego, California. Lt. Ross Genz and his navigator, AN Harold Tenney, were on a night radar bombing mission when the accident occurred. The accident was put down to pilot error. Lt Genz's post-accident report indicated that he was varying between IFR (using instruments to navigate) and VFR (using visual information to navigate) on his approach to Naval Air Station San Diego.

The conditions were hazy and, as such, Lt. Genz should have been strictly on IFR, as ordered. But he lost his trust in the instruments and applied some VFR tactics. This put him, his aircraft, and his navigator in jeopardy. As he was getting close on his approach, he lost his reference and ended up turning right without his knowledge. This right turn put him back over the water, off Point Loma, and only a few feet above the water level. At this point, he made his fatal mistake and turned right, dipping his wing and intercepting the water. The



Photo: The team of eight CCR divers hangs on the up line for deco after a successful exploration dive on the TBM Avenger.

impact tore off the engine and the landing gear. Fortunately for the crew, the plane did not flip as they often do when striking the water with the landing gear deployed. Once the plane settled, Lt. Genz and AN Tenney were able to escape. According to Lt. Genz's report, after the accident he immediately turned to make sure his crewman was okay. Tenney was almost out of the aircraft at that time and responded that he was fine. They both left the aircraft off the starboard wing.

It is at this point that the story takes a tragic turn. After surviving the plane crash, somehow AN Tenney was lost at sea. It has been hypothesized that his flight gear may have gotten tangled up in the wreckage and it pulled him into the depths. Or perhaps he was unable to deploy his life vest and ended up drowning. Either way, it was a tragic end to a seemingly benign training mission. After visiting the wreckage, I can say there is no evidence of any tangled flight gear or signs of a crew member; but, after over 57 years in the salt water, it is amazing that there is any wreckage left at all.

We chartered the *Marissa* out of San Diego to get to the TBM. Carl and Anita have a splendid operation. Carl as captain had a precise drop and put us right on the small target 270 feet below. Anita managed all the tech divers "special" needs, and got everyone into the water with care. After the dive, she had a three-course meal ready for us. What an excellent operation! Thanks, guys.

The dive team was a large one for such a small plane: Paul Raymaekers, Frank Boerjan, Al Marvelli, Marco Reis, Pat Vigeant, Curt McNamee, Erik Foreman, Dave Mitchell, Paul Kim, Tyler Stalter, Robin Jacoway, Rob Herman, Greg Wolfkill, Neil Stratton, Mike Wynd,

and Bill Reals. This was my second attempt to get pictures of the TBM. Last time, we found the plane but only through "brail diving," and somehow all the tangled line in the oil pan at the cockpit managed to grab one of the unsuspecting divers. This added some interesting moments at 270 feet in little visibility. For this second attempt, I was buddied with Tyler and we were first in. The current was moving a fair bit, so I was thankful I had my scooter to pull me down. Arriving at the site, I was pleasantly surprised at the excellent visibility of around 25 feet. I immediately got my camera out and waited for my buddies to arrive.

The cockpit was my first stop. The pilot's canopy is covered in white plumose anemone, and there was a school of fish loitering around. The front windshield is cracked, but is still intact. This is where Lt. Genz received lacerations to his face during the crash. In the cockpit was a stubborn little rockfish who thought he was captain. After I got "Captain Rock Fish" to move, I managed to get a few shots in the cockpit. There is not much left due to the salt water corrosion over the last 57 years, but you can still make out the seat, pedals, and the radio microphone cable. The engine is completely missing, likely torn off at impact. All that is left is the oil pan, which is covered in netting and ropes. I managed to get a few shots of Tyler exploring the cockpit and surrounding area.

I proceeded to swim toward the aft of the plane on the starboard side. The landing gear support is pushed up through the wing, further proving that the plane had the gear down on impact. The gear is missing; this makes sense as the navy reported it floating after the accident. The radioman's station over the wing is very

**Photo: Erik Foreman examines the broken midsection of the plane. This was an unnerving dive as the visibility was only a few feet, which caused one of our team to get tangled in the abandoned polypropylene rope.**





broken up and open to the ocean, and the canopy over this section of the plane is missing. The TBM is split right in half at this point, but still is lying together on the sea floor. The aft section is twisted almost 45 degrees toward the starboard wing.

The tail section is also twisted to the starboard with the stabilizer lying in the mud. All of this bent and twisted wreckage to the starboard side confirms the pilot's report of hitting the water in a slight right turn. I find it amazing that the aircraft stayed together at all after this damage. The word "NAVY" and the insignia are fairly covered in marine growth, but can still be made out on the starboard tail section. Tyler stopped here for another photo-op. On the port side, the bureau numbers for this TBM are visible — proving that this was Lt. Genz's plane.

Well, time flies when you are at 270 feet, and it was time for me to start my long ascent back to the boat. This was a perfect dive on the TBM. As I head up the line, the other divers pass me on the way down. I give them the thumbs up indicating they will soon have a great dive. The current is still fairly strong, and I settled in for a long deco on my jon line.

The TBM is a really cool dive when the conditions are right, and it is just down right scary when they are not. I would recommend this dive to anyone who is looking for a bit of history and a challenge. I want to thank Tyler Stalter of DeepOutdoors for sharing this dive with me. Tyler is always on the hunt for new targets to dive — keep them coming, buddy! Anita and Carl of the *Marissa* dive boat would be an excellent choice, if you want to do this dive or any other in the area. They can be reached at [www.marissadivesharters.com](http://www.marissadivesharters.com).



# *Mystifying Leviathans* of **Cay Sal**

Text by Brock Brinkerhoff  
Photography by Curt Bowen

*As we descended further, the reef melted away to raw rock. We had reached a depth where light and the current could no longer provide for extensive life. Even here, we found lobsters taking advantage of the recesses that the walls afforded. Swimming along felt like being weightless in a great canyon. Although I couldn't see the other side, I knew it was there.*



**Photo: Explorer Brock  
Brinkerhoff plummets into  
extreme depths on one of the  
many mysterious blue holes  
located in the Cay Sal Bank.**

The azure seas of the Caribbean lie before us. We are aboard the Nekton Pilot, a unique live-aboard vessel designed specifically for diving. As we idle from Port Everglades, we see Fort Lauderdale in the distance.

This trip is special for the Nekton Pilot – it has been devised as a rebreather live-aboard, organized by James Smith of Monkey Diver Inc. Of the thirty-two divers aboard, fully twenty-five are on closed circuit rebreathers. The trip will take us past Bimini, then south to an area north of Cuba known as Cay Sal Bank.

Cay Sal Bank is the third largest of the Bahamas banks, and is closer to Cuba than to the Bahamas proper. It is 50 kilometers (31 miles) from the north side of Cuba, and is part of the Bimini district of the Bahamas. It covers an area of 5,226 square kilometers (2,017 square miles).

We leave Fort Lauderdale near 11:00 p.m., and cruise through the night. The next morning, as we near Bimini, the Nekton crew dispatches their skiff. It is here that we have officially entered the Bahamas.

Taking stock of the rebreathers aboard, many of the manufacturers and models are represented. There are Optimas, Megalodons, rEvos, KISS Classics, Evolutions, and Inspirations. With this assortment of varied rebreathers come their unique owners – each person with a slightly different take on why they dive a rebreather, and what they hope to accomplish on the trip. One of the rebreather owners is John Chatterton. He is joined by his wife Carla, and this is a vacation for them. No work to do, no tasks to complete.



Photo: Rebreather divers enter the water from the Nekton Pilot's large hydraulic dive platform.



Most of our time aboard the *Nekton Pilot* would follow a typical schedule of breakfast in the early morning, followed by a dive site brief. From here, the dive deck would be open until lunch. During lunch, the boat would typically move to another site. Once we had arrived, the dive masters would conduct another dive site brief, and the pool would be opened until dinner. Once dinner was over, a dive brief would be followed by a night dive.

We spent the first few days diving on relatively shallow sites. This would allow us to shakedown our gear, and get any issues ironed out.

By day three, we had made our way south to Cay Sal Bank. This is what we'd come for – multiple dive sites featuring incredible blue holes, many whose extreme depths were previously unexplored. It was early morning as we arrived at our first site – the fittingly named Big Hole. This site is .5 kilometer (1/3 mile) in diameter, and had an unknown depth. The *Nekton's* depth sounder was only capable of 152 meters (500 feet), and wouldn't register a depth over certain areas of the hole. During the briefing, we heard about some interesting features of the hole, such as a large breakdown area that offered a swim-through as well as a handful of resident sharks.

As I splashed in and descended to the pin, two blacktip sharks immediately surrounded me. Although the smaller of the two didn't bother me, it was the two-meter (six foot) long version that I kept an attentive eye on. Academically knowing that these sharks are generally wary of people did little to dull my attention.

Once I was joined by my teammate, we moved to the hole – the edge delineated by blackness. Because of the sheer size of the hole, it appeared to be a 90-degree wall to nowhere. As I descended, the reef seemed to roll into the hole. Life was everywhere, from small reef fish and lobster, to larger tuna. Some of these animals seemed curious about their bubble-less intruders, and swam right to us.

As we descended further, the reef melted away to raw rock. We had reached a depth where light and the current could no longer provide for extensive life. Even here, we found lobsters taking advantage of the recesses that the walls afforded. Swimming along felt like being weightless in a great canyon. Although I couldn't see the other side, I knew it was there.



Cay Sal Bank is a massive shallow submerged karst platform located in the triangle of Florida, Cuba, and the Bahamas. The platform contains dozens of the world's largest and deepest blue holes ever discovered.

The wall itself was a constant reminder of the tremendous processes that created it. Some areas contained enormous break-down piles, while others were sheer faces – not unlike those seen in the Grand Canyon.

As we started a slow ascent along the wall, we came upon the break-down we had been told about. It appeared like a vertical pillar of rock that had collapsed and, coincidentally, landed across an area of erosion. This had the effect of creating a canted slab of a roof over two outcroppings. The sheltered area this created was 5 meters (15 feet) in diameter, and at such an angle as to have light cascade down through it.

During our lunch surface interval, we had talked with one of the Megalodon divers named Bobby. He had searched deeper along the same area we had descended into, and found that it continued sloping down. Although the vertical wall transitioned to sand, the sand itself gently sloped ever deeper.

Our second dive was at the same site, and we splashed in for a look at the wall-to-sand transition. There were many fossils in the sand, ranging from coral to other shelled animals. As we descended and the light dimmed, our HID's lit up the surroundings. It was strikingly similar to one of my local dives, a flooded limestone quarry – the walls and craggy rocks gave way to the sloping, sandy bottom. This continued into a wide black plane, where my HID couldn't penetrate more than 20 meters (60 feet). After swimming for a few minutes into the center, I turned and headed back to the wall. This hole would continue on, at least for me, to an unknown depth.



**Above: Rebreather diver Brock Brinkerhoff hovers in blue water below the *Nekton Pilot* vessel.**

**Below Invasive non-native lionfish have invaded the Bahamas, and can be found in surprising numbers around the lip and inner ledges of all blue holes.**

**Right page: Millions of years of layered limestone create an impressive landscape as the sun's rays at high noon penetrate considerably below 100 meters (300 feet).**





As we finished our diving for the day with a fantastic meal, a few of us went to the top deck to watch the night dive. There were some prototype lights on board, and these were being tested during the night dive. With the clear water and very little moon, the lights could be observed for the entire length of the dive in the hole. No matter the depth obtained, the hole glowed with an eerie glimmer.

As we left Big Hole for our next site that night, the captain mentioned that the sounder hit a spot on the far side of the hole where it didn't return a depth, indicating that the hole was deeper than 152 meters (500 feet). The deepest measured blue hole known to exist is Dean's Blue Hole. At 202 meters (663 feet), it is located in a bay on Long Island, Bahamas.

The next day we awoke to calmer seas and our new dive site: Sistine Chapel. This site was known for its coral heads surrounding the blue hole, along with many varieties of fish. The site got its name from the extreme undercut that existed at approximately 25 meters (80 feet). On descent, it had the odd effect of leaving you in space, as the ceiling retreated the wall, now some 6 meters (20 feet) away. Interesting formations of stalactites dripped from the ceiling, along with intertwined wire coral.



**Photo: Boulders the size of houses sit perched along the blue hole's walls, held on by some mysterious force.**





**Photo: John Chatterton and Brock Brinkhoff decompress after an exploration dive of 161 meters (530 feet) deep into the Sistine Chapel blue hole. They return with the news that the bottom was nowhere to be seen, even with the 100-foot visibility.**

Dropping down the wall, it was curious to find more lobsters, sometimes whole pots of lobsters, hiding in the walls. Given the depths, I wondered how they moved about for food – they were a long way from any horizontal surface with the exception of the floor of the hole they hid in.

As we descended further into the hole, the walls blended from life to lifeless – color to colorless. There seemed a distinct line where creatures decided inexplicably, it would appear, to stop frequenting. It made me think of an inverted tree line in the mountains. Life and its selection process deemed this area too harsh except for the most robust creatures.

The walls here, too, were much like my local haunts – huge walls of rock and striations, layer upon layer of aged rock and sediment, crushed together over time. This hole also had the similar junction of the rock wall stopping at a sand incline, which drifted ever deeper and beyond the range of my HID.

Back on the *Nekton Pilot*, I conversed with Bobby again. He'd had a great dive and was sharing some of the same observations. He was excited about what he had seen as he had swum closer and deeper to the center of the hole.

As the day wound down, John approached me and asked whether I wanted to do a dive with him the next day. I jumped at the opportunity. Given his history in diving, I looked at it as a way to learn from a much wiser and more experienced diver.

We spent the remainder of our day planning our dive, setting up gases, and filling bailout cylinders. We also enlisted the help of some of our friends on board who would provide support for our dive. Once the plan was ironed out, we turned in early that night.

Moored to our new site, Silver Sides, our plan was to splash as close to 8:00 a.m. as possible. This meant getting up early, grabbing breakfast, and making the final preparations. We did a final pre-brief on the plan with the support divers, and readied our gear. We splashed just prior to 8:00 a.m.

The boat was positioned directly over a shelf, just off of the hole itself. As we splashed, we tied in a spool to the pin, and swam towards the edge of the hole. The entire reef at the edge was incredible. This was the most life we had seen on the trip. As we paid out line and dropped over the side, I couldn't help but admire all of sea life and the reef itself.

For this dive, the spool line was to act as a known descent and ascent reference. We would place a strobe on the line at an agreed upon depth – this would act as a beacon for our ascent. It would also act as a meeting place for our support divers. They would know exactly where to expect us.

Descending into this hole was different. The interface between decorated reef and lifelessness was much more dramatic, as was the chill of a thermocline – the water temperature dropped to 24C (76F) from the surface of 31C (88F).

Darkness set in quickly, and the lights came out. Me with my trusty 10W HID and John with a prototype LED light head, provided by Titan. As we descended, the wall undulated from ledge to undercut. Descending even deeper, it was as though someone turned the “Scale” knob up – all of the features appeared rougher, less worn, and larger gaps appeared between eroded walls. The undercuts also became more severe. This resulted in a zigzag swimming pattern in order to stay in visual contact with the wall.

The darkness and cold grew stronger. The pair of us, staying in close proximity, kept moving our lights at elements of the wall. From huge ceilings of an undercut, to the fast approaching ledge we would need to swim out and over.

As we neared our agreed upon depth, we slowed to admire the wall and the next ledge below us. We knew we had reached our goal, and that our time here would be short. As we hovered in the darkness peering beyond the next ledge, all we could see was the blackness of a hole that went on. The mystery of the Cay Sal massive blue holes continues for yet another expedition.

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





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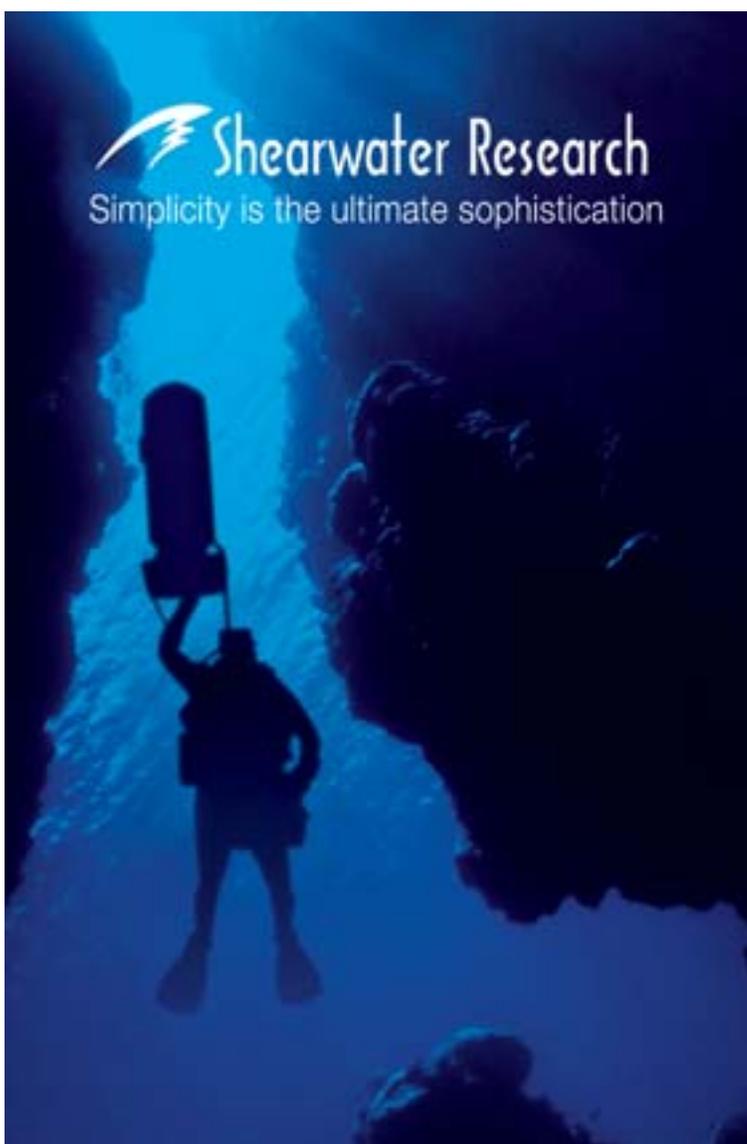
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# Submerged Ghost Town of Minnewanka Landing

## A tale of high altitude and cold water diving

By ADM Staff Photojournalist Mel Clark

Only a few hearty souls would call this adventure fun. This is the story of the Mossman's divers and the old town site. To start this adventure, I trekked across the state line north to Alberta, Canada. The first challenge was getting all my gear on the plane, followed by the interrogation at customs. Most "tourists" flying into Calgary don't do so with dive gear and a rebreather, but instead with cowboy hats and silly tasseled shirts. I, however, am not the standard tourist. Truly, I am hardly a tourist at all as I was practically raised in Calgary. Instead of doing the typical "girly" things on weekends when I was in high school, I was diving in Lake Minnewanka. I had always wanted to dive the old town site but never had an opportunity, so when Greg Mossfeldt invited me to join him and his buddies to scooter out to the town site, I happily accepted.

This trip was one of nostalgia for me. I had not been in Lake Minnie for almost 20 years. However, instead of having a single aluminum 63 cf cylinder, a wetsuit, and a dangly light, this time I was armed with a Dive-X extra long haul scooter and my rebreathers. How times have changed! Greg Mossfeldt, Terry Forsyth, Brent Arnholtz, and I met at the usual o'dark thirty in Calgary for the two-hour drive to Banff and Lake Minnewanka. With two trucks fully loaded with gear, we set off on our adventure — but not before the obligatory stop at "Tim Horton's" for coffee and a donut, eh? (When in Rome, do as the Romans!)

Minnewanka Landing has an interesting history. Civilization here dates back over 10,000 years. In fact, on one of our dives we found an ancient dig site that has



Photo: Looking out over Lake Minnewanka from the dive entry point.



been long since flooded. The recent history of the area started with the small resort village of Minnewanka Landing, established in 1888, followed by the first dam in 1895. This dam was a relatively small wooden structure created to control water levels and protect Minnewanka Landing from seasonal floods. As Minnewanka Landing was in the boundaries of a national park, it would seem it was protected from development. However, Calgary Power Ltd. was given the go-ahead by the federal government in 1912 to build a dam for water storage and power development. This new dam raised the water level twelve feet and extended the lake from six miles to nine miles in length. This had a large impact on Minnewanka Landing, and resulted in several structures becoming flooded. Calgary Power continued over the years to lobby the feds for another dam. They were denied several times until in 1940, under the War Measures Act, they were granted permission. This was a very controversial decision, and Calgary Power capitalized on the situation. The new dam was finished in 1941. This resulted in the complete flooding of Minnewanka Landing and the 1912 dam. The water level rose over 100 feet and the lake now was almost eighteen miles in length. The landscape of the area was forever changed, giving divers a submerged historical time capsule.

The old town site is located at the west end of the lake. The easiest and closest access for us was at the plaque site as an entry point. The entry is relatively easy down a moderate slope. The only catch is that we are at 5000 feet above sea level; and as I am a sea level dweller, this altitude has increased my fatigue. Good thing for me, my scooter came with an automatic launch and recovery system (thanks Brent and Terry). Now for the easy part, holding onto a torpedo (scooter) going two mph for an hour in water that is 32-40 F. If brrrrr comes to mind, that would be a close thought. Perhaps remembering what a "brain freeze" is like after eating ice cream too fast, and then multiply throughout your whole body, then we are close.

Thankfully, the depth was relatively shallow at 50-110 ffw. Once you apply the altitude conversion, the actual dive depth for inert gas calculations runs between 70-140 ffw.

Forgetting about the cold (this is what happens when hypothermia sets in!), the ride out to the town site was quite fun. Greg and his buddies have spent many a dive setting up an underwater guidance system that leads to the old town site.

**Top left: Greg Mossfeldt cruises out of a broken window in the 1912 dam's powerhouse. I am sure Greg has some stories of "out-takes" to this tight scooter maneuver; unfortunately, I did not witness any.**

**Middle left: Terry Forsyth, instructor for Adventures in Scuba, lets his Dive-X extra-long-haul cool down after a long run out to the town site.**

**Bottom left: Greg effortlessly glides beside an old lantern on one of the town site's foundations. The silt is very easily disturbed, and requires skilled movements to avoid destroying the visibility.**

**Top right: Greg inspects what we have now determined to be an old wheelbarrow.**

**Middle right: Constructed in the Minnewanka Landing area in 1912, this second dam caused major flooding and brought the lake up by twelve feet.**

**Bottom right: Greg shows me an old two-piece wood stove.**

Without this, it would be next to impossible to find the site from underwater.

When you get close to the town, you will parallel a roadway for a bit. This roadway leads to the first foundation of the town site. It takes me a minute to get my bearings as now I must swim and get my camera out and ready to take pictures. Up to this point, my camera has been neatly stowed away for the long ride out. This first foundation has a fireplace that is still recognizable and various household pieces of equipment lying within. After getting a few shots, we follow the line to the next house foundation. Within the boundaries of this house, we find an old iron that the boys can't help but pose by. This iron is a real iron, no plugs or electricity for this one.

After checking out several houses, Greg rallies the troops and we head to the wharf, which used to be where the townspeople could go for an evening walk beside the lake or perhaps a boat ride. Now we get to enjoy buzzing around the wharf on our scooters, weightless like astronauts in space. The wharf is still pretty intact, with tires still hanging in place to act as fenders for boats. The top of the wharf is filled with small stones providing support for the structure.

We spent about an hour in town checking out the sites and "window shopping." So now we are two hours into the dive, and it is time to head back on the hour scooter run. Brent and I are on extra long haul Dive-X scooters with a burn time around three hours, so we will just make it. Greg is on a long haul Dive-X which usually will only run around two hours; but due to Greg's almost perfect trim and superior riding skills, he is able to run the scooter on its lowest power setting, allowing him three hours of burn time. Terry elected to use two scooters to accomplish the required run time. Nonetheless, I am cold at this point and now coming to terms with the hour-long ride still needed to get out of this freezing lake!

On the way back, we took a quick turn southeast to go to the 1895 dam site. This was the first dam that was built in the area, and is in really great condition for its age. It is fragile but still upright and intact. Greg can't help but take a spin through the spillway. I thought I was cold before, but for some reason this part of the lake is even colder than the town site, with the temperature dropping a couple degrees Fahrenheit to a balmy 36 F. After a relatively quick look at this incredible historical site, we turn and head back to the 1912 dam and the exit of this trip.

I know we are getting close to the 1912 dam as we pass over the old bridge pilings and the rock-filled log cribs. This used to be a roadway over the Devils Creek that was flooded by the 1942 dam. We now turn northwest and follow the roadway to the 1912 dam, a very intriguing structure. This is also where most divers that come to Lake Minnewanka will dive. From shore, the 1912 dam is a very short swim; the dam sits in 60-100 ffw (altitude corrected that is 80-130 ffw). It has a power house on the right side. This power house has



two openings at the top and a window on the side that divers can enter through. Terry and Greg slip through the top opening with their scooters and fly out the side window, a maneuver that must have been practiced a few times with a few blunders, I'm sure. They take me down to the bottom of the power house where Terry shows me the turbine water flow exit. The visibility gets worse the closer you get to the bottom, as it seems like a layer of silt hangs here. I attempt to get a few shots of Terry in the turbine structure.

Finally, on this whirlwind tour of Lake Minnewanka, we visit the archeological dig site where remains of over 10,000 years ago were recovered. Brent dips down into the dig site, and takes a closer look as I get a few photos.

Our run time was over four hours in this glacial-feed high altitude lake. Our equipment and the skill of the dive team allowed us to accomplish this trek to the town site. This dive is an excellent trip back into time, and I highly recommend it to anyone interested. It's not every day you get to visit a submerged town, a few dams, and an archeological dig site all in one dive. I want to thank Greg, Brent, and Terry for putting this trip together for me and completing one of the dives I have always wanted to do. For information on how to dive the town site, you can contact Greg Mossfeldt at [www.mossmanscuba.com](http://www.mossmanscuba.com) or Terry Forsyth at

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



Photo: Terry and both pieces of the stove.

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Photo: Actual Computer Size

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# Introduction to TECH VIDEO

by David Ulloa, ADM Video Chief of Staff

One of the attractions of technical diving is that it allows us to mount expeditions to sites that are extremely isolated and exceptionally unique. Adding to the allure, we are typically afforded only a single, very short opportunity to experience those sites. So what better way to remember and share those experiences than to record them on video? Whether you intend to bring home the best vacation video or are thinking about making a big break into underwater television, here are a few things to think about before taking a camera on a technical dive.

Let me first say there are three things that could save your life – not to mention your equipment – on every shoot: safety, safety, and then, of course, there is safety. Of the myriad of tasks you will be required to perform while shooting video on a technical dive, safety is by far the most important. Never put yourself or anybody on your team at risk just to get a shot.

That being said, one of the most challenging burdens for a technical diver is the management of task loading. Task loading is the term used by divers to

describe the multiplicity of combined responsibilities that lead to an increased risk of failure in completing functions that would otherwise be routine. Shooting video underwater intensifies task loading by presenting the technical diver with an entirely new set of distracters, motivators, and responsibilities. There are several ways to mitigate the effects of task loading. One is for the diver to stay within the scope of their training and experience level. The more experience and training a diver achieves, the more intimately familiar they become with their dive equipment. In addition to that, the most effective way to successfully respond to an emergency is to have a full set of practiced and proven contingency plans.

Dive experience and familiarity with one's equipment is fundamental and, quite simply, comes with time in the water. Contingency plans are another thing altogether. One very simple tactic that I often employ to help prioritize and organize my contingency plans is to divide my responsibilities into two distinct categories: those that I must perform as a diver, and those that I need to complete as a shooter. All responsibilities that



Photo by Mike Ellis

fall into the diver category have higher priority than those that fall into the shooter category. In other words, should I have to make a decision between two tasks that must be performed immediately, I ALWAYS choose the task that is more related to executing a successful (safe) dive. Getting the shot is always secondary for me.

As with any gear that you take on a technical dive, it's a good idea to have a strategy or plan that you can easily initiate should an equipment failure occur. I like to have a pre-determined procedure and exit strategy that immediately goes into effect when any piece of equipment stops working or, worse, becomes a hazard.

Most professional underwater cameramen will agree with me that a flooded camera housing is one of the worst scenarios you can face. Surprisingly, what makes this such a bad scenario has nothing to do with the monetary loss of the camera. The most critical element you will lose in this scenario is buoyancy. Most underwater camera housings are designed to be neutrally buoyant. This is only possible because of the air pocket that is maintained around the camera. As a housing takes on water, it will proportionately lose its buoyancy, and this represents a serious hazard. On a lighter note, despite the fact that the camera may be a complete loss, your housing and lights will likely be salvageable.

I have two plans for a housing that begins taking on water. One plan involves sending the camera to the surface on a lift bag, the other involves dropping the camera to the bottom on a reel. In either case, I have a dependable safety reel that is capable of reaching the surface from the bottom, and also has the line tension strength sufficient to hold the housing as dead weight, and a lift bag to match.

If your camera begins taking on water during a dive, the first action you should take is to immediately turn or call the dive. Only after you have initiated that safety procedure should you fully assess the condition of your housing. If the leak is slow but persistent, deploy a lift bag. This lift bag should be exclusively designated for the purpose of saving/recovering your camera housing and lighting system. Attach it securely to your lanyard or camera handle, then attach a reel to the same point, inflate the lift bag and send the camera to the surface while paying out line from the reel. When it reaches the surface, your boat crew can recover it. I like this plan because the leak will diminish as the pressure differential decreases in shallower water, and there is no point in keeping a flooding housing with you during decompression.

If your housing becomes fully flooded, or experiences a catastrophic failure, you will have to act fast if you want to have a chance at salvaging it on your dive. First and very importantly, detach yourself from your camera's safety lanyard. The housing will lose all buoyancy. Next, deploy a safety reel that is capable of reaching the bottom from your position, and attach the

line to your lanyard or a secure clip off point on your housing. Release the housing and pay out the safety line. As the housing descends, immediately evaluate whether there has been any impact to your decompression schedule. Remember, you are a diver first and recovering your housing is secondary. If your line cannot reach the bottom, immediately attach your lanyard to the anchor line or just let your housing go.

When the housing comes to rest on the bottom, deploy your camera's lift bag, and send it to the surface where the boat crew or your support team can recover it for you. During either of these scenarios, your dive buddy should be assisting and/or monitoring you every step of the way.

Lastly, you should get yourself to a mental place where you feel comfortable about the potential total loss of your camera and housing. Not that it makes it any easier to swallow, but initiating a technical dive with the knowledge that your camera gear is either solidly insured or sufficiently inexpensive to sacrifice relieves you of the pressure and need to save it.

There are many more issues to consider as a technical diver and underwater shooter; I have noted just a few which are typically overlooked by the novice. Furthermore, there are numerous shooting techniques that can yield a greater chance of success for your technical undertaking. In the coming issues, I will be addressing those topics in order to share my personal

knowledge and my professional experiences more fully with the public. Moreover, through *Advanced Diver Magazine* events and functions, I will be leading video workshops to further that effort.

So for now, safe diving – and I hope to see you in the water.

*About the author: David Ulloa - Video Chief of Staff for Advanced Diver Magazine, and the president and owner of Valeo Films Inc. (VFI), an independent film and video production company.*

*As a technical diver and freelance underwater expedition cameraman, David's passion for his work and his continued outstanding performance while working as an Underwater Camera Operator, AD, UPM, DOP, Line Producer, Writer, Director, and Producer have earned him the respect of his colleagues as well as the industry at large. Undersea Expeditionary Video Services, the newest division of Valeo Films, specializes in expedition-style underwater film and video production. Its current projects emphasize the technical, deep underwater content on which the company is now focusing, and for which it has a proven performance record. Most recently, David can be seen on Discovery Networks' "MysteryQuest" and "The Quest For Sunken Warships."*

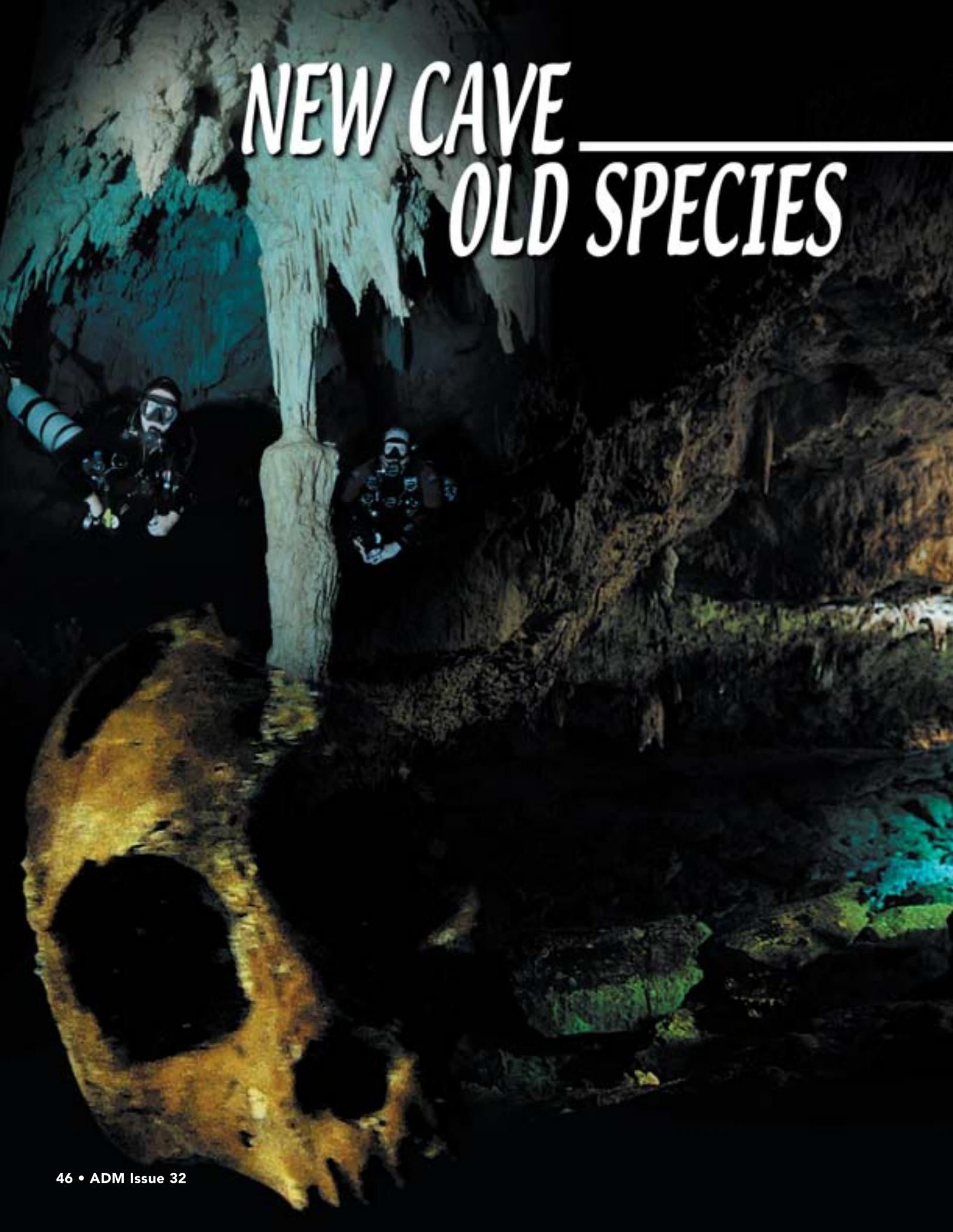
*In addition to his professional activities, David enthusiastically shares his underwater experiences by speaking at schools, conventions, group meetings, and dive clubs.*



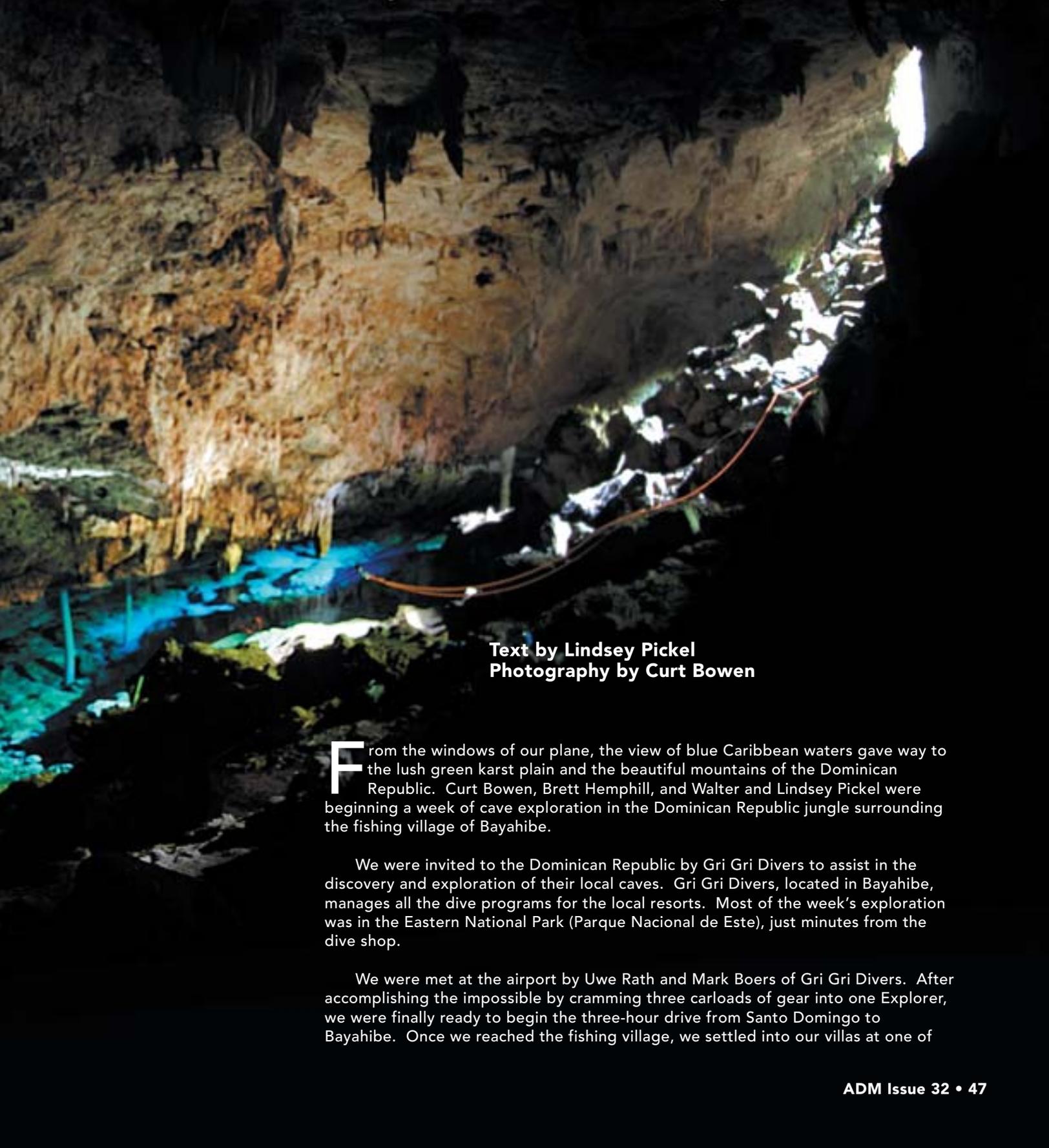
Photo by Becky Kagan

# NEW CAVE OLD SPECIES

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# — Dominican Republic Cave Exploration



**Text by Lindsey Pickel  
Photography by Curt Bowen**

**F**rom the windows of our plane, the view of blue Caribbean waters gave way to the lush green karst plain and the beautiful mountains of the Dominican Republic. Curt Bowen, Brett Hemphill, and Walter and Lindsey Pickel were beginning a week of cave exploration in the Dominican Republic jungle surrounding the fishing village of Bayahibe.

We were invited to the Dominican Republic by Gri Gri Divers to assist in the discovery and exploration of their local caves. Gri Gri Divers, located in Bayahibe, manages all the dive programs for the local resorts. Most of the week's exploration was in the Eastern National Park (Parque Nacional de Este), just minutes from the dive shop.

We were met at the airport by Uwe Rath and Mark Boers of Gri Gri Divers. After accomplishing the impossible by cramming three carloads of gear into one Explorer, we were finally ready to begin the three-hour drive from Santo Domingo to Bayahibe. Once we reached the fishing village, we settled into our villas at one of



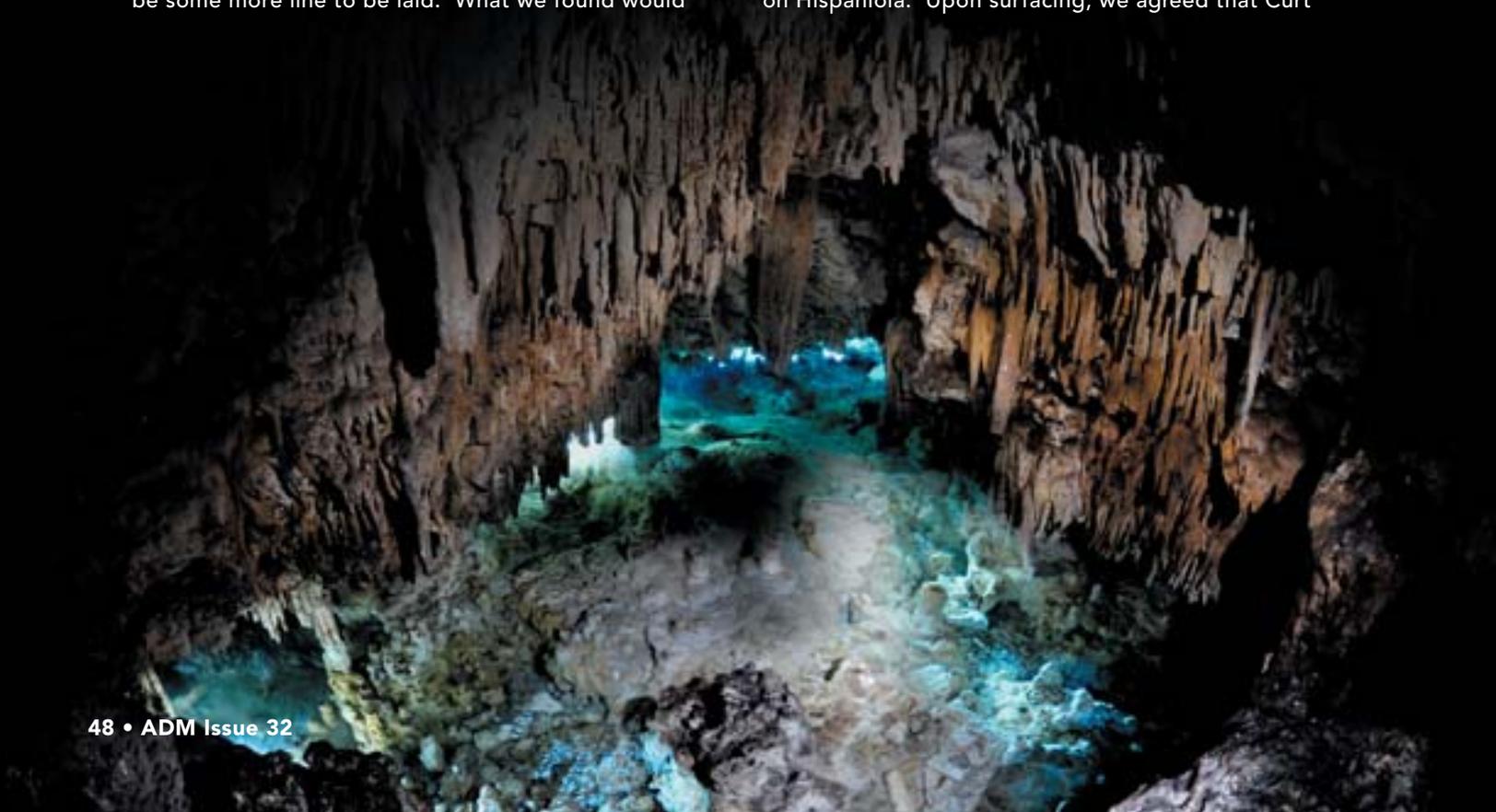
the local all-inclusive resorts, Dominicus Beach, and immediately headed to the beach bar for a Cuba Libre, the national drink.

Having no idea what Dominican caves had in store, we brought vertical gear, dry caving, and cave diving gear, all of which immediately proved very useful. Our exploration began with a cave we later learned was the "Voodoo Cave." Walter dropped in through a wasp's nest, followed a large banyan vine, but still no water; instead, he happened upon an elaborate voodoo altar, a room full of robes and recent sacrifices. Needless to say, we had never seen someone climb a rope with such enthusiasm; personally, I think he actually jumped out of the cave.

After hiking to a few more caves with no going cave passage apparent, we decided to try pushing the existing line in two caves well known to the locals. Since we were all diving side-mount, we felt that there might be some more line to be laid. What we found would

soon change all of our expectations of the Dominican Republic as a diving locale, and our role there as cave explorers. These caves have now become important scientific resources that need long-term protection, which is why we've been asked by the authorities not to reveal their names or locations for the time being.

Driving up to the first one, we quickly determined the cave entrance was once one of the water sources for the town of Bayahibe. We climbed down the crude concrete steps, over the set of large-bore water pipes, and into the cave. To our immediate satisfaction, we were greeted by pristine white ragged limestone and what looked to be going downstream passage. Unfortunately, each passage pinched off into a wall of impassable rubble. As Walter and I swam up a breakdown pile, we discovered a small brown skull lying amidst the crumbled limestone at the top of yet another impassable mound. We both admired it and guessed that this creature had existed long before man had stepped foot on Hispaniola. Upon surfacing, we agreed that Curt

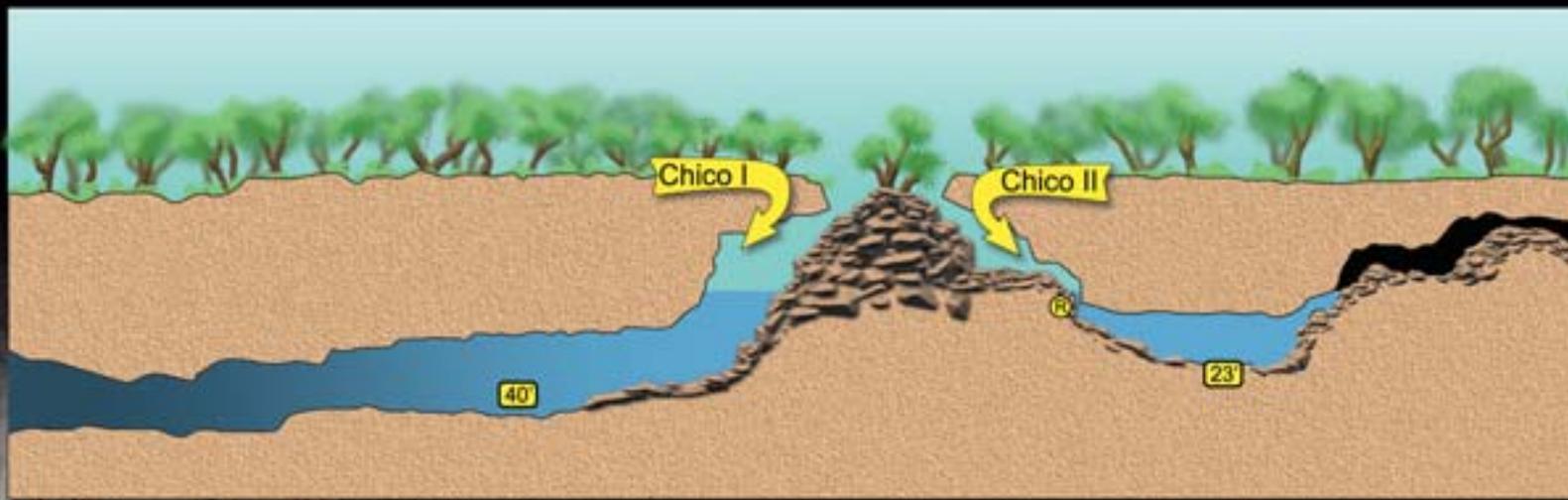


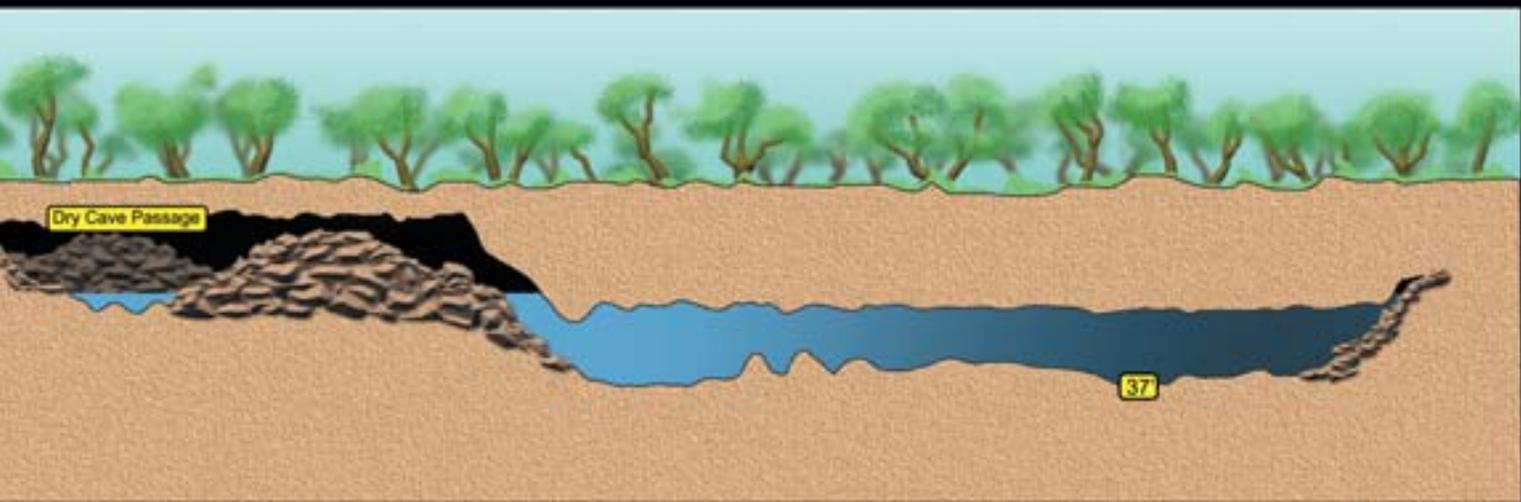


needed to come back with his camera to photograph not only the skull, but also the myriad of other strange bones we had found scattered throughout the cave system.

Exploration of the Chico and Padre Nuestro caves, which are sometimes used as training grounds for local cave divers, presented big beautifully decorated cave passage and clear blue water. Curt seized the opportunity and created some amazing photographs. However, these caves abruptly ended in terminal breakdown – something that we soon realized was all too common. As Walter and I were ending our dive in Chico, Brett emerged from the jungle grinning from ear to ear. He had found virgin cave beyond a sump, and what looked to be going passage in the terminal room of the dry cave. We all decided that the next day we would spend the entire day exploring this newly found cave.

The day started like every other with gear pick up at Gri Gri Divers, the daily search for the local “park ranger” who helped us get around in the National Park, and then the quick drive from Bayahibe. The rocky terrain and dense jungle meant we had to carry all gear the half mile to Brett’s newly named cave, Chico II. A newly





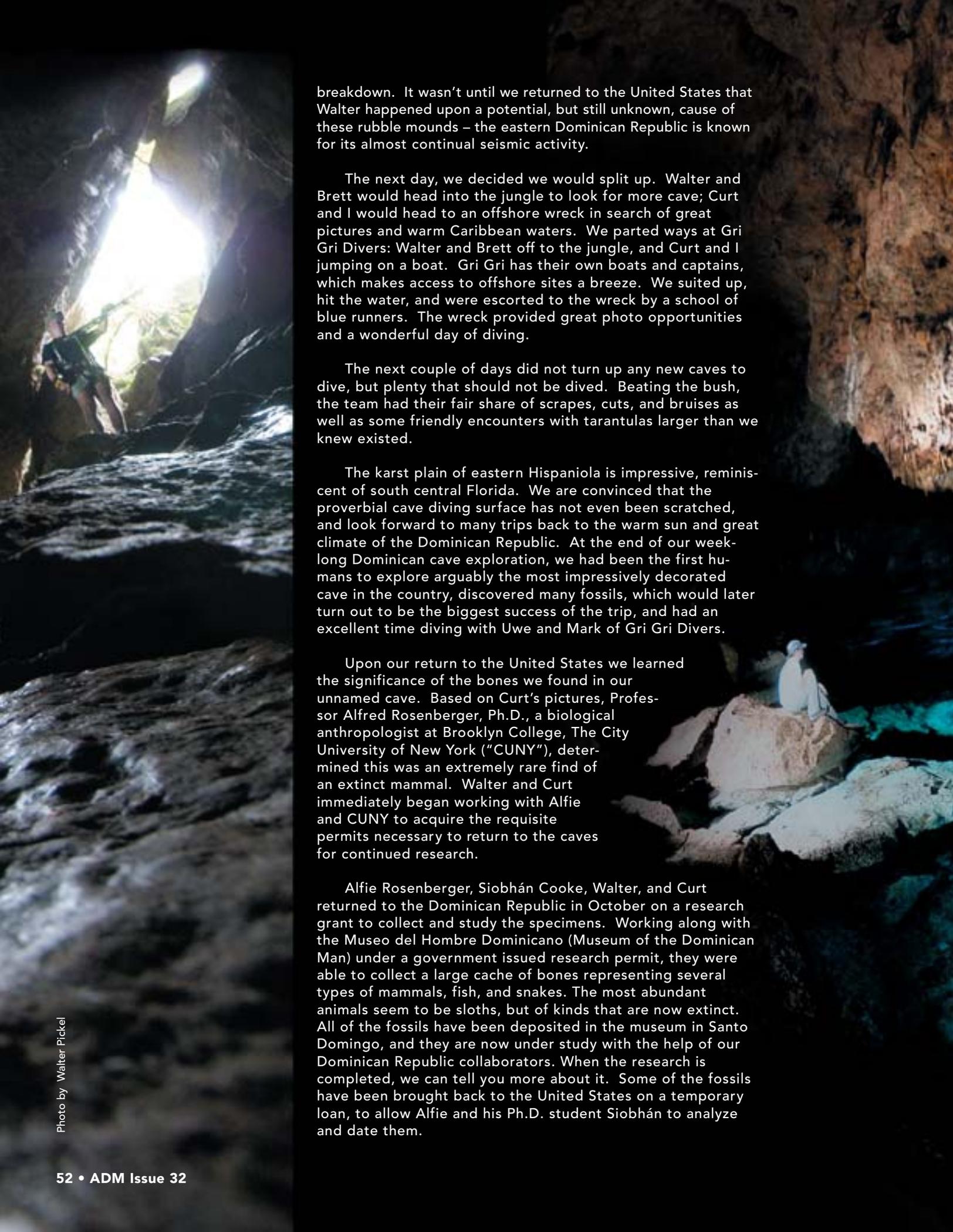
discovered cave meant no one was willing to wait topside, but it also meant carrying a tremendous amount of gear through the jungle as well as the quarter-mile long dry passage leading to the suspected going underwater passage. To help lighten our load, we decided Brett would do the diving exploration and the rest of us would take enough gas to swim the sump, a distance of approximately 500 feet, and then climb the cave's dry section.

Once at the cave entrance, we passed gear down the mud-caked rubble slope to the small pool at the bottom. We "power snorkeled" the sump in teams of two in order to maximize visibility. Like the other caves, we were met with bone-white limestone and perfect visibility, but that is where the similarities ended. Once we reached the cave's dry passage, we were amazed by the pristine dry formations that stretched as far as you could see. Thankfully, our lighter survived the sump swim in a dry bag, and now was indicating there was just enough oxygen to create a small but distinctly burning flame. Although there were no signs of bats or surface tree root penetration into the cave ceiling, we knew there was enough oxygen to sustain life, so we pressed on.

As we climbed and crawled our way through the dry section, we were continually amazed by the amount and size of the formations: bacon that stretched over forty feet in length, soda straws nearly five feet long, and cave pearls the size of quarters. This was a rare opportunity to see Mother Nature's incredible work as it was intended and without any human impact. We finally made it back to what seemed to be a small pool of water, until you put your mask on and looked under the ledge. This small pool of water then exploded into a cobalt blue power cave that continued well past our lights. We knew we had found our big cave and going passage. Brett hurriedly suited up; and, before we could wish him good luck, he was under the ledge and on his way with his reel spooling out line as he swam. The rest of us sat back to enjoy the cave decorations and gorgeous water as we waited for Brett's return. A mere three minutes had passed before we saw Brett's light, each of us thinking there is no way he has walled it out already. Brett surfaced and sheepishly disclosed the reason for his early return – in his haste to get in the cave, he had forgotten to put on his fins. Now with all gear accounted for, Brett swam back into the blue water.

After waiting for what felt like an eternity, we finally saw a glimpse of Brett's light. Upon surfacing, he described the cave: big trunk passage, gorgeous decoration, gin-clear water...ending in a massive breakdown pile stretching from floor to ceiling. Yet again, we are stopped in our tracks by the elusive, unknown





breakdown. It wasn't until we returned to the United States that Walter happened upon a potential, but still unknown, cause of these rubble mounds – the eastern Dominican Republic is known for its almost continual seismic activity.

The next day, we decided we would split up. Walter and Brett would head into the jungle to look for more cave; Curt and I would head to an offshore wreck in search of great pictures and warm Caribbean waters. We parted ways at Gri Gri Divers: Walter and Brett off to the jungle, and Curt and I jumping on a boat. Gri Gri has their own boats and captains, which makes access to offshore sites a breeze. We suited up, hit the water, and were escorted to the wreck by a school of blue runners. The wreck provided great photo opportunities and a wonderful day of diving.

The next couple of days did not turn up any new caves to dive, but plenty that should not be dived. Beating the bush, the team had their fair share of scrapes, cuts, and bruises as well as some friendly encounters with tarantulas larger than we knew existed.

The karst plain of eastern Hispaniola is impressive, reminiscent of south central Florida. We are convinced that the proverbial cave diving surface has not even been scratched, and look forward to many trips back to the warm sun and great climate of the Dominican Republic. At the end of our week-long Dominican cave exploration, we had been the first humans to explore arguably the most impressively decorated cave in the country, discovered many fossils, which would later turn out to be the biggest success of the trip, and had an excellent time diving with Uwe and Mark of Gri Gri Divers.

Upon our return to the United States we learned the significance of the bones we found in our unnamed cave. Based on Curt's pictures, Professor Alfred Rosenberger, Ph.D., a biological anthropologist at Brooklyn College, The City University of New York ("CUNY"), determined this was an extremely rare find of an extinct mammal. Walter and Curt immediately began working with Alfie and CUNY to acquire the requisite permits necessary to return to the caves for continued research.

Alfie Rosenberger, Siobhán Cooke, Walter, and Curt returned to the Dominican Republic in October on a research grant to collect and study the specimens. Working along with the Museo del Hombre Dominicano (Museum of the Dominican Man) under a government issued research permit, they were able to collect a large cache of bones representing several types of mammals, fish, and snakes. The most abundant animals seem to be sloths, but of kinds that are now extinct. All of the fossils have been deposited in the museum in Santo Domingo, and they are now under study with the help of our Dominican Republic collaborators. When the research is completed, we can tell you more about it. Some of the fossils have been brought back to the United States on a temporary loan, to allow Alfie and his Ph.D. student Siobhán to analyze and date them.



Now fully fledged members of a new paleontology research group, Walter and Curt also mapped the location of the fossil remains so we can try to understand how they came to be deposited there. One of the questions Alfie and Siobhán are trying to answer is whether or not these animals, now extinct in all of the Caribbean islands, existed during the times of the indigenous Taino people, or even during the time following the discovery of Hispaniola by Christopher Columbus in 1492. A lot of work will go into investigating what caused their extinction and when it happened.

The Museum of the Dominican Man was very impressed with the team's work and has agreed to allow us to return and focus on paleontological exploration. Fossil vertebrates are rare on the island, even though there has been a lot of archaeological work done emphasizing the prehistory of the Dominican Republic. With few fossils, it is hard for biologists to piece together how the island evolved as a natural habitat, which is what makes it such a beautiful place today. The team recovered skulls and skeletal parts of more than eight individual sloths, and there is more to be found. Walter and Curt may have taken part in opening up a completely new window into the past with the discovery that these important scientific specimens can be recovered in underwater caves. Excavating them from topside locations is not the only way to go!

The ADM Exploration Foundation plans to continue working with CUNY to assist the government of the Dominican Republic in finding new clues to what our new scientist friends call the island's paleobiology — old species.

Gri Gri Divers  
[grigri-divers.com](http://grigri-divers.com)

Museum of Dominican Man  
[www.museodelhombredominicano.org.do](http://www.museodelhombredominicano.org.do)

ADM Exploration Foundation  
[www.ADMFoundation.org](http://www.ADMFoundation.org)





# HARVEST REFUGIA

## NO-TAKE ZONES

by Joseph C Dovala

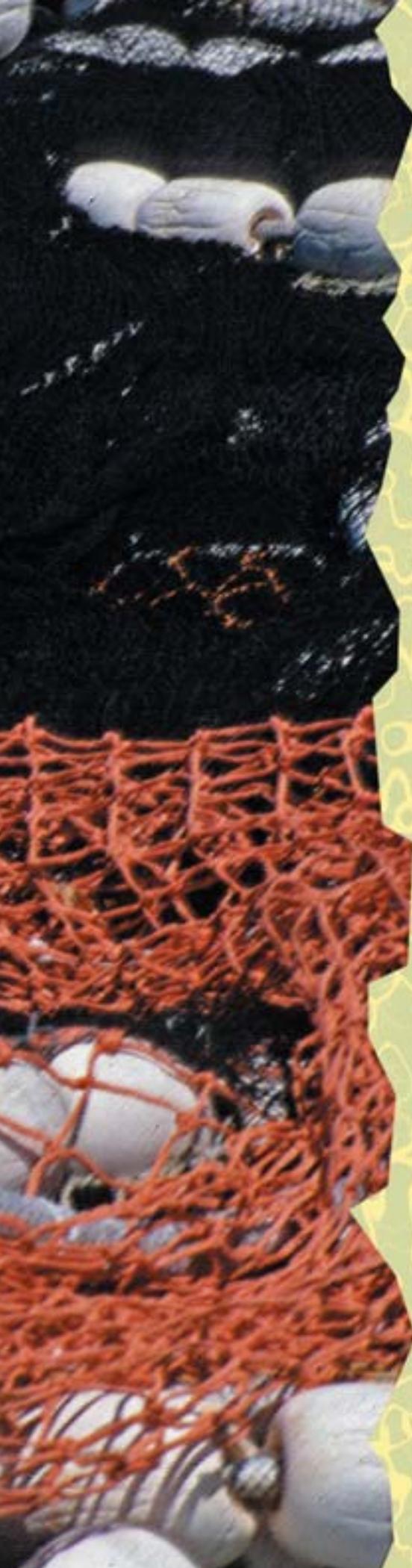
**T**he concept of Harvest Refugia originated with the ancient Greeks. They realized that if they hunted all the available animals in a province, there would soon be nothing left. In order to ensure a continuous food source, they would set aside a region where no game could be taken. This no-take zone would be left undisturbed so that the animals could breed and their offspring would “seed” the rest of the land. Hence the term “harvest refugia” — a parcel of land protected from all hunting so as to be a source of shelter and safety for game animals. The importance of these areas was very high to the Greeks, because the penalty for hunting in them was death!

It would seem that modern man has to re-learn this very simple doctrine. Although we don't hunt on land anymore to feed our populations (imagine how ridiculous that would be), we still hunt the ocean like ancient man did with spears, hooks, and nets. Only now we use

space age technology with devastating efficiency to help find the roaming undersea populations. As of the late 1980's, the steady rise in marine catch since WW II has stabilized, and is now showing signs of dropping, despite more capable methods and larger ships. Each year, over the last few years, some 90,000,000 metric tons of seafood were removed from the world's ocean. This does not include sport fishing or the incredible amount of by-catch that is simply thrown back into the water. In addition to the enormous fishing pressures, the denizens of the seas are subjected to large amounts of pollutants as well as the whims of nature herself. Temperature fluctuations such as El Nino, storms, volcanic eruptions, and disease, to name a few, all contribute to the not-so-easy life of sea critters.

As we enter the second millenium, the evidence mounts as to the foolishness of thinking the sea can withstand any amount of extractive activities and not





suffer for it. For many years, cod fishing was the premier catch within the waters of the Georges and Grand Banks in the Atlantic; but by 1994, the industry had collapsed to the point where both the U.S. and Canadian governments closed these waters. As a result of this closure, Atlantic cod and haddock are just now beginning to make a comeback. Scallops within these areas have increased as well; but despite this good news, much of the ecology of these regions has been permanently altered, giving rise to an uncertain future.

A much more devastating and quicker example of irresponsible fishing practices occurred off New Zealand in the early 1980's. The orange roughy had only recently been discovered as a premium food fish; yet by the late 1980's, the population had collapsed to the point where governmental officials had to step in. Due to the extremely long growth rates before reaching sexual maturity (25 – 30 years), this destroyed fishery can never recover.

Closer to my home is the site of the Southern California abalone debacle. In 1994, less than five thousand pounds of this mollusk were taken in San Diego County. The bulk of this amount was pink abalones — black and white represented zero. As of March 1, 1996, pink, green, and white are all off limits for commercial and sport hunting from Yankee Point (Monterey County) south to the Mexican border. Assuming you could find one, the black abalone is not allowed to be taken anywhere in California. Peter Haaker, an Associate Marine Biologist with CDFG, who has been studying the current abalone crisis, spelled it out quite clearly: "In Southern California, this resource is completely depleted and needs a rest." Unfortunately, due to the slow growth of this mollusk that rest will take a very long time... if ever. The discovery of an "ab" on a dive charter boat is cause for nearly as much post-dive banter as sighting a shark. Unfortunately, there were plenty of warning signs about the declining populations of abs in the 1970's, but because of their commercial value they were ignored — now there are none. With the simultaneous attack of "withering foot" disease, the chances for an abalone come back are nil.

Despite many examples of dilapidated or destroyed fishing grounds, there is always very heavy resistance when there are attempts to establish protected regions for sea life to grow and reproduce without being harassed. One such place where heated debates are occurring is at the Channel Islands Marine Sanctuary, a group of five islands located off the coast of Southern California. Although a "marine sanctuary" for over twenty years, full commercial and sport fishing has been allowed with only a very small area off of Anacapa Island designated as a no-take zone. Tens of thousands of tons of marine life have been removed from these waters since becoming a "sanctuary."

In 1999, California passed a law called the Marine Life Protection Act. This ostensibly creates a mechanism by which additional fully protected zones could be established around the heavily pressured California Channel Islands. Since that time, this effort has been under constant attack by fishing interests. Some of the most publicized concerns are the rapidly collapsing ground fish populations.

These species are typically bottom dwellers that do not roam the open seas. While most of their habits are relatively unknown, setting aside adequate no-take zones could give them a chance to recover. Much of the counter argument revolves around the fact that there is so little "good science" on which to base recommended area closures. It is precisely because of this that we SHOULD set aside large tracts prohibiting extractive activities. By the time the "science" is completed, there

may not be enough fish left for them to recover. The disaster of the aforementioned orange roughy and abalone fishery speak volumes as to the folly of this weak argument.

No-take reserves do work. A fully protected area of only five square kilometers off North Island in New Zealand was created in the 1970's. Snapper populations increased by forty-fold over adjacent areas. These fish are now able to mature with many possible reproductive cycles to increase their species. Current research has shown that reserves with no-extraction policies begin to show an improvement in two to four years. Population densities average 90% higher, biomass 190% higher, average animal size 30% bigger, and 20% more species diversity than when the areas were unprotected.

As divers, we can see firsthand the difference a safe haven can make to the numbers and quality of marine life. Areas like the La Jolla Cove reserve in San Diego, California, Casino Point Park on Catalina Island, and John Pennekamp Park (designated no-fishing zones) in Florida are all examples of how a protected area can give Mother Nature a helping hand. These are very popular dive destinations because – now hold onto your hats – there is something to see! The larger fish do not race away at the first sight of a diver; and there is, at least partially, a more ecologically balanced co-existence between the animals and plants ensuring a healthier region within its borders. The old adage, "There are plenty of fish in the sea" just doesn't hold water anymore. It is simple: we need to make a tough choice today so that we will have choices tomorrow.



## Is This Our Dive Future?

## BY-CATCH...

The world's fishing navy has thousands upon thousands of vessels at war with sea life. Some of the factory ships are so large they can deploy over 75 miles of submerged longlines and trawl nets large enough to swallow a military warship. Huge bottom trawlers are capable of dragging enormous weighted nets that bulldoze the sea floor with all the efficiency of earthmovers. As the technology has improved, dragging the bottom can be accomplished at depths of over 3000 feet and as far away as remote oceanic seamounts surrounding Antarctica. As you might imagine, the wake of destruction matches the size of these "fishing" tools. The amount of sea life dredged up, hooked, or crushed on the bottom is staggering. The average by-catch, or "accidental" take, of unwanted marine life with shrimp trawling for example, is on the order of six to one. In other words, six pounds of undersea life dies for every pound of shrimp taken. The endless miles of longlines and drift nets take scores (read millions) of turtles, dolphins, birds, sharks, and large whales in addition to the tuna or swordfish that are sought after.

An interesting fact about this fleet is the economics involved. The entire take of fish is worth some 70 billion dollars, yet the cost to run the fleet is on the order of 125 billion dollars. The enormous discrepancy is made up with subsidies, grants, tax benefits, and price controls. As the industrial fishing fleet expands, more and more boats are going after fewer and fewer fish. The economic gap is widening, and even the United Nations acknowledges the recklessness of doing business as usual. In many cases, fishing crews are forced to go after less desirable species in order to pay the bills.

A particularly devastating new practice is called "biomass fishing." In order to feed the expanding shrimp aquaculture business (due to the collapsing wild populations), shrimp farming needs large quantities of feed. Biomass fishing uses very fine mesh nets to catch every animal in its path – from juveniles to adult, nothing is left behind. So far, we have taken only a brief look at the extractive effects of this onslaught, but there are far more problems created than simple removal.

The sea floor is not a barren desert. Very complex communities of benthic (bottom dwellers) organisms make up an important ecological niche. As thousands of trawls bulldoze thousands of square miles of seabed, these delicate populations of bottom dwellers and their environment are destroyed. This is the same environment where many larval and small fry of commercial species begin their life histories. Tons of sediment are thrown into the water column and affect everything from smothering of survivors to reducing photosynthesis throughout the area. We also know very little about the extremely complex inter-relationships that many marine critters have to each other. The ecology of the Georges Bank has been permanently altered due to devastating the cod and haddock populations. The long-term stability of this region is uncertain. However, one thing is certain: the out-of-sight, out-of-mind philosophy that has guided global fishing policies for centuries must be replaced with a more progressive and sustainable plan.

Some additional information:

Natural Resources Defense Council  
[www.nrdc.org](http://www.nrdc.org)

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# RICKS SPRING

## UTAH CAVE EXPLORATION

Article by Joshua Thornton

Utah is usually known for great skiing and green Jell-O. Utah actually has a large population of divers — and a small group of whose passion lies in cave diving. For a small group of tight-knit Utah cave divers, Ricks Spring is a dream come true.

Ever since I was certified at the age of twelve, I have dreamed of diving in a cave. In 2004, after years of dreaming and reading books like *The Cave Divers*, I was finally able to travel to Cave Country in Florida with my father, Randy Thornton, and younger brother, Michael Thornton, to do our zero-to-hero cave course with Joe Odom.

As fascinating as this was, I had a burning desire to explore a cave where no one had ever been before. I wanted to feel the rush of satisfaction and exhilaration that comes with laying line in a virgin passageway. My father, brother, and I began scouring Utah for an underwater cave.

I received letters and emails telling me about “Ichiban” cave in Logan Canyon in northern Utah. Wendell Nope and Richard Lamb had found a diveable cave! I found out that Ichiban cave was actually Ricks Spring — a mere two hours from my home in Utah. A little research indicated that Ricks Spring was not actually a spring, but an under-



Photo by Michael Thornton

ground diversion of the Logan River. A key contact from the USFS has evidence to suggest that another source of water for Ricks Spring is a high mountain lake, Tony Grove.

In March 2007, Wendell and Richard made it in through the very tight entrance of Ricks Spring for the first time. Ricks is definitely side-mount access only. There are some very large passages, but also some restrictions that won't allow for back-mount access. As a high flow, high altitude cave, Ricks is a challenge in many ways. It is only diveable during certain months of the year due to excessive flow. Most would agree that the biggest challenge is the 40-42 F water. These conditions appeal only to the most dedicated cave divers.

The entrance and first passageway run along a fault. Once inside about 150 feet, the passageway heads down the "Honey Hole," a vertical shaft from a depth of 30 to 70 feet. At the 250-foot penetration mark, the cave formation changes into a more tube, solution-like cave called the "Slippery Slide Tunnel" — there is nothing to pull and glide on when the flow is raging. At about 500 feet, the formations revert to the fault type, similar to the beginning of the cave. At 750 feet, a large slab known as "Tibby's Table" is jammed at an angle in the main passageway; then the first of a series of three small air spaces appears, each one larger than the last. Leaving the third airspace, the cave takes a tight right turn around "Jim Wyatt's Elbow." At this point, any Florida good ol' boy would feel at home. The cave opens up, and silt covers the floor for the first time since the entrance. Within 200 feet, the passageway leads into a 300-foot dry section. "Wayne's Waterfall" is a beautiful set of steps with water flowing down them. A short climb and a little walking leads to the "Moon Pool," and the next water-filled section of cave.

#### **October 10<sup>th</sup> 2008**

Richard brought my gear up so I could FINALLY get in this cave! I have been waiting for almost two years to do this dive. Having a diveable cave within a couple of hours of home is absolutely fantastic! What an adventure! I have to admit that this could have been my most exciting cave dive yet. We made it to the dry cave (1300 feet) and spent about an hour back in there and made it to the next wet section (1300 feet + 300 feet dry). I am the 3<sup>rd</sup> person in the WORLD to ever see it! Crazy, eh? (This is why it was subsequently named the "Moon Pool," because more people had been on the moon than had seen this place on earth.)

#### **October 25<sup>th</sup> 2008**

Wow. I offered to haul Richard's tanks through the dry cave. What a pay off. We were scared the next passageway would be short and just open into another dry section, but no. It takes a corner and opens up into a large passageway and keeps heading down. We laid another 300 feet or so of line. We tied off right at a point where there is a tiny restriction that leads into a vertical crack, but I was about seven feet above Richard and noticed a larger opening into the crack that would be pretty easy.

#### **November 6<sup>th</sup> 2008**

I was able to lay line in a virgin passageway! This for sure checks off one of my life-long goals! This easily counts as the most exciting cave dive in my life (seems to be a repeating theme in Ricks). Although there were a few times I was a little scared, most of all it was liberating. I found out it is MUCH easier to get up Wayne's Waterfall with my bottles still clipped on, rather than trying to carry them. We made it to the last tie off point, and went up through the hole I noticed last time. Laid another 200 feet of line. It opens up into a huge

Photo by Randy Thornton



vertical crack ("The Crack"). We headed for the bottom; then, after about 60 feet, we had to come back up a little. Tied off at about 40 FSW, and there is no end in sight. I think the difficult part will be finding the best route through this big crack.

#### **November 11<sup>th</sup> 2008**

Not a bad dive...until I turned around. My second exploration cave dive. Made it another 100-150 feet past where I tied off last time. I came to the end of The Crack, and the only way to go was up from where I tied off. I need a mega cave-fill or staged bottles to make it much further while laying line. Before I went on, I explored the passage to the right that Richard saw. It dead-ends in about 25 feet. Right when I got back to the Moon Pool, my primary light ran out.

#### **September 5<sup>th</sup> 2009**

Almost a year after my dives in this system last fall, I was finally able to see the end of the line and actually lay some new line!

Richard and Tom went in first. They waited in the dry section so they could get some video of us coming around and up into this beautiful section of the cave. Michael, Matt, and I went in as a team about 20 minutes behind Richard and Tom.

After navigating Wayne's Waterfall, Michael and I started in on the first dive past the Moon Pool since Oct. 10th of 2008. We were pleasantly surprised to find my thin exploration line was in great condition after a year under water in a high flow cave system. We only had to repair a section of about 30 feet.

I had almost forgotten the beauty of this second part of the cave — swimming through The Crack, and along the bottom that is covered with large rounded stones (recently named "Michael's Stones"). As we came up on the end of the line (2000-2200 foot penetration), Michael was eager to lay line in a virgin passageway.

Michael took the lead and laid out another 200-300 feet of line. At this point, we were headed up The Crack. Michael soon called the dive as we were engulfed in a cloud of silt. Visibility quickly went from 100 feet to 1 inch. Because of the lack of tie off points, we reeled in 150 feet of our new line and left the reel at our last tie off point. Cold and tired, we made it back to the Moon Pool to talk to Tom and Matt who were to go in after us. They were to go to the reel we had left, and continue laying new line. Shortly into their dive, Tom's primary light failed, so they had to call the dive.

#### **September 22<sup>nd</sup> 2009**

Matt, Amy, and I ran up to Ricks for a quick dive. Amy volunteered to clear rocks from the entrance for an hour while Matt and I went on what was to be a leisurely dive. The dive was full of the usual excitement in being in a barely-known cave, and the awe of the 100+ ft of viz.

Getting to the first dry section (1300 ft), we still had plenty of gas. Decided to climb Wayne's Waterfall and haul our cylinders to the Moon Pool (1600 ft), and see if we couldn't make it to the end of the line. We picked up the reel that Michael and I left a few weeks ago, and started looking. Matt swam with the reel in the direction I thought was the way to go, only to hit a dead end. At that moment we both looked up and saw air above us. I think it is safe to say that we both thought this was most likely another small air space as seen in previous areas of the cave. Seconds later, I notice water running into the space right above us. I knew this had to be another dry section similar to the first, which was roughly 750 feet behind us. I signaled Matt, and we headed towards it. As we popped our heads up, I can't explain the feeling that rushes through not only your mind, but also your whole body as you lay your eyes on



Photo by Josh Thornton

such a beautiful cave — that no one had ever seen before. Not missing a beat, Matt and I ripped off our fins and started up the rocks.

I came around the corner to find Matt awestruck, looking up and to the left. “Now THAT’S a waterfall!” he said. That moment might very well qualify as the most exciting moment in my diving life. A stunning 20-foot over-hanging waterfall spilled into a 10-foot pool of crystal clear water. We were like two boys in a candy shop! Matt named the waterfall “Vestal Falls,” very fitting since the word “vestal” means pure or virgin.

After exploring the second dry section, we now have two different ways to go. The first would be up the Vestal Falls — we shined our lights up into a large room where the water enters the dry section. The second will be another source of water with an entrance similar to the original entrance to Ricks. We poked our heads back about 50 feet into this passageway, and it looks promising. Although we only added another 30-50 feet of line from where Michael and I explored last time, this dive was a huge success. The visibility was a decent 10-15 feet on the way out.

#### October 6<sup>th</sup> 2009

I feel like I am always learning new skills while exploring Risks – like underground waterfall climbing. We decided to lay some line starting from the “Smash Pool” (the little pool, just past Vestal Falls that we think is the way to go). Matt led the way while I attempted to take some photos.

Matt hit a restriction that he could not fit through with his 98s, and let me squeeze through with my 85s. I made it another 8-10 feet and hit a no-mount restriction. Although we both had plenty of gas, we didn’t feel up to it, so we turned.

On our way out, Matt and I stopped to look at Vestal Falls for a few minutes. I said, “I bet we could

almost climb that!” Matt quickly responded, “You wanna try?” Of course, I did. I scampered up the falls (scampered is most definitely the wrong word, it was pretty intense and quite difficult). Within seconds, I signaled for Matt to follow me up.

Matt “scampered” up, and we spent a good 30 minutes exploring what turned out to be another 200- to 300-foot dry section filled with beautiful cave formations and another step waterfall similar to Wayne’s Waterfall, but a scaled down version. We have decided to name this upper dry section (above Vestal Falls) “The Elysium.”

At the end of The Elysium, the water flows heavily out of a pile of boulders and breakdown. Is there a passageway of any size behind them? Perhaps if the no-mount section past the Smash Pool turns out to be too small, we may have to find out....

Last year the CDS donated some gold line to be installed. Past the Moon Pool there is only exploration line in place for now, but the team is hoping to install more gold line soon. Run-times for exploration dives are now in the two- to three-hour range, so you can imagine how cold the divers are when exiting the cave. Luckily, we have many great team players that are willing to help in supporting roles.

The Ricks exploration team consists of Wendell Nope, Richard Lamb, Tom Lamb, Matt Mimnaugh, Tibby Petrescue, Mike Robinson, Amy Smith, Josh Thornton, Michael Thornton, and Randy Thornton. We still have a lot of work to do, and we are not planning on slowing down any time soon!

Recently married, Josh Thornton and his wife, Ashlee, reside in Draper, UT. A TDI Instructor Trainer and CCR Instructor, he travels the world diving and conducting courses. He is still trying to convince his wife to be certified.



Left to right:  
Matt Mimnaugh,  
Michael Thornton, and  
Josh Thornton – the  
only 3 divers (at time  
of publication) to  
explore “The Crack.”

Photo by Randy Thornton

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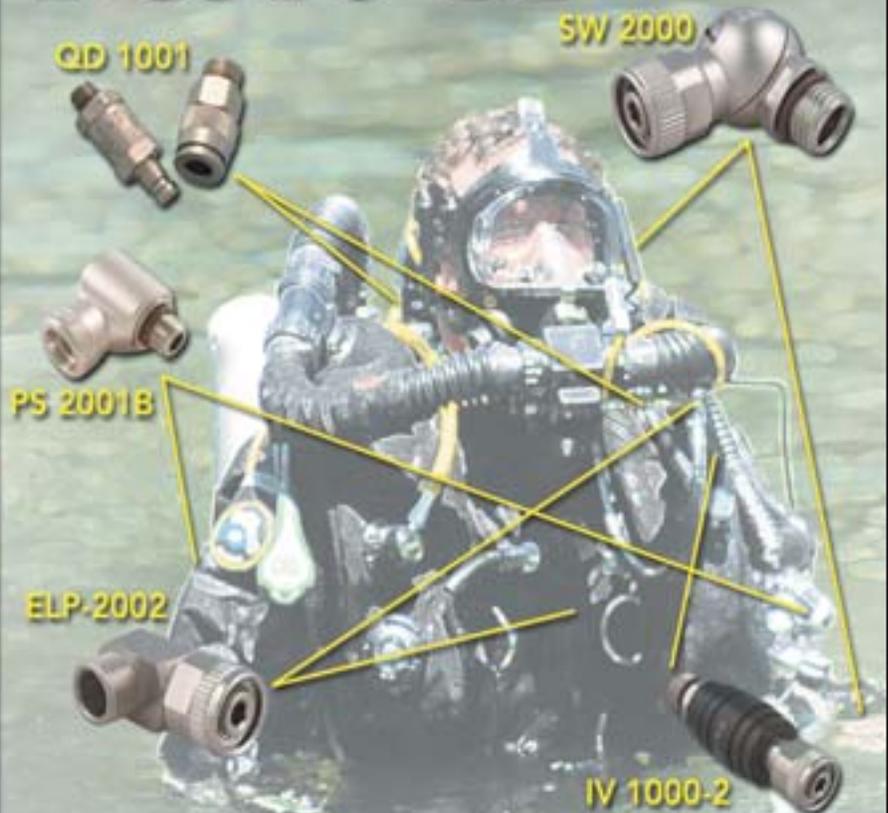
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# SWIVEL





A full-page background photograph of a scuba diver in a blue tank and mask, holding a bright flashlight that illuminates a dark, rocky underwater structure. Another diver is visible in the distance. The water is clear and blue.

**Article by Mel Clark and Curt Bowen  
Photography by Joseph Dovala and Mel Clark**

**W**reckfest is an opportunity each year for recreational and technical divers alike to get together in a laid-back tropical environment to enjoy some of the best wrecks in the Florida Keys. Chris at Silent World hosts this event each year. It is also an opportunity for divers to mingle with some of the technical industries key figures. The event is not just about the diving; each night seminars are presented on topics varying from the exploration of virgin shipwrecks to well-known wrecks. Chris is working hard at setting up a technical and rebreather friendly dive destination in the Keys. His shop currently supports technical and rebreather diving with gases and rental gear, including rebreather cylinders. His two 30-foot Island Hopper custom dive boats are decked out for tech diving, and are crewed by technically certified divers who understand not only recreation divers' needs but also the needs of technical divers. Aside from the usual wreck dives like the Spiegel Grove and the Benwood, we were able to dive some of the less visited deep wrecks such as the Northern Light, Doc DeMilly, and Queen of Nassau.

Photo by Joseph Dovala



Photo by Mel Clark

**Photo: Erik Foreman poses by the bow windlass on the Northern Light. This section of the ship is home to hundreds of fish and a few sharks.**

### **The Light by Mel Clark**

The Northern Light was lost on November 8<sup>th</sup>, 1930, close to Elbow Reef in the Florida Keys. According to the testimony of the sole survivor of the crew of six, the ship went down almost immediately. This shipwreck was to remain untouched for nearly sixty years until her first visit by divers in 1989. The main challenges to be faced were the strong currents from the Gulf Stream and her depth at over 185 fsw.

The Northern Light has a very interesting history, which undoubtedly contributed to her eventual demise. She was built in 1888 as a steamship with a three-cylinder triple expansion engine for the Great Lakes trade industry. Eventually, the Northern Light was sold for ocean work. Due to her large size (300-foot length and more than 40-foot beam), the Northern Light had to be cut into two pieces to get through the Saint Lawrence locks, and then re-riveted. Later on, her new owner tried to scuttle the ship by burning her. Although she was extensively damaged, the Northern Light survived the fire and was converted into an ocean-going barge.

With the Northern Light's history in mind, it is surmised that the ship may have had a catastrophic failure of her midship rivets, which were weakened by the fire, and then a November storm broke it apart. Another theory is that she hit a large submerged object and sank. The current evidence found at the shipwreck site can support either theory. Most interesting for divers is her orientation in the water. The ship looks as though someone twisted her 180 degrees and folded her in half. The stern section lies upside down and on top of the midsection, which is upright on the bottom. This would agree with the theory of the rivets failing. Perhaps she hit something, took on water, and the weakened rivets failed. This would explain her quick sinking. Regardless of why she sank, this wreck is a must-do site in the Keys.

Captain AJ, Chris Brown, Eric Foreman, and I arrived at the Northern Light after an unusually smooth ride. I have tried to dive this wreck three times now, and today will be my first attempt where I actually get in the water. The first few attempts were plagued by rough seas and strong currents. Today it is almost eerily calm. AJ sets the hook with the first attempt. The current looks as

though it will be manageable, so we all suit up and get ready to take the plunge to almost 190 fsw. The boat crew is very helpful, as usual, slinging all our bailout bottles and helping us with our scooters. I like to think I can learn from my mistakes, so this time I brought my Dive-X scooter to prevent another RBJ fiasco. What I discovered the hard way on the RBJ dive is: high current and working hard on a CCR can lead to hypercapnia and a very unpleasant dive. With these deeper dives, the scooter also helps the OC diver save gas. I now have added the scooter to my deep diving required equipment list not just for the fun of it, but also for the increased safety.

As I approach the bottom, the shadow of the wreck becomes visible at about 100 fsw. We have dropped the hook directly on the most remarkable feature of the Northern Light, the upside down stern on top of the midship section. The rudder points towards the surface and is in only 150 fsw. The whole wreck is draped in fishing lines, nets, and anchor remnants. Our hook has managed to wrap itself around another anchor line right by the rudder. After Chris and AJ make sure our lifeline to the surface is secure, we all scooter towards the midship which is now the end of the wreck.

The midsection of the ship where the stern has broken free has a very defined sharp edge, supporting the theory that the rivets failed. The port side of the midsection is almost flush with the bottom. The starboard side is raised enough off the bottom for the diver to penetrate. If you choose to penetrate here, proceed with extreme caution.

The ship is slowly collapsing in on itself under the stern section's weight, and due to her age. A more immediate precaution would be the fact that this "den" is home to bull sharks who don't mind a little fast food delivery service. I felt as if we were viewed as tasty "hors d'oeuvres" wrapped in zip-lock bags for freshness. Erik must have had this same thought, since he looked at me as though I were mad when I asked him to get closer to the shark for a shot. He immediately made a hasty retreat out of the sharks' lair and perhaps out of the food chain. After this bit of excitement, we decided to complete an external survey of the wreck. I was told later that it is not uncommon for 15 to 20 bull sharks to be seen on a dive.

We scooted up a valley-like feature where the midsection's starboard side was still erect, and the stern was lying on top and a bit off to the port side. I dropped into this valley and took an upwards shot of the whole stern section with a blue water backdrop. From this perspective, you can see a possible entry point to penetrate the upside-down stern section. If you dare enter the stern section, use extreme caution as there are massive amounts of silt as well as entanglement hazards that await one careless move.

The bow of the NL is sitting somewhat proudly upright on the bottom in about 185 fsw. There is a large windlass that is encrusted in soft and hard coral. Erik, of course, could not resist posing for a picture here. Over the top of the bow you can see one of her anchors covered with nets, and line still dangling from the starboard side.

Photo by Mel Clark



Photo: Erik Foreman and Chris Brown finish up their decompression after a very successful Northern Light dive.

The Northern Light is a spectacular wreck encrusted with life and teeming with schools of fish. She is well known for her shark sightings, especially the bull shark. All of these features make this a wreck to add to the "got-to-dive-it" list. The visibility is often over 100 feet, this is likely due to her being closer to the Gulf Stream. On the down side, the Gulf Stream can often foil the best dive plans with extreme current, and as such this is a fairly extreme dive.

### **The Queen by Curt Bowen**

Strong currents and daily flushing of out-going tides from large island passes engulf the Queen of Nassau wreck. Her location places this wreck in a continuously changing and, many times, very challenging environment. This day was to be no exception — the Gulf Stream was ripping below our vessel as we tossed the hook. Jerking tight as the hook grabbed into the wreckage 230 feet below, the large red float balls were pulled partially underwater, creating their own wake in the passing current.

The captain sat for a few minutes, evaluating the conditions of the current and waves. Divers ready in full technical diving equipment patiently waited. Sweat dripping from their foreheads, they leaned close eagerly anticipating the captain's call for dive, dive, dive!

The captain spoke up and said that he was concerned that the current might be too strong. He suggested that maybe we should drop one diver to see whether the conditions receded a little at depth. As I was the only diver on the boat who had ever been on this wreck previously, plus the fact I was sweating my ass off in the beating Florida sun, I quickly volunteered. The captain maneuvered the boat about 100 feet up current of the floats.

Making my way to the stern of the dive vessel, with just the right touch of savoir faire, I stated: "If I do not return in 10 minutes, the current is OK, and I'll be on the wreck." And I dropped into the cool blue waters.

Time is of the essence when the Gulf Stream grabs your ass. You must descend as quickly as possible and never, ever miss the rapidly approaching down line. Swimming head down as fast as possible, my ADV (auto diluent valve) pumped gas into my KISS rebreather with every inhalation. At a depth of 100 feet, my outreaching hand snagged the shivering down line as the current yanked me like a flag in strong winds. As an experienced caver and climber, I have adapted a few rope climbing techniques for use underwater. Pulling myself head down, I lay on top of the line and wrapped my legs tight around the rope, grabbing it with my right fin heel. The current sandwiched me tight to the line, and I started to slowly frog my way towards the wreckage. Pushing your BOV (bailout valve) against the rope as you slide downwards will help prevent the current from ripping it from your mouth.

**Photo: A diver hovers over the turtled stern section of the Northern Lights wreck.**

Photo by Joseph Dovala



Photo: Erik Foreman, Chris Brown, and AJ pose for a victory shot after a great dive on the Northern light.

Photo by Mel Clark

As I reached 200 feet, the current quickly slacked as I entered a cold-water thermo cline. As is normal on the Queen, this cold-water layer held heavy silt particles and dropped the visibility to less than 25 feet. Reaching the top of the wreckage, I took a few minutes to catch my breath and adjust my rebreather oxygen levels to the desired percentages.

Because of the continuous flow of nutrients, every inch of the wreckage is covered with some type of life — oysters, crabs, sponges, and smaller fish. Like all other deeper wrecks in the Keys, the Queen is engulfed in nets, miles of monofilament, and the ever-dangling fishing lure. Large, toothy dusky sharks darted in and out of view as several 500-pound jewfish scurried from my presence.

The Association of Underwater Explorers identified the steamer as the Queen of Nassau, formerly the gunboat C.G.S. Canada. The Queen of Nassau sank on July 2, 1926, while en route from Miami to Tampa. At the time, she was owned by Barron Gift Collier, Sr., a prominent Florida businessman, who was largely responsible for the development of Southwest Florida.

Built in England in 1904, the Canada became the flagship of the Canadian Fisheries Protection Service. She was 200 feet long and 25 feet wide, a miniature version of a naval cruiser. Stationed at Halifax, Nova Scotia, the primary responsibility of the C.G.S. Canada was the protection of Canadian fishing interests in the northwest Atlantic, though she conducted numerous other maritime duties. In 1911, she became the primary training ship for the newly established Royal Canadian Navy (R.C.N.). Many of the new officers trained on the Canada would go on to lead the R.C.N. in years to come. Eventually commissioned into the R.C.N. in 1914, she served as a patrol vessel throughout World War I. Decommissioned in 1919, she returned to the Fisheries Protection Service until her subsequent sale in 1924.

The wreckage sits upright on a sandy ocean floor with her bow normally crossing the currents. All the wooden decks and walls have been stripped clean, leaving only a metal frame of the once proud vessel. Off the starboard side, a set of five-foot diameter props is located about 50 feet from the wreckage. They appear to have dropped off the decking during the ship's sinking.

A bottom time of 30 minutes quickly passed, and I found myself backing fins first up the down line (a reverse frog climb). Not seeing any other rebreather divers on the wreckage, I left the hook in place while wondering to myself whether any of the other divers made it to the wreckage.

Ninety minutes of current-ripping decompression was relieved only by the interesting diversion of fending off two large pesky remoras who obviously thought I needed someone to pick parasites off me. Having assured them repeatedly of my preferences regarding personal hygiene, I finally returned to the surface.

The boat quickly picked me up, and I encountered a boat full of not-so-happy sun-burnt, seasick divers wondering by what feats of magic I had managed to make it to the wreck in that blasting current. I really felt bad that they spent two hours bobbing around in the Gulf Stream.

Back at the boat dock, one of the rebreather divers asked me when I would be giving up my KISS Classic for a real rebreather. Laughing out loud, I quickly said, "When hell freezes over!" And then I reminded them that the KISS Classic was the only rebreather that made it to the wreck that day!

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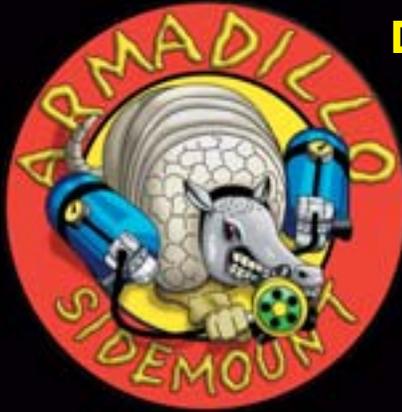


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# B-24 LIBERATOR THE "DRIP"

**Text and photography by Vic Verlinden**

**O**n November 5, 1943, the crew of the B-24 Liberator heavy bomber "The Drip" were briefed: the 579<sup>th</sup> Bomber Squadron was to leave Wendling in the heart of Norfolk, England, to fly to the German city of Munster. Their mission was to bomb the weapon factories in and around that city.

It was 2 p.m., and the crew still had time to eat something before the truck ride out to the aircraft. The mood of the men was good. Some of them were already thinking about the 48-hour holiday pass to London that would be granted once they had completed the mission. Spirits were high as they planned how they would spend their time. When navigator George Winzenburg fell out of the truck and landed quite roughly on the tarmac, the mood soared even more as his friends and fellow crew members laughed good-naturedly at his mishap.

At 9:00 p.m., the pilot, Wallace D'Aoust, had completed his checklist with his co-pilot, and the engines were running smoothly. "The Drip" edged up the line ready to take off. D'Aoust pushed all four throttles up to full, the nose picked up, and the plane began a steady climb. The four powerful Pratt & Whitney engines made a monotonous sound during the long flight to the hostile area.

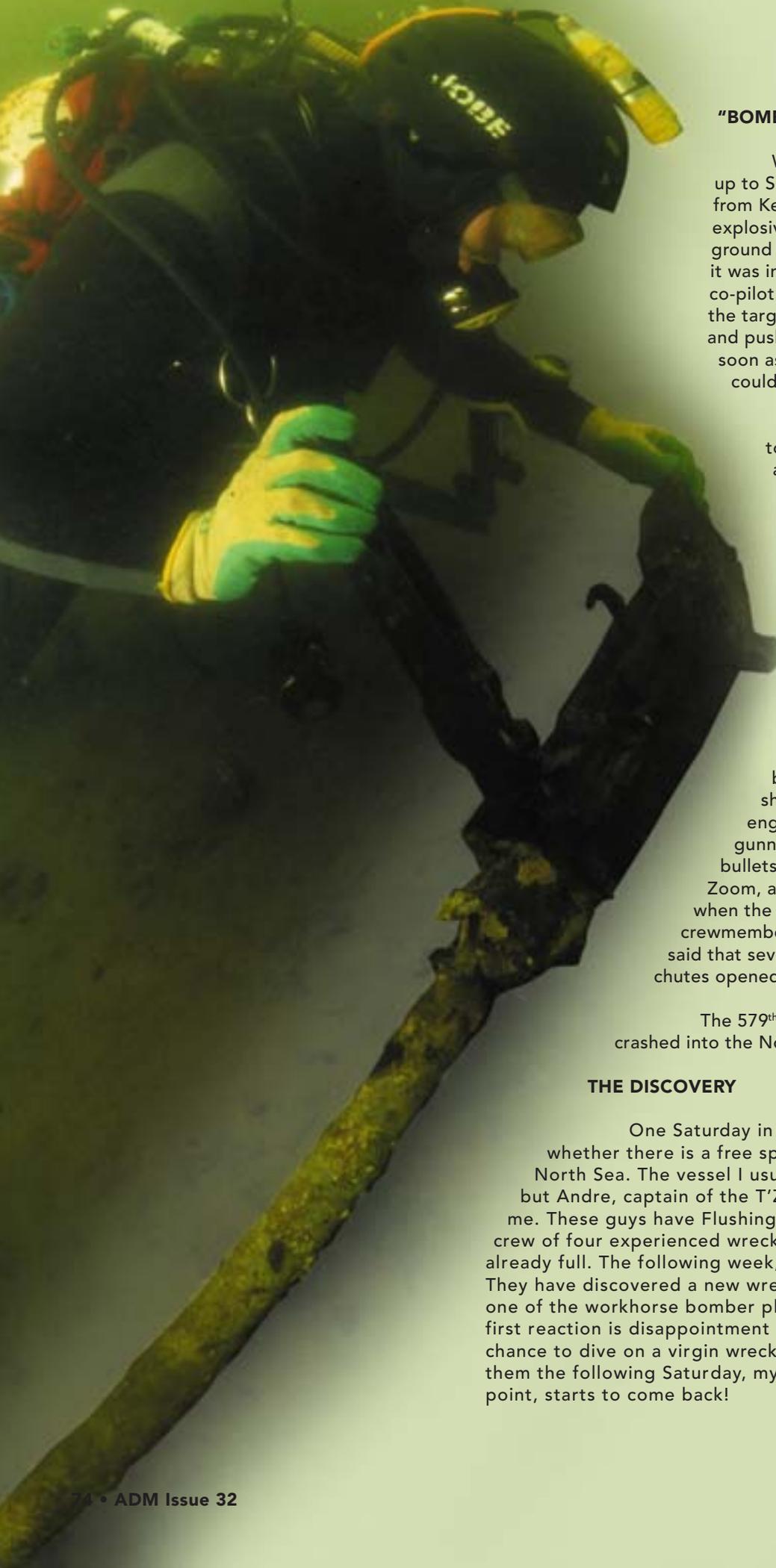
With almost no clouds, the silver B-24's were clearly visible in the sky, even at 7000 meters. So it didn't take long before they were spotted by the ground flak gun crews who hurried into action, attacking the formation with grenades. The plane was quite shaken by grenades exploding nearby. But they were lucky this time and were barely damaged by the attack. Co-pilot Lt. James W. Marshall observed that the other planes, nicknamed "Gregory the Great" and "War Horse," also made it through the grenades.

**The B-24 Liberator bomber was one of the most famous American built aircraft of World War II. A design of the Consolidated Aircraft Corporation of San Diego, California.**

**The B-24 was an extremely versatile aircraft and carried out many roles during the war, not just its designed mission as a heavy bomber. It was used for anti-submarine and anti-shipping work with great success, as a long-range transport, for photographic and weather reconnaissance, supply dropping, minelaying, radio countermeasures and many more varied roles.**

**The grand total of 19,256 Liberators of all variants built between 1939-1945 made it the most numerous American warplane of World War II.**

<b>Specs</b>	<b>B-24D (late models)</b>
<b>Wingspan</b>	110 ft. (33.527 m.)
<b>Length</b>	67 ft. 4 ins. (20.218 m.)
<b>Weight</b>	34,000 lbs. (15,422 kg.)
<b>Weight (full)</b>	63,500 lbs. (28,803 kg.), with 5,000 lbs. (2,268 kg.) of bombs
<b>Powerplants</b>	Four Pratt & Whitney R-1830-65 Twin Wasp radial engines.
<b>Max Speed</b>	303 mph (488 km/h)
<b>Range</b>	2,300 miles (3,703 km)
<b>Armament</b>	11 x .5 inch (12.7 mm) calibre Browning machine guns. Two each in dorsal, tail and ball turrets; one in each waist window and three in single mounts in the nose.



## **"BOMBS AWAY!"**

When they neared their target, it was up to Second Lieutenant Mark T. Etheridge from Kentucky to drop the 7100 kg of explosives on the right spot. Meanwhile, the ground flak gunning had picked up again, and it was increasingly difficult for the pilot and co-pilot to keep the plane on course. Finally, the target man got a clear view of his target, and pushed the button to drop the bombs. As soon as he signaled "bombs away," they could head back to base.

The pilot made a sharp swing to the right, but luck was not with them and they were hit by a grenade. One of the engines fell out, and the plane lost height, becoming an even easier prey for the flak guns. Meanwhile, it was clear that navigator George Winzenburg had been hit by a piece of an .88 grenade, which exploded right under the plane's nose. After the barrage, the Messerschmitts honed in to finish off the lamed B-24 with their cannons.

Nose gunner John Jereb and wing gunner Ralph. H. Sutton fought back with their .50 machine guns. A short time later, two of the remaining engines were on fire, and the wing gunner was hit in his elbow and leg by bullets. The plane was near Bergen op Zoom, a city in the south of the Netherlands, when the side door opened and some of the crewmembers jumped out. Eyewitnesses later said that seven men jumped out and two parachutes opened.

The 579<sup>th</sup> Bomb Squadron's B-24 Liberator crashed into the North Sea.

## **THE DISCOVERY**

One Saturday in August, I call Patrick Sloot to ask whether there is a free spot for me on Sunday to dive in the North Sea. The vessel I usually dive from is in maintenance, but Andre, captain of the T'Zeebeest, sometimes has a spot for me. These guys have Flushing as their home port, and dive with a crew of four experienced wreck divers. Unfortunately, the boat is already full. The following week, however, Patrick has great news. They have discovered a new wreck, close to shore: a B-24 Liberator, one of the workhorse bomber planes of the Second World War! My first reaction is disappointment because I once again missed the chance to dive on a virgin wreck. But when Patrick proposes to join them the following Saturday, my temper, which was below freezing point, starts to come back!

## SEARCHING FOR A NEEDLE IN A HAYSTACK

It's not a simple task to find the wreck again. A plane is not designed nor constructed to support the heavy impact of a crash. It falls apart when it hits the water, and the wreckage is spread over a large area. There are only a few parts, such as the landing gear, which give a clear sign on the sonar. It is also extremely difficult to hook one of these parts. After more than an hour of trying, we finally hook something...and we get ready to splash. The site is only seven meters deep, so we can make a long survey of the site. For the first time in my diving career, I am about to dive on a plane wreck in the North Sea — and I'm really curious about what there is to discover on the bottom.

## THE DIVE

As I expected, the anchor hooked a big object. I recognize a big wheel, attached to the landing gear. It's strange to see that the high-pressure cylinder is in nearly new condition after almost 60 years on the bottom. I attach my reel to the anchor line because I can't spot other wreckage nearby. I decide to swim east. Some bits and pieces are protruding from the sand, including a piece from the propeller. A little further on, Patrick signals me with his light that he has found something. It turns out to be one of the machine guns from the B-24's nose. After taking some pictures, we go on to discover a large piece of the wing. As the current picks up, the visibility gets worse, and it's no longer possible to take pictures. We head back, discovering more wreckage — though it is impossible to recognize the bits and pieces, as we are not specialized in this. Going easterly, we discover more objects, though nothing big. It's time to end the dive, because the current is now really racing over the North Sea sand.

## THE WRECK AND THE CREW IDENTIFIED

The discovery of the 50mm machine gun is a breakthrough in the effort to identify the plane and crew. When Patrick mails the gun's serial numbers to the U.S.A., he receives an answer a few days later from the people at B-24.net. This organization is made up of many WWII researchers and WWII history buffs who have created a great database of the airplanes and crews of the 392<sup>nd</sup> Bomb Group. They were delighted with the discovery and the opportunity to update their database — even more important, they can contact the crew's relatives to share precious new information with the American families. The researchers at B-24.net sent us some pictures of the plane and the crew. From additional information that we found in the Flushing city hall, it appears that three crewmembers, Winzenburg, O'Neill, and Marshall, were buried in Flushing; but shortly after the war, they were moved to the American military cemetery in Neuville-en-Condroz in the French part of Belgium. It is here that we salute for the last time the young soldiers who came to liberate Europe, and paid with their lives.



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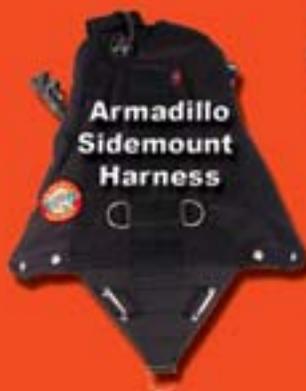
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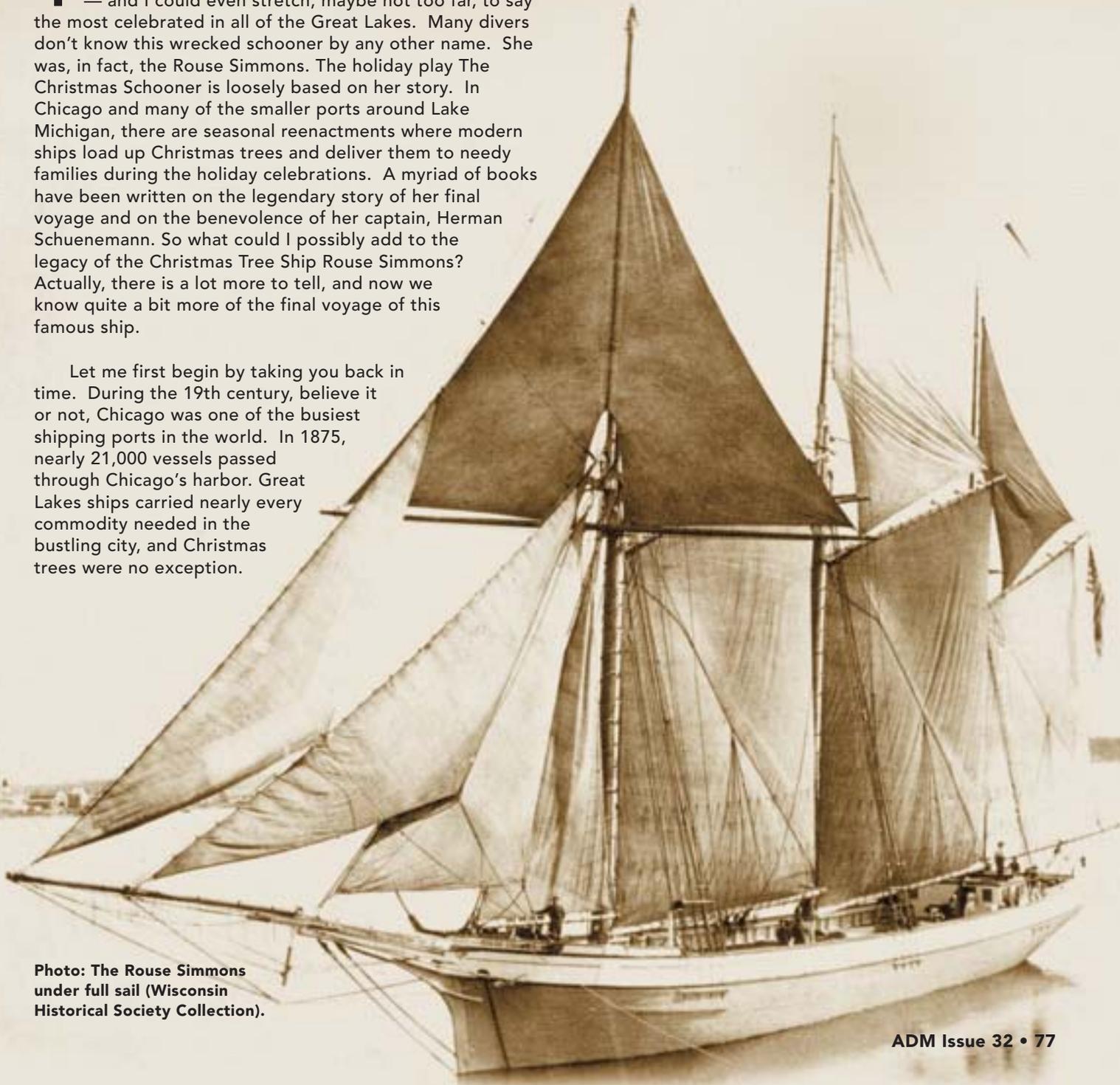
# Rouse Simmons

## The Christmas Tree Ship

By ADM Staff Writer Tamara Thomsen

The Christmas Tree Ship is by far Wisconsin's most celebrated shipwreck, likely in Lake Michigan, too — and I could even stretch, maybe not too far, to say the most celebrated in all of the Great Lakes. Many divers don't know this wrecked schooner by any other name. She was, in fact, the Rouse Simmons. The holiday play *The Christmas Schooner* is loosely based on her story. In Chicago and many of the smaller ports around Lake Michigan, there are seasonal reenactments where modern ships load up Christmas trees and deliver them to needy families during the holiday celebrations. A myriad of books have been written on the legendary story of her final voyage and on the benevolence of her captain, Herman Schuenemann. So what could I possibly add to the legacy of the Christmas Tree Ship Rouse Simmons? Actually, there is a lot more to tell, and now we know quite a bit more of the final voyage of this famous ship.

Let me first begin by taking you back in time. During the 19th century, believe it or not, Chicago was one of the busiest shipping ports in the world. In 1875, nearly 21,000 vessels passed through Chicago's harbor. Great Lakes ships carried nearly every commodity needed in the bustling city, and Christmas trees were no exception.



**Photo: The Rouse Simmons under full sail (Wisconsin Historical Society Collection).**

From 1890, brothers August and Herman Schuenemann, both Great Lakes sailing captains, invested in partial ownership of vessels; and, for their final voyage of the season, they would load evergreens harvested from their land in Thompson, Michigan. They joined a fleet of sailing ships that ended their seasons by shipping evergreens to Chicago, to support the demand of the city's large German immigrant population.

While other vessels would offload their trees and sell their cargo to wholesalers, freeing themselves of the burden of selling off thousands of trees one at a time, the Schuenemanns were taken with the holiday spirit. They turned their ships into floating tree lots along the Chicago River, welcoming customers aboard and taking great pride and pleasure in their business. In fact, it was said that the Christmas season had not begun until the Schuenemanns arrived at their Water Street dockage, hoisted a decorated tree up the mast, and strung electric lights throughout the rigging.

August Schuenemann was lost carrying a load of Christmas trees aboard his schooner *S. Thal* just short of their homeport in a late November storm in 1898. Herman Schuenemann's benevolent nature was likely strengthened by this brother's death. He didn't take his brother's death as prophetic, but continued in the trade and was known to give away many of his trees to churches and to the needy families of Chicago, an act which earned him the nickname "Captain Santa."

Schuenemann bought his vessels late in their careers, purchasing the inexpensive, aged schooners and wringing the last bit of life and profit from them in the lumber trade. Lumber was a popular cargo for aged schooners, as the lumber was not easily damaged by water in the leaky vessels, and the inherent buoyancy of the cargo perhaps helped many old leaky vessels make port in a raging Lake Michigan storm. Christmas trees were also well suited for these aged lumber schooners because getting wet could not damage the trees.

Built in 1868 by Allan McClelland and Company in Milwaukee, the *Rouse Simmons* was already 42 years old – a very old and worn boat by any standards – when Herman Schuenemann purchased his 1/8 interest in the schooner. She carried three masts, and her registered dimensions were 124.2 feet in length, 27.6 feet in breadth, and 10.1 feet in depth of hold. From the outside, the *Rouse Simmons* was very similar to many other three-masted schooners that sailed the Great Lakes. She was markedly different than most in that she carried two centerboards rather than the more typical single centerboard of most lake sailing vessels. A vessel purposely built to serve in Lake Michigan's lumber trade, the ship was named for the major financial backer, Rouse Simmons, whose family was a manufacturing power in Kenosha, Wisconsin, and founder of the well-known Simmons Mattress Company.



Photo: Divers George Heeres and Jason Dostal examine the *Rouse Simmons*' bow.

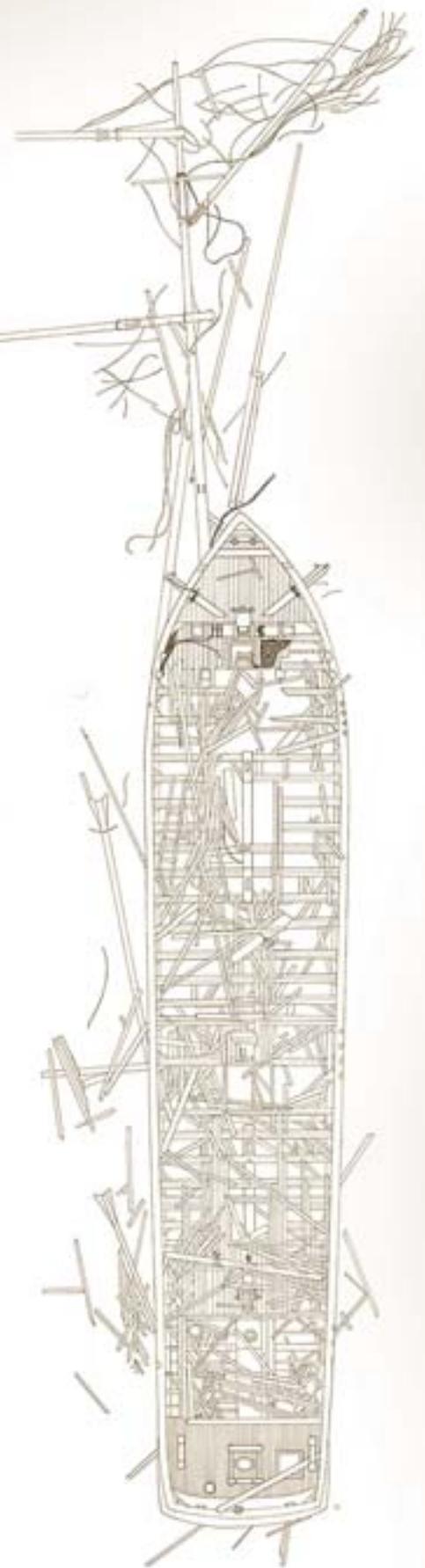
In 1873, millionaire and lumber magnate Charles H. Hackley purchased the Rouse Simmons. The ship was said to be the workhorse of Hackley's fleet for more than 25 years, contributing significantly to Hackley's fortune, which he generously used to develop and better his hometown of Muskegon, Michigan. The Rouse Simmons changed ownership several more times before she came into the hands of the partnership of Schuenemann, Charles Nelson (a Great Lakes captain from Chicago), and Mannus Bonner (a hotel proprietor and lumber investor from Beaver Island, Michigan) in 1910.

Late in the afternoon on November 22nd, the barometer was falling and the winds were increasing as the Rouse Simmons, fully loaded with evergreens, departed from Thompson, Michigan, on her final voyage of the 1912 season. Captain Schuenemann knew the dangers of sailing in November, but there was little option for a Christmas tree merchant. Before their departure, the kind-hearted Schuenemann invited aboard an unknown number of lumberjacks to catch a ride back to Chicago to spend the holidays with friends and family. Captain Schuenemann, the Rouse Simmons, and her estimated sixteen crew and passengers never arrived at Chicago. Lost with all hands somewhere on the lake, the location of the Rouse Simmons wreck remained a mystery for 59 years. Christmas trees washed up along the coastline for years to follow; and, in 1923, Captain Schuenemann's wallet came up in a fisherman's net near Two Rivers, Wisconsin. It was not until Milwaukee diver Kent Bellrichard discovered the vessel's remains twelve miles northeast of Two Rivers, Wisconsin, in 165 feet of water, that the story began to unfold. The discovery solved the mystery of where the Rouse Simmons sank, but additional questions remained — why did the ship sink and what happened during her final moments?

While it may never be known for certain what transpired during the Rouse Simmons' final moments, I was fortunate to have been part of an archaeological study of the wreck which uncovered several clues that did shed some light on what happened just before the ship slipped beneath the waves. By examining the historical and archaeological record, divers from Wisconsin Historical Society pieced together a more complete story of that fateful day in 1912.

Last seen by the Kewaunee Life-Saving Station, the Rouse Simmons was flying a distress flag five miles offshore while being driven southward by a northwest gale. With no chance of catching the fleeing vessel, the Kewaunee station's captain telephoned the Two Rivers Life-Saving Station, twenty-five miles to the south. The Two Rivers Station immediately launched a lifeboat to intercept the distressed vessel and bring her crew to safety. As the lifeboat motored onto the lake, however, the Rouse Simmons had vanished. In combing historic documents, it was discovered that contrary to the popular story that materialized around the Simmons' loss, the vessel was lost under clear conditions. She was not, as legend has it, last seen by the Life Saving crew encrusted with ice, through a fleeting window in a viscous snowstorm. By re-creating the search pattern of the Two Rivers lifeboat and comparing it with the Rouse Simmons' location today, we discovered that the Two Rivers lifeboat completely encircled the Rouse Simmons and was never more than a few miles from where she lies. With a reported six miles of visibility that day, if the Rouse Simmons were still afloat as the lifeboat rounded Two Rivers Point at 4:20 p.m., the Life-Saving Station crew would have seen her. Additionally, the snowstorm that many lake captains reported as "the worst they had ever seen," may well have been terrible, but it began around 5 p.m. — well after the Rouse Simmons would have been on the bottom.

One thing that we found peculiar was that the Rouse Simmons was not heading south as last reported, but was facing northwest toward the shoreline. Interested by this change of heading, we began looking for clues as to why the Rouse Simmons had changed her course. With some searching, we found tools lying about the deck on the ship's bow for handling the anchors and chains. The windlass was in the middle of being prepared for lowering the port side anchor; a Norman pin, an early chain stopper, was partially driven into the windlass, and



*Schooner Rouse Simmons*



the anchor chain had been removed from the chain locker and faked on deck. Using this evidence, we initiated a search and discovered the port anchor lying 170 feet north of the bow. Given the amount of chain on the vessel, the depth of water, and the intensity of the wind it was impossible for the Rouse Simmons to safely anchor out in the lake. Likely before the Two Rivers lifeboat rounded Two Rivers Point, something had gone seriously wrong aboard the Rouse Simmons, and her crew had deployed the port anchor to hold the vessel into the wind. Soon after making this decision, however, large waves sent the Rouse Simmons and her crew to the bottom of Lake Michigan.

Additionally, it was noticed that much of the deck planking was missing. Originally, the missing deck was attributed to anchoring damage caused by dive boats, and heavy fishing of the wreck site; but upon further examination, salt channels in the deck beams (where salt was added to these early freshwater vessels to "pickle" the wood) may have actually caused a failure in the deck fasteners - resulting in the heaved deck. I can't imagine that the estimated eight feet of trees piled high on the deck could have helped with the stability of the vessel, and some reports indicated that the Rouse Simmons left Thompson, Michigan, with less than a foot of freeboard under the weight of the trees. Those trees can still be found stacked neatly in the hold and, if you examine them closely, some of the trees located lower in the stacks still retain their needles.

The weight of the anchors and the chain piled on the deck contributed to the force with which the vessel struck the bottom. As the vessel hit bow first, causing a ten-foot deep divot in the sand bottom, the majority of her rigging was flung forward of the vessel where it lies on the lake bed, raking the chainplates forward, dislodging the fore and main masts, and snapping the mizzen mast. Much of the hull remains intact with the exception of a few boards on her stern which were sprung as air evacuated the sinking hull.

Although the Rouse Simmons had once been a grand ship, decades had passed since she had seen her prime — forty-four years of hard service on the Great Lakes. By 1912, the Rouse Simmons was one of the last vessels still afloat from the golden age of sail, when majestic schooners with their sails raised high filled Great Lakes harbors. Great Lakes sailing vessels were nearly extinct, pushed aside by the advances of steam technology. The nostalgia surrounding the golden age of sail is the leading contributor to the perpetuation of the story of the Christmas Tree Ship. Many vessels were lost during that same storm in 1912, but the Rouse Simmons was the Christmas Tree Ship! This schooner was something special to the people of Chicago. The sailors and lumbermen aboard were bringing Christmas joy to the city, and willing to risk their lives to make Christmas merrier. This very sentimentality has made the Christmas Tree Ship story eternally shrouded in myth and mystery and everlasting.

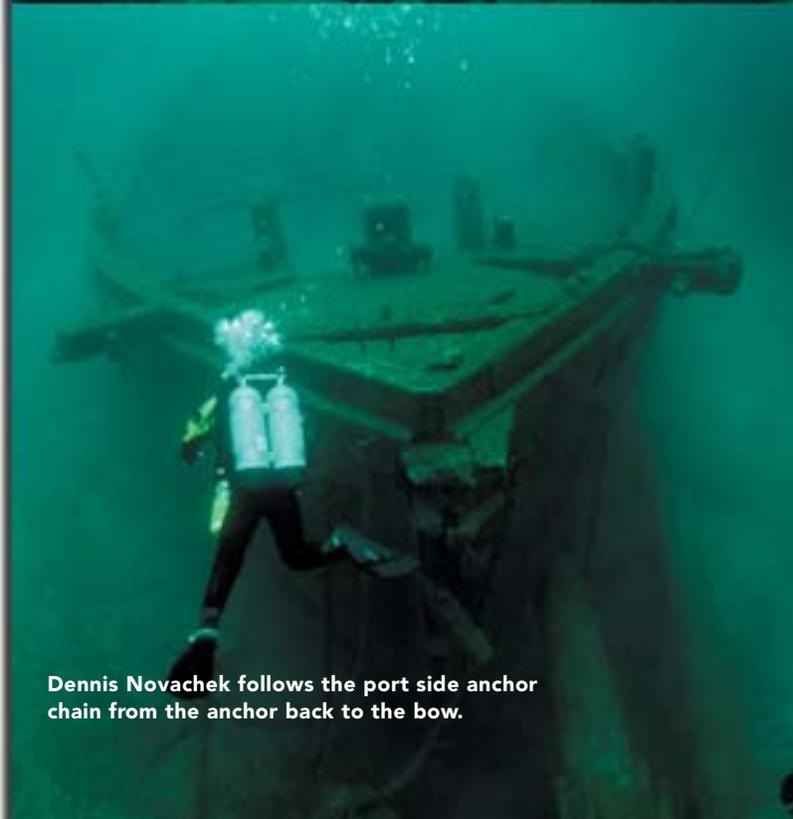
**Tamara Thomsen is maritime archaeologist for Wisconsin Historical Society ([www.wisconsinshipwrecks.org](http://www.wisconsinshipwrecks.org) and [www.maritimetrails.org](http://www.maritimetrails.org)), and owner of Diversions Scuba in Madison, Wisconsin [www.diversions-scuba.com](http://www.diversions-scuba.com)**



The Simmons' stern with sprung boards from air escaping during sinking.



Steve Schumacher finds the Norman pin driven into the windlass and anchor chain piled on deck.



Dennis Novachek follows the port side anchor chain from the anchor back to the bow.

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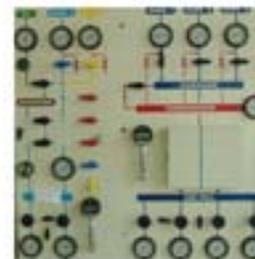
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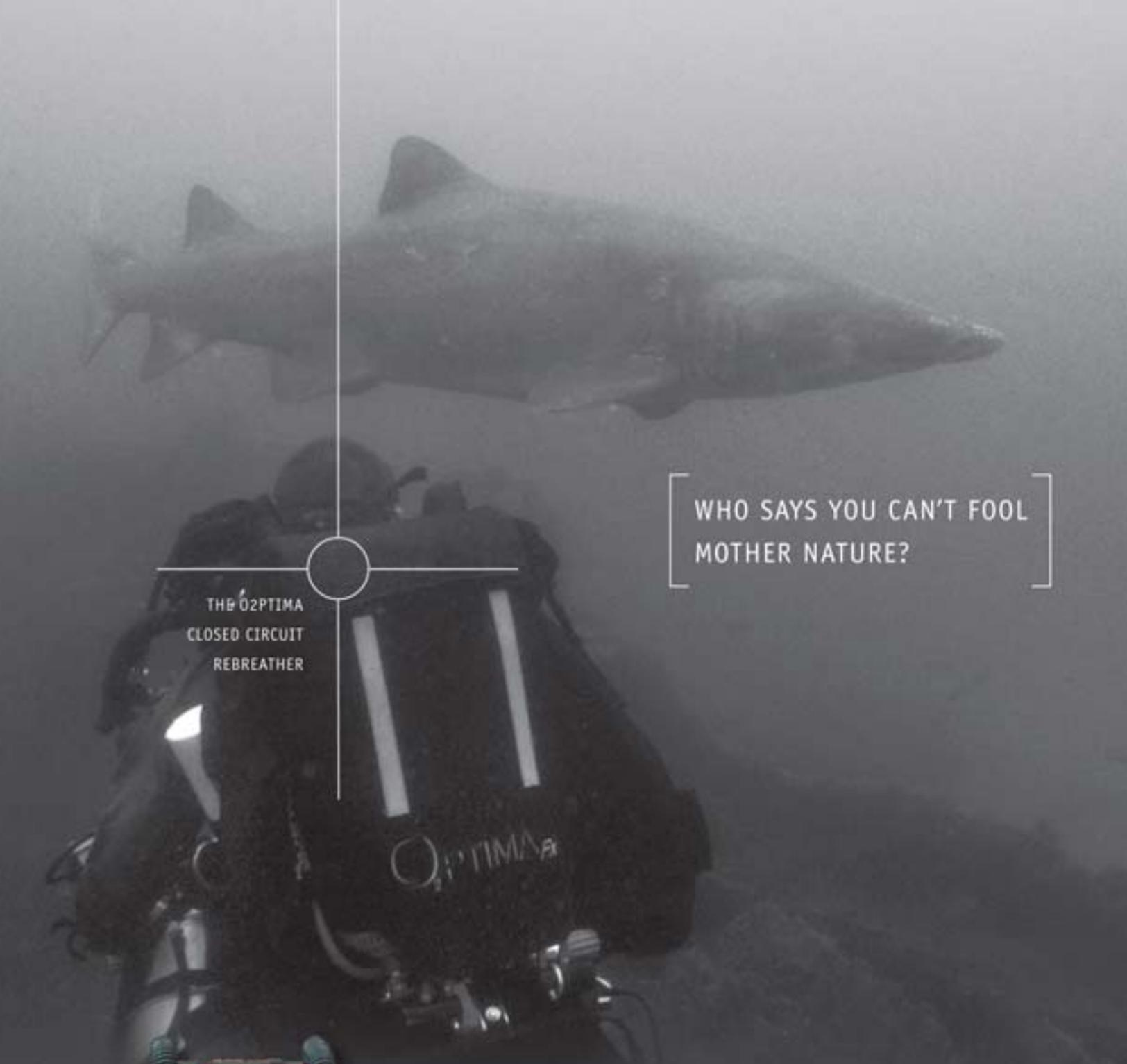
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