

ISSUE 31

# ADVANCED DIVER MAGAZINE

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# Publisher's Notes

The IRS can and does deliver good news!

We are very happy to announce that we have finally received the long awaited 501c3 status approval for the **ADM Exploration Foundation**. This organization has long been a dream of Jeff Toorish and mine that is intended to assist qualified exploration projects with funding, specialized equipment needs, and help from experienced and talented individuals. Discoveries from these exploration projects will be prepared and presented to the public for use in science, educational materials, and general public knowledge.

Even though we have only reached our infancy, the ADM Exploration Foundation has high expectations of discovery during upcoming expeditions, with increasing opportunities throughout the coming years. Of course, the not-for-profit exploration foundation is seeking any type of assistance from manufacturers seeking a desired tax break, interested individuals, and dedicated volunteers.

The combined forces of **Rebreatherworld.com** and **Advanced Diver Magazine** have produced a significant rise in both RBW membership as well as ADM subscriptions. With this powerful teamwork and our dedicated paid advertisement clients, we have managed to raise the bar a few notches.

**ADM E-zine** continues to move steadily along, allowing us to reach the furthest corners of the planet with the latest in exploration news, new equipment, upcoming diver activities and charters.

**Curt Bowen**  
CEO – ADM/RBW



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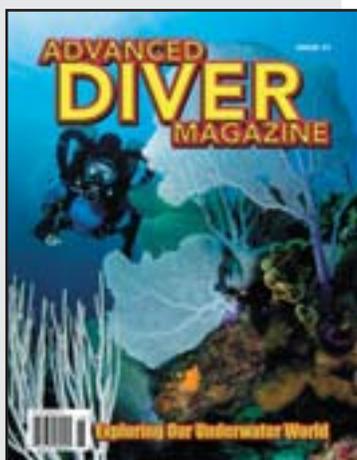
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# *Ghost Destroyer of Truk Lagoon*

**Text and Photography by Leigh Bishop**

**Photo: Grim reminder of the casualties of war: human remains visible deep within the wreckage of the Japanese destroyer *Oite*.**

**T**he adventures to be experienced, and the underwater exploration of the mysterious Ghost Fleet of Truk Lagoon remain unparalleled. The wrecks in this most famous of lagoons represent some of the most well preserved shipwrecks in our oceans. Truk Lagoon still remains one of the great undersea wonders of the world. The moment a visiting diver breaks the surface of the beautifully clear blue Pacific water and descends to one of the seventy-plus wrecks that litter the seabed, they are captured by this underwater museum that can only be described as a wreck diver's paradise.

I had come to Truk Lagoon specifically to take advantage of rebreather technology, and to explore many of the less dived (if dived at all) wrecks in the deeper waters of the Lagoon. One of these wrecks in particular was that of the Japanese Kamikaze-class destroyer *Oite*, located on the very northern pass of the Lagoon. Reports from previous deep wreck divers suggested that this site was one of the best wreck dives in Truk—even if it were located in shark-infested waters!

Every wreck in Truk Lagoon has its own unique character, and it's difficult to pick one that stands out over another. The *Oite* stands out as one of a few warship class ships lost in the Lagoon where the majority are that of the Japanese imperial merchant fleet.

Most of the wrecks in the Lagoon have cargos consisting of tons of munitions; so for almost 25 years, no one could touch the Lagoon because of the risk of setting off any of these thousands of unexploded bombs. Today, after some lengthy reclamation work, the shallow waters allow recreational divers to see no fewer than forty ships as well as various sunken aircraft. It is impossible to explore them all, but any divers visiting Truk armed with a rebreather can certainly have some in-water time, to say the least.

## IJN OITE KAMIKAZE CLASS DESTROYER:

Displacement: 1270 tons

Length: 336 feet

Beam: 32 feet

Engine: 4 Kanpon Boilers on 2 Uraga geared turbines, 2 shafts

Max Speed: 37.25 kts.

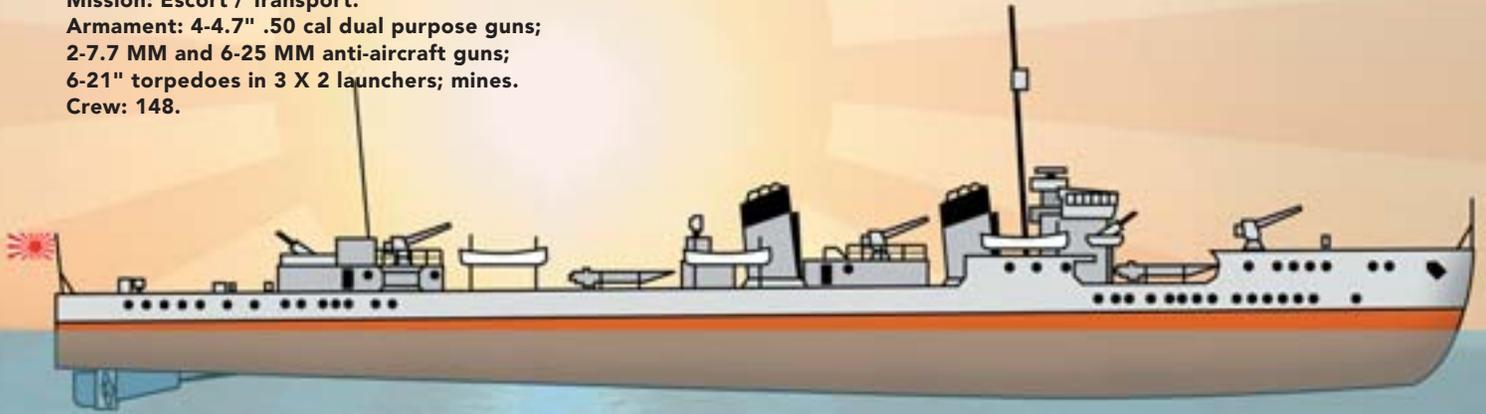
Mission: Escort / Transport.

Armament: 4-4.7" .50 cal dual purpose guns;

2-7.7 MM and 6-25 MM anti-aircraft guns;

6-21" torpedoes in 3 X 2 launchers; mines.

Crew: 148.



The Japanese destroyer *Oite* is certainly one wreck that is often missed by visiting divers, if only because of its location and depth. At around 210-220 feet of water, it is much deeper than the majority of the other wrecks, and at some considerable distance from the bulk concentration of tourist wrecks.

The group of international divers with whom I had travelled to Truk Lagoon had all arrived armed with Inspiration and Evolution rebreathers. The rebreathers would allow us to extend our bottom times, even on the shallower wreck sites. By optimizing the gas we breathed with our closed circuit rebreathers, we were able to spend the equivalent time underwater in one week as an open circuit diver would in five weeks. We could spend two to three hours exploring one of Truk's shallow wrecks with little, if any, decompression! Having a closed circuit rebreather to explore a wreck such as that of the *Oite* was indeed a serious advantage, and the units allowed us to claim bottom times of over an hour!

### Shark Infested Waters

The wreck of the *Oite* destroyer was discovered on March 1<sup>st</sup>, 1986, by Blue Lagoon dive operator Gradvin Aisek and researcher Tomoyuki Yoshimura after five days of searching. On that day, and on that very first dive, the divers encountered nearly fifty sharks near the surface as they entered the water. Their numbers tapered off as the divers descended toward the wreck below! Today, nothing has changed; and as our team entered the water, a group of white tips and reef sharks circled us as we descended the line.

Back in 1986, the divers discovered that their anchor had snagged the bow structure near the bottom at a depth of 210 feet, but their conventional open circuit

equipment meant that little time was available to explore the wreck in detail. Today, the guys very rarely venture out to the wreck, mainly due to the depth and the advanced diving skills required by visitors to dive the site. When they do make the journey, it's amazing how they actually find the wreck! With no visible transits to be seen, and no modern technology aboard the small boats, the Trukese guides have a somewhat complicated discussion for a few minutes before they amazingly, somehow, hook into the wreck.

A long bottom time means a long decompression, and being circled by sharks is no fun at the best of times — even more so when you have an hour and a half of decompression left and you have to stay in the water! To take my mind off the situation, I could at least reflect on the dive I had just made, which was perhaps one of the most interesting and, above all, haunting dives I had ever made. Many of the CCR divers that I travelled to Truk with agreed that this was one of their most memorable dives in the Lagoon.

For the last twenty years I had dreamt of diving this most legendary of wreck diving locations; now I was here, and it was all I had expected it to be and more! Perhaps the sharks that now circled us were inquisitive that these particular "scuba divers" trespassing in their territory were a little quieter than the normal visitors with this new technology introduced to their waters.

The location of the destroyer *Oite*, way out on the north of the Lagoon, provides the visiting diver with awesome visibility. With no major islands close by to produce rainwater run-off, little if any sediment has built up on the wreck, thus giving a visiting underwater photographer an excellent photographic opportunity. The wreck lies in two main pieces with the stern section



completely upright on a seabed of around 220 feet, while the bow section at the same depth lies to the port side, a distance away, facing the opposite direction and completely inverted.

Despite half of the wreckage being upside down, this really was a fabulous dive made more so by the awesome visibility and intense marine life, including lots of resident oceanic white tip sharks — even on the wreck!

The stern and aft ship rests with a 10-15 degree tilt to starboard, here a rectangular shaped depth charge loading stand can clearly be seen, as well as two pairs of rails which extend to the stern where depth charges were dropped overboard. A rack of depth charges can be seen here which is fully loaded! Then immediately forward is a pair of coral-covered depth charge throwers. Forward of the quarterdeck is a large

deckhouse island supporting two anti-aircraft guns and a main battery gun, mounted forward. The barrels on the AA guns both point to port, possibly indicative of their use just prior to the ship's sinking. The main battery gun is a 4.7 inch/50 calibre dual-purpose artillery piece and remains mounted in the "x" position.

Gratings and pipes associated with the engine and boiler room lie in the midst of the debris field forward of the existing stern upright section, an area of the vessel that was hit severely during the attacks on her. Divers had reported previously that by peering through small openings they could see numerous human remains inside the wreck. Given the limited access, it is unlikely that a diver would be able to penetrate the interior of the wreck, which would explain why these remains were left after a Japanese team removed reachable remains a number of years ago.

**Below: A deep wreck diver examines the main battery gun on the stern quarter of the Oite.**



As stated, the *Oite* is broken in half amidships with no sign of the bridge, which was blown to smithereens when the torpedo attacks struck. Just looking at the sheer devastation, one can't help think that the vessel had no chance against the well-coordinated, strafing aerial torpedo attack which led to her swift destruction! From here, as the diver looks across the portside seabed, they can just make out the bow section in the distance.

On reaching the bow, the open break allows a diver to venture within and examine the interesting upturned interior of the hull with much working mechanisms and machinery to be seen. It is inside this section of the wreck that more human remains can be seen as well as personal artifacts, broken china tea cups, plates, saucers, and broken fans that would have kept the tightly packed rooms of sailors cool in the island heat. A second torpedo may have struck the bow section, as there is a large hole on the starboard side and an even bigger exit-type hole on the opposite side!

### Operation Hailstone

Truk Lagoon, known as Chuuk, is in the Federal States of Micronesia, which is the collective name given to the various island groups in the central Pacific. The islands lie east of the international data line and half way between the Tropic of Cancer and the equator. With an area of 825 square miles, Truk is one of the largest lagoons in the world, and was an important strategic command post for the Japanese during World War II. In February of 1944, the allies launched a massive air attack on Truk named "Operation Hailstone" from no less than nine aircraft carriers that surrounded the Lagoon. Unaware, the Japanese were caught out by the attack, which became known as the "Japanese Pearl Harbor." What was left from the attack now poses as one of the great undersea wonders of the world.

**Photo: The weapons of war are subdued by over 60 years of submersion; a diver inspects the coral-encrusted anti-aircraft guns on the *Oite* destroyer.**







The *Oite*, just one of those seventy-plus wrecks in the lagoon, is a 1523-ton, 327-foot vessel, and an older half sister to the *Fumizuki*, another vessel also sunk in the Lagoon, and one that shallow water divers would be familiar with. Both destroyers are deceptively similar, but *Oite* originates from a slightly older series.

The *Oite* had left Truk Lagoon on the 16<sup>th</sup> of February, 1944, escorting the light cruiser *Agano* back to Japan. Both ships were scheduled for a refit and, as a result, had many of their warheads removed. Another vessel, *Subchaser 28*, also joined them. The convoy was approximately 360 kilometers northeast of Truk when the U.S. submarine *Skate* attacked, firing a spread of torpedoes into the *Agano*. As the ship began to list, most of the cruiser's 450-man crew was taken on board the *Oite*. When the *Agano* finally sank, both vessels were ordered back to Truk Lagoon.

As Truk was now well under attack, the much faster *Oite* reached Truk well before the sub chaser, and entered the lagoon before new orders were directed from island command. Despite receiving orders to head back for Saipan, the captain of the *Oite* had already taken his vessel through the North Pass of Truk Lagoon where Operation Hailstone was well advanced. Soon after an exchange of information, and possibly due to it, the *Oite* came under heavy fire from U.S. fighters. The first wave of attacks took out the command post, the commander himself, and the entire bridge. The second attack wave of five avenger planes struck the *Oite* with a torpedo, which blew her in two, sinking her immediately. Of the 589 men on board, only 20 survived.

#### Prize artifact discovered

The *Oite* is a poignant reminder of what happened at Truk Lagoon, and human remains can clearly be seen around the wreck. The extended stern deckhouse, which separates the AA and the battery gun, has doors on either side where the diver can peer within to see the accommodation area. Close to here, my diving partner, Gabrielle Paparo from Italy, discovered and pointed out to me the location of the ship's bell stowed within a storeroom. This bell was previously discovered by divers in 1998. As this



**Above left: Gabrielle Paparo, at the point he discovered the ship's bell of the Japanese destroyer *Oite*.**

**Left: Inside the *Oite* destroyer, divers discover crates of ship's stores.**

**Right page: A diver hovers over depth charges stowed in racks on the *Oite*'s stern.**

feature is written, it is still unclear whether this bell belongs to the *Oite* herself or that of the cruiser *Agano* that may have been removed before the vessel finally sank. The bell is encrusted into 65 years of marine growth and her name is not visible. Of course, Truk being an underwater museum, not to mention a grave for hundreds of Japanese sailors, nothing is touched and artifacts like ship's bells are left in place. In other locations around the world and on vessels that do not fall under a grave site status, a ship's bell such as that discovered on the *Oite* would, of course, be a major trophy for any wreck diver.

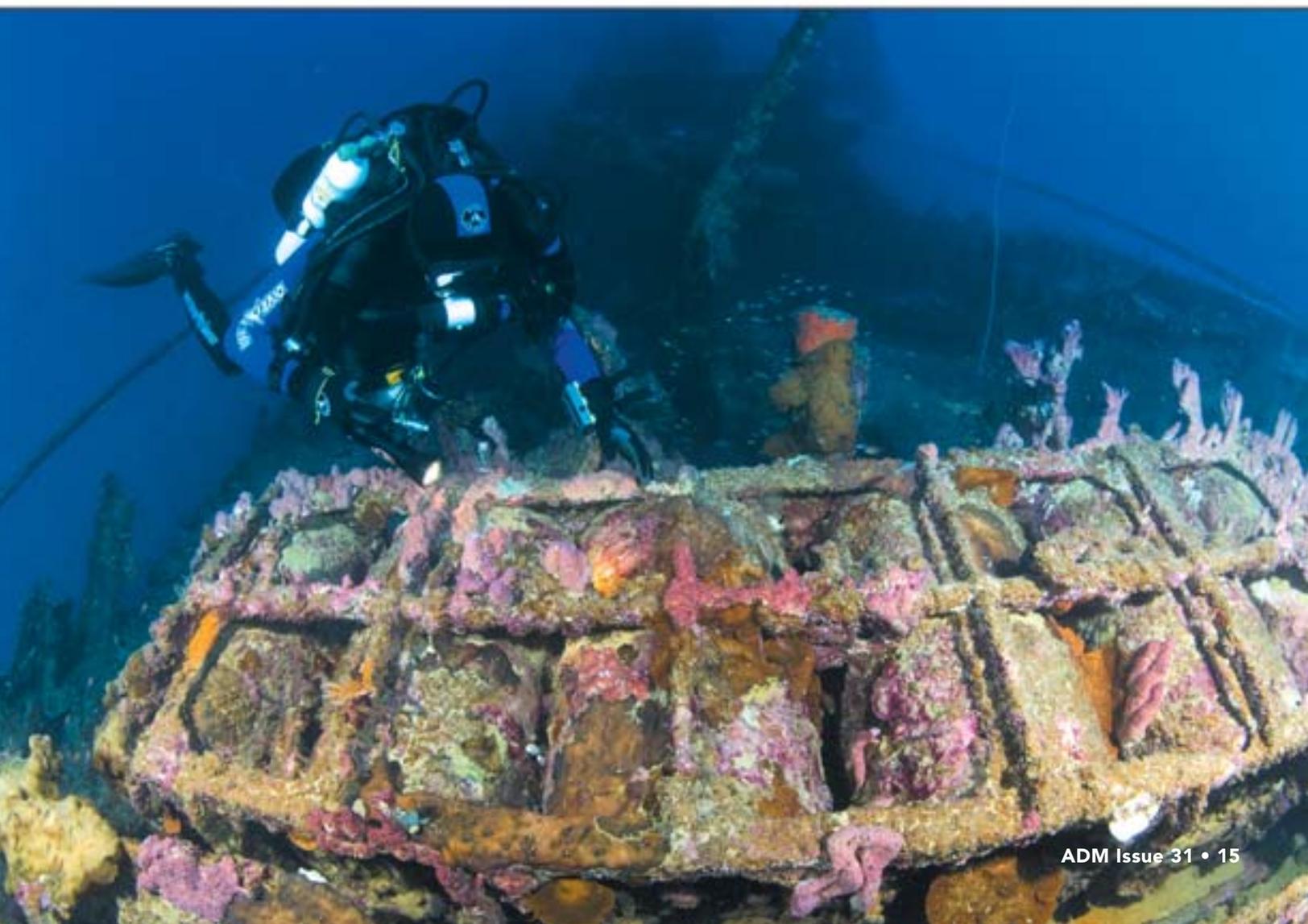
As previously stated, our expedition of over twenty divers used Inspiration and Evolution rebreathers, and was land-based at the Blue Lagoon resort and dive shop. The guys at the Blue Lagoon had set up a dedicated area for us to prepare and maintain our rebreathers.

Each day six divers per boat took a maximum of approximately 15-20 minutes to reach one of the furthest dive sites; and if a live-aboard boat had moored up on a site for the day, we just darted off to another site to avoid too many divers on any one wreck. Over the course of our stay, we dived the *Oite* and other

deep wrecks several times as well as examining the interiors of many of the shallow wrecks. The Blue Lagoon was geared up to supply divers with oxygen and diluents for the rebreathers, and their vast experience and knowledge of the wreck sites, many of which they had discovered over the years, meant that any wreck we wished to dive was on the cards! Including deep and less often dived sites! The other advantage of being land-based was that, when we were not diving, our guides could use the little boats to take us to the different islands and literally into the jungle to explore Japanese buildings and mountain gun stations that have stood still in time since Operation Hailstone back in February 1944.

The *Oite* is an amazing dive and a classic Japanese Kamikaze destroyer. Good advice to anyone wishing to explore the wreck would be to read a detailed guide of the wreck's layout before they make the drop. Dan Bailey's **World War II Wrecks of Truk Lagoon** is a must!

More information about diving in Truk Lagoon can be found on the Blue Lagoon's website [www.truk-lagoon-dive.com](http://www.truk-lagoon-dive.com) as well as the author's website [www.truklagoon.co.uk](http://www.truklagoon.co.uk) .



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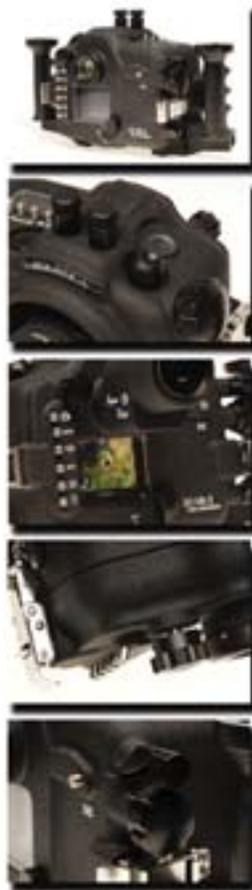
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# DEEP TREASURES EXPOSED

## MILWAUKEE SHIPWRECK EXPLORERS

By ADM Staff Photojournalist Mel Clark

Most of the world's scuba divers don't think about great shipwreck diving when they hear about the Great Lakes of North America. In fact, this thought to most would strike shivers down their spines. This is not the case for the adventure-minded technical diver and, specifically, a hardy bunch of Milwaukee divers.

Nordic Diver started in 1999 with Bill Prince. Bill was a very adventure-oriented diver with a desire to explore and find wrecks that no one had explored before. This ambition turned into a desire to share his passion for these wrecks with other divers. Captain Bill regularly ran expeditions to wrecks like the *Carl Bradley* and the *Aurania*. He was one of the first of only a handful of divers to date who have experienced the *Pringle*. Bill not only shared great wreck dives with the community, he also spent a great deal of time and money to find new wrecks for exploration. After spending countless hours researching the locations of possible new wreck sites, he would then spend hours "mowing" the lawn with his side-scan sonar to confirm the exact location.

Bill recently found the U-boat Unterseeboot *UC-97* in Lake Michigan; and, in Bill's typically generous and sharing nature, he had set up two expeditions to film and document this incredible new find.

**Photo:** The wheelhouse of the *Pringle* is illuminated by Curt McNamee, providing a very interesting effect. The glass in the port side of the wheelhouse is still visible.

Ron Benson examines the soul of the *Pringle*: her bell. It is quite rare to see the ship's bell still in place. This is a testament to an extremely limited number of divers having had the honor to dive her.

Unfortunately, Bill was not able to complete this dream. Bill passed away in May of 2008. His legacy is not lost, as the Milwaukee Shipwreck Explorers led by Captain Jitka Hanakova and her buddy, Lubo Valuch, are continuing the search, and will someday be able to share this U-boat with the rest of the technical diving community. Even though the U-boat lies in a well-hidden location, there are still plenty of incredible wrecks to be dived in Lake Michigan. This is a story about a few of these impeccable wrecks and the great efforts that went into sharing these sites with all of us. Jitka and Lubo led our dive team, which consisted of Ron Benson, Tom Keen, Curt McNamee, Tracy Xelowski, and me.

We started our trip diving with Milwaukee Shipwreck Explorers on the Milwaukee Car Ferry, a 318-foot steel railway car ferry. This is a relatively easy site and can be considered a recreational dive. This site is a nice warm up for deeper dives and is a great wreck in and of itself. The story behind this tragedy could be summed up as one of sheer stubbornness. The skipper would routinely challenge storms that other ships and skippers would not. In October of 1922, bound for Grand Haven, he sailed off into his last storm. No one can be absolutely sure as to the reason she went down, but it is assumed that some of the rail cars broke free and crashed through the aft sea gate allowing water to swamp the ferry, sinking and taking fifty-two souls with her. I can personally agree with this theory after diving this wreck.

The aft sea gate is badly damaged; and, when you go inside the holds, you can see many rail cars broken free of their attachments. It is also apparent that a few of the aft rail cars are missing, further evidence for the theory that a loose rail car was the reason for her loss. This wreck sits in only



**Above: Author Mel Clark gets ready to dive the Pringle, which sank in over 300 feet. This wreck has only been explored and documented by a small handful of divers.**

**Left: Curt Mcnamee video documents one of the Milwaukee's two enormous screws. The rudder can be seen on the left side of the photo.**

**Above right: Jitka Hanakova, Captain of the Molly V, gets ready for a dive on the wreck of the Emba.**

**Right page: Captain Hanakova poses by the Emba's massive rudder. The aft superstructure is still in extremely good condition and a must see dive.**





120 ffw, and is a great dive. It is possible to penetrate this wreck by squeezing through a hole under one of the rail cars. Jitka took me for a little tour inside this wreck. All I can say is that it is tight to get into; you will likely need to push any stages or bailout bottles ahead of you. I also noticed that the wreck is not that stable, as the sides and ceiling were swaying in the waves. I would only recommend penetration on this wreck for very experienced divers with a guide for the first time. I think Captain Jitka was testing us to make sure we were ready for the deeper wrecks. We must have passed our test as the next day we started on some of the deeper technical wrecks.

The *Grace Shannon*, a 168-foot three-masted wooden schooner from the 1800s, now lies upright in 185 ffw. She went down as a result of a collision with a tug in 1877, taking the owner's young son with her. This wreck is very intact allowing for some easy and rewarding penetrations. Slipping inside the main deck hatch, you will see the huge solid wood beams used in her construction. Swimming to the bow, the diver can see some of the rigging and chocks dangling around the ship's main anchor. Another noticeable feature of this wreck is that the main cabin and wheelhouse are still attached to the deck. These features are quite often lost as a ship sinks to the bottom.

Another wreck of the same era is the *St. Albans*. She was a 135-foot wooden steamer. The *St. Albans* ended upright in 165 ffw after ramming a large chunk of ice. The ice wedged itself in the bow. As the ice melted, the ship lost her battle and succumbed to Lake Michigan in 1881. Fortunately, there was no loss of life. The stern cabin is somewhat intact; following this down, you will encounter the prop. The most noteworthy feature of this wreck is the steam engine and associated machinery lying in plain view.



The next wreck we visited was the *EMBA*. She was a 181-foot three-masted schooner that was scuttled in 1932. She now sits upright and very intact in 160 ffw. This wreck offers some great photo ops on the center tower. The bow has crumpled in on itself a bit. The windlass and other machinery are easily identified and make great shots, too. I also enjoyed the stern section, particularly the huge rudder.

The final wreck of the trip was the biggest treat, and served as a great finale to an incredible trip: the wreck of the *Robert C. Pringle*, a 101-foot wooden steamer. She started her service as a passenger steamer on Lake Superior and Lake Michigan. Like most ships, she was sold many times and received her final name, the *Pringle*, in 1918. The *Pringle* went down in 1922 after hitting an obstruction off Sheboygan; she now rests upright in over 300 ffw.

The *Pringle* lay quietly awaiting discovery for over 70 years. The story of her discovery started in 1970 with Steve Radovan from Sheboygan. The first breakthrough in her discovery was in 1980 with a report from a commercial fisherman snagging his net. Steve took this information and searched for over a decade longer, until in 1993 he found on his side-scan sonar what he thought was a schooner. Steve was not sure what he had found, so he needed divers to confirm what was below. Due to the extreme depth, Steve contacted Bill Prince to assemble a team to video tape the site.

Upon surfacing from this first dive on the mystery schooner, Tracy exclaimed, "How does a triple expansion steam engine grab ya?" Steve immediately knew that he had finally found the *Pringle*. This wreck is almost completely intact and untouched. Most noteworthy is all the brass still on her. The main spot light and bell still sit on top of the bridge. The ship's mast is broken at its base, and now lies across the bridge between the spot light and her bell. The bridge is still sitting proudly in place with



Diver viewing the ladder that leads to the look out tower on the *Emba*.

Searching the *St. Alban's* mid ship, Curt Mcnamee discovers some of her lost machinery.



Boat captain and diver Jitka Hanakova looks at the *Emba's* two mooring bitts close to the bow.



glass still in some of the windows. This is one of the best photo opportunities. If it is possible, get a few divers to shine their lights through the back of the bridge and take a front shot. The lights passing through the bridge gives an eerie life to the *Pringle*. Inside the bridge on the port side is a desk with the drawers open, and on the starboard side there is the brass binnacle. Moving to the bow, the diver will find the windlass and two anchors lying in a crossed pattern. The midship has a very tiny entrance to the engine room, which I believe can be penetrated in a side-mount configuration. The diver can also see where the stack for the steam engine was. The rudder and propeller are deeply embedded in the mud. The prop was likely three-bladed, but only one blade is above the lake floor. This wreck is in spectacular condition, I suspect due to her depth keeping her out of the regularly dived zone. In fact, this wreck at the time of writing this article has had only two expeditions out to her. If you get a chance to dive the *Pringle*, it is well worth the decompression cost!

Bill Prince was an enthusiastic and generous diver and captain. It was through his efforts that a lot of shipwrecks in Lake Michigan were and continue to be explored. Bill has now passed on, but his efforts are not lost. Through the dedication of the Milwaukee Shipwreck Explorers and Captain Jitka, his exploration will continue, and future generations of divers will enjoy their work. I want to thank Steve Radovan for sharing the *Pringle* with us; I know what a special honor that was. Also, I want to thank Captain Jitka for a great and safe trip. The wrecks were impeccable and the charter was top notch.

Lake Michigan has so many great intact wrecks to offer the recreational and extreme technical diver. You can find more information on the Milwaukee Shipwreck Explorers and charters at

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



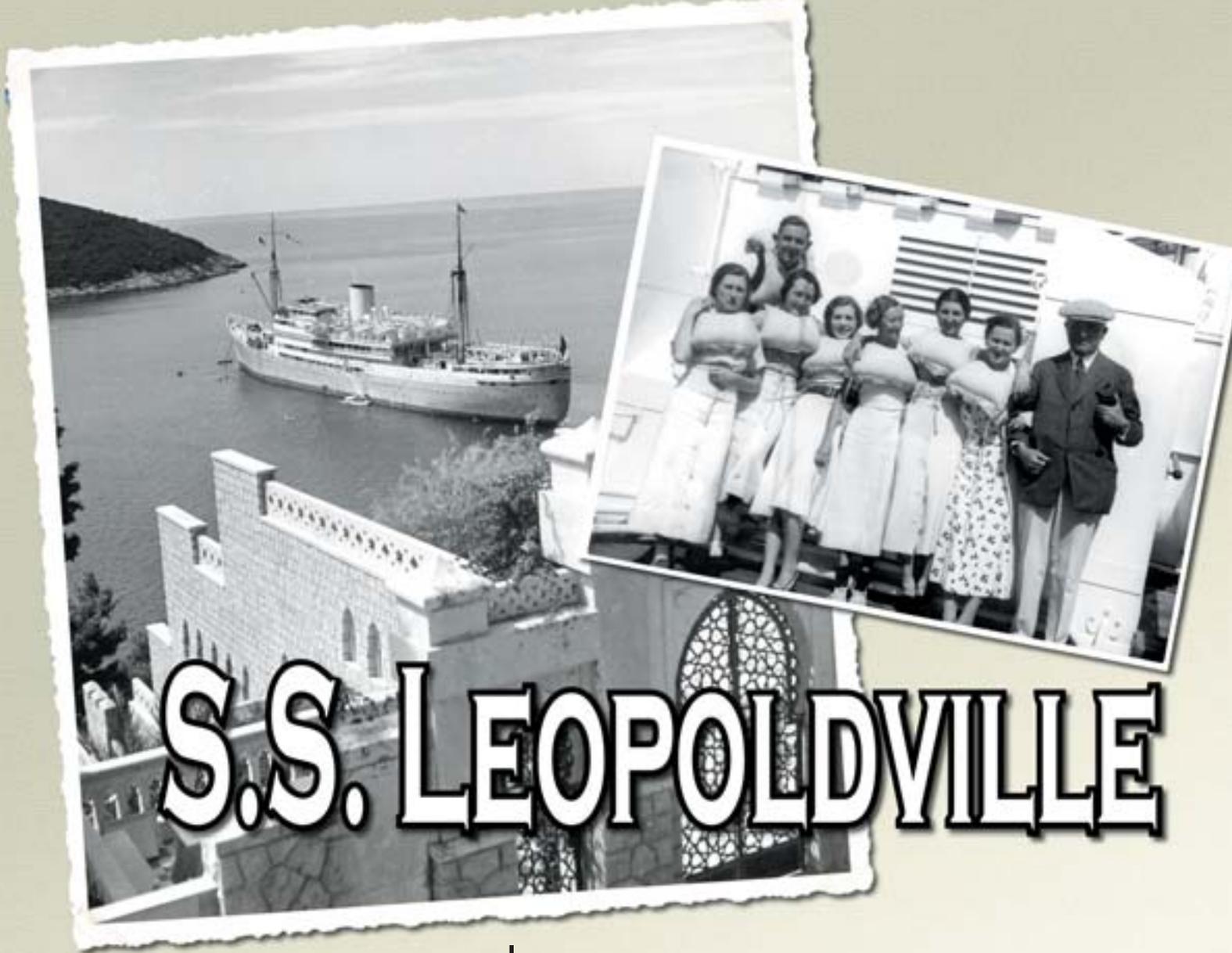
Ron Benson, owner of Going Under Dive Center, looks at the spot light on top of the wheelhouse on the *Pringle*.



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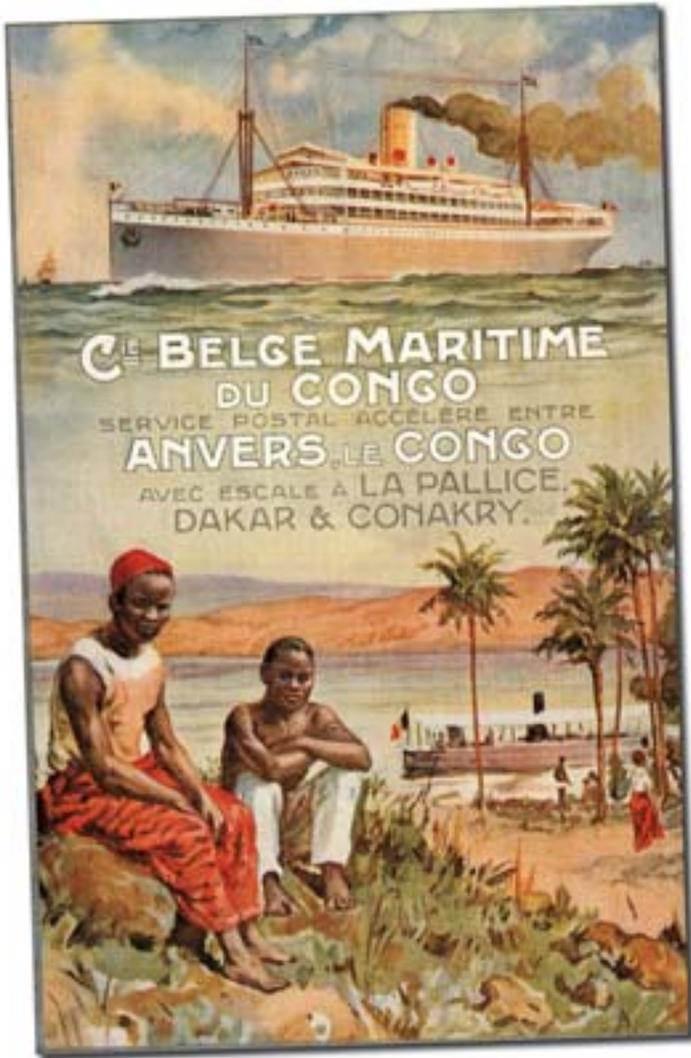


# S.S. LEOPOLDVILLE

Text and images by Vic Verlinden

**W**hen the Belgian troop transport ship *S.S. Leopoldville* was torpedoed, 763 young American soldiers died. It was the largest American loss in a single action during the Second World War. This tragedy was kept secret in order to keep up the morale of the combat troops. It was long after the end of the war that the truth finally surfaced.

Archive images: WDT



## A Floating Palace

When the 11,500-ton passenger ship *Leopoldville* was launched in 1927 at the John Cockerill S.A. shipyard in Hoboken near Antwerp, Belgium, it was used immediately on the Antwerp - Matadi line. The Compagnie Maritime Belge used it to transport passengers and goods to Belgian Congo. It was the first of the CMB ships to leave the port of Antwerp for Congo, and so was quickly named "Congo boat," but it was also used as a luxury cruise liner to other destinations. On these trips, the rich passengers were treated to untold luxury in the beautiful art deco interior of this floating palace. Everything possible was done to make the trip unforgettable for the passengers as they traveled to Norway and far-flung destinations such as the North African countries of Morocco and Algeria.

When the Second World War broke out, the ship was immediately claimed to transport troops. After a series of adaptations and installation of the necessary armament, the *Leopoldville* took on its new task. Starting in May of 1940, more than 120,000 troops were transported; and until December 1944, the ship logged 219,949 miles without an incident.

## Christmas Night 1944

On the 24th of December 1944, at 09:00, the *Leopoldville* left Southampton, England, to transport 2,235 American soldiers of the 66th Infantry Division to Cherbourg, France. These soldiers were mobilized to stop Field Marshall Gerd von Rundstedt's campaign in the Belgian Ardennes.



When they approached the French coast, Captain Charles Limbor gave the order to sail in a zigzag pattern. The reason for the maneuver was a warning from one of the three accompanying destroyers about a potential U-boat attack. About five miles in front of the port of Cherbourg, U-boat *U-486* waited for prey. The submarine of Oberleutnant Gerard Meyer was equipped with a new snorkeling device that enabled it to stay under water while charging the batteries. When evening fell, Oblt. Meyer spotted the *Leopoldville*, and fired a torpedo that hit on the starboard side. The damage was enormous.

### The Rescue Operation

Immediately, an SOS was sent out and several ships came to the rescue, including a tugboat. However, the tug was unable to move the ship to safety because Captain Limbor had dropped anchor in order to avoid floating into a minefield that lay just outside the harbor.

Even though Commander Pringle of the English destroyer H.M.S. *Brilliant* brought his ship alongside, many lives were lost during the evacuation. Many jumped too early or too late, thus falling between the two ships into the ice-cold water. Many of the wounded who were tied on to stretchers also fell between the two ships and were lost. The sea was extremely choppy, making the transfers that much harder; and, of course, the bitterly cold water made for little chance of survival for those who went in. Nevertheless, the *Brilliant* was able to save more than 500 soldiers.

Still, seven hundred and sixty three soldiers died in this catastrophe. Amongst them were the twins from New York, Clarence and Carl Carlson. Their bodies were never found. Private Angelo Catalano died on his 21st birthday; his body was never found. His brother Jerry later testified how difficult it was for the family to celebrate Christmas in the years following the tragedy.

The Supreme Command of the Allied Forces tried to keep everything silent in order to keep up the morale of the troops. Only in 1996 did the English Admiralty release documents that detailed what really happened. Since then, a monument for the victims has been raised in Fort Benning, Georgia, U.S.A.

Under the guidance of Allan Andrade, the survivors meet every year to commemorate their fallen comrades. Allan is a retired police officer from New York who made the tragedy public. He also published a book with the testimonies of survivors and their families. At the gathering of 2006, my diving buddy Danny Huyghe filmed some very moving testimonies for the documentary that he is making about the torpedoing of the *Leopoldville*.



## Diving on the Leopoldville

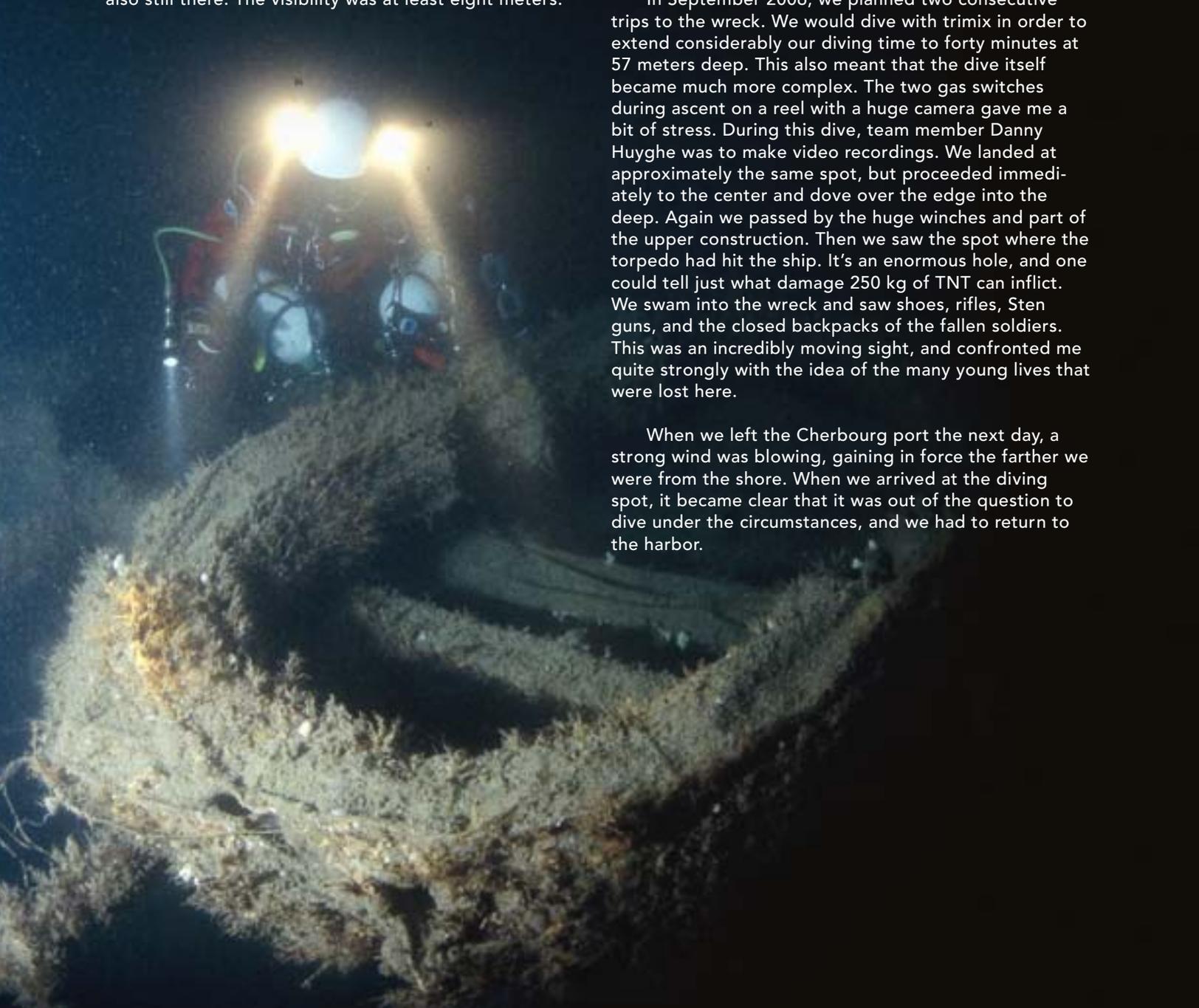
The wreck of the *Leopoldville* is situated only five miles from the port of Cherbourg, but it lies at a depth of 60 meters. Dennis Leonard and Jean Olive of the French Navy Diving Team accompanied us. They had all the necessary permits to dive on this official war cemetery. Not to waste any precious diving time, each phase of the dive was carefully planned and the blueprints of the ship studied in detail. After a speedy descent, we landed on the starboard side of the wreck. We swam immediately over the edge to the deck in the direction of the bow cannon. I took several pictures, and we continued swimming to the middle of the wreck. It was amazing to me that the deck planks were still there after so many years. The big winches to load the ship were also still there. The visibility was at least eight meters.

When we returned to the upper part of the wreck, I saw in one of the aisles a stack of helmets and a pile of ammunition. These helmets were left behind when the soldiers jumped overboard to save their lives. After a few more shots, our twenty-two minutes of diving time had passed, and we had to start the decompression procedure. The intense dive and the sound condition of the ship were overwhelming. Back on board the diving vessel, we had a lively conversation about it. But the wind had gained strength, and the dive for the next day was cancelled. We had to start our return trip of 650 kilometers to Belgium, but we vowed to come back in 2006.

## Further exploration of the wreck

In September 2006, we planned two consecutive trips to the wreck. We would dive with trimix in order to extend considerably our diving time to forty minutes at 57 meters deep. This also meant that the dive itself became much more complex. The two gas switches during ascent on a reel with a huge camera gave me a bit of stress. During this dive, team member Danny Huyghe was to make video recordings. We landed at approximately the same spot, but proceeded immediately to the center and dove over the edge into the deep. Again we passed by the huge winches and part of the upper construction. Then we saw the spot where the torpedo had hit the ship. It's an enormous hole, and one could tell just what damage 250 kg of TNT can inflict. We swam into the wreck and saw shoes, rifles, Sten guns, and the closed backpacks of the fallen soldiers. This was an incredibly moving sight, and confronted me quite strongly with the idea of the many young lives that were lost here.

When we left the Cherbourg port the next day, a strong wind was blowing, gaining in force the farther we were from the shore. When we arrived at the diving spot, it became clear that it was out of the question to dive under the circumstances, and we had to return to the harbor.





### Entrance in the machine room

Two weeks later we dove again on the wreck, and I wanted to take a closer look at the torpedo hole.

Just before the spot where the ship was broken, I discovered several large objects on the starboard side. These items turned out to be three life rafts. These rafts must have been tied to the ship when disaster struck. They would have floated away otherwise. I took a few photos then swam to the backside. We were at a depth of 57 meters, and I decided to enter the wreck with my diving buddy, Eric Wouters. We did so where the machine room is situated. We came into a narrow aisle, and had to turn right. Eric attached his reel because it was too risky to lose our direction for the return. We could see clearly the cranes and tubes that one expects in a machine room. The passage was very narrow, and we experienced difficulty maneuvering. We continued swimming and came to another room where we saw several running frames. Then we signaled each other that it had become too dangerous to proceed, and we had to start our ascent urgently.

Back on board, we discussed the discovery of the life rafts with our French colleagues. It turned out that they never noticed them before, and were really surprised when we told them where they are located on the wreck. The next day, we made video recordings of the rafts because they are very important in the whole picture. They could have saved dozens of lives, if they had been used. The survivors told us later that they couldn't untie them because the knots were frozen.

### A shipwreck that doesn't leave you untouched

The *Leopoldville* tragedy is something that will stay always in my mind, and I think this is also true for all the different team members with whom I have dived on the wreck. The stories of the young soldiers who left for a foreign country to save it from Nazism really touched me.

After the war, there were bitter discussions about the Belgian crew who were blamed for not having done enough to save the soldiers. I think that, in this type of disaster, the overall panic is bound to make victims. Silent witnesses of this are the military life rafts that are still there!





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# Tiger Beach

Text and Photography by Becky Kagan

I splashed down into the clear blue Bahamian waters, and knelt on the rippling sand as I peered into the distance. I knew what I was waiting for, and she appeared almost instantly. I've been in the water with other large animals, but never anything like this. Out of the shadows, I saw the silhouette of a large object making its way towards me. It didn't hesitate as it swam right towards my camera; its huge body gliding over me only inches away. The unmistakable brown and grey stripes, blunt nose, and the large dark eye of a tiger shark stared right at me.





I was invited onto the *M/V Dolphin Dream* with a crew from the NBC Today Show and Shark Diver Magazine. Departing from West Palm Beach to the West End area of Grand Bahama Island with only one goal in mind: to dive with sharks. But not just any shark — we were seeking one of the most dangerous sharks in the ocean, the tiger shark (*Galeocerdo cuvier*).

Tiger sharks are the second largest predatory sharks next to the great white, and have the second most reported attacks on humans. This may be due to the frequency with which they come into contact with humans, as they inhabit tropical and sub-tropical waters around the world. They are solitary hunters usually spending the day in deeper waters, and then hunting at night in shallow areas. Tiger sharks have an eclectic diet, feeding on all types of prey both organic and inorganic. They are surface feeders, so their diet usually includes turtles, birds, and fish carcasses, but they have been known to eat anything — even garbage. They are quite large, ranging anywhere from eight to twenty-four feet long, and get their name from the distinctive dark tiger-like bands on their light colored body, which fade as they mature.

Our destination is a place called Tiger Beach, which is about twenty miles north of Grand Bahamas. It's a spot slowly growing in popularity that is right at the edge of a deep-water drop off. Tiger Beach itself is a sand bar only twenty feet deep that is home to several species of sharks, including lemon sharks, tiger sharks, and the occasional hammerhead.

Once on site, the bait buckets are dropped into the water along with some chum to attract the sharks. At first, the lemon sharks come in towards the boat. They circle, looking for a nibble as a crew member excites them by throwing a fish head that is attached to a rope out about ten feet, then pulling it back in. I'm told this practice excites lemon sharks, which in turn draws in the tiger sharks. It also keeps the sharks interested so they don't leave. It works, because almost at once the unmistakable tiger shark shows up. It is time to gear up and splash.

No chain mail, no cages — only cameras to document our trip. We excitedly jump into the clear blue water. It's shallow and fantastic for underwater photography and video! I decided to shoot stills on my first dive so I could really learn the behavior of the tiger sharks, instead of staring through a viewfinder not paying attention to them. I was one of the first divers in the water, and dropped down to twenty feet and swam out towards a bait bucket. There I looked out as far as I could see, and saw a shadow moving towards me. As it got closer, I was just in awe...taking it all in...the beautiful coloring of the dark stripes on her back and a large blunt nose. This was a 14-foot female shark, the largest one I'd see on the trip. She looked like a great white swimming towards me because of her girth, but surprisingly swam quite slowly as though knowing how powerful she is. My heart was pounding as she swam right at me, unafraid, while making three passes at my camera allowing me to take some shots of her. It was so different than any other shark I'd ever been in the water with.

As she passed by, she would slow down, almost stopping; her large dark eye would move up and down, as though checking me out. This felt a little disconcerting since I was in her world now, and she had complete power over the situation, yet she just seemed curious.

By this time, there were three tiger sharks and a few more divers. After fifteen minutes, we had seven tiger sharks and over a dozen lemon sharks surrounding us. It seemed no matter where you turned, there was a shark there! I learned it's very important to keep your head continuously swiveling, and know where each animal is around you. It's hard when there are that many, but you really need to be able to look them in the eye and not let them sneak up on you in the water. They come very close and aren't afraid to bump a diver or push their large, flat noses against a dome port to check it out.

After my first dive, I exited the water with such respect for them. They are very curious animals, but they knew what they were interested in — and it wasn't us. It was the bait bucket, and they knew the difference! I was surprised at how slowly and gracefully they moved through the water, they even fed slowly, unlike other sharks I've seen. They would swim off into the distance and then come back, as though evaluating the scene. It seemed as though they didn't mind us being there, a few divers even reached out touching the shark as she swam by.

I know to a lot of people seeing a shark in the water can be a terrifying experience. To most divers it can be a moment they will never forget. I gained so much respect for these sharks, being so close to them and able to observe them. You really get to learn their mannerisms and body language. I never felt in fear of my life, and I don't consider myself a "thrill seeker." I felt more respect and awe than anything. Sharks have been around for millions of years, and they are incredible at survival — as long as we can educate others about them, and change that terror into knowledge. I'm a realist and understand that tiger sharks are responsible for a large percentage of fatal shark attacks; but we share the ocean and we are bound to come into contact with them, and with other species of sharks. Humans are also the tiger shark's largest threat, between big game fishing, commercial fishing, and shark finning.

Some describe sharks as man-eaters or cold blooded killers, but others will describe sharks as beautiful, graceful, and inspiring. How can so many people describe the same animal so differently? If you've ever been in the water with a shark, you may have gained respect for them and formed a new opinion. Shark dives have been becoming more popular over the years. Where once these animals were so feared, they are now becoming popular with ecotourism and educating people about these misunderstood creatures.



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Photo: Actual Computer Size

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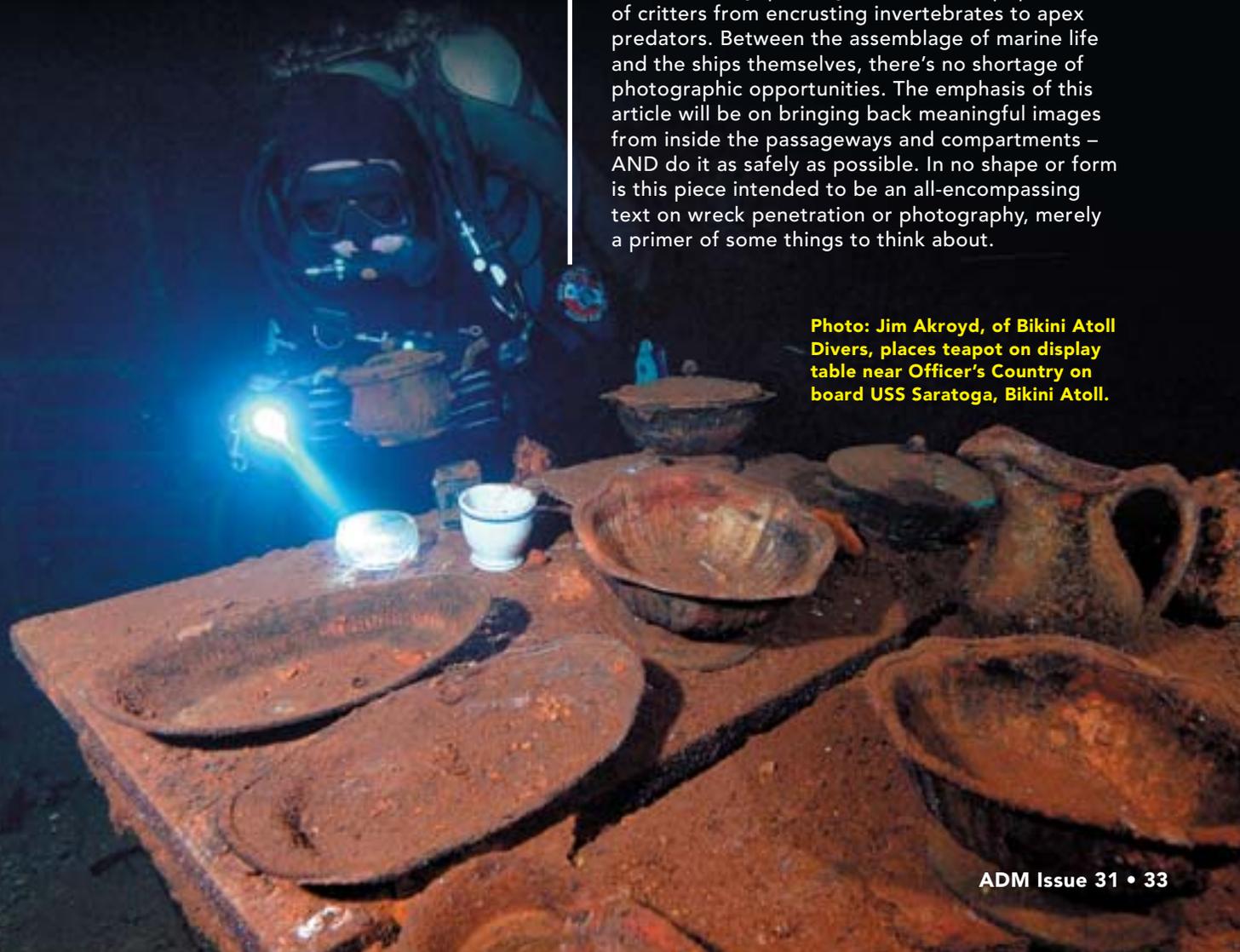
# DEEP PENETRATION

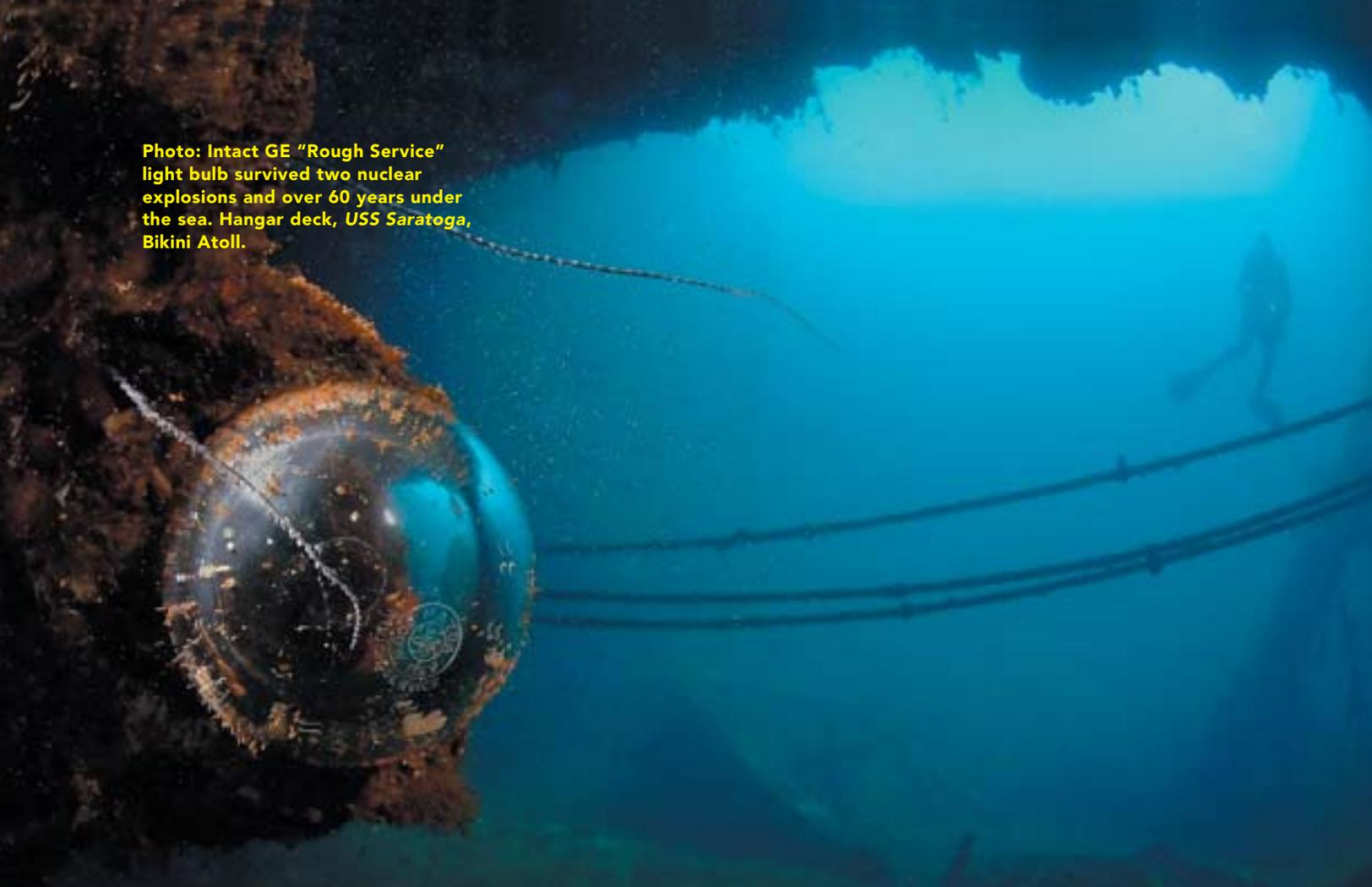
## SHOOTING BELOW DECKS

Text and Photography by Joseph C. Dovala

Not all sunken ships are the same. There are shallow wrecks, deep wrecks, very old barely discernable wrecks, wrecks sunk in war, wrecks sunk to make artificial reefs, even wrecks placed on the sea bed for Hollywood movies. While each ship has a different history and characteristics, they share one thing in common – they all have been transformed into undersea time capsules. The ship's design reflects how life at sea existed in a particular era, and personal effects that went down with them signs a personal signature to those that walked and worked the decks. Even vessels placed intentionally on the bottom as man-made reefs often have glorious histories contained within their hulls that can be felt by the astute diver during a visit. As artificial reefs, they tend to attract and, ultimately, possibly sire their own population of critters from encrusting invertebrates to apex predators. Between the assemblage of marine life and the ships themselves, there's no shortage of photographic opportunities. The emphasis of this article will be on bringing back meaningful images from inside the passageways and compartments – AND do it as safely as possible. In no shape or form is this piece intended to be an all-encompassing text on wreck penetration or photography, merely a primer of some things to think about.

**Photo: Jim Akroyd, of Bikini Atoll Divers, places teapot on display table near Officer's Country on board USS Saratoga, Bikini Atoll.**





**Photo: Intact GE "Rough Service" light bulb survived two nuclear explosions and over 60 years under the sea. Hangar deck, USS Saratoga, Bikini Atoll.**

So you want to crawl inside what's essentially a submerged man-made cave, place hundreds or thousands of tons of steel over your head, and then work in nearly total darkness? The absolute first criterion is to evaluate your skill and desire level long before you book that trip. If you do not have the proper training and gear, then entering any overhead environment is foolhardy. Yes, it's done all the time, and every year the fatality statistics show a mere portion of the results, as the number of near misses doesn't make the list. There is a BIG difference between managed risk and home-grown risky behavior.

Serious wreck explorers make a substantial investment in education and equipment before making penetrations. They also study maps and drawings of the vessel to learn as much as possible before getting wet. Paying close attention to briefings and soliciting information from others is an integral part of the dive plan. The immersion calls for strict adherence to bottom times, air consumption rates, desired length of penetration, and, most important, emergency contingencies. The degree of planning is reflected in their equipment. They carry adequate gas supplies for the objective which usually consists of twin cylinders, but could also be a large capacity single with a smaller tank (sometimes called a pony bottle) for a redundant gas supply held in

reserve. Breathing gas is managed based on consumption rates of those divers making the plunge. The highest breathing rate and decompression obligations of the dive are usually the limiting factors for its duration. One common technique of managing gas supply is called the "rule of thirds." One third of the available gas is used for entry, one third is used for return, and the last third is held for emergency use only. Redundant regulators, multiple powerful lights, guide reels, computer/bottom timer with backups are also required before every significant penetration. Adequate cutting tools – at least two – are a must as well. Besides the cables, ropes, lines, etc., that most sunken wrecks are "equipped" with before they sink, there most likely will also be a nice selection of fishing line, anchor line, nets, and maybe even diver guide lines left behind by visitors after sinking. A sharp blade for ropes and nylon lines and a pair of shears for cables, wires, and other metals need to be added to the wreck diver's kit.

Techniques and skill development are as important, if not more so, than having the proper gear. Buoyancy and propulsion techniques have to be mastered before swimming inside overhead environments. These two diving-inherent skills, while not overly difficult, do require effort and practice. Far too many certified divers, including "advanced" c-card holders, show a lack

of ability in this department. Ricocheting off the deck with fins and arms flapping all over the place is not a pretty picture and becomes dangerous quickly in a confined space. Even a small amount of silt kicked up will pretty much negate any chance of capturing good images. The nuances of buoyancy control apply to the entire dive team.

Ideally, you want as horizontal a position as possible without needing to do excessive hand or foot movement to maintain it. This can be achieved through shifting a small portion of ballast weight around the body as needed. For instance, if your feet float, you can shift a couple of pounds to the lower legs with ankle weights. If head up is a problem, you can put a few pounds on the upper portion of the air tank. A combination of BC jacket weight pockets and a belt will also spread some of the weight around. Make sure to pay attention to roll, as a little too much lead or gear on one side or the other can make it very difficult to stay right side up. With the plethora of weighting options available to us today, it has never been easier to achieve balance in the water. If you can maintain a horizontal position with a foot or two of water beneath you without stirring up or crashing into the bottom, your buoyancy skills are in excellent shape.

Flailing arms and legs are the single biggest enemy of keeping the water clear inside a wreck, so being proficient with your fins is far better if it's not an after thought. Large kicking sweeps suitable in open water have no use inside a confined space. A number of other fin movements such as the "modified flutter" work well and still give adequate propulsion. The legs are bent at the knees and only the ankles are used to power the fins, the thighs are kept stationary. Another popular method is the "shuffle kick" where again the knees are bent upward, and you use small sideways motions with the calves bringing both legs out and then back in together. The key is small efficient movement as far away from sediments as possible. Hand movements are also controlled with only gentle minimal sculling or a single finger used to keep balance. Wildly swinging arms will not only dislodge sediment (or a buddy's mask), but also give you a fairly decent chance of having to rummage through the first aid kit after the dive because of skin to steel impact. The wreck diver's mantra, indeed every diver's mantra, should be to keep your hands to yourself and know where your fins are.

It is not only the dive kit that needs special attention for penetration, but also the camera configuration. Long, multiple arm sections on strobes might be great for open water wide-angle, but inside a ship they can be grabbier than a drunken frat boy. A single arm on each side works far better. Keeping the strobe arms collapsed parallel with the camera housing body helps to keep a low profile while navigating passageways and hatches. I find that keeping just enough tension on the flash arm joints to keep them in place works best. This way, it's a simple matter of pulling them into position and collapsing them again without having to constantly fumble with the ball clamps. Unless you're in a very large compartment such as a cargo hold, you'll generally want the flashes pointed close to 45



**Jim Akroyd looks inside cabinet located in dentist's office, USS Saratoga, Bikini Atoll.**



**Goodies on display table near bridge of USS Saratoga, Bikini Atoll.**



**Retrieving teapot from silt near captain's quarters, USS Saratoga, Bikini Atoll.**

degrees or more away from the lens direction. Even if you have perfect fining technique, there will always be at least some particles forced into the water column. Ever heard of “thousands of tiny scrubbing bubbles...” (from an old TV toilet bowl cleaner advert)? Well, unless you’re on a closed circuit rebreather, every exhale is going to send a barrage of “scrubbing bubbles” heading for the overhead and rust, paint chips, silt – and crud is going to come raining down. The first couple of minutes, or seconds, is when you generally have the clearest water for image making when first entering a particular section or compartment. This is why you don’t want to waste precious time fumbling with strobe arms just prior to a shot. For smaller compartments, it sometimes is better to send the model in and then just stick your camera through the hatch and fire away. This method keeps your bubble trail out of the compartment, and may buy you a couple of extra frames. Once a section is even partially silted out, the game is over.

Photographically speaking, lighting is arguably the biggest concern when shooting below decks. While backscatter, as mentioned above, is a primary problem, there is a host of other less obvious illumination issues as well. A full-power strobe blast can ricochet off bulkheads like a Hollywood action movie bullet. Even the darker rust/silt covered varieties of older ships reflect more than seems reasonable. Newly sunk artificial reef vessels can positively glow. At other times, they soak up light like the office rummy with alcohol at the

company Christmas party. The trick is to try to use the reflective light as an ally when setting up composition and exposure. Direct full lighting with flashes can result in harsh murky hotspots with very dark backgrounds. There is little sense of “being” there as from the perspective of an exploring diver. For an example, the image of the hellfighter in the hanger loses much of its mystery when overly lit up from multiple high power strobes. Using only diver HID’s and a touch of ambient light gives the scene a more “realistic” look, as though the viewer is actually on the dive. Admittedly, this takes far more effort and cooperation from your dive buddies to pull off, so make sure you have something to bribe them with.

Using lower output lighting usually means far slower shutter speeds and wider apertures. The new breed of high ISO performing cameras are perfect for this kind of shooting. Camera stability becomes more of an issue below 1/30 second, give or take. On land, of course, you’d break out the trusty tripod. While tripods can be and are used underwater by a number of photographers, they definitely increase the complexity. Taking yet another piece of bulky gear on a penetration has to be weighed against the increased hassle factor and risk. I have used tripods in open water, but prefer to try and use naturally existing supports inside of wrecks. Fortunately, there are often pipes, beams, cabinets, etc., that can be used as an impromptu camera stabilizer. Extreme care must be used maneuvering around these objects.



**Photo: One of the remaining F6F Hellcat fighter aircraft in the hangar deck. Lit by available light and diver’s canister lights.**

Besides the obvious potential entanglement issues, all one needs is solid jagged-steel contact with the dome port to end that good nitrogen narcosis feeling. As on land, breathing techniques can help in steadying the camera. Typically, some version of holding your breath is used just before pressing the shutter release. For a variety of reasons I try to avoid doing this underwater, especially on decompression dives. When I'm doing things right, my breathing rate is slow and steady with deep inhales and slow extended exhales. During the last second or two of my exhalation, I try to be in position to take advantage of the "natural" interval before taking my next breath. While this takes a little practice, the method works quite well, and becomes second nature in no time. The trick is to let the time gap between breaths be conducive to one's own breathing cycle, and not consciously extended (that's holding your breath) to get that extra time delay.

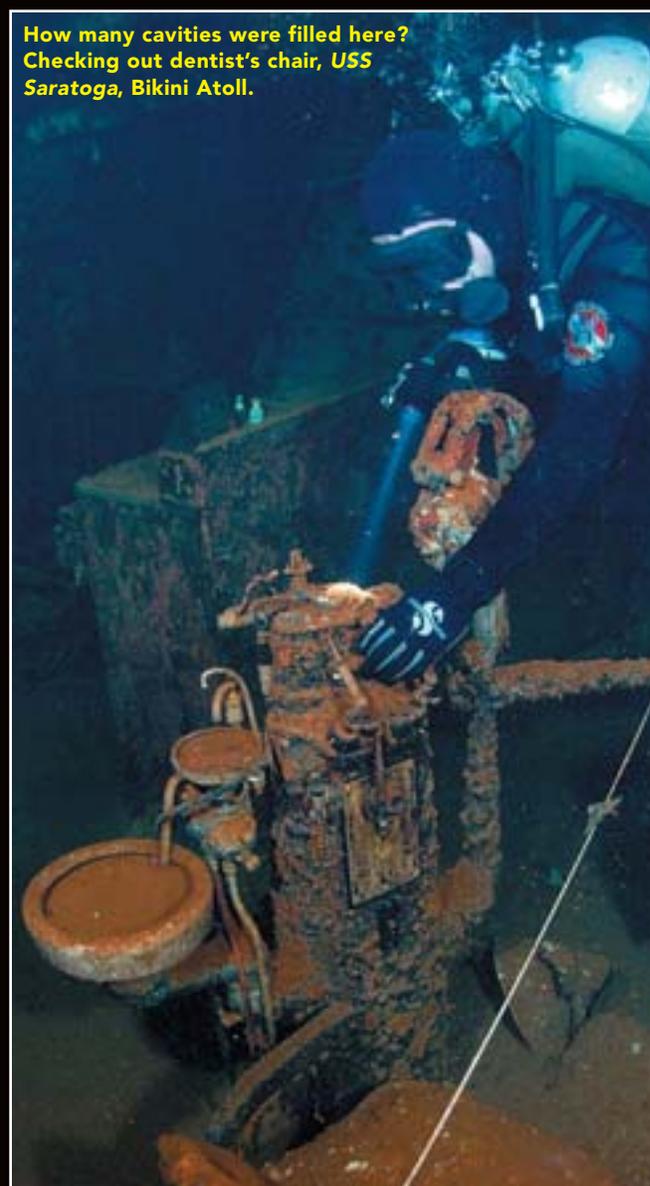
Using strictly natural available light usually means having a port, hatch, torpedo hole, or some other opening letting in the sun. This kind of illumination can make for very dramatic images. Mostly, this means silhouettes; but by adding a touch of flash and letting the ambient light "take over" the exposure, you can create an ethereal quality to the photo. When I shot film, my waste basket tended to fill with slides of ambient-light-take-over accidents. With the immediate feedback of digital, it has become easier to fine-tune just the right amount of over exposure for the look you want. Available light is also the king of black and white shooting. The high contrast ranges can make for very effective grey scale images. Again, with the versatility of digital, you can visualize for both color and B&W on the same dive with just one camera. Most image makers I know shoot in color and then convert later on the computer. Better B&W images are generally of higher contrast and strong shapes, but don't ignore the mysterious look of muted grays and dark contours that ship wrecks can provide.

Working with models below decks takes very good communication that starts well before anybody starts blowing bubbles. Underwater instructions must be clear and simple. Often the best outcome requires multiple dives in the same area to figure out the best way to accomplish the task. When that isn't possible, learning as much as possible about what to expect from someone else who's been inside is quite useful. And an experienced professional guide is invaluable. Once you've formulated an idea, make sure to talk to your model(s) in enough detail so they won't have to second-guess you down below.

Ad-libbing during a penetration dive is NOT a good idea for no photo is worth jeopardizing the safety of the dive team. Taking the images have to be secondary to all else of the dive exploration. Keep in mind when working with people in overhead situations that they are already task loaded. Avoid hitting them with point blank high power strobe blasts. Watch your own fins. Pay attention to time, depth, and other dive requirements. You can often let some of these parameters slide in open water, but not here.

Wearing some kind of color on the model really helps with separating them from the dark background. Lively fins, mask, and gloves are a big help as are red and yellow BC's. They don't have to be gaudy, but having something other than light-sucking black makes for a brighter image. And make sure to let the model dive. A wreck explorer is always in some kind of action, albeit slowly. Static looking divers staring at the camera rarely exude the excitement of adventurers. Pulling an artifact from the muck or showing a perfect fining technique through a silted-out compartment can help share some of the thrill.

To be sure, the "keeper" rate is low shooting in this environment. There is increased risk for both you and your equipment. Finding buddies who'll put up with your crazy filming ideas are hard to come by. And there are more than enough challenges for all who venture inside, but the chances for some unique images are definitely under all that steel.



**How many cavities were filled here?  
Checking out dentist's chair, USS  
Saratoga, Bikini Atoll.**



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# DON CURRIE

*ADM Featured Photographer*

**D**on Currie is a relative newcomer to both diving and underwater photography. His love of photography started over twenty-five years ago in high school. He took a photography class as an elective, and was hooked from the first pinhole camera project. Don was the geek in high school who had a darkroom set up in a closet in his bedroom.

In 2007, on a trip to the Big Island of Hawaii to shoot a wedding for a friend, Don went on a Manta Ray Night Dive/Snorkel that would change his life. Not yet certified to dive, he was snorkeling on the surface shooting photos with a rented underwater point-and-shoot camera, his first underwater photos. As he watched the staff photographer float effortlessly below the surface photographing the gentle rays, Don was

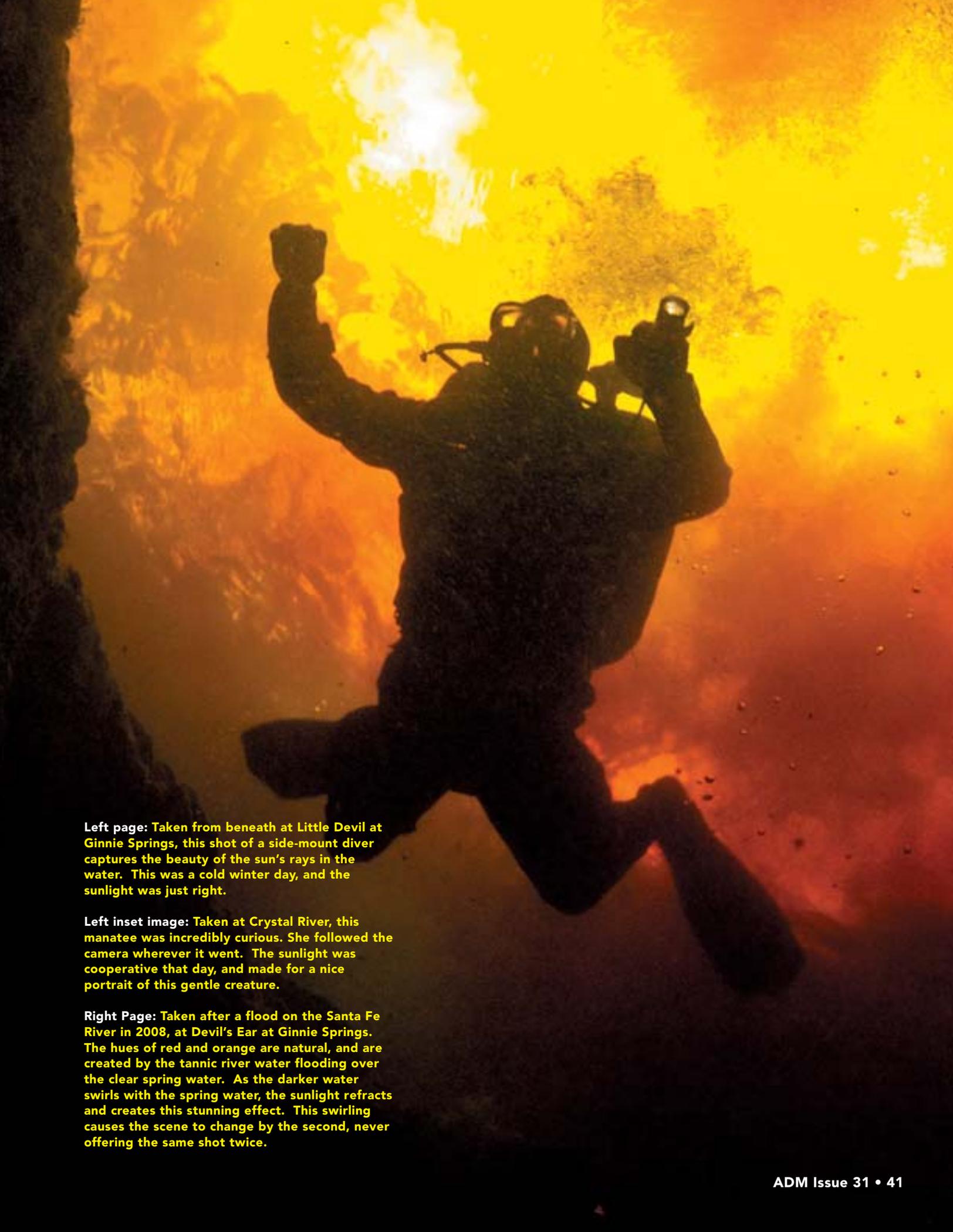
**Above Photo:** This was shot at Jug Hole. The lighting in the cavern is dramatic, and makes for great shots. On this particular day, the models wanted to add some "bling," so they carried deco bottles and stages down the long trail to the basin. None of these were needed, but the models are a bit nuts! This remains one of Don's favorite photos.



hooked. The day he arrived home from Hawaii, Don called and reserved a spot in the next Open Water course. A week later, after completing his open water training, he ordered his first housing and strobes for his Nikon D200. He literally learned to dive so he could photograph what lies beneath.

Don moved from open water to technical diving and has brought his camera along for the journey. If you ask him, he'll tell you that he still has lots to learn and that he is just lucky most of the time. Don finds the challenge of shooting underwater to be exciting. There is always something moving, light changing, flow throwing you around, and let's not forget the bubbles. He still dives OC and the bubbles are a definite challenge. He is fascinated by the interplay of light and darkness. There are so many ways to capture it. In the caverns, this is most readily apparent, and this is one of Don's favorite places to shoot. Shards of sunlight streaming down into the underwater world provide a link to the surface, and result in some of Don's favorite images





**Left page:** Taken from beneath at Little Devil at Ginnie Springs, this shot of a side-mount diver captures the beauty of the sun's rays in the water. This was a cold winter day, and the sunlight was just right.

**Left inset image:** Taken at Crystal River, this manatee was incredibly curious. She followed the camera wherever it went. The sunlight was cooperative that day, and made for a nice portrait of this gentle creature.

**Right Page:** Taken after a flood on the Santa Fe River in 2008, at Devil's Ear at Ginnie Springs. The hues of red and orange are natural, and are created by the tannic river water flooding over the clear spring water. As the darker water swirls with the spring water, the sunlight refracts and creates this stunning effect. This swirling causes the scene to change by the second, never offering the same shot twice.



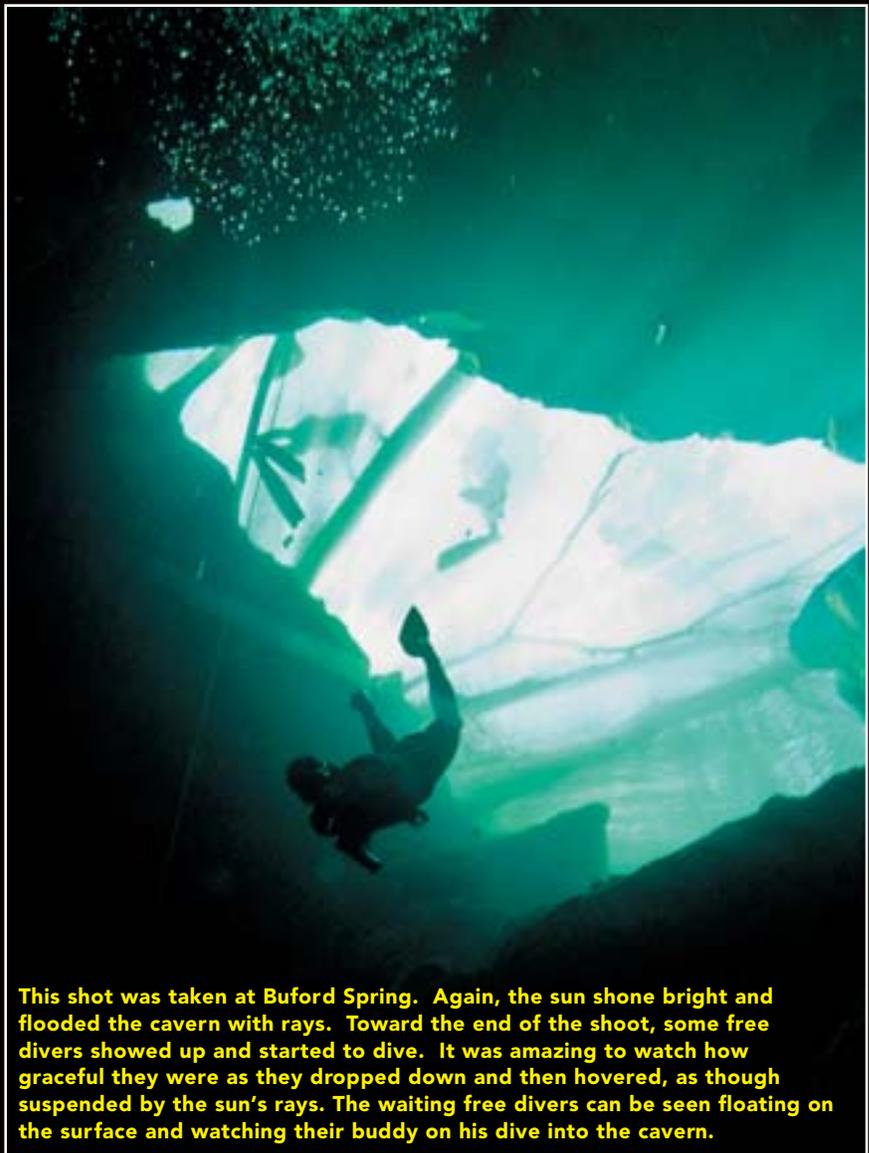
**Above: Arriving at Ginnie Springs early one morning, this scene greeted Don. There was no one else at the parking lot, and the sounds of the river and springs waking up were all around. The air was cold and the water was warm. The rising mist was caught in the rising sun to reveal another world.**

Big footsteps are hard to fill, and some of Don's favorite underwater photographers are also his friends. Photographers like Jill Heinerth, Becky Kagan, Amanda Cotton, and ADM's own Curt Bowen provide him with inspiration and support. Still new to underwater photography, Don drinks it all in and looks forward to the day when he will have some advice of his own to share.

The springs, caverns, and caves of North Florida's cave country are currently the setting for most of Don's photographs. Recently, he traveled to Mexico to photograph the cenotes of the Riviera Maya. It was one of the most amazing times of his life, and he has already reserved a week in January of 2010 for a return to Mexico. When summer comes, Don plans to head to the wrecks of the Florida Keys to explore and photograph their sunken frames bringing forth new life in the ocean. There is always something new to learn, some new thing of beauty to shoot, some place to see like no one has seen before. There is a moment when it all comes together — and that is what Don lives for.

Don currently shoots with a Nikon D200 with a Sigma 10-20mm lens (at 10mm), an Ikelite housing, and Ikelite DS-51, DS-125, and DS-160 strobes.

[www.doncurriepictures.com](http://www.doncurriepictures.com)  
[www.doncurrieblog.com](http://www.doncurrieblog.com)



**This shot was taken at Buford Spring. Again, the sun shone bright and flooded the cavern with rays. Toward the end of the shoot, some free divers showed up and started to dive. It was amazing to watch how graceful they were as they dropped down and then hovered, as though suspended by the sun's rays. The waiting free divers can be seen floating on the surface and watching their buddy on his dive into the cavern.**

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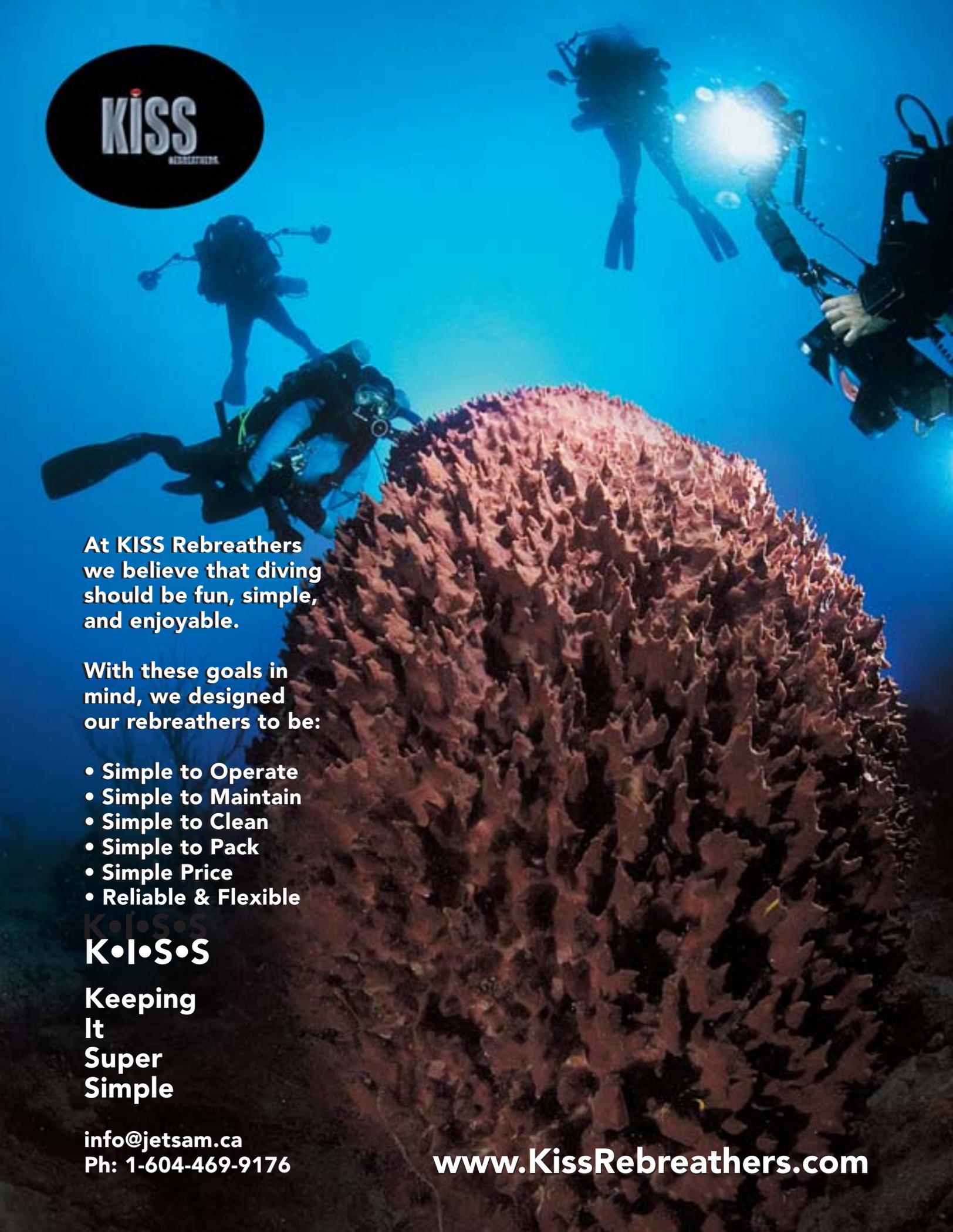
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# Fish of a school, move together

# ADM PHOTO WEEK

Photo by Doug Ebersole

Text by Curt Bowen

Photography by Doug Ebersole,  
Bruce Boaz, Dora Valdez,  
Robert Hew, and Curt Bowen

**A** kaleidoscope of soft corals clusters on every inch of the descending wall, creating a dense curtain of color that shifts and shimmers in your viewfinder. The bright sunlight creates a million hues of contrast as it glistens through the waves on the water's surface, down to the deepest blue of the vast cold ocean that plummets below your fins.

Hovering closer to the vertical wall, your twin underwater strobes fill in the deep reds, yellows, and greens that have been hidden by the depths; and your camera captures the infinite detail of the surrounding marine life and the model divers silhouetted against the glistening rays that descend from the lighter blue waters above. Your skill, equipment, and creative drive combine to freeze a transcendent moment, fleeting and beautiful, but now captured forever to enjoy and share.



Photo by Robert Hew



Photo by Bruce Boaz

One can imagine this perfect shot: clean, crisp colors, in proper focus, and framed just perfectly.... But if it were that easy, everyone would be amazing underwater photographers! And the rest of us wouldn't have to snap that shutter hundreds of thousands of times in the never-ending attempt to capture that once-in-a-life-time perfect image.

The evolution from an open water scuba diver to an inspiring underwater photographer is a long and sometimes frustrating process. Years of practice and error all too often defeat the novice photographer before they are able to grasp the amazingly simple concept of underwater photography.

Changing the famous quote "birds of a feather flock together" to "fish of a school move together," imagine a group of underwater photographers with the same interest — but varying skill levels — who come together for a week-long session of practice, increasing knowledge, and working alongside each other for the simple objective of becoming better. This was the exact goal I wished to achieve when we designed the first Advanced Diver Magazine's photo week.

Next, I needed a location that could supply a multitude of photo divers who came from different experiences and backgrounds — from the new open water to the extreme deep,



Photo by Doug Ebersole

mixed-gas rebreather explorer. Only a few locations on the planet immediately come to mind. Divetech, located at the Cobalt Coast resort in Grand Cayman, was my first choice.

Divetech has been providing exceptional service for over a decade to everyone from the open water student to the extended range diver. Owner Nancy Eastbrook was actually one of the first divers in Cayman responsible for pushing to change the island's long standing regulation of no decompression diving and a depth limit of 130 feet to the current unlimited depth and time regulations today. Nancy has compiled an astonishing quantity of open water to technical dive equipment over the past decade, including hundreds of aluminum 80's, stage tanks, doubles, rebreathers, rebreather cylinders, compressors, oxygen

and helium boosters, along with a complete shop of almost every little gadget and t-shirt one could desire.

Cayman itself is an exceptional location for underwater photography because of its geological composition. If you were to remove the surrounding ocean, the island of Grand Cayman is really the summit of a giant mountain. Replace the ocean, and within the distance of a casual swim from any shore, there are miles of shallow reefs that plummet thousands of feet down vertical walls containing massive coral overhangs, giant sand chutes, and unlimited photo opportunities. The extreme depths of the Cayman trench that surrounds the island provide deep up-welling currents that supply unbelievable water clarity, many times exceeding 200 feet.



Photo by Curt Bowen

## Onto the Classroom

The first Advanced Diver Magazine photo week was to be a learning experience for all who attended. Being my first attempt to host such an event, I would learn many things that worked well, some that did not, and ideas on how we could improve on such events in the future.

Each participant signed up with a specific personal goal in mind — from as simple as desiring to improve the color of their photos, to wishing for an understanding of manual camera settings, and as complicated as multiple-strobe wide-angle photography.

Such a wide range of goals and experience did initially cause some tribulations; but with some assistance from Nancy and an



Photo by Dora Valdez



Photo by Doug Ebersole

Photo by Robert Hew



Photo by Robert Hew



Photo by Doug Ebersole



Photo by Curt Bowen



extra dive master, we were able to split the day boat into a deep rebreather team and a shallow open water group. This enabled the deeper rebreather photo team an ideal time and depth scenario for one long two-to-three hour dive down the vertical walls, ending each dive on a colorful reef. Meanwhile, the open water group completed two shorter excursions in mid-range depths, then met up with the rebreather team on the shallow reef.

Underwater photographers are unlike most divers who enjoy speeding along the reef attempting to cover as much ground as possible. Photographers enjoy casual dives that provide them with ample time to search, focus, and shoot —and if the first attempt did not get the desired results, time for a second, third, and tenth time....

Macro photographers can easily be found hovering around the same large coral head, or with knees in the sand pointing their cameras and strobes at some weary creature that's attempting to stay hidden in its little hole. Only patience pays off for the diver!

Mixing both recreational divers and underwater photographers normally does not please either group. The anxious recreational diver feels slowed down and held back by the photographer attempting to shoot, or maybe the photographer misses desired shots because of the faster pace of the recreational diver.

### **Fish of a School Move Together**

Bring a group with the same interest together, and an amazing progression occurs. Each diver then becomes a set of eyes and a model for all the others within the group. If something interesting is discovered during the dive, signals are shared to inform everyone of the discovery. If someone needs one or two underwater models to show scale or contrast, each team member eagerly learns just how difficult it can be to perform as an underwater model.

Interestingly enough, by the end of the photo week, the groups were planning tactics to capture very difficult wide-angle shots that required the combined efforts of three to five members. In another mutually beneficial effort, participants cooperated on night dives where they used spotter divers with giant underwater lights to assist with "getting the critter" photos.

### **Night Activities**

Up early and dive all day means only one thing for those of us over 40: early bed times. But before bedtime we did manage to hold an evening photo course, critique some images, and talk amongst ourselves about how each diver felt they had done for the day's shoot. This provided each photographer a night to think about some creative suggestions for how they could improve their skills during the next day's dives. The week ended with a screen show of each diver's best images for the week.

If you are a novice photographer wishing to just learn the basics, a semi pro looking to improve of your troubled areas, or a pro who would like to hang with divers with the same interests as you, please feel free to join our 2010 ADM photo week from April, 17th to 24th, 2010.

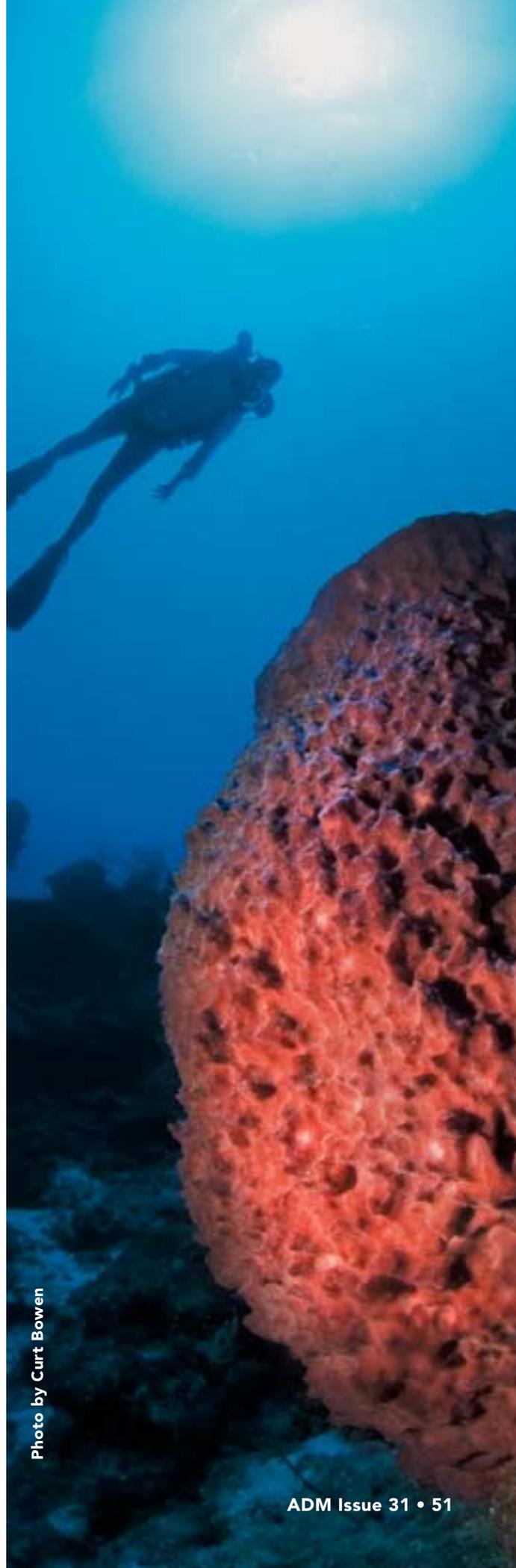


Photo by Curt Bowen

# ADM Photo Week 2010

April 17th to 24th, 2010  
Divetech • Grand Cayman

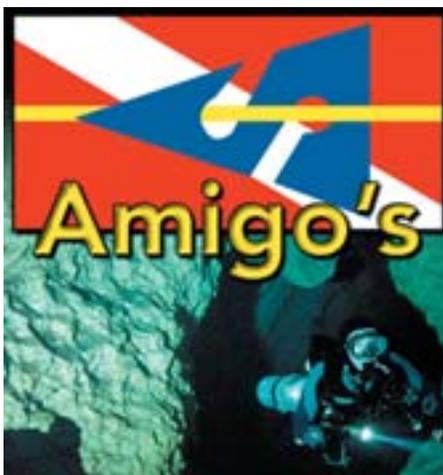
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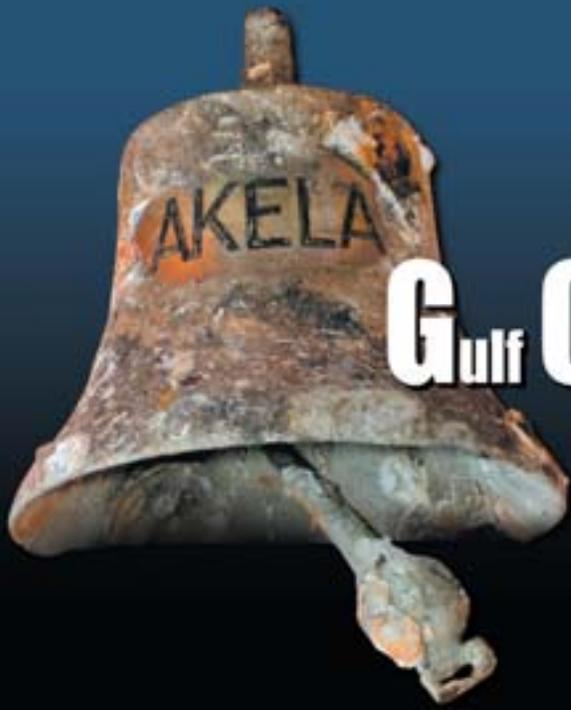


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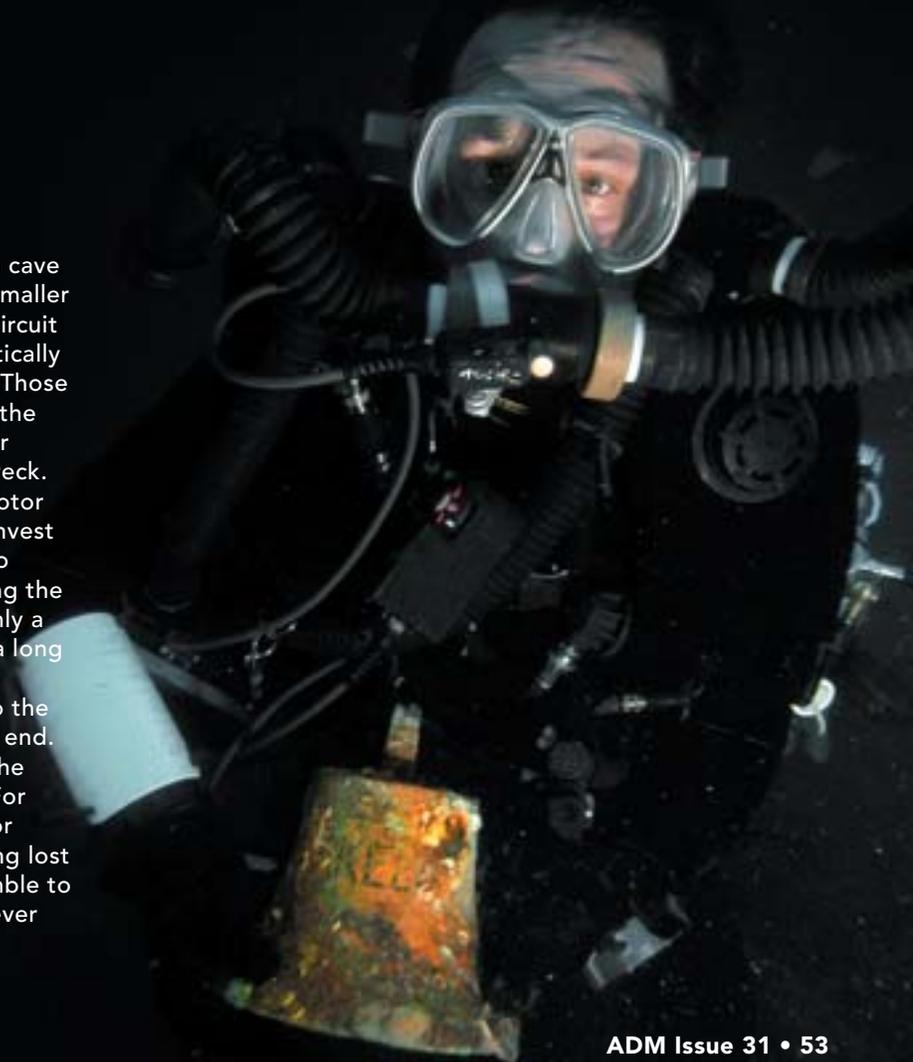
# Gulf Of Thailand Wrecks?

*As Evan Kovacs posed for my camera next to the helm he looked down on the mud covered deck and spotted an interesting shape. Picking it up he created billows of silt and in the near zero viz I heard him start hooting and hollering through his breathing loop; Evan had lucked into the most coveted of all wreck artifacts, the ships bell! The name engraved into the bronze positively identified this Flying Dutchman as the AKELA.*

**Text by Richie Kohler**

**Photography by Evan Kovacs, Chris Clark, and Richie Kohler**

In our ever shrinking world, the opportunity for divers to explore virgin territory, whether it's a cave system, reef formation, or shipwrecks, grows smaller with each passing year. In the last decade, open circuit tri-mix and closed circuit rebreathers have dramatically expanded the range of the technical wreck diver. Those with the explorer bug are no longer content with the "been there, seen that" sites, so they push further afield in pursuit of diver nirvana: the virgin shipwreck. Putting their money where their mouth is, they motor past the sure thing, the known wrecks, eager to invest the time and money on days of perfect weather to look, look, and look. Many make the ride, "mowing the lawn" for hours on end and pay their dues, but only a few get the chance to be among the first to find a long lost ship. It's the thrill of the hunt, the amped-up adrenaline rush of pulling down a line spiraling into the blue, with no idea of what to expect on the other end. Once bitten, the addiction is hard to shake, and the siren song of the unknown will ring in your ears. For some, it's the booty call of recovering artifacts, for others the desire to capture ghostly images of long lost vessels before they biologically implode and crumble to unrecognizable pieces of scrap, scattered in the ever shifting sand, rust to dust.





I know a place where it's still possible to discover new wrecks: THAILAND. There are many things to like about Thailand, (the people, culture, traditions, and food!); but, for me, virgin wrecks in warm, clear water with no dry-suit required is a win/win situation! The adventure begins when you land in Bangkok...a crowded and harried metropolis whose neon-splashed nightlife makes New York City look like Iowa. No matter what urban center you're from, it's impossible not to be dazzled with the crowded chaos of Bangkok. It's from here that most sport divers head to places like Phuket, Panang, Koh Phangan, or Koh Tao; exotic names for equally exotic locales. For years, Thailand has attracted international divers to the Andaman Sea on the west coast, with its warm, clear water, coral reefs, and whale sharks. Off the east coast of the Thai isthmus, the Gulf of Thailand is a bell-shaped body of water stretching from the capital city of Bangkok in the north, with Cambodia and Viet Nam on the eastern border, and emptying into the South China Sea. And get this — most of it never gets much deeper than 300 feet! For as long as ships have plied the Gulf of Thailand, typhoons, wars, and accidents have sent more than a fair share of them to the bottom, each waiting to be found. Chinese junks, loaded with Ming Dynasty porcelain, sit rotting in the sand next to modern-day freighters loaded with cargos of teak and electronics. The ebb and flow of World War II scattered Allied aircraft and submarines next to their victims of Imperial Japanese Maru's, and warships loaded with bombs, bullets, and the materials of war.

It was this wild-west frontier for exploration that enticed two British ex-pats, Stuart Oehl and Jamie MacLeod, to abandon "normal" lives in the UK and live the Peter Pan existence of technical dive operators living on the tropical island of Koh Tao in the Gulf of Thailand. Purchasing an 80-foot ex-German patrol boat, they turned it into the MV Trident, a technical dive platform with a single purpose: to find shipwrecks. They collected as much historical data as possible from archival sources about shipping losses in the Gulf, and began to make friends with any Thai/Cambodian/Vietnamese fishermen they lucked into. Over time, and with a seemingly inexhaustible supply of cigarettes and Heineken beer for barter, they collected a number of "marks" or GPS coordinates of "hangs" from sources known simply as "red boat" or "blue boat." These "hangs" were sites where the fishermen had snagged or lost their nets, or were simply where the fishing was good. Like any other gamble, some sites were a bust while a few others played out, and they began to find wrecks like the World War II Japanese freighter Sakura Maru and the tanker Nan Mei #5, and modern wrecks like the Seacrest, an oil drilling ship lost during a typhoon. Upside down in 260 feet of water, the wreck is already covered with huge filter feeders, with the two huge props projecting up from a field of sea fans and soft corals. You access the turtled ship through the moon pool in the center of the hull at 200 feet, and drop down to explore the jungle-gym-like maze of pipes and deck-mounted derrick which lies bent under the hull sixty feet below. The whole of the ship can be accessed from this point, with hatches and companionways stretching into the blackness. In the compartments deep in the wreck, the water is still and anaerobic, and it's here that remains of the drill ship's crew have been found.



The Trident team's success in locating shipwrecks in the Gulf of Thailand was noticed by a U.S. submarine veteran who tasked the team with looking for a sub lost in the Gulf in the closing days of WWII. Since they had a set of numbers very close to where the sub was reported lost, they rolled the dice again, heading out 150 miles into the Gulf. There was indeed a mark at the numbers, and on the first dive they located the intact remains of a Balao-class American submarine! The U.S. Navy dispatched a salvage vessel, and a team of U.S. Navy divers examined the Trident's find. After sixty years, the location of the long lost USS Lagarto and the fate of her eighty-six crewmen was confirmed. I first met Jamie and Stuart while I was working with the Wisconsin Maritime Museum on a PBS documentary about the USS Lagarto. After a dive to the Lagarto, they showed me their book of numbers and a list of Japanese Maru's sunk in the Gulf during WWII. I was excited at the prospect of so many targets in a relatively small area, so I began running wreck hunting expeditions with them!

On our first expedition, we motored to a set of numbers from the squid fishing captain of "red boat" that he said marked a BIG wreck; and, true to his word, as soon as we hit his numbers, a large object marked hard and tall on the sounder. We had arrived at night, and it was hard to sleep knowing a virgin wreck was under our keel. Early the next morning, we splashed to find a post-war freighter sitting upright and intact with the forward mast totally covered in nets. There was a huge cut in the hull forward of the bridge on the starboard side which looked like collision damage, and in the chasm was a large ship's anchor with the chain disappearing out away from the hull. It appeared that whoever struck this ship lost their anchor in the process. Swimming into the intact bridge, it was amazing to see glass intact in the square windows, and all the navigational equipment in place. As Evan Kovacs posed for my camera next to the helm, he looked down on the mud-covered deck and spotted an interesting shape. Picking it up, he created billows of silt; and in the near zero viz, I heard him start hooting and hollering through his breathing loop. Evan had lucked into the most coveted of all wreck artifacts: the ship's bell! The name engraved into the bronze positively identified this Flying Dutchman as the Akela.

**Left page back drop: Huge nets billow out from almost every wreck we discover; in many cases, they still float high above the wreckage.**

**Left page inset: Captain Dan Bartone proudly displays his prize: the bridge engine order telegraph from the wreck of the Akela.**

**Above: The MV Trident is the only technical live-aboard operating in the Gulf of Thailand.**

**Below: Diver Evan Kovacs in the bridge of Akela, seconds before finding the prize of all prizes — the bell.**





The next wreck we hit was one they had found a few years back, but another WWII freighter was positively identified as the Imperial Japanese “hell ship” Tottori Maru when the brass letters with the vessel’s name were located on the bow. “Hell ships” like the Tottori Maru earned the name by transporting allied prisoners to Japanese work camps throughout Southeast Asia, under the most horrible and cramped conditions. Packed like sardines into cramped cargo holds, they were often not given any food or water in the equatorial heat. With no toilet facility for the prisoners, dysentery and disease spread like wildfire in the fetid conditions. Many prisoners, already weakened by injury or malnutrition, never survived the journey. The wreck has a sharp list to starboard; and although the hull is mostly intact, the bridge area has collapsed into the sand next to the hull. Swimming around the wreck, you can find lanterns, rice kettles, sake bottles, and portholes. All over the wreck are stacks of ammunition (cargo), and hundreds of pieces of crockery bearing both IJN (Imperial Japanese Navy) and Nippon Yusen Kaisha (the shipping line) logos. In the stern compartments are stacks of ammunition, carried most likely as cargo since no weapons are found on the wreck. Not a bad first trip!

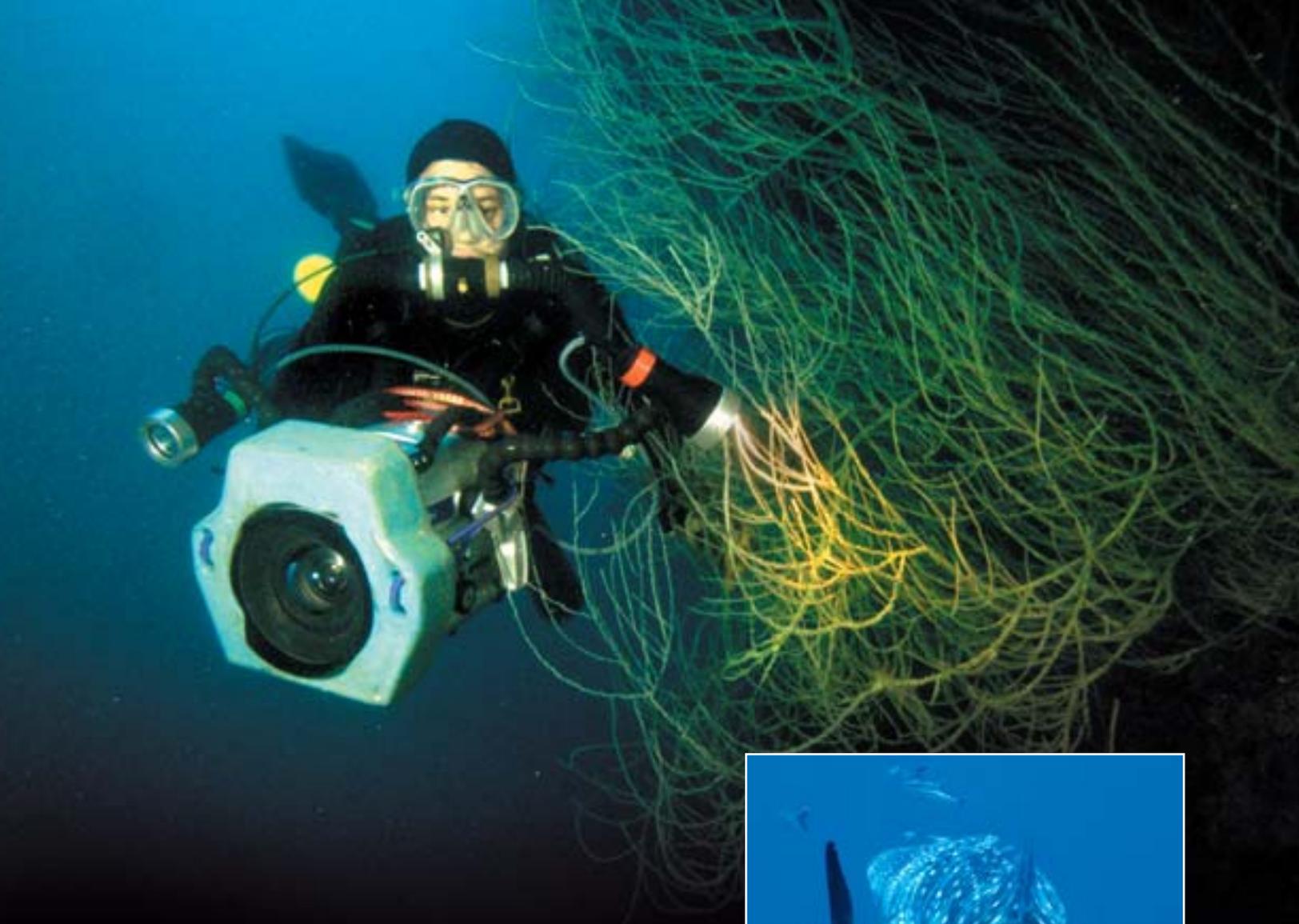
The next expedition traveled 170 miles out of Koh Samui to within 60 miles of the Cambodian coast to look at a set of hang numbers close to where the USS Hardhead reported sinking the Japanese freighter, Arrosan Maru during World War II. Passing over the numbers (also courtesy of “red boat”), a huge target loomed up on the bottom finder, projecting seventy feet of relief off the bottom! The first team down found the shot line passing over a huge wall of net, strung taut and extending over fifty feet off the bottom, the ends disappearing into the distance. Hiding behind the curtain of net, we found a huge freighter, nearly four hundred feet long and with the stern twisted off to one side. As Jamie said, it really was a “biggun”: four cargo holds (empty), two masts, and a massive four deck accommodation area amidships. Probably most amazing was the intact funnel rising from the engineering area aft of the bridge – on most wrecks you simply never see the funnel in place. The only downside to this awesome wreck is that the condition was too good to be the Arrosan Maru. Just like the Akela, all the bridge equipment was in place, even the running light lanterns still sat in place on the bridge wings. This wreck was certainly another virgin, but whom? As the dive team surfaced, details about the wreck started to pile up fast. An emergency life-saving kit with directions in three languages was recovered, plastic construction “hard hats” were seen inside the crew’s quarters, and packages of “Eveready” alkaline batteries in the radio room all pointed to this being another post-war modern era shipwreck. Despite careful searches around the bridge, forecastle, and forward mast, the bell couldn’t be found. Nor was the name found on either the bow or stern, so the team decided to name the unknown vessel the Carrie Wreck after the only woman aboard — my wife, Carrie Kohler.

**Left above: Author next to the telegraph on “Carrie’s Wreck.”**

**Left lower: Imperial Japanese Navy (IJN) crockery can be seen strewn around a compartment deep in the “Hell Ship” Tottori Maru.**

**Right page upper: Evan Kovacs next to the turtled hull of oil drilling vessel Seacrest.**

**Right page lower: The dive team is visited by a friendly whale shark during one of their long decompression stops.**



As exciting as it is to find a virgin wreck, Jamie really prefers the older wrecks, primarily those Japanese Maru's, and he still has quite a wish list to locate. On my most recent expedition, we went searching for the Akita Maru, sunk by the Dutch submarine O-19 about 180 miles south of Koh Samui. He had a few sets of numbers in the area, courtesy of "blue boat," that once again marked hard and fast as soon as we arrived. It's interesting to note that, so far, there has been no searching or mowing the lawn — just finding and diving when it comes to these fishermen's numbers! The first was another post-war freighter, 220 feet to the sand, its bow shrink-wrapped in nets, and the mast knocked back into the hold, with all its navigational equipment sitting in the bridge, and a cargo of teak planks. Due to difficulty that we had in hooking the wreck, a few equipment issues, and a medical problem, we named this one the Kluster Phuck Maru. The second was a small coastal vessel, possibly a fishing mother ship that was very picturesque and, again, remarkably intact...and there are still so many more to be found. Besides the elusive Arrosan Maru and Akita Maru, there's the Kinrei Maru, also sunk by the USS Hardhead. And then, what could be considered the prize of Gulf of Thailand wrecks, the Japanese submarine 1-351, sunk by the USS Bluefish. So many wrecks, so little time....

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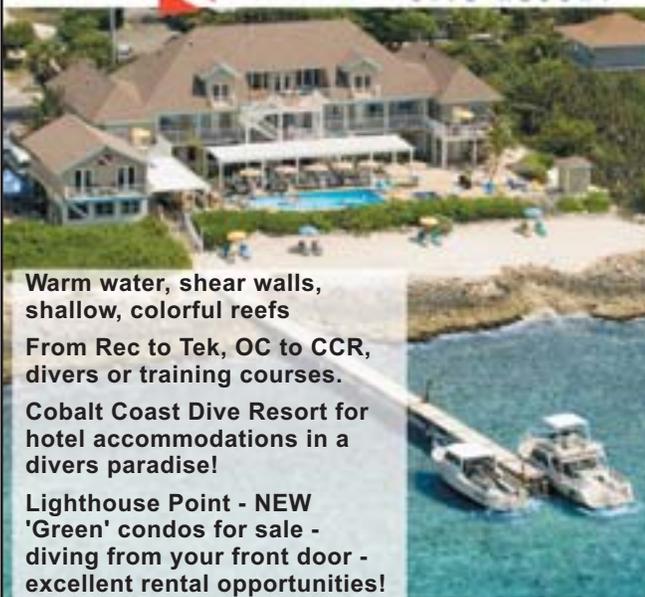
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# Petén Itzá

## Discovery Beneath the Emerald Waters

**Text by Keith Ambrose**  
**Photography by Curt Bowen**

**T**he team was packing up all the equipment; it was time to head back to the USA. Curt Bowen, Jeff Toorish, Erik Foreman, and I had just completed our expedition to the beautiful Lake Atitlan in Guatemala, and we were getting ready to head home. But Erik Foreman, our hound dog and relentless explorer, decided he would make a short pit stop before leaving the country....

Erik was embarking on a journey that would take him to the northern border between Guatemala and Mexico, about an eight-hour trip by van from Lake Atitlan. With our assistance, Erik was packed up with the needed supplies for traveling and the gas required for his solo reconnaissance mission. Using the remaining oxygen and air, Erik topped off his aluminum 40-cu-ft cylinders, filled his Copis Meg scrubber with softlime, and parted from us with a fare-thee-well.



Erik Foreman, team explorer and famed underwater hound dog, holds an ancient Maya relic from the uncharted depths of Lake Peten Itza, Guatemala.



Erik was headed to El Peten, a vast central lowland region, roughly ten hours of driving away. It is near the heart of the Peten, an interior drainage basin. Along the hills that form the northern side of this basin is a chain of about fourteen lakes. The largest, Lago Peten Itza, is some twenty miles long and three miles wide, and reported to be over 500 feet deep. Lago Peten Itza contains the island town of Flores, capital of the department of the Peten. Also on this small island is Tayasala, a pre-Columbian Mayan archaeological site, and the last independent Mayan capital.

Nearby lies the ancient city of Tikal, one of the Maya's largest recorded settlements with over 100,000 inhabitants, and home of the great Jaguar Clan Lords. The ruins of Tikal include more than three thousand structures encompassing over six square miles, and has been declared a Heritage of Humanity site by UNESCO for its historical importance and its combination of natural and archaeological wonders.

Erik arrived at Lake Peten and discovered a great little paradise called Hotel Gucumatz. Over the next three days, Erik would utilize a local guide and the small motorboat owned by the hotel to search the lake's depths for relics. The first two days revealed no discoveries, just deep mud and gelatinous plant matter. However, as luck normally follows Erik, on the third day his guide moved to the more mountainous side of the lake, and in one dive Erik discovered several intact artifacts.

#### **Six months later, a new expedition begins**

Hound dog Erik arrived a day early to set up transportation, and Curt and I arrived the next day. Renting a twelve-passenger van, we removed the rear bench seat to make room for all the equipment needed to do these expeditions.



**Above: Hotel Gucumatz, a quaint and quiet lodge nestled against the lake's shore, is normally visited by bird watchers and ecotourists. It became base camp for our unusual team of wayward underwater explorers.**

**Top right page: Erik Foreman displays one of our prized discoveries: a large ceramic bowl that was discovered while searching a sloping sand bank at a depth of 96 feet. The relic was almost completely covered, except for the very top of the neck.**

**Right page: Sitting on a rocky section of the lake floor for possibly hundreds of years, this piece of pottery rests undisturbed and covered in plant growth.**

## Now the work starts

First, we rented eight 80-cu-ft aluminum scuba cylinders from the only dive shop in Guatemala City, filled with the only gas they offered — air. Tossed them in our rental van, draining four of them while en route to the local welding and gas supply company, Fabrigas. There we rented two large 280-cu-ft bank cylinders of oxygen. We rolled the oxygen cylinders out of the building and around the corner to a secluded side street where Erik waited with the van and the four empty scuba cylinders. Unpacking the trans-fill whip and Jetsam Baby Booster, we carefully topped off the four aluminum 80's as well as Erik's and my rebreather cylinders with as much oxygen as we could using the booster and the other four air cylinders as a drive gas. Curt never travels with rebreather cylinders because of his added weight in camera gear, but prefers to dive side-mount oxygen and diluent 80s with no back cylinders.

After filling, it was back to the dive shop to fill the now empty air drive cylinder 80's with air to be used as diluent. Since traveling at night through the somewhat questionably safe areas was not recommended, we chose to get an early start in the morning for the ten-hour drive to the northeastern section and Lake Peten Itza.

The drive took us through many different zones from mountainous winding roads to lush river bottoms, parched desert regions and, finally, to the lower green lands flourishing around the lake. As the day's sun set, we pulled up to the gates of Hotel Gucumatz, our selected base camp for the following eight days.





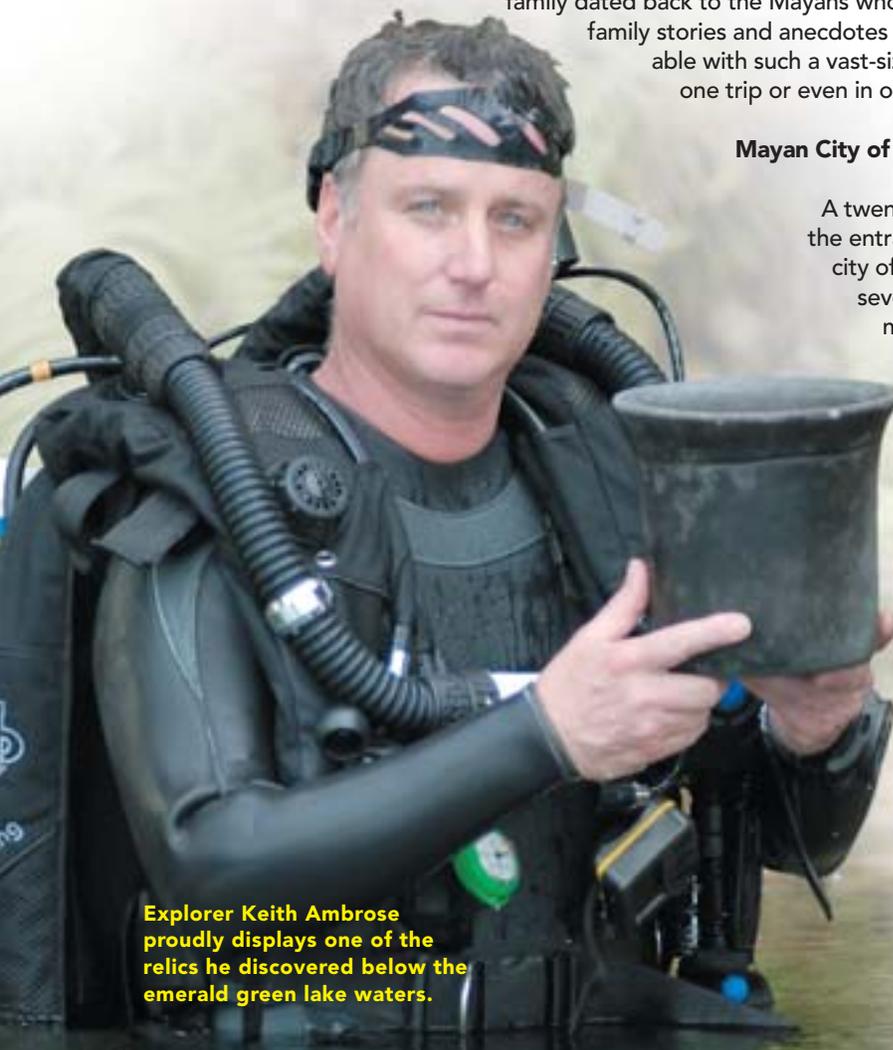
I have been coming to Guatemala since 1987, but have never made it to this lake nor to the ruins of Tikal. Lake Atitlan, with its great volcanic border and high altitude, was very different than this place. We were in a lowlands rainforest jungle — hot, humid, and in its own way, mystic.

Hotel Gucumatz is a small hotel with everything we needed for this expedition. The smiling face of Moya Stenton, owner of the hotel, greeted us at the gate before he escorted us to our bunkroom. Moya would provide three great home-cooked meals a day and the hotel's boat for our private use. Years of exploration have taught me to always hire a local guide. The small amount of money paid is worth ten-fold when talking to the locals in the area. A well-placed word from one of their own gains so much more than a boat full of gringos with strange equipment. Our guide's

family dated back to the Mayans who settled here thousands of years ago. He would tell us family stories and anecdotes about the lake. Such "insider" information was invaluable with such a vast-sized body of water that we could not have covered in one trip or even in one year.

#### Mayan City of Tikal

A twenty-five-minute drive from the lake's edge brings you to the entrance of Tikal - All Amazing Mayan City. This is a vast city of pyramids, giant structures, many which are six or seven building stories tall. The construction of the pyramids is mind-boggling, especially knowing that they were built thousands of years ago with no modern equipment. Hundreds of thousands of Maya lived for a thousand years within these walls. Generation after generation traveled from the ancient city in the mountains to the lakeside village of Flores, located on the shores of Lake Peten.



Explorer Keith Ambrose proudly displays one of the relics he discovered below the emerald green lake waters.





Above: A panoramic shot of the smaller village of San Jose, located on the northern side of Lake Peten.

### Exploration and discovery

Each day consisted of loading the small motorboat with our rebreathers and diving equipment. We then searched the shorelines for locations that the Maya might have gathered to fetch water, wash clothing, or fish.

After a few days we figured out the topography of the lake, with the southern side being thick, low-lying marsh filled with deep mud; and the northern mountainous side filled with giant landslide boulders and ancient underwater tree forests. The valleys between the mountain fingers are filled in with sand, smaller rocks, and mud.

We had to calculate just where under the water's surface would be our best chance for discovery. The southern side with its marsh and deep mud obviously would have covered any relic in fathoms of debris. The northern side with its land slides and sand could have also covered any artifacts. But if some of these landslide areas were thousands of years old, artifacts might be sitting on mud clear rocky bottoms.

### The search begins

Searching the shoreline, we quickly discover specific locations where the locals still come to the water's edge to wash, collect water, and fish. Since many of these cultures have changed very little over the last few thousand years, we figured that the paths they follow today are more than likely the same paths followed for hundreds, if not thousands, of years. It was in those same time-worn areas that we decided to concentrate our efforts.

The visibility in the lake seems to change from location to location, and depth from as far as twenty-five feet all the way down to the glass on your mask. The journey down the northern mountainous side quickly slopes over sand, boulders, old trees, and into the pitch-blackness of the lake's depths. Since all we had was air for a diluent, exceeding 200 feet and maintaining a PO2 within a safe range was difficult.

After a few days of making discoveries, we determined that most of our findings ranged in depths from 40 to 110 feet. Only pottery shards and old boat rock anchors were discovered below. Most of the discoveries were located either in hard sand or rock-covered bottom areas. A few artifacts were found in boulder areas, but they were usually broken into pieces.

After making numerous dives, we came to the conclusion that at one time in history the Mayans were doing their cleaning, cooking, etc., on Lake Peten Itza's shoreline, but that the water had risen rapidly and the Mayans had simply abandoned all the items swallowed up by the great Lake Spirit. We also discovered a twenty-foot tall, temple-type pile of rocks, definitely built by man, at a depth of sixty-two feet, indicating that the lake had truly been many yards shallower than it is today.

The expedition was successful, and we actually discovered more items in this one trip than in our two prior expeditions to Lake Atitlan. As always, all items found were left in the country of origin with the people who once possessed them.

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# Survival Planning and Equipment for the Offshore Diver

**Text by Howard Packer**

**Photographs by Rob LaLonde and Adrian Soler**

Every year, divers become separated from dive boats for one reason or another, sometimes spending several hours adrift at sea before their rescue occurs. Given these incidents, the offshore diver should include the preparation to survive such events as part of the dive plan. Having a strategy and some basic equipment significantly enhances the likelihood of an early rescue should the diver become lost at sea.

## **General Guidelines**

Begin by building an arsenal of items to survive a realistic length of time afloat. Many remote regions of the world do not have a solid search and rescue network in place. A diver lost in these areas will more likely spend a longer time adrift than a victim afloat in areas having heavy boat traffic. Adjust equipment and provision selections to match the expected wait for rescue.

## **Thermal Protection**

All too often, divers enter the water with wholly inadequate exposure suits. If all goes as planned, this insulation strategy will be satisfactory for the dive. However, should the diver remain in the water well beyond the intended exposure, hypothermia, a potentially fatal condition caused by a drop in core body temperature, could occur. For survival purposes, the offshore diver should always wear sufficient thermal insulation to endure for the time it might take for a rescue to occur.

## **Dehydration Prevention**

Exposure to tropical temperatures after breathing dry dive breathing mixtures can lead to dehydration. Without a sufficient fluid intake, this condition can become fatal during an extended drift. To avoid this predicament, always carry survival water packets on offshore dives. These lifesavers are compact, fairly durable, and can fit into places like exposure suit pockets.





### Energy Provisions

Food and caloric intake supplies can enhance the survival kit. Carry these reserves in waterproof containers that are suitable for diving. Just make sure that the provisions will resist spoilage under their storage conditions. Periodically replace these items to assure that a fresh supply is available when needed.

### Sun Exposure Protection

Excessive sun exposure can cause epidermal effects ranging from discomfort to severe sunburn. To avoid these maladies while adrift, protect exposed skin using dive equipment on hand. For example, a lightweight fabric hood can shield the diver's head from the sun. Alternatively, a lift bag becomes an ideal sunbonnet by placing it over the top and sides of the head. Tie in place with line from the diver's reel.

Beyond standard dive equipment, pack some compact items that will serve to provide additional protection from the sun. For example, carry a tube of a lip balm that contains a sun block ingredient. Spread a liberal amount of this protectant over exposed skin. In combination with the equipment used for shading the head and face, this provides substantial protection from severe sunburn.

The unprotected eye can also receive permanent injury from prolonged sunlight exposure. Eye damage diminishes the ability to see rescuers in the distance. While carrying sunglasses on dives is impractical, the diver can instead carry a small tube of eye-black, a grease concoction sold in sporting goods stores, as a substitute. Applied to the cheeks, this product protects the eyes from the bright sunlight and its reflection from the surrounding water.

### Diver Life Rafts

At least one company manufactures a fold-up life raft for the diver. Climbing aboard this device can provide a tremendous psychological comfort when afloat over a dark ocean, on a moonless night, when surrounded by sea monsters of the imagination.

Beyond comfort, an inflatable raft also makes it easier for searching vessels to find the missing diver. It is a bigger target than a mostly submerged diver floating in the water. Its bright color contrasts against the hues of the surrounding sea. When used in combination with devices such as lift bags and safety sausages, this presents an even larger target for searchers to find.

### Other Ways to Stand Out to Rescuers

Equipment color can make the diver more detectable to searchers. To enhance the odds of being spotted from a distance, select bright, reflective gear over black divewear. Add SOLAS (Safety of Life at Sea) reflective tape to equipment to make it easier for rescuers to find the victim when searching with a spotlight after dark. These measures help the missing diver to stand out from the surrounding environment.

Some divers carry a dye marker to alert searchers of their position. While a dye trail contrasts against the surrounding water, it dissipates rapidly, especially in rough surface conditions. Carrying the quantity of dye required to create a sustained and sizeable trail can be impractical given the diver's limited storage spaces. In short, carry a dye marker only if room allows for it.

Since rescue and other vessels often search using radar, carry items in the survival kit that will reflect radar waves. Good examples of such objects include a surface marker buoy lined with radar reflective material, a space blanket, or a Mylar balloon. The diver can even inflate the balloon with helium mix breathing gas, tie the line from a reel to it, and send it up above the water. This will allow radar to locate the diver from an even farther distance.

### Signaling Devices

Not every vessel on the ocean or in the sky will be searching for the lost diver. Therefore, the diver should carry equipment in the survival kit that, when deployed, sends out an unmistakable distress signal to any vessel that happens to come within contact range. Several devices can serve this purpose.

A diver's safety mirror is small, easy to store in a pocket, and can reflect light for a surprising distance. However, its reflective glare may not be distinctive enough to alert someone that is not already searching for the diver. Also, this device only works optimally when exposed to sufficient sunlight. Therefore, consider a reflector as an enhancement to other signaling equipment, not the sole source to call for a rescue.

Especially at night, signal flares send out an unmistakable distress signal to alert potential rescuers in the distance. While manufacturers have designed flares for divers, they suggest replacing them frequently after exposure to water. A better practice is to place them inside a dry canister specifically built for diving. This will keep them ready for use.

Battery technology has improved to the point where the diver can easily carry several robust, compact, bright lights that will burn for days. A good light can provide a tremendous psychological comfort during a long, lonely night adrift at sea. It affords a chance to catch the attention of potential rescuers from great distances. In short, adequate lighting is an essential survival tool. Always carry plenty of reliable lights on all offshore dive outings.

Poor visibility does not only happen underwater. In the atmosphere, visibility can drop when the fog rolls in, during a strong rain squall or when looking in the direction of the glare caused by the sun. In these conditions, a diver's whistle or tank-gas-driven horn can guide a nearby rescuer to the diver. These audible devices easily fit into the diver's limited storage spaces.

### Reaching Beyond the Horizon

To reach marine vessels in the distance, the diver can deploy a water-resistant handheld VHF radio from a water-proof canister. However, the signal from such a device carries only a few miles when transmitting from just above the ocean's surface. Even small ocean waves can significantly reduce its transmission range. Certainly, a portable radio is not suitable to call directly to rescue authorities from any kind of significant distance offshore.



For a slightly higher price than the VHF radio, the offshore diver can instead carry a basic Personal Locator Beacon (PLB). This device transmits a low-power homing signal to nearby aircraft and boats equipped with the appropriate receiver. Rescuers simply follow the signal to the diver. However, as with the VHF radio, sea conditions can interfere with the transmission of the standard PLB distress signal.

Besides the low-power signal of the standard PLB, better PLB models also send a high-power signal to satellites orbiting the earth. The receiving satellites relay the transmission to a land-based operations center. The center calculates the approximate location of the missing diver and forwards this information to searchers. Starting from these coordinates, searchers follow the low-power PLB homing signal to the missing diver.

The best PLB model not only transmits on the two frequencies of other models, but it also contains a Global Positioning Systems (GPS) component. This module uses orbiting satellites to calculate the diver's position, and the PLB includes these coordinates in its high-power distress transmission. Even if surface conditions allow only an intermittent transmission to reach orbiting satellites, this is sufficient for a ground station to get the precise coordinates for relay to searchers. Therefore, the GPS-PLB is clearly the superior device in its class.

### Inform Others

Make sure to inform others of carried survival items. Having this valuable information lets rescuers know what to look for when conducting the search. For example, it increases the likelihood that a searcher will investigate all reflections detected by radar. In short, while carrying proper survival equipment during offshore dives is crucial, letting potential rescuers know about this equipment before the dive is equally as important.

### The Most Important Component

Beyond survival devices, the diver must maintain the will to survive and use it to rise to the occasion if lost at sea. The development of the proper attitude is well beyond the scope of this article. However, training in this area is worthy of consideration. Having the will to survive is the most important component of any survival kit.

### Putting it Together

Carrying heavy gear on an outing is common for technical divers. Adding survival equipment to this increases the weight while potentially affecting drag and entanglement risks. However, with a little creativity, the diver will find a configuration that minimizes the risks and burdens. When combined with the will to overcome the circumstance, this equipment can enable the diver to survive until the rescue occurs.

### About the Author

A water safety professional for more than thirty years, Howard Packer is a Closed Circuit Rebreather Instructor and President of CCR Dive Training, LLC ([www.CCRDiveTraining.com](http://www.CCRDiveTraining.com)). He serves as a Moderator of the Internet forum, Rebreather World ([www.RebreatherWorld.com](http://www.RebreatherWorld.com)), and is a founding member of the Florida S.C.R.U.B. (South Coast Rebreather Underwater Bounders) ([www.RebreatherWorld.com/Florida-S-C-R-U-B/](http://www.RebreatherWorld.com/Florida-S-C-R-U-B/)), one of the world's largest and most active rebreather diving clubs.

Rob LaLonde is President of Rec and Tek Media, Inc. ([www.RecAndTekMedia.com](http://www.RecAndTekMedia.com)), a full service film and video production company specializing in underwater high definition video, graphics, and editing. He is also a founding Florida S.C.R.U.B. member.

Adrian Soler is a retired scuba instructor and an amateur underwater photographer. He is an active photographer member of the Florida S.C.R.U.B.



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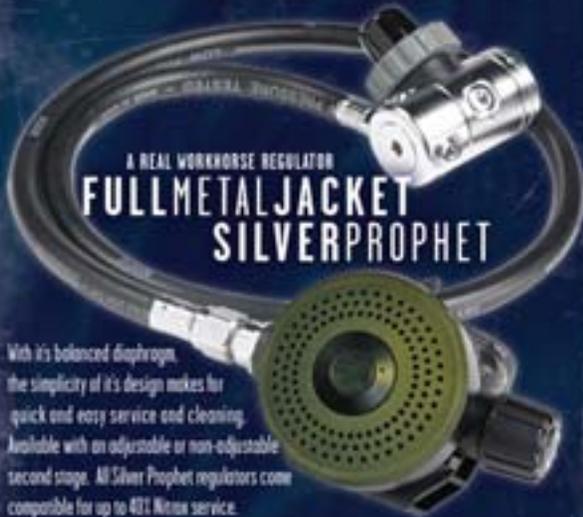


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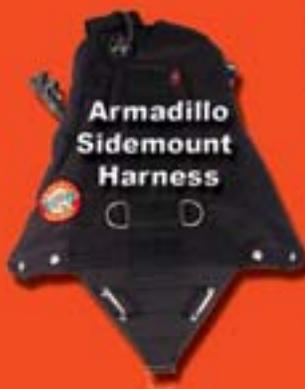
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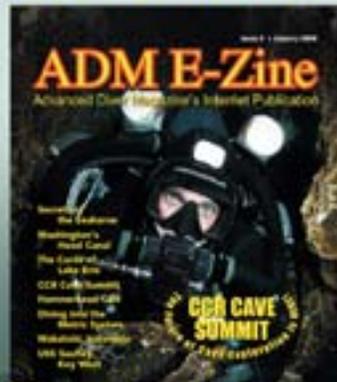
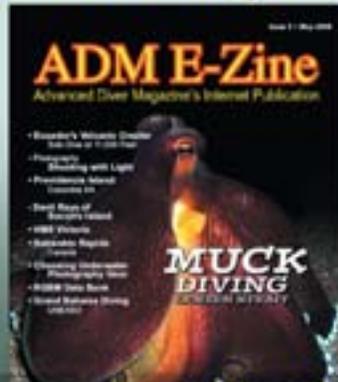
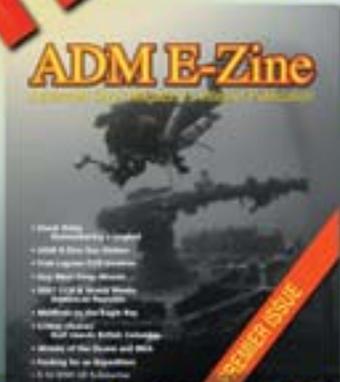
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# BUMP AND GRIND

## Exploration of Castle Rock Spring

By ADM Staff Writer Tamara Thomsen

As cave divers, it seems we often find ourselves characterized by the acts of others on the extreme fringes of the sport. This is a story from that fringe. When my friend Ethan backed feet first out of the tiny opening to Castle Rock Spring and declared to the world that he didn't want to go back in, no one could fault him. He wasn't going in - not with that whirling dervish of a creature still whipping around in the first room. It seemed angry and had too many teeth for his comfort. He was fine with waiting, and waiting was what he was determined to do. It had been nearly ten years since I had last been to Castle Rock Spring. When I originally started exploring the place, it was difficult to convince anyone to help me survey it, and I ended up doing the majority of the work myself. Now...everyone knew what to expect. I was happy to have his help - and he wasn't going back in just yet. We'd wait.

So what brought me back to this place? I was sitting at the table with the regulars from our local caving club and eating pizza (the normal fare to finish off a day of slithering through the mud-filled passages of one of the many caves in southwestern Wisconsin). John Lovass, a project caver from Illinois, came right out and asked me a question that caught me off guard. He asked if, when I had been in Castle Rock a decade before, I had checked all of the air bells, and whether I was absolutely sure there was no connection to a dry section of cave? After a minute of introspection, I admitted that it was entirely possible; and after another minute of churning over the dive log that I keep stashed in the corner of my brain, I admitted that it was very possible that I had simply missed something. As I was making this confession, I knew where it would lead me. I would have to go back and check, to explore again every inch of that uncomfortable and cramped place that I really didn't want to go. This is what brought Ethan and me to the unassuming trout stream, where we sat and waited in the small spring pool. We had a job to do, and no baby muskrat was going to keep us from it.

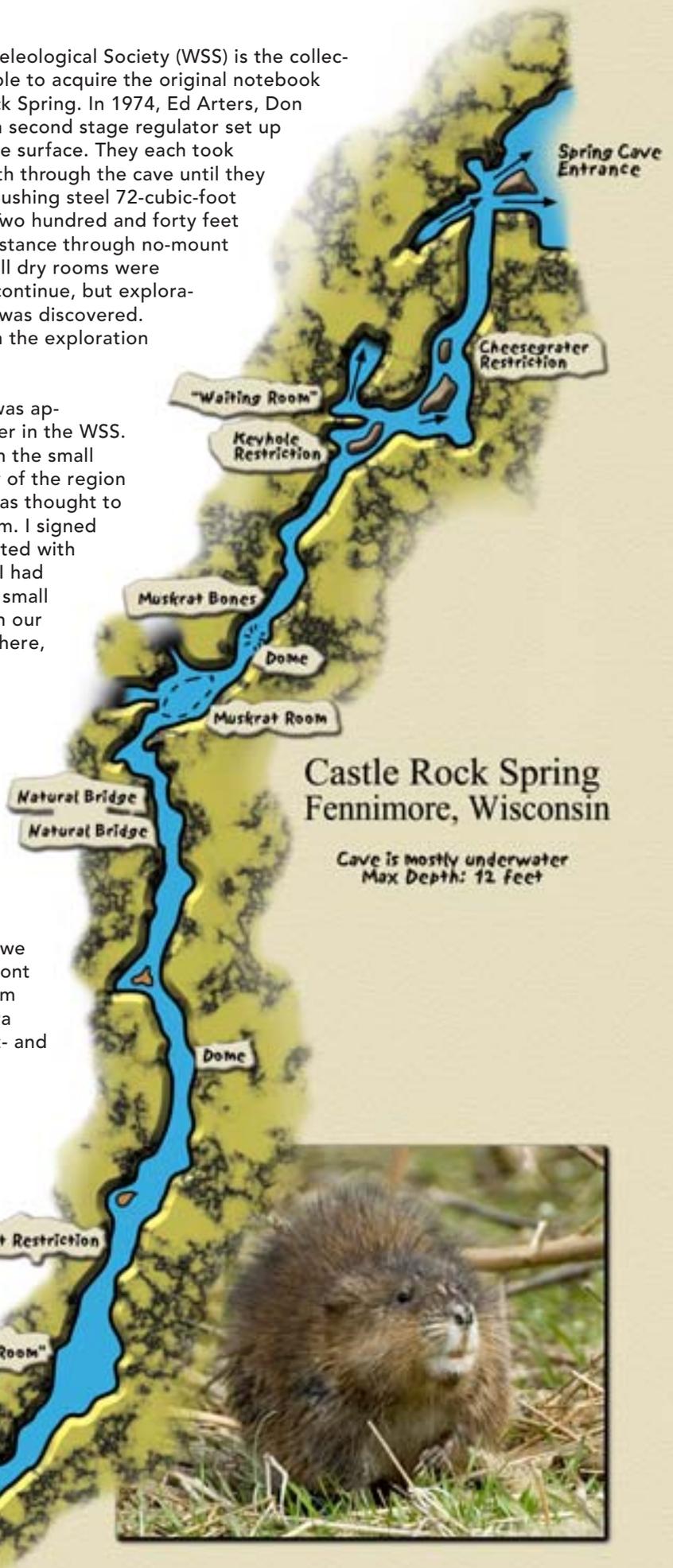


One of the best things about the Wisconsin Speleological Society (WSS) is the collection of notes kept within the club archives. I was able to acquire the original notebook and dive logs from the first explorers of Castle Rock Spring. In 1974, Ed Arters, Don Monnot, and Kev Hennings entered the cave with a second stage regulator set up as a hooka and fed by a portable compressor on the surface. They each took turns dragging the regulator and hose by their teeth through the cave until they eventually ran out of hose. Then they resorted to pushing steel 72-cubic-foot cylinders back an amazing 240 feet into the cave. Two hundred and forty feet may not sound like a long way, but crawling that distance through no-mount passage in high flow is a magnificent feat. Two small dry rooms were located and explored. The wet cave was noted to continue, but exploration tapered off by 1977 as no significant dry cave was discovered. Whenever someone tells me I'm crazy for taking on the exploration at Castle Rock, I think of these guys.

My time at Castle Rock began in 1997 when I was approached by Dan Pertzborn, another long-time caver in the WSS. He asked whether I would be interested in diving in the small spring to check for dry cave leads. The topography of the region lends itself to support a big cave, and the spring was thought to be the resurgence from some major dry cave system. I signed myself up for a dive that was more like caving assisted with scuba gear than the sport of cave diving for which I had trained and practiced. As I knelt in the front of the small slit of the spring entrance, watching the water gush over the rocks, I was wondering what I was doing there, but I decided that I would at least give it a try.

By the spring of 1998, I became more comfortable working in the small passages, and began efforts to systematically explore the cave in hopes of finding a dry lead and to continue to push the wet tunnel. Originally, I thought that the system could be explored with sidemount, but many of the restrictions were simply too small even for sidemount. Every piece of gear needed to be scrutinized for the most compact set up possible.

In many places, the passages are so small that we devised a no-mount sled that could be pushed in front of the divers. The sled consists of a pair of aluminum 80-cubic-foot cylinders held together with two extra long cam bands. The cylinders are set up with right- and left-handed valves to form a handle that helps manipulate the sled. Regulators are configured as independent doubles with a single first and second stage along with an SPG on each cylinder. Aluminum 80s proved to be a good choice for cylinder size as the front of the sled (the tank bases) float, making them easier to maneuver through tight passages, without having to lift the cylinders. Steel cylinders are too negatively buoyant and require too



much strength to push through the narrow passages. My forearms throbbed after the dives where I tried out steel tanks, and I joked with the guys that I would have Popeye arms after hours of muscling the tanks through restrictions. To further improve the system, a slim battery canister was wedged between the cylinders, underneath the cam bands, producing a compact, easily handled unit. Backup lights were worn either helmet-mounted, tucked in pockets, or clipped to the tanks.

The water temperature also proved to be an obstacle. Ground water in southern Wisconsin is 48° F. Seven-millimeter wetsuits were originally worn along with hood and gloves. As the passage length continued to grow and bottom times increased, I found neoprene drysuits to be a much warmer option. Since the shallow depth of the cave did not require air to be added to the drysuit, the inlet valves were capped off to avoid clogging with silt and sand and to prevent water from entering the suit when the inflator button was mashed into the floor. This also prevented snagging the inflator nipple on the guideline.

The maximum depth of the system is twelve feet, with an average depth of about five feet. This shallow depth gives explorers plenty of time to get unstuck from any hole they might get themselves into. Most of the cave is submerged, with occasional small air pockets

that contain fresh, breathable air at ambient pressure. The water flows through a low slit fissure at the base of a cliff where water flows from beneath a county highway. The cave initially enters the hillside in a westerly direction but immediately turns to the south-southwest, this being the general trend of the system. The first sixty feet of passage is big in comparison with the rest of the cave – it is two feet high by three feet wide. Many divers suggest that Castle Rock gives a new definition to the word small.

You know that you are in a really small cave when you enter the “Cheese Grater” restriction. It extends for ten feet with clearances of one foot or less. It is so tight that you must scrape and grind, top and bottom. Some divers with bigger heads must remove their helmets to make it through. Another useful trick is to turn your head to the side with your ear to the ground, aligning the narrower aspect of the head with the passage. The cave then turns west for thirty feet and into the “Waiting Room.” Named by the original explorers, the Waiting Room has a small air pocket and is just large enough for a single diver to stand upright. The next milestone is the “Keyhole Restriction.” The Keyhole is a bit difficult to navigate with the sled. The tanks must be rotated – just like a key in a door lock – and tossed through before the diver repeats the motion with his body.



The next eighty feet of passage is really low, requiring a crawl under a natural bridge and into the "Muskrat Room." This is one of the biggest air bells in the cave. A muskrat has built a nest on the ledge in the southeast corner of the room and frequently removes the guideline – it must make terrific nesting material! The room is 180 feet from the entrance, and is 8 feet by 10 feet and half exposed in an air pocket. It normally takes about 25 minutes for me to reach this point in the cave – this seems like a long swim for a muskrat. When I first found this room, I had my own animal encounter. I was accustomed to seeing trout in the far reaches of the cave – the spring run is promoted by fly fishing clubs as a top-notch trout stream. I saw something coming at me and it wasn't a trout! All I saw were teeth and claws coming right at me. Then I realized that I was blocking the exit. I covered my face and closed my eyes. The little beast bounced off my neoprene suit a couple of times and retreated to another hiding place in the cave, readying himself to ambush me on my exit. I knew he was waiting for me and it was all that I could think about for the rest of the dive. Later on, I read in the NAUI Master Scuba Diver manual that muskrats are unpredictable and dangerous when cornered, and "escape is virtually impossible." I wish I had read that section on dangerous aquatic life a bit more carefully!

From the Muskrat Room, the tunnel then drops three feet down a small well, past two more bridges, and into much larger passage! To define larger, I mean that the tunnel averages 4 feet high by 5 feet wide. Forty feet beyond the third bridge and behind a column was where I found the rusty homemade reel left by the first group of explorers. It took me three weeks of slowly progressing and mapping, diving every day I could escape to the cave after work, to get to this spot. Belly crawling with scuba gear to get to this point, I was amazed that the hooka-men made it here!

Thirty feet further in is another tight restriction, with slightly over one foot clearance. It is a rough restriction that would be better suited for a contortionist, but once through you pop into the "Big Room." Perspective is everything I guess – the big room is 15 feet long by 10 feet wide and the floor drops to a staggering depth of twelve feet. This is really the only point in exploration that I wished for some form of buoyancy control. If not weighted perfectly, I am either bouncing off of the ceiling for the duration of the swim across the room or walking on the floor. From the Big Room, the tunnel turns west again, ending in three impassable sand-choked leads at a maximum penetration of 490 feet from the entrance.



On two occasions, I strapped an army entrenching tool to my leg and crawled all the way back in an attempt to excavate the sand in this area. Even with some digging, making enough progress to pass into the next chamber in the most promising of the leads, it wasn't big enough for further exploration. It doesn't sound like much on paper, but an average dive to the end of the line takes about an hour and a half each way.

As the water exits the cave, it forms a stream winding its way lazily through the valley dotted with grazing cattle. It is quite a peaceful and scenic spot. There is a little bench on the bank of the stream overlooking the spring entrance. On one of my last survey forays to the back section of cave, I had been in the cave for a few hours when, upon my exit, I surprised an elderly couple taking in a picnic lunch and enjoying the scenery. They watched me exit wide-eyed; and as I dragged my tanks up the embankment to my truck, they never said a word. In retrospect, I should have stood up like Bugs Bunny and stated matter-of-factly, "I should have taken that left turn at Albuquerque!" and then crawled back into the cave.

For the latest project, I was able to recruit Ethan Brodsky, Jason Dostal, and Keith Meverden to help me recheck all of the air pockets and photograph what we could. After we sat around the entrance pool for fifteen minutes, the baby muskrat that so frightened Ethan eventually exited the cave and scampered to hide in the weeds, and we were able to continue our dive. Unfortunately, we again came up empty as far as dry cave connections.

I also convinced Richard Dreher to haul a video camera into the cave. Although it was a struggle to set up the camera and lights and to move the video system with us through the cave, his film catches a unique view of cave diving in miniature. His production video "Castle Rock" is available through his website [www.diveannex.com](http://www.diveannex.com).

Even after footing this latest assault on Castle Rock Spring, I still can't say with absolute certainty that we didn't again miss the connection to a dry cave lead. But I think that I will leave that for another generation of explorers to prove me wrong. I've placed my map and notes in the vaults of the WSS archives. I guess that I am just the eternal optimist – I couldn't find the dry cave connection, but it could still be there...somewhere.

*Tamara Thomsen owns Diversions Scuba in Middleton, Wisconsin ([www.diversions-scuba.com](http://www.diversions-scuba.com)) where she teaches a full range of technical diving, cave and rebreather courses.*





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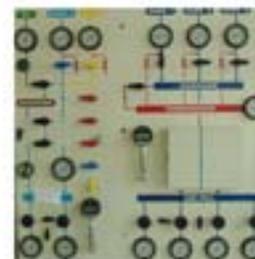
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