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POINT & CLICK
ON BOLD LINKS



Equipment

fantabulous



Edited by
Peter Symes



Suunto DX

The DX (D-Ten) is Suunto's first watch format dive computer that is rebreather compatible as well as offering full open circuit support for recreational and technical diving. The Finnish manufacturer writes that the DX is a 'non-monitoring' setpoint dive computer that works to support any rebreather, which in plain language means that it doesn't get any data from the rebreather. It can be configured for up to three different diluents. Other rebreather specific options include adjustable high and low setpoints, custom setpoint during dive and automatic and manual setpoint switching. It is also possible to switch to open circuit mode in case of bailout.

www.suunto.com

Neptune Space G.Divers Mask

The Neptune Space G.divers Integrated Diving Mask is now available in two sizes and four color options (emerald, cobalt, white and pink) and includes an integrated balanced second stage regulator and low pressure hose. The air circulation system is specifically designed to eliminate fogging and reduce build-up of CO and CO₂. Exhaled air is directed through a valve under the orinasal pocket limiting the mixing of used air with the fresh air breathed from the regulator.

oceanreefgroup.com

Oceanic Pro Plus 3

According to Oceanic, a dive computer should deliver crucial data quickly, without confusion and without requiring the user to squint. This is why their new Pro Plus model, which has been substantially upgraded from the PP2, is fitted with a huge display area with arguably the largest most legible digits on the market. The user interface has also undergone some major enhancements to make it more intuitive. The batteries can be replaced by the diver and a "hot-swap" feature allows change of batteries between dives while maintaining all calculations.

www.oceanicworldwide.com



Aqvatech LEDs

The Aqvalight is a string of diodes which can be used as marker light for individual divers or a downline. The LEDs and electronics are embedded in a resin that is both waterproof and highly resistant to compression generated by pressure at depth. The Aqvalight comes in three variant with the smallest model, The Quasar, intended to be a personal locator. This can be affixed to the tank or the thigh. A wet contact automatically turns on the system as the wearer enters the water. A bigger models, The Comet, which is depth rated to 60m water, has primarily been designed for the purpose of clearly marking the point of ascent such as the downline making it visible from a distance and in bad viz.

www.aqvatech.it



Aquabotix

Scope out dive locations before going down. The new Aquabotix HydroView Sport is a remote-operated video camera-submarine that sends and records live HD video to an iPad from 30m (100ft) underwater. The HydroView is simply controlled via motion-control on an iPad or the keyboard on a laptop, translating device movements into vehicle action. The vehicle comes standard with a 4 GB memory card. This ensures ten minutes of HD video. Listed price US\$3,995.00 includes free shipping within the United States. www.aquabotix.com



C-8-T

The C-8-T Drysuit from Austrian Camaro combines trilaminate and neoprene. The legs are made from a 7mm elastic neoprene lined with stretch terry plush. The torso is made with a robust trilaminate. The suit also has an integrated long-sleeved thermoshirt made from a 'SCS Titanium Open Cell material', which Camaro states offers high flexibility and great heat insulation. The zipper is on the front and seals are made from latex with a neoprene collar. www.camaro.at



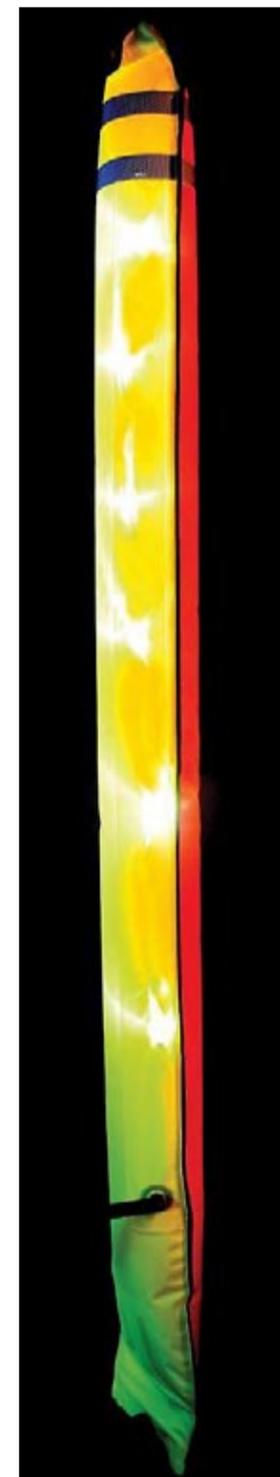
All fogged up?

Tusa's TA-200A anti-fog film will keep your favorite mask fog-free while diving underwater. Made with long-lasting durable material, the TA-200A can be installed easily on any two-window mask and is reusable with proper care. tusa.com



DiveAlert SMB LED

Surfacing on a night dive away from your charter or in dark open water can be incredibly distressing. The DiveAlert SMB.LED incorporates six water tight LED lamps spanning the 65-inch length. Driven by two AAA batteries in a double o-ring sealed tubular switch, the LED's can be powered up by a simple turn of the cap. It is built with 400 Denier polyurethane coated nylon, and utilizes one-way valve construction, which prevents air loss when fully inflated. Coast Guard approved Solas reflective tape lines the crest of the buoy for added visibility day or night. www.divealert.com



RS2

Sea-Doo's new RS2 delivers thrust for a speed of up to 6 km/h (3.7 mph) while being light enough to carry in one hand, weighing in at just 8.6 kg (19 lbs) including battery. It runs on a Lithium-ion battery, which will last for up to 75 minutes with normal use. Recharge takes four hours. The RS2 is designed to be neutrally buoyant in seawater, and in fresh water, lakes or pools, it will be negatively buoyant. The scooter comes with four ballast weights and two glide fins. seadooseascooter.com



WWW.DDIVERS.ORG

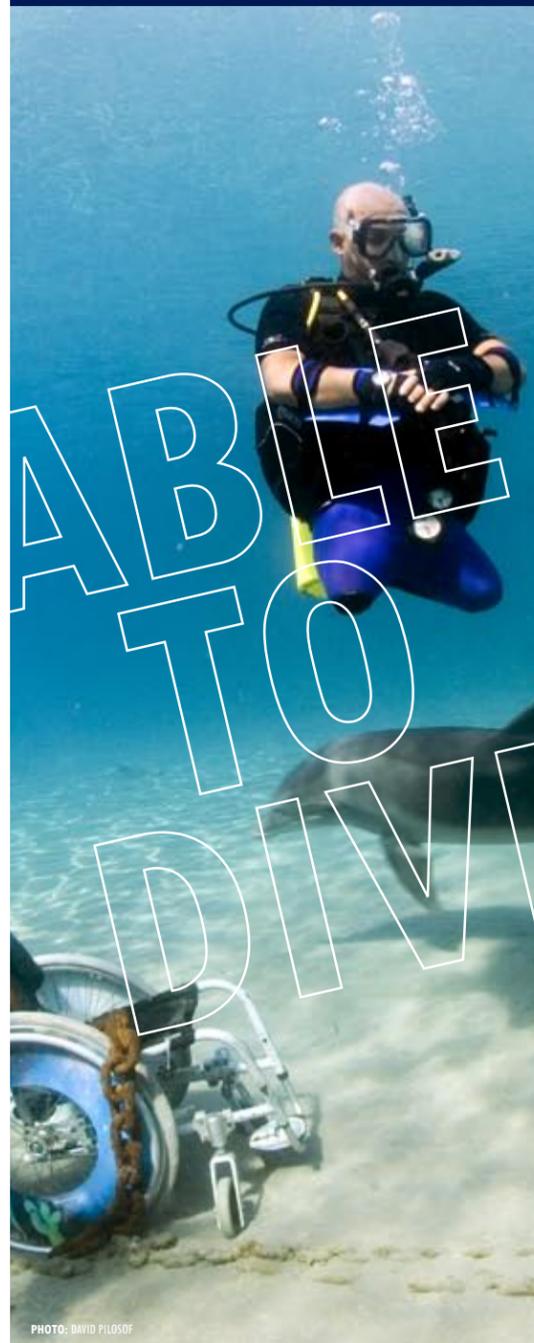
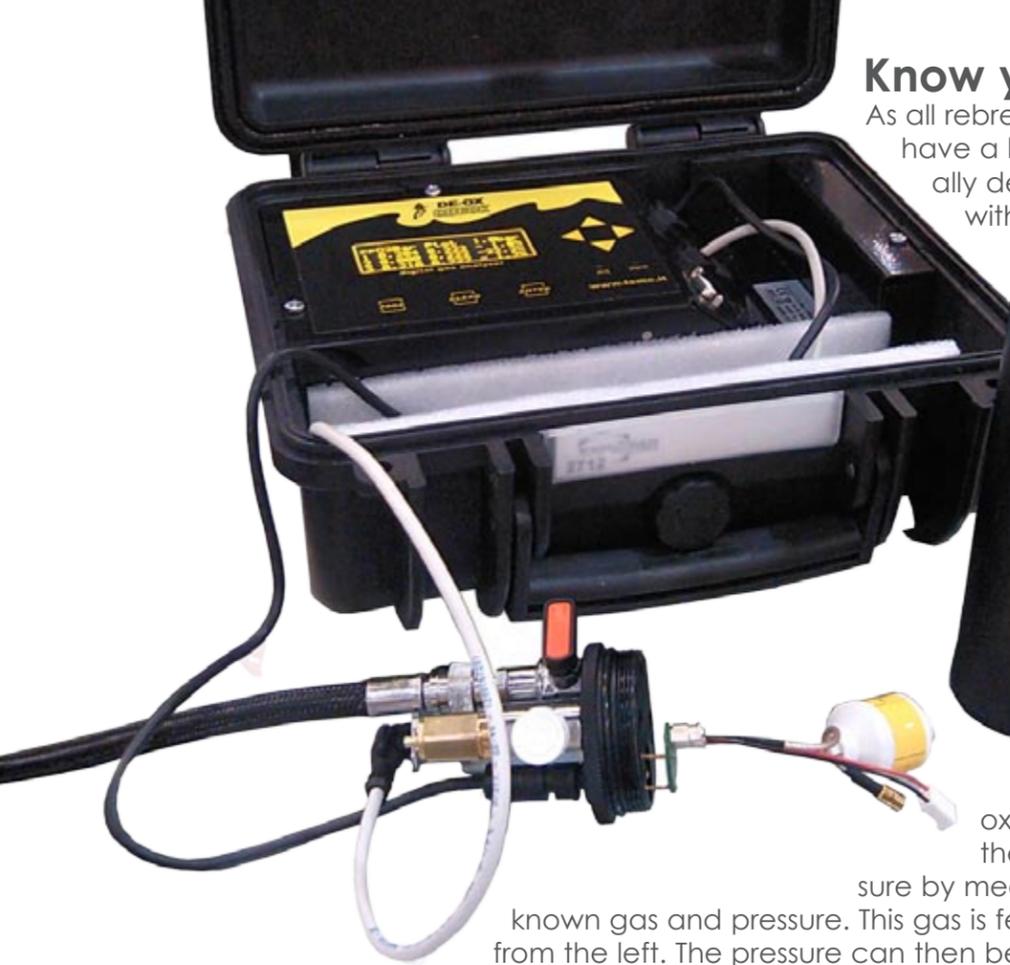


PHOTO: DAVID PILOSOF

WWW.DDIVERS.ORG



Know your sensor

As all rebreather divers know, oxygen sensors have a limited lifespan over which they gradually degrade until they have to be replaced with fresh ones, typically after 12-18

months. Exactly when is a judgement call. As sensors currently cost around USD 100 each and three are usually required, significant savings can be made if the sensors' performance can be validated. Enter TEMC's DE-OX Check, a fully digital analyser with a digital pressure transducer that measures the output of up to three oxygen sensors simultaneously in an aluminium pressure chamber, which is the black canister shown standing to the right. The oxygen sensor(s) are then hooked up to the analyser's circuitry and put under pressure by means of connecting it to a tank with a

known gas and pressure. This gas is fed in via the low-pressure hose coming in from the left. The pressure can then be regulated (up to 10 bar) and eventually releases via the circular release valve seen in the centre. On the display on the main unit, the sensor's readings are then compared to the known gas and pressure and the level of any discrepancies listed as a percentage.

It is also possible to read the actual response time of each sensor. At BOOT show in Germany in January 2013, this piece of kit was priced at € 765 (~USD 1,000) which is reasonable enough that a group of divers should soon be able to recoup the cost. www.temc.it



DivePhone

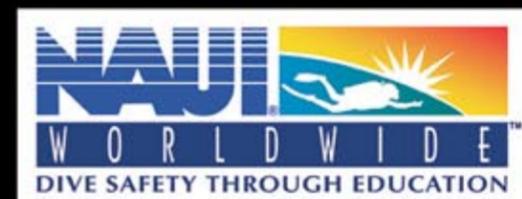
DivePhone is a housing and pressure transducer combo for can any kind of mobile device that runs on Android or iOS (iPhone Operating System) into a programmable dive computer by virtue of an app. It works by having an external module with a pressure sensor—docked on the housing—transmitting data to your smartphone by means of a wireless connection and without use of any external connectors.

This also means that the housing is not restricted for use with a specific phone model but will work with any model using these operating systems as long as they can fit inside the housing. The app can be downloaded from either iTunes or App Market. The DivePhone Housing is tested and rated for use to depths down to 80 meters. Keep an eye out for an upcoming review of this housing. innovasub.com

What will you do with your certification?



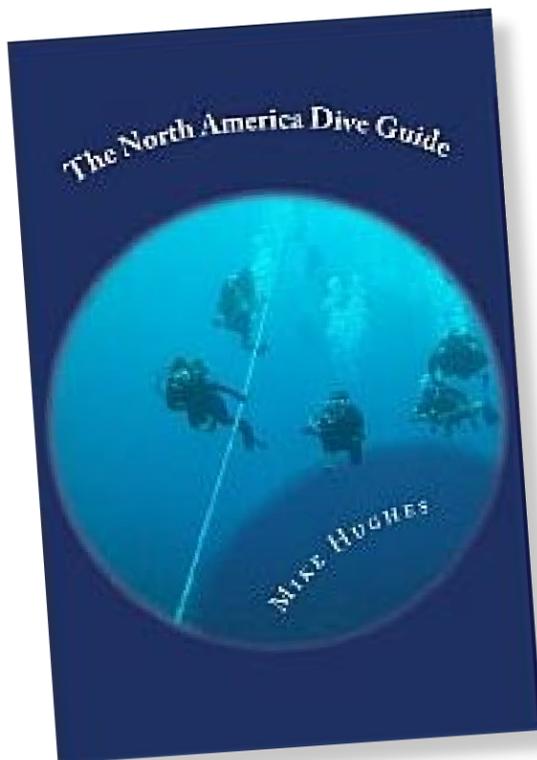
Continue your education with NAUI Worldwide!



To locate a NAUI Dive Center near you, visit www.naui.org or call 800-553-NAUI (6284). Outside U.S. call 813-628-6284.



Edited by
Catherine
GS Lim

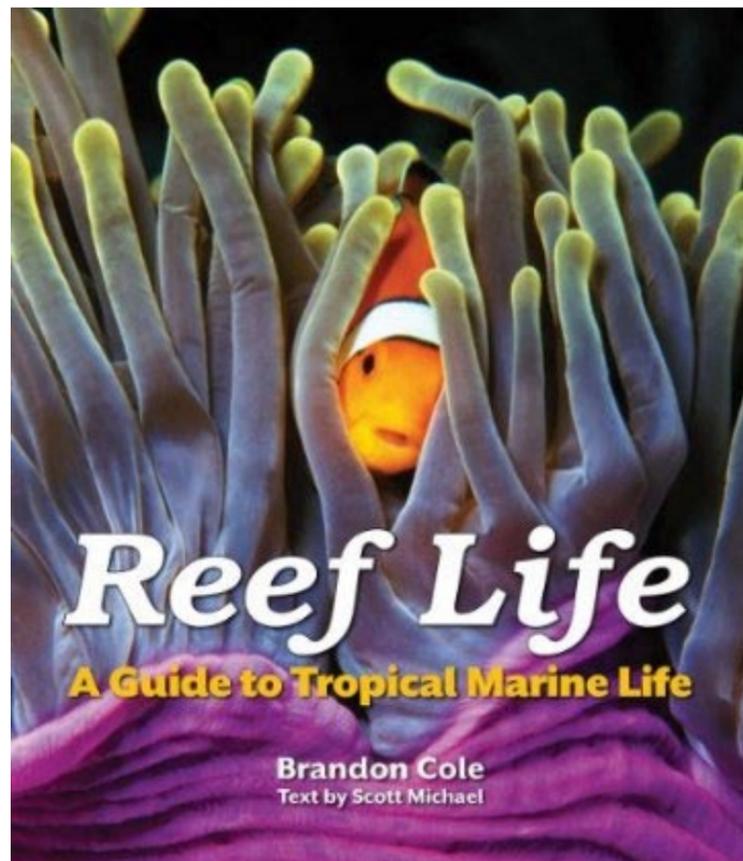


The North America Dive Guide

Although the author, Michael Hughes, has not visited all

the dive sites featured in this book, the information contained within has been gathered from dive shop owners, employees and local divers. Armed with this local insight, divers using this book would be better informed on how to fully experience all that these dive sites offer. This edition covers all 50 U.S. states, and selected sites in Canada, Mexico and other parts of the world.

Paperback: 366 pages
Publisher: C Two C Publications
Date: 17 January 2013
ISBN-10: 0966413032
ISBN-13: 978-0966413038



Reef Life

—A Guide to Tropical Marine Life

This comprehensive guide book by Brandon Cole and Scott W. Michael covers more than 400 species of fishes that reign in the reefs and open waters. You can make use of more than 800 colour photos in this book to find inspiration for your next dive trip. The coverage is worldwide, and each species has details like its habitat, range, feeding habits, survival strategies profiled. There are also sections on invertebrates and algae. Ideal for divers, naturalists and students.

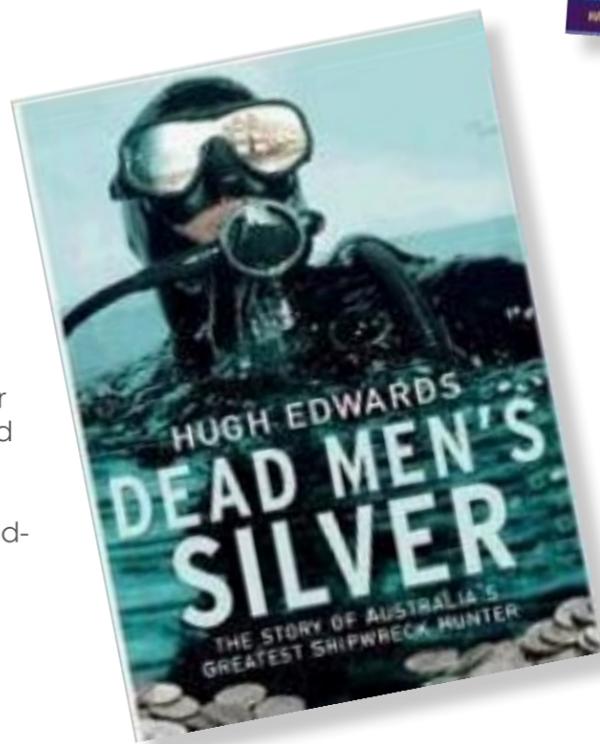
Paperback: 616 pages
Publisher: Firefly Books
Date: 19 March 2013
ISBN-10: 1770851909
ISBN-13: 978-1770851900

Dead Men's Silver

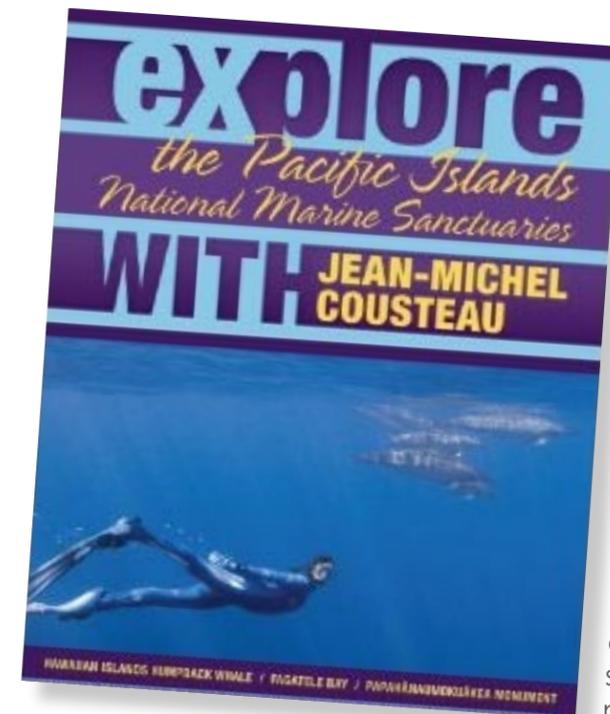
—The Story of Australia's Greatest Shipwreck Hunter

Get inspired by the story of Australian shipwreck hunter Hugh Edwards. Even as a young lad, he aspired to uncover sunken treasure on the high seas. Contrary to the book's title, it wasn't just silver that spurred him on. In his career, he has also found Dutch ducats, Burgundian crowns, Spanish silver dollars, and of course, 'pieces of eight'. Pick up this book if you're game for real-life adventures of a modern-day treasure hunter.

Paperback: 416 pages
Publisher: HarperCollins Publishers (Australia) Pty Ltd
Date: 10 Feb 2013
ISBN-10: 0732294509
ISBN-13: 978-0732294502



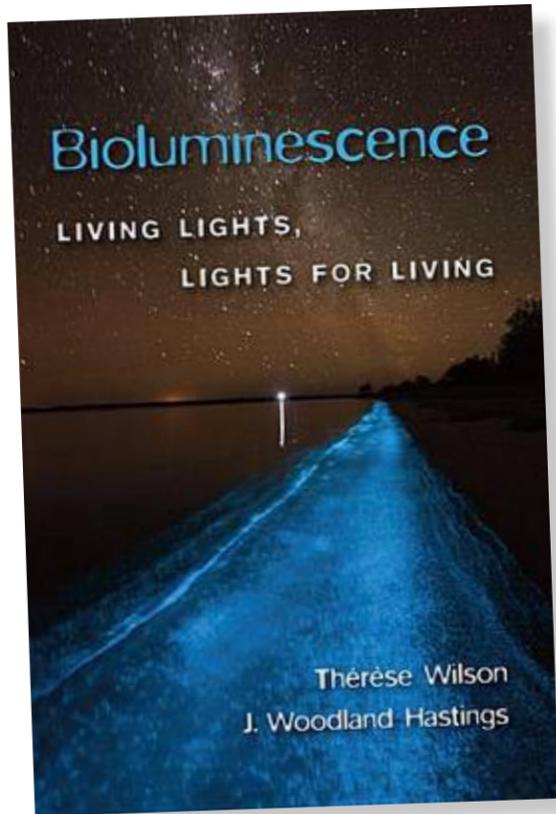
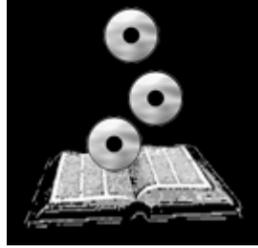
The Pacific Islands



Explore each of the four regions of the U.S. National Marine Sanctuary System with the explorers from the Ocean Futures Society! Based on the film series *Jean-Michel Cousteau: Ocean Adventures*, readers can join the crew on expeditions into these unique regions, through stunning photography and behind-the-scenes stories. This particular edition explores the Pacific

Islands, which include Fagatele Bay, American Samoa and Papahānaumokuākea Marine National Monument, Northwestern Hawaiian Islands.

Paperback: 208 pages
Publisher: Ocean Publishing
Date: 1 Feb 2013
ISBN-10: 0982694040
ISBN-13: 978-0982694046



Bioluminescence

Bioluminescence—the emission of light by living organisms—is actually more common than one may think. Besides fireflies, some bacteria, mushrooms, invertebrates, jellyfish and fishes have the ability to light up. This book examines the natural history, evolution, biochemistry and distribution of these organisms. Whether it is used for defence, attack or sexual courtship, bioluminescence is an area of research with applications in locating cancer cells, detecting microbial contamination in beef and water, as well as working out the circuitry in our brains.

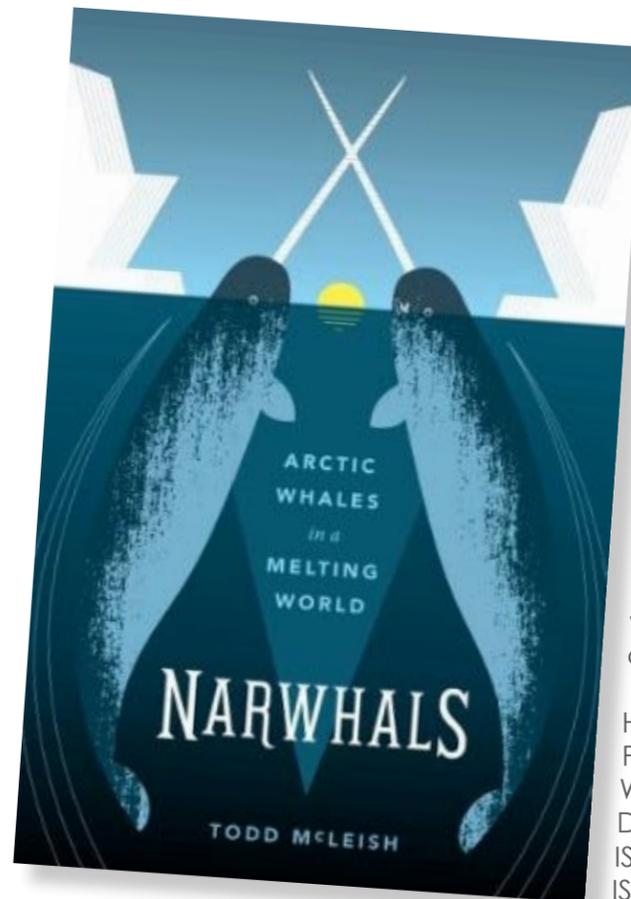
Hardcover: 208 pages
 Publisher: Harvard University Press
 Date: 18 February 2013
 ISBN-10: 0674067169
 ISBN-13: 978-0674067165



Rivers & Ponds

Enter the surreal world of freshwater river and ponds through the stunning photography of Emmanuel Lattes. Although sometimes literally at our feet, most of us don't pause to consider the beauty and life within this freshwater ecosystems. But this need not be the case anymore. With this book at the helm, it is time to take a peek into this fascinating and fragile world.

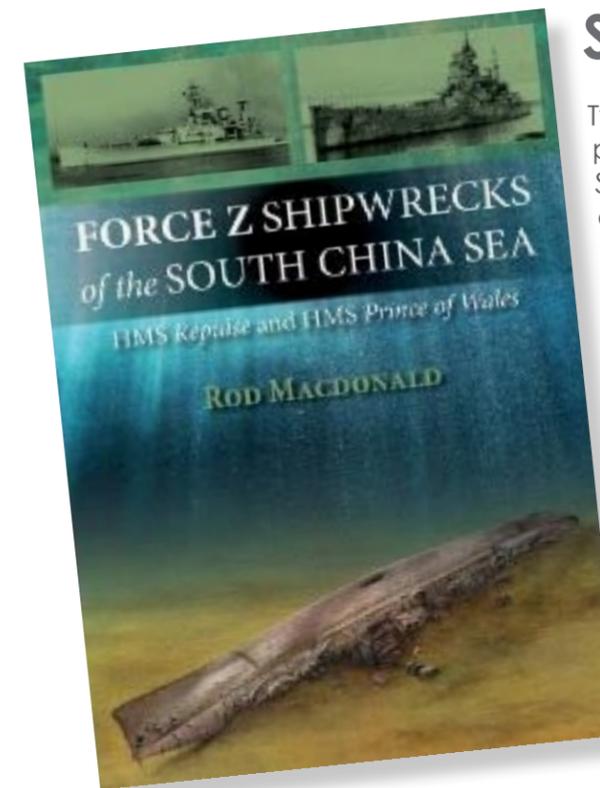
Paperback: 60 pages
 Publisher: CreateSpace
 Independent Publishing Platform
 Date: 21 January 2013
 ISBN-10: 1481952463
 ISBN-13: 978-1481952460



Narwhals

For most of us, the narwhal is simply an oddly-shaped whale with a long tusk. But this intriguing creature is more than that. Author Todd McLeish braves the Arctic cold to bring to light the true character of the narwhal, through whalers' logbooks and interviews with folklorists and historians. Then, he also explores the historical trade in narwhal tusks, their vocalizations, as well as the effects of climate change on the narwhal.

Hardcover: 216 pages
 Publisher: University of Washington Press
 Date: 1 March 2013
 ISBN-10: 0295992646
 ISBN-13: 978-0295992648



Shipwrecks

Two hundred miles north of Singapore beneath the waters of the South China Sea lie the remains of two British warships that were sunk during the Second World War. Author Rod Macdonald was invited on a military expedition to dive and survey the wrecks of the *HMS Prince of Wales* and *HMS Repulse*. The result is this book, documenting the loss of these two ships, and the stories of the men who served aboard them, alongside specially commissioned illustrations of the wrecks.

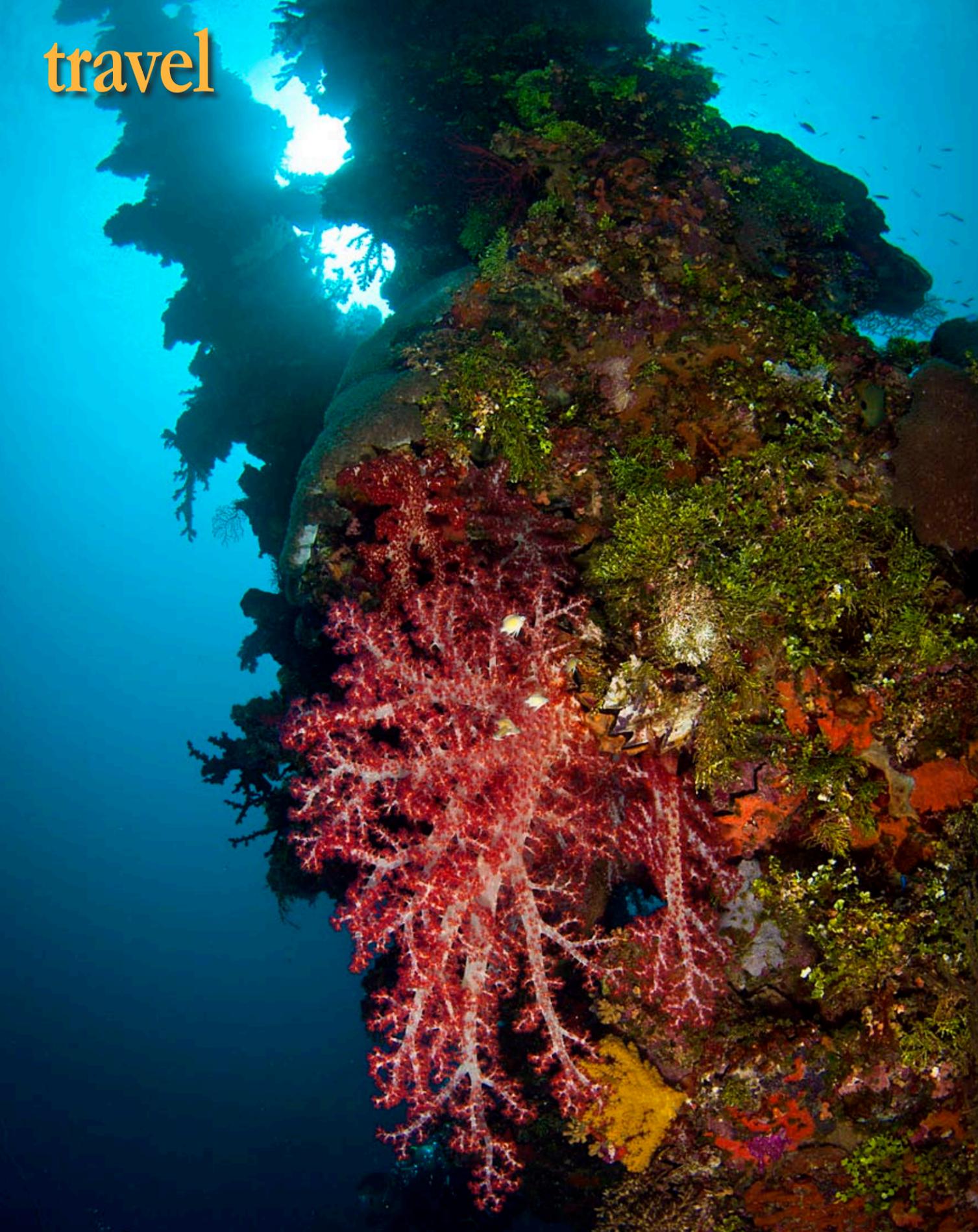
Paperback: 192 pages
 Publisher: Whittles Publishing
 Date: 28 Feb 2013
 ISBN-10: 1849950954
 ISBN-13: 978-1849950954

An underwater photograph of a shipwreck's interior. The scene is dimly lit, with two bright blue lights illuminating the space. The walls and floor are covered in coral and other marine life. The floor appears to be made of metal grating. The overall atmosphere is mysterious and historical.

Chuuuk

Wreck Junkie Heaven

Text and photos by Brandi Mueller



Coral growth on the wreck of the *Sankisan Maru*

Chuuk



View of Chuuk Island. PREVIOUS PAGE: Diver in interior of Betty plane

My dream history lesson includes a tropical Pacific island where I step off a beautiful boat soaked in sunshine the warm Micronesian waters and descend on a coral covered ship that was part of World War II. This dream and these ships came to life for me during a recent trip aboard the *MV Odyssey* liveaboard. Truk Lagoon, now known as Chuuk, is most certainly one of the world's greatest wreck diving destinations. These lush green islands with palm trees and calm blue waters make it almost impossible to fathom the immense battle that took place on the 17th and 18th of February, 1944.

Under Japanese occupation during World War II, Truk served as one of the Japanese Imperial Navy's main bases in the South Pacific Theater. Some compared it as Japan's Pearl Harbor. This logistical and operations base for the Japanese Combine Fleet served as the stage for the United States' attack called Operation Hailstone.

Known in Japan as *Torakku-tō Kūshū* (the airstrike on Truk Island),

the United States took Japan by almost complete surprise with two days of daytime and nighttime airstrikes, surface ship actions, and submarine attacks. Ordered by Admiral Raymond Spruance, Vice Admiral Marc A Mitscher's Task Force 58 included five fleet carriers (the *USS Enterprise*, *USS Yorktown*, *USS Essex*, *USS Intrepid*, and the *USS Bunker Hill*) and four light carriers embarking more than 500 planes. There were also seven

battleships, numerous cruisers, destroyers, submarines and other support ships assisting the carriers.

Airstrikes, employed fighters, dive bombers and torpedo aircraft were used in the attacks focusing on airfields, aircraft, shore installations, and ships around the Truk anchorage throughout the day and night. Many airplanes were destroyed as they were unable to take off, having just been delivered off cargo ships and still



CLOCKWISE FROM LEFT: Coral-encrusted mast of the *Fujikawa Maru*, with the *Odyssey* hovering overhead; Damselfish; The *MV Odyssey*; Damselfish looks out from a sponge on the *Fujikawa Maru*

being disassembled. Although still a major success for the Americans, just a week before Operation Hailstone, much of the Japanese fleet's larger warships were sent to sea to be relocated out of Truk. This was probably due to the base becoming too vulnerable. But even with those ships gone, the Americans sank 12 Japanese warships, 32 merchant ships, and destroyed 249 aircraft. Many of the ships were loaded with supplies to be delivered to other parts of the Pacific and little of the cargo was recovered, thereby hindering the Japanese Navy in the Central and South Pacific and ending Truk as a threat to Allied operations in the Central Pacific. Many ships sank and many lives were lost, but the ships of Truk Lagoon now serve a new purpose underwater. Reborn as artificial reefs, the wrecks have become covered with marine life and become home to schools of fish, anemones, corals, sharks and much more.



The wrecks of Truk Lagoon had been on my 'must dive' list for years, but Chuuk is a long way away from almost everywhere. Serviced only by United airlines, a stop in Honolulu or Guam is required to get to Truk. My flights included eight hours to Honolulu, eight more to Guam, and a thankfully short two-hour flight to Chuuk.



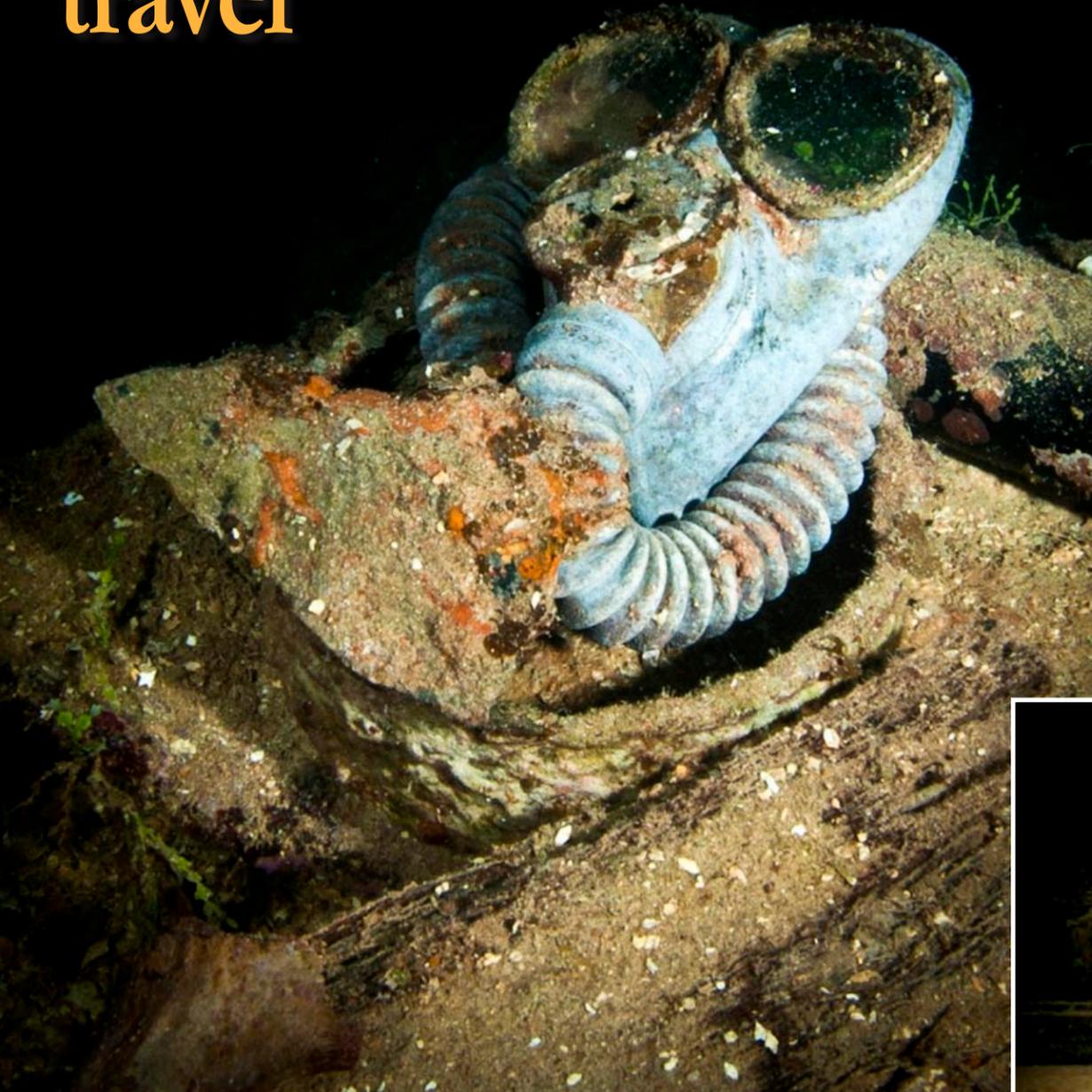
Arriving very late, and very tired, I was greeted at the airport by several pleasant crew from the *Odyssey* who took us to the boat. Much too excited to sleep, I laid awake in my cabin waiting for morning and our first wreck.



Diving the wrecks

Finally, morning came. Breakfast was served and Captain Nelson gave us the dive deck briefing. He touched on several important topics concerning diving these wrecks, the first being that these wrecks were not sunk on purpose. Unlike many wrecks sunk artificially, which are cleaned and made safer for divers, these are actual sunken warships with potential hazards requiring divers to be aware at all times of

what they're doing, especially inside the wrecks. Visibility inside the wrecks can go from great to zero quickly from bubbles knocking off rust from overhead environments and stray fins can kick up silt leading to low visibility situations. These ships, having been underwater for almost 70 years, are beginning to show their age. For example, one of the Lagoon's most famous wrecks, the *Fujikawa Maru*,



Gas mask (left) and bicycle parts (below) on the *Kiyosumi Maru*; The *Odyssey* (right) at the surface over a ship mast covered in soft coral

sengers launched in 1934 and converted into an armed merchant raider in 1941. She participated in the Battle of Midway and had been towed to Truk for repairs after being damaged by aircraft bombs.

Sunk on her port side, laying in the sand at 31m (100ft), we swam the length of the ship and eventually entered hold #2 through the hole caused by the bomb that sank the ship. Covered in growth, particularly long branched bushes of black coral, jellyfish seemed to be strategically placed around the outside of the ship, as if they guarded it. Originally holding eight guns, all have been removed, but the platforms remain. Our dive guide led us into hold #5 to see parts of two bikes and then hold #6 to see two massive spare propeller blades. Collections of bottles found inside the



known for its spectacular engine room penetration, has had most of its super structure collapse in the past year, making it dangerous to access its famous engine room.

Before diving each wreck, the *Odyssey's* knowledgeable staff gives a thorough briefing about each wreck showing a dive map to recommend dive plans, points of interest as well as hazards. They also give incredible history about each wreck, discussing each ship's role before and during the war.

Kiyosumi Maru. Stepping off the *Odyessy* and descending upon our first wreck, the

Kiyosumi Maru, feels like entering another world. The intact ship body, sitting 12m (40ft) below the warm Micronesian waters starts to bring to life the battle that took place here.

In Japanese, *maru* means *circle*, or *round*. This name is given to ships that circle back to where they came from. The warships did not have that distinction, as they were sent into battle, not expected to return. The *Kiyosumi Maru* was a 137m (450ft) long and 18m (6ft) wide freighter that also carried pas-



ship have been gathered in several places on the outside for divers to see. We also came upon a gas mask that almost looks like you could put it on and use it today.

Yamagiri Maru. The *Yamagiri Maru* was a 133m (437ft) passenger/cargo carrier launched in 1939 and converted to a military transport ship in 1941. This ship was damaged by two torpedoes in 1943 from the submarine *USS Drum* and repaired in Rabaul before sailing to Truk and then sank by dive bombers from the *Yorktown* and *Bunker Hill*.

Sitting at 36m (120ft) with its shallowest parts around 18m (60ft), this ship's most interesting feature is in hold #5. On their way to be delivered to the battleships *Yamato* and *Mushashi* were armor-piercing shells 45cm (18in) long, weighing over 3,000 pounds each, which could be hurled 38km. These gun rounds were for the largest guns



Anemonefish on the *Fujikawa Maru*



The bow gun of the *Fujikawa Maru*; The *Kiyosumi Maru* before the war (top right)

ever made for a battleship; the largest American battleships had only 40cm (16in) guns.

Being a lover of macro ocean life, I couldn't help but be amazed at all the little creatures that could be found making their homes in these sunken ships. One second the dive guide would be pointing out 45cm ammunition and the next moment I would find a nudibranch crawling its way up across the bow of the WWII wreck. Anemones seem to have happily made their homes all over the wrecks, and their respective anemone fish eagerly come up to look at you, looking back at them.

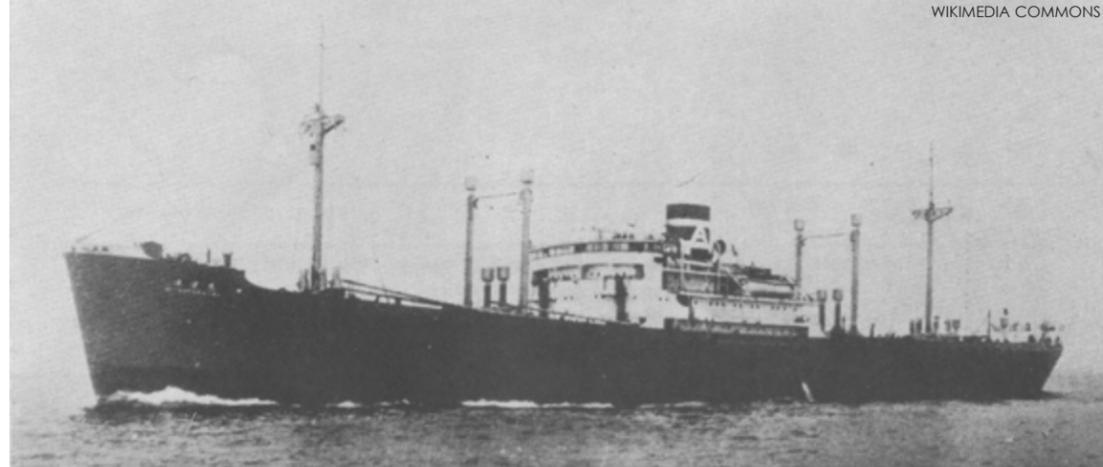
Fujikawa Maru. The *Fujikawa Maru* is one of the lagoon's most famous wrecks. Covered in lush coral, this ship was built in 1938 as a passenger cargo ship that car-

ried raw silk and cotton between South America and India. Commissioned into the Japanese Navy in 1940 and outfitted with 15cm (6in) guns on her bow and stern, she was tasked for transportation, including the delivery of aircraft and aircraft parts to Pacific islands.

Carrying planes to Truk, the *Fujikawa Maru* off-loaded 30 B5N2 bombers (Jill planes) which lay in pieces on Eten Airfield (Eten Island) during Operation Hailstone. They were unable to help defend against the Americans. Bombed by air attacks on February 17, the *Fujikawa* was still afloat on February 18. Essex dive bombers hit the port quarter with a 1,000-pound bomb. Finally, two Monterey airplanes attacked and witnessed a huge explosion and the ship in flames.

Still aboard the ship during the attack were three Zero fighter planes in cargo hold #2 and a fourth plane that is possibly an A6M "Claude" fighter, the only known surviving plane of that type. The *Fujikawa* sits upright, and we followed our dive guide from the surface down into cargo hold #2 to see these mostly intact planes. In the clear water, the planes looked as if a pilot could sit in them today and fly right out of the ocean and back into the air. We also saw spare wings and fuel drums.

Often boasted as one of the most beautiful wrecks in the lagoon, this magnificent ship is covered in pink and white soft coral, blue sponges, and every inch of it is covered in differently-colored marine life. On the deck, a plaque dedicates the preserva-



WIKIMEDIA COMMONS

Chuuk

only two made-for-war ships sunk in Chuuk, it is a 97m (320ft) Mutuki Class destroyer built in 1926 and was in Truk for repairs from an attack by U.S. planes near Rabaul on 4 January

tion and respect of the *Fujikawa* and other wrecks in the lagoon. Collections of artifacts from the inside are gathered on different parts of the ship including china with Japanese brandings. Schools of tuna and smaller fish circled the wreck, and a large barracuda seemed to be standing guard over the bow gun.

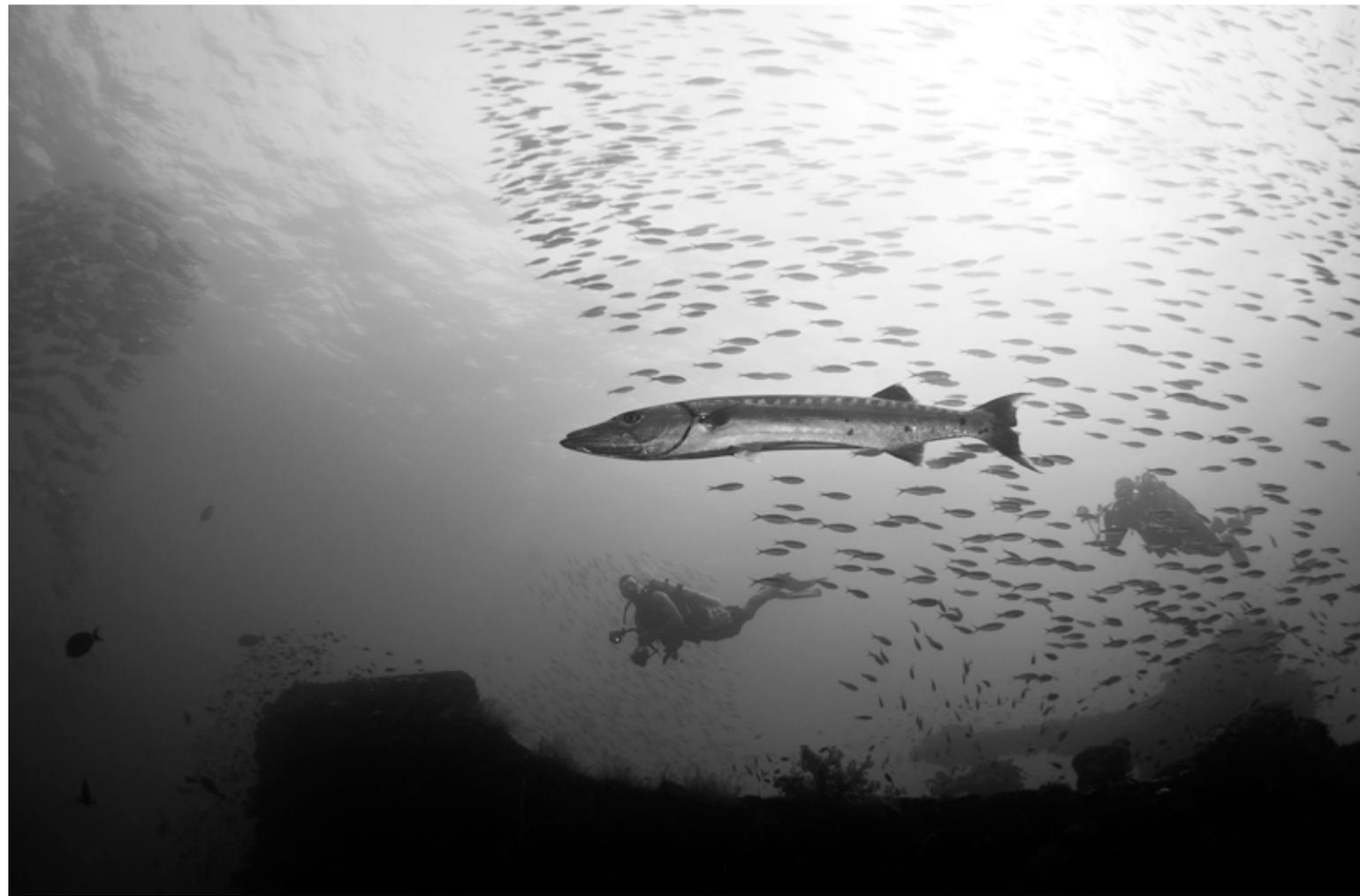
Often considered one of the

best wreck penetrations, much of the superstructure of the *Fujikawa Maru* has collapsed recently, making it very difficult and potentially dangerous to enter the engine room due to its instability.

Fumitsuki Destroyer. The *Fumitsuki* is a dedicated warship built for the Japanese Navy, and has no "maru" following its name. One of

1944. Prior to the Rabaul damages, the *Fumizuki* helped relieve Japanese forces in the battle of Guadalcanal as part of the "Tokyo Express".

Damaged by bombing during Operation Hailstone, her crew abandoned her when she lost power. They attempted to tow her to a new anchorage, but had not noticed the ship had its



Divers swim over the *Fujikawa Maru* to get a better look at a barracuda



Panel of gauges lies in the sand a few feet from the Emily plane

anchor dropped to avoid drifting on the reef.

Sitting between 24-36m (80-120ft) this warship still has intact bow and stern guns and a torpedo launcher. Being built as a warship and not a more comfortable passenger ship, we could immediately tell how much more compact the spaces were on the ship. We swam through companionways and looked into crew spaces, which were noticeably smaller and reduced in size compared to the passenger ships.

Airplanes. Some of the more popular airplane wreck dives in the Lagoon include the Kawanishi H8K1 "Emily" flying boat and the Mitsubishi G4M "Betty" bomber. Bomber aircraft were often given female names, and fighter aircraft were often nicknamed with men's names.

The Emily flying boat was known for its long range. Nicknamed the "Flying Porcupine", it was very difficult to shoot down because it had self-sealing fuel tanks and internal fire extinguishers. It held a crew of 16, had a 37m (124ft) wingspan and was 28m (92ft) long. It had four 1850 horsepower Mitsubishi Kasei engines.

This particular plane was bringing back the commanding officer of the Fourth Fleet, his chief of staff and other senior Japanese naval officers from a meeting in Palau. U.S. fighters repeatedly attacked, and the pilot still managed to escape the fighters and return to Truk. Although, while

trying to land the damaged aircraft, the pilot lost control, and it crashed and sank. The pilot, admiral and chief of staff survived.

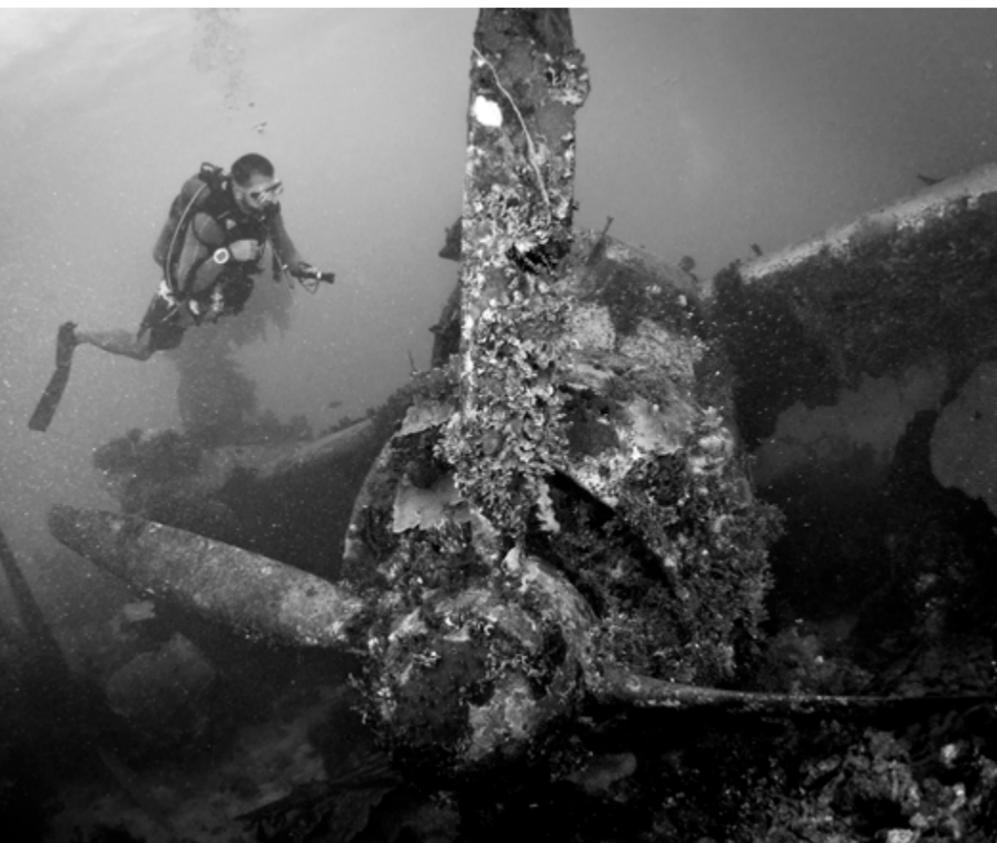
An easy wreck to dive at 15m (50ft), much of the plane was intact including several propellers. Near the plane sat several gauge panels and other airplane parts.

The Betty bomber was a small twin engine plane. The wreck sat in the sand at a depth of 15-18m (50-60ft). Made to be as light as possible, the fuel tanks were unprotected and easily caught fire, making them very vulnerable.

This plane crashed while trying to land on Eten Island. It is unknown if it was shot down or crashed on its own. The engines are found at about 90m (300ft) in front of the rest of the wreck closer to the island. The plane could hold a crew of seven, had a wingspan of 25m (85ft), was 20m (66ft) long and had four 12.7mm machine guns, one 20mm cannon and one 1750lb bomb.



Chuuk



Octopus (above) takes up residence in part of the Betty plane; Diver swims over the remains of an Emily plane (left)



Shinkoku Maru.

My favorite wreck in the lagoon—the *Shinkoku Maru*—has become a fantastically beautiful artificial reef. Pink and purple anemones can be found all over the top deck. Schools of fish, big and small, have populated the ship. Sitting between 9-40m (30-135ft), the 152m (500ft) commercial tanker was built in 1940. Before the war, it transported oil from the United States to Japan.

Its name meaning “divine country”, it was

requisitioned by the Japanese Navy into a naval tanker in 1941. She participated in the attack on Pearl Harbor.

Minor damage to the *Shinkoku* occurred on 17 August 1942 when the ship was torpedoed by the U.S. submarine *Gudgeon* and was repaired. Arriving to Truk only three days before the carrier strikes on 14 February 1944, it is thought she received a bomb hit amidships by

Yorktown planes, but she did not sink until an unknown air group struck the ship with a torpedo attack later in the day. Planes from *Bunker Hill* made six torpedo drops that all missed.

Sinking upright, the masts used to be above the water line, but due to possible boat traffic hazards, they were toppled by explosives. The ship was identified by the ship's bell, which was found with the name engraved.

With the super structure of the *Fujikawa Maru* collapsing, it's my opinion that the engine room tour of the *Shinkoku* is probably now the best in the lagoon. My dive guide took me into the ship through the smoke stacks that start around 18m (60ft). Headed straight down to around 33m (110ft), one can exit the ship through the torpedo hole at 41m (135ft) in the bottom port stern. We came out the torpedo hole, looked up at the massive ship and went back in through the hole to tour the engine room, generator rooms and other areas inside the wreck.

Along with the fantastic penetration, this ship has prolific and abundant marine life. Schools of batfish are found along the top deck, and several sharks were seen passing

the ship. With the superstructure being fairly shallow and so much marine life and abundant artifacts gathered on the deck, this wreck definitely needs several dives to see it all.

Hoki Maru. Another lagoon favorite is the *Hoki Maru* due to her cargo. Construction equipment and vehicles are found in hold #5 including intact trucks, tractors, a steamroller and two bulldozers. The trucks have right hand steering wheels, and the tractor looks similar to a John Deere model.

Originally named the *Hauraki*, this ship was a British/New Zealand cargo and passenger ship launched



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CLOCKWISE FROM ABOVE: *Shinkoku Maru*; Anemonefish in large anemone on the wreck of the *Shinkoku Maru*; Artifact on the *Shinkoku Maru* wreck; Diver at davit on the *Hoki Maru*; Truck on the *Hoki Maru*; Historical image of the *Hoki Maru*

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in 1921. Seized by the Japanese in 1942, it was renamed the *Hoki Maru*. She was used for special transport. Sitting around 49m (160ft) in the





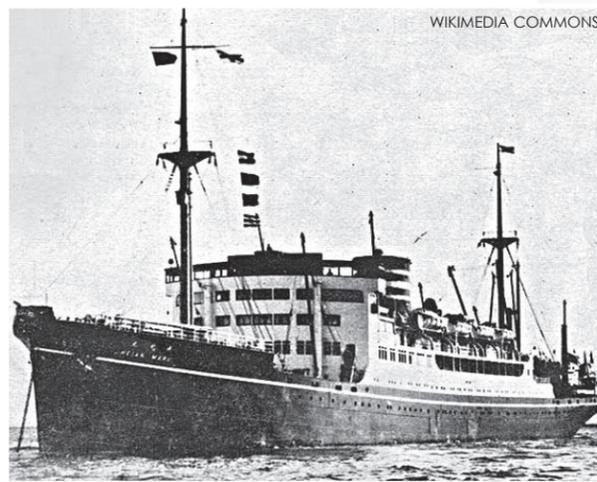
CLOCKWISE FROM BOTTOM LEFT:
Tractor on *Hoki Maru*; Diver on the
Nippo Maru; *Heian Maru* pre-war;
Divers at mast of *Nippo Maru*;
Medical kit found in *Heian Maru*

sand, this 137m (450ft) ship's bow was severely damaged by two 1,000-pound bombs that hit the port side igniting fuel and causing a massive explosion and fire. The deck appeared to have been peeled back or ripped open from the rest of the ship.

Nippo Maru. Hit and sunk by three 500-pound bombs in its stern, the *Nippo Maru* was a 106m (350ft) transport ship mostly carrying water. Originally a passenger and cargo freighter, she was seized in 1941 by the Japanese. She now sits mostly upright with a 20 degree port list between 15 and 45m (50-150ft). The *Nippo* has a very noticeable wheelhouse with an intact telegraph and steering helm. Hold #4 is particularly interesting with its aluminum water containers, bottles and bike parts. On the port side bow, a small, mostly intact tank is found as well as a truck chassis.

Heian Maru. The largest wreck in the lagoon at 155m (510ft), the *Heian Maru* was built in 1930 as a passenger cargo ship. Recalled to Japan during a normal voyage between Hong Kong and Seattle in 1941, she was then converted to a submarine tender. Her name is found in both English and Japanese on the hull. She was named after the ancient city of Heinkyo, "The City of Peace and Tranquility".

Sunk on her port side and sitting between



10-30m (35-100ft) of water, one of the most notable parts of the *Heian Maru* are Type-95, 7m (23ft) long torpedoes, which are stored upright in the forward holds. Artifacts have also been gathered from inside the ship and placed together including a fantastic medical kit with several different colored bottles.

Torpedoes inside the *Heian Maru*

San Francisco Maru. Although I did not dive this wreck, it deserves to be mentioned here. One of the deeper wrecks in the lagoon sitting upright from 45-63m (145-205ft), it is unique, as there is not much growth due to its depth. It is also a very interesting wreck because it has three intact Japanese Type-95 light tanks, which were crewed



Inside the *Rio de Janeiro Maru* (left); Engine room (bottom left), Bottle Room (center) and mast (right) of the *Rio de Janeiro Maru*

trucks, fuel and aerial bombs and torpedoes, and depth charges are found in the aft holds.

Rio de Janeiro Maru. Before WWII, the *Rio de Janeiro Maru* was an eight-deck passenger luxury liner, which carried people and cargo from Japan to many areas of the world including South America, South Africa, the United States. Built in 1940 and converted into a submarine tender in 1940 for the Japanese Navy, she serviced six submarines. After Japan lost most of its submarines, she was reclassified as a transport ship. Sunk by at least one bomb from an Essex aircraft, she now rests on her starboard side at 40m (130ft).

Another of my favorites, this 137m (450ft) wreck had an easily accessed large engine room with many knobs, gauges and pipes. There was also a hold referred to as the 'bottle room' with stacked boxes of beer bottles. The ship also had very large, photogenic, propellers. One needs several dives to fully explore this large, mostly shallow wreck.

Afterthoughts

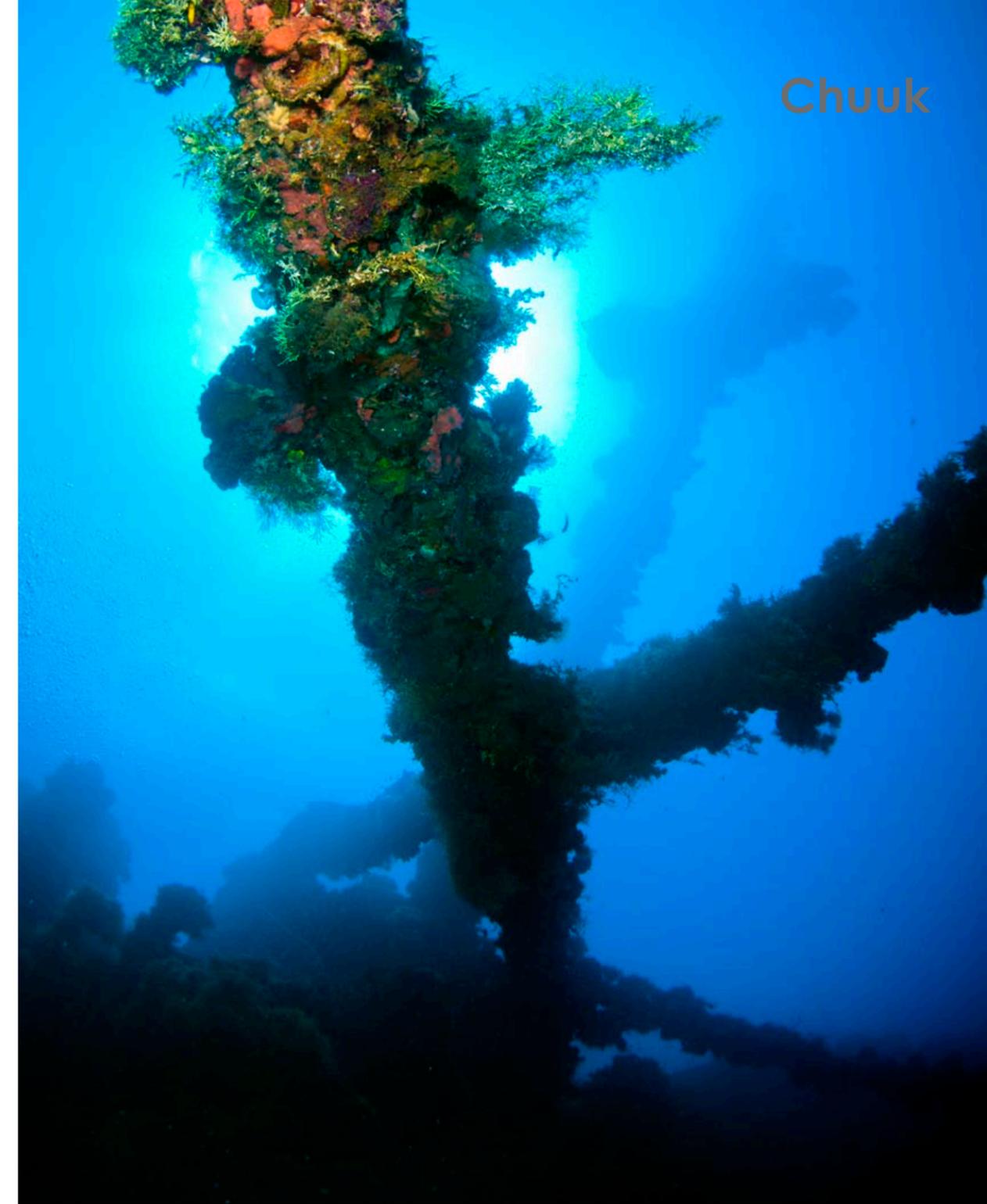
With so many wrecks in Truk Lagoon, one needs multiple trips to see them all, much less explore them adequately. The *MV Odyssey*, a 40m (132ft) luxury liveaboard with nine very comfortable private state-rooms, a spacious dive deck, large camera table, and fantastic meals makes it easy to dive as many of the lagoon



by three people. These tanks sped up to 30mph and had half-inch armor. The *San Francisco Maru* was built in 1919 as a freighter. She became a cargo ship in WWII.

Known as the million dollar wreck

because of her estimated worth of cargo, divers find many very interesting war artifacts on this ship. Hold #1 contains sea mines and detonators, hold #2 has several



wrecks in a week as possible. Offering five dives a day and a fantastic and knowledgeable crew, I can't imagine a better way to make the most of a week diving Chuuk.

I've often heard people talk about diving Chuuk, and they think it is too advanced for them. It can be, but it doesn't have to be. For divers who do not want to go "deep and dark", the

outsides of the wrecks have become fantastic artificial reefs with hard and soft corals, anemones, large schools of fish, and plenty of the macro critters found in other parts of Micronesia (most of the time divers are too enthralled with the wrecks to search for them!)

Almost all the wrecks can provide a spectacular dive above 30m (100ft). And usually when the *Odyssey* dives the very



deep wrecks, they will provide an alternative wreck for those who do not want to go that deep.

The experienced and well-trained *Odyssey* crew will also go above and beyond to make sure every diver on the boat gets the diving they are looking for. Dive guides can recommend easier dive plans for those wanting to stay shallower and outside the wreck.

If you do, however, want to go “deep and dark”, they will take you on mind blowing penetrations into engine rooms, cargo holds, and more. Aboard the *Odyssey* divers are given the opportunity to dive at their leisure or have one of several fantastic dive guides lead them. Technical diving is allowed on the *Odyssey* for certified or experienced tech divers.

Many lives were lost and ships sunk in the waters of Truk Lagoon. But underwater, the

ships have been reborn as thriving artificial reefs. Almost 70 years in the nutrient rich waters of Micronesia have made these

ships stunning and colorful marine habitats. Hard and soft corals cover the outsides of the ships and large school of tuna, barracuda and sharks swim by. The ships are also the grave sites of those who made the ultimate sacri-



Rio de Janeiro Maru (above) before the war; Diver (far left) explores the wreck of the Rio de Janeiro Maru; Map (left) shows wreck sites

—they gave their lives for their country. The wrecks provide a tangible history lesson, and nothing is more excit-

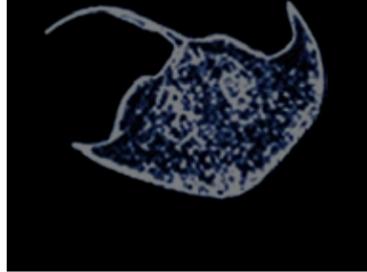
ing than being able to visit and explore them. ■

Brandi Mueller is an underwater photographer based in Honolulu, Hawaii. She is a PADI IDC Staff Instructor and 100ton USCG Captain. See: smugmug, sirenphotography.com

Sankisan Maru (top right)

SOURCES:
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BALLEY, DAN. WORLD WAR II WRECKS OF TRUK LAGOON, 2001

fact file



Chuuk, Micronesia



SOURCES: U.S. CIA WORLD FACT BOOK, VISIT-FSM.ORG

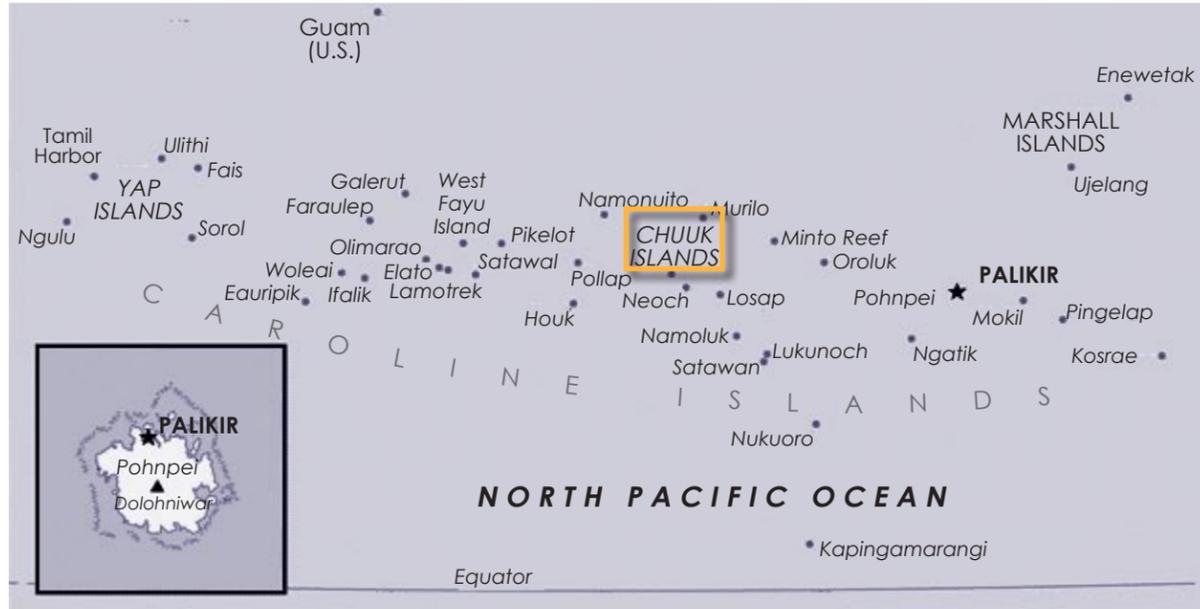
History The Federated States of Micronesia (FSM) was formed in 1979 including Pohnpei, Kosrae, Yap, and Chuuk (Truk). Currently the FSM is independent under a Compact of Free Association with the United States. Occupied by the Japanese prior and during WWII, Chuuk served as a major operational base for the Japanese Imperial Navy Combined Fleet and was the target for the United States military attack known as Operation Hailstone on 17-18 February 1944. Government: Constitutional government in free association with the United States. Capital: Palikir

Geography All four islands are located in the North Pacific as part of the Caroline Islands. The islands are mountainous with tropical jungle. Coastline: 6,112km

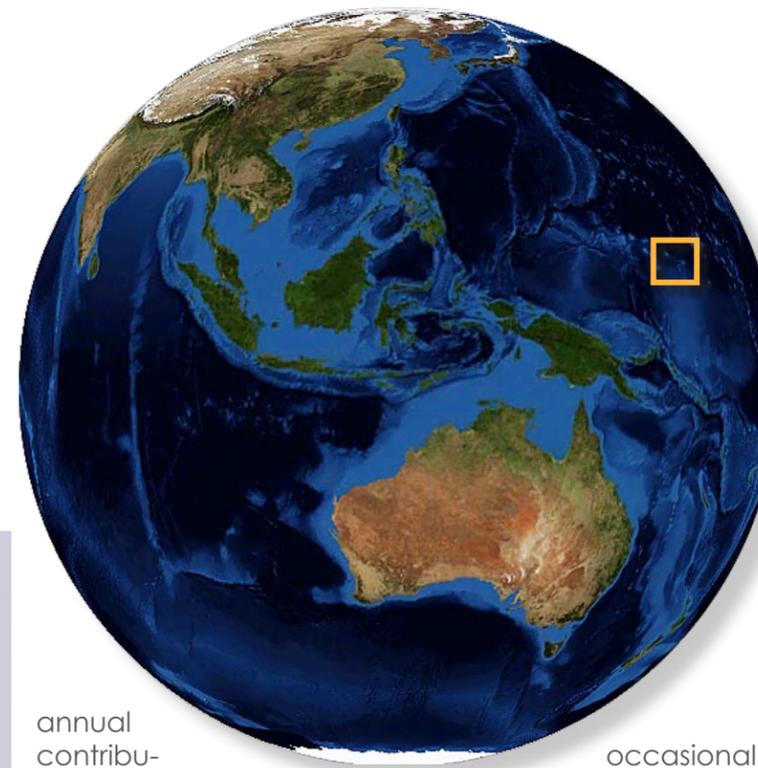
Climate Equatorial tropics with average temperatures of 23-30°C (75-86°F) year round. Heavy rainfall year round with summer and fall being the wettest. Little typhoon risk (June to December). Water temperatures are warm with 27-28°C (80-83°F).

Environment Overfishing, climate change and pollution pose challenges.

Brick on wreck of the Heian Maru



RIGHT: Global map with location of Chuuk Islands
BELOW: Location of Chuuk Islands on map of Micronesia



annual contributions by the United States and the FSM to in effect provide payouts in perpetuity to the FSM after 2023. Despite this move, the medium-term economic outlook looks fragile due to current slow growth of the private sector.

Population 106,487 (July 2012 est.) The FSM has several ethnic groups: Chuukese 48.8%, Pohnpeian 24.2%, Kosraean 6.2%, Yapese 5.2%, Yap outer islands 4.5%, Asian 1.8%, Polynesian 1.5%, other ethnic groups 6.4%. Religions: Roman Catholic 52.7%, Protestant 41.7% (2000 Census) Internet users: 17,000 (2009)

Currency U.S. Dollar

Language Chuukese, English

Health In the FSM, there is no risk for rabies or malaria, but

occasional risk for dengue. FSM is very close to

the equator, so be aware of heat and sunburn. Local hospitals are on each island but have very few resources. On Chuuk, there is a hospital in Weno that can take care of normal needs, although it's suggested prescription medication for the entire stay is brought with you. Major illnesses should be flown to Guam (~3 hours) or Honolulu (~7 hours).

Security It's not safe outside resort areas. It's not advised to be out at night, even in cars. The Odyssey provides transportation from and to the airport.

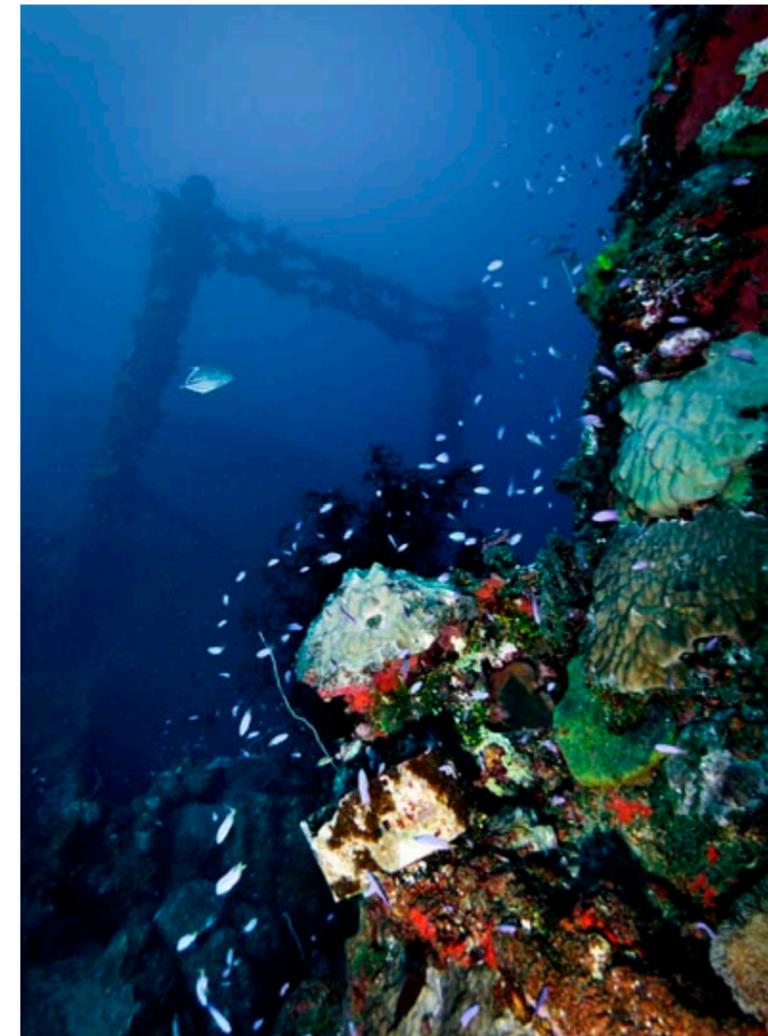
Nippo Mura wreck

Decompression chamber
There is a chamber in Chuuk

Getting there United Airways services Chuuk with routing through Guam and Honolulu.

Entry/Exit
\$20 U.S. cash departure tax collected at airport prior to departure

Web sites
Tourism Micronesia
www.visit-fsm.org





Try something different

Hockey Under Ice

Text compiled by Peter Symes
Photos courtesy of Manfred Dörner

The big puck is made from wood and styrofoam

Underwater ice hockey is played upside-down underneath frozen pools or ponds, using the underside of the frozen surface as the playing area for a floating puck. Competitors do not utilize any breathing apparatuses, but instead surface for air every 30 seconds.

The new game sport that originated in Austria has become increasingly popular among freedivers and extreme sports enthusiasts. It is played as a match between two teams where two to three players participate per team in a six-by-eight meter rink situated under a sheet of ice. At any given time only one player is submerged while the two others move between the manholes while catching their breath.

Much like on-ice hockey, the game consists of three periods, although each period is only ten minutes long, with a ten minute intermission between periods to allow players to warm their bodies. As for the spectators, they watch the under water action from a screen above the ice.

Considering they are not allowed to play with any kind of breathing apparatus, underwater ice hockey players need to have excellent breath-holding abilities. Since players can easily get disoriented during a game, become too exhausted to reach the hole or can't find it, four safety divers equipped with oxygen tanks are present to supervise the players during the game.

So far, there have been two Underwater Ice Hockey World Cups, both held in Weissensee, Austria. The first was held in 2007 and was won by a team from Finland. The second tournament, which was just held in 15-16 February 2013, was won by the home team from Austria, beating Germany in the final with a score of 9-6. ■

