

IN DEPTH

SEAmagine.com

2023

NATIONAL GEOGRAPHIC

kicks off venture
to save oceans

Maldives resorts

now offering

*SUBMERSIBLE
EXCURSIONS*

SNEAK PEEK:

Learn about latest
luxury sub, the

Aurora-90

SEAMAGINE
HYDROSPACE CORPORATION



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LETTER FROM THE CHAIRMAN

There has never been a more exciting time to explore our oceans. Submersible technology continues to advance, enabling humans to observe our world beneath the waves with greater visibility, safety and enjoyment. At SEAmagine, we're proud to have made possible more than 12,000 dives worldwide with a perfect safety record, which have yielded new discoveries and unforgettable experiences.

Though there is much to celebrate, the unfortunate incident of an experimental submersible during their recent expedition to the *Titanic* weighs heavy in our minds. This tragedy continues to underscore the importance of our industry embracing a culture of safety and adhering to the critical regulations in place to ensure the wellbeing and enjoyment of all submersible passengers. As the original submersible manufacturing company that reinvigorated this marine technology, SEAmagine has set the industry standard since the 1990s for submersible safety. The number of our dives represents more than all other submersibles currently operating in the recreational sector combined. Some SEAmagine clients have performed over 3,000 dives with their sub over the years without ever once incurring any lost time due to technical problems with the vessel. Additionally, SEAmagine is the only manufacturer that is

producing manned submersibles for various coast guards and the defense sector. This is a phenomenal testament to the company's superior designs, proven engineering, and the unparalleled expertise that it earned over the nearly three decades pioneering the manned submersible sector.

Those who wish to dive undersea should feel comfortable continuing to do so aboard regulated, commercially proven submersibles, like ours. Without comparison, subs that are certified safe by industry classification societies enable unmatched human exploration, understanding and stewardship of the fascinating and critical space below our oceans.

I am thrilled to connect with so many ocean explorers and enthusiasts through this magazine, and hope that you will feel inspired by these pages. We believe that recreational submarines have the potential to change the way humans interact with the ocean, and we are committed to using our technology to make a positive impact on the world.

Never stop exploring.

Charles Kohnen
Co-Founder & Chairman
SEAmagine Hydrospace Corporation

Watch as National Geographic Pristine Seas Saves Our Oceans

Story by National Geographic with contributions by SEAmagine

Amid an escalation of threats to the ocean, National Geographic Pristine Seas has launched The Global Expedition. This bold new venture will spend five years exploring the remote tropical Pacific on a mission to support local conservation efforts in the world's most diverse ocean ecosystem.

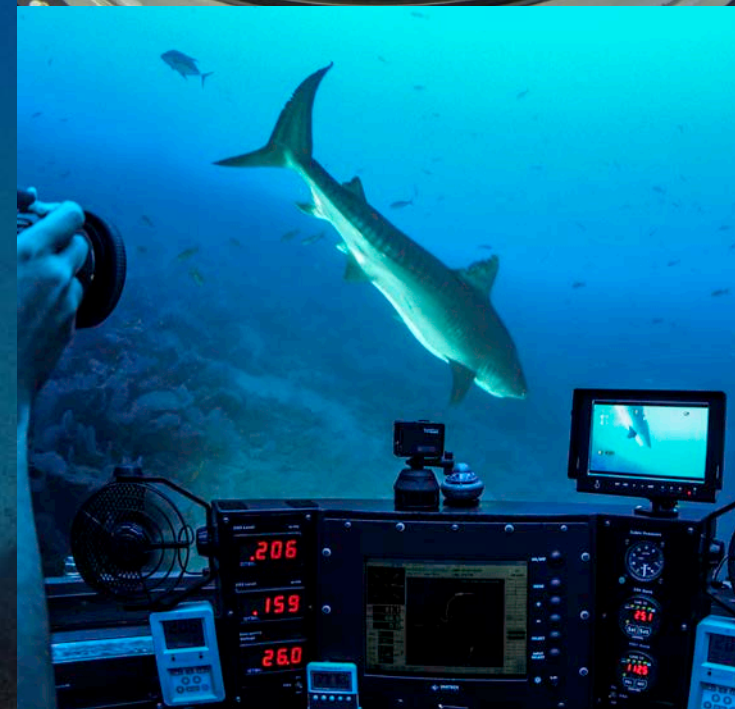
The National Geographic Pristine Seas team will work aboard their expedition-outfitted vessel, the *E/V Argo*, outfitted with a **three-seater SEAmagine submersible, the DeepSee**. Together they will study, document and identify the potential for expanded protections in waters crucial to the survival of the Blue Pacific Continent. They hope to support the establishment of new marine protected areas, each with sustainable management and financing plans. Success is critical to a broader effort to fight global warming, food insecurity and nature loss by protecting 30 percent of the planet by 2030.

"The health of the tropical Pacific is an essential need for the people who live there and really to everyone on the planet, because the ocean is a key part of our life support system," said Enric Sala, National Geographic explorer in residence and the founder of Pristine Seas. "But what makes this mission an exciting opportunity is to restore marine life and bring in more benefits to local communities and economies. We sail with hope because we have witnessed the amazing capacity of ocean life to heal itself—if we just give the ocean some space."

As leaders in the study of the ocean, Pristine Seas brings the spirit of space exploration to a global effort to restore ocean environments that sustain life on earth. *Argo* is their *Apollo* explorer and the *DeepSee* SEAmagine submersible is their equivalent of a lunar lander – though one that can descend deeper than the Eiffel tower is tall.



The mission's success is critical to a broader effort to fight global warming, food insecurity and nature loss by protecting 30 percent of the planet by 2030.



The *E/V Argo* team has deployed the sub and other tools in some 40 locations, working from the surface to deep waters, some of which have never before explored by humans. During that time, SEAmagine's sub has dived more than 3,500 times without any downtime due to submersible issues.

"There is no other submersible on the planet that offers the reliability and safety of a SEAmagine. Whether you're using one of our subs for research or pleasure, the outcome is the same – an unmatched experience underwater," said SEAmagine's Charles Kohnen, co-founder and chairman.

SEAmagine's sub
has dived more
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without downtime

National Geographic Pristine Seas' efforts have produced more than 250 peer-reviewed studies that have upended long-held assumptions about marine ecosystems. They also have revealed the power of highly protected areas to rapidly restore depleted fish, coral reefs and kelp forests, benefits that also support the health of adjacent waters critical to local fisheries and tourist economies. The evidence already has inspired the creation of 26 marine protected areas encompassing more than 6.5 million square kilometers—an area two-thirds the size of the United States.

Now Pristine Seas is pointing the *Argo* and *DeepSee* to central and western Pacific Island nations, a region that supports earth's greatest ocean biodiversity. The first phase will cover 6,400 kilometers (4,000 miles) in 2023 alone, exploring the ocean to depths of 6,000 meters (20,000 feet), and exploring depths never probed by humans. In the first year of The Global Expedition, Pristine Seas will help establish effective marine protected areas and support their sustainable use. They also plan to foster a network of marine protected area managers and practitioners to facilitate and encourage sharing of experiences,

challenges, and successes among communities, experts and scientists.

“Every day our team will show the world the awesome beauty of this aquatic universe while providing scientific evidence demonstrating the value, for people and the planet, of protecting key areas in the tropical Pacific,” said Sala.

Follow Along

Pristine Seas is inviting the world to virtually come aboard for the entire journey. Their crew includes National Geographic filmmakers and storytellers who have produced several highly acclaimed documentaries. The upcoming mission will stream live video, audio and data that will provide unprecedented real-time access to inspiring ocean exploration and cutting-edge science.

FOLLOW THE VOYAGE
@natgeopristine seas



WATCH TRAILER



AURORA-90 MODEL
SEAmagine’s latest 5 to 6 person submersible with an extra large cabin.

Luxury Redefined: Introducing the Aurora-90 Series

Explore the oceans up to 1,000m in SEAmagine’s latest luxury submersible, offering modular seating in an extra-large cabin with a majestic field of view.

For those seeking more in their underwater adventures, the Aurora-90 series has arrived. This spacious SEAmagine submersible offers an extra-large cabin with modular seating that provides luxury seating for three VIPs or standard ergonomic seating for up to six people, depending on the interior selected and the maximum depth rating required. An extra metal hull section behind the window provides precious additional interior space and allows passengers to each have seats located inside of the bubble for a nearly 270-degree view, with the pilot located in the center rear section.

This series can be depth-rated between 100m (328 ft.) to 1,000m (3,280 ft.).

- For diving depths up to 1,000m, Aurora-90 subs are superb for leisure or tourism, hosting four or five passengers, plus a pilot.
- The 500m (1,640 ft.) depth-rated configuration offers two interchangeable interiors: Either a three-person VIP seating arrangement or a five-person seating arrangement.

Aurora-90’s entry arrangement for passengers is superior. The top deck, made of synthetic teak, offers an excellent, safe and highly accessible boarding platform supported by two retractable handrails on each side. A staircase leads passengers to the large entry hatch and two additional steps in the cabin extend the upper staircase all “the way inside to the cabin floor.

With four vectored propulsion thrusters on each corner, plus two vertical thrusters, this series can maneuver in all directions, much like a drone. SEAmagine’s thrusters can provide practically the same amount of thrust force in forward and reverse-flow directions, giving the vessels excellent agility and power. This important characteristic allows pilots to safely approach reefs, walls, seamounts or structures for exceptionally close viewing.

The Aurora-90 submarines offer an optimal launch weight under 10 tons. As with all SEAmagine’s submersibles, the Aurora-90 offers robust construction, unmatched reliability and can be equipped with a wide array of cameras, robotic arms and scientific tools.



LEARN MORE

Select the Best Submersible for Your Super Yacht

When it comes to selecting the best submersible for your needs, the options can feel overwhelming. SEAmagine offers this guide to point the super yacht community towards the best sub for their application.



Best for small-to-medium garages

AURORA-3C

Small, lightweight and equipped with powerful propulsion

- Compact 3-person seating arrangement
- 460 – 580m (1,509 – 1,902 ft.) depth rating
- 3,950 – 5,000kg (8,710 – 11,000 lbs.) weight



Best for ultra-deep missions

AURORA-80

Powerful propulsion, can be equipped with cameras and other equipment

- 3-person seating arrangement
- 1,300m (4,065 ft.) depth rating
- 8,000 – 9,000kg (17,640 – 19,841 lbs.) weight



Best for ultra-luxury

AURORA-90

Ambient lighting, flexible seating options, stereo surround sound and upscale ambiance

- Modular seating arrangement that allows for two VIP chairs or up to a six-person seating arrangement
- 500 – 1,000m (1,640 – 3,280 ft.) depth rating
- 9,100 – 11,000kg (20,062 – 24,250 lbs.) weight



Fari Islands Maldives Resorts Now Offer Sub Tours

Luxury Submersible Elevates the Guest Experience while Contributing to Marine Conservation

Imagine for a moment that you’re standing on one of the most stunning island beaches in the world, in the Maldives. The sun is shining, palm trees are swaying and the turquoise ocean beckons you. Your feet are planted on one of four man-made islands that are home to several new posh resorts, including Patina Maldives, The Ritz-Carlton Maldives and Capella Maldives (opening soon). Since its opening in 2021, Fari Islands has built a reputation as one of the most exclusive, ultra-lavish set of islands in the Maldives. It is truly a luxury traveler’s oasis.

Speaking of the ocean, guests will delight in learning that the magnificent views and endless shades of blue are perhaps even more spectacular below the surface. The surrounding waters are translucent and play host to idyllic reefs and abundant marine life – including pelagics, such as manta rays and whale sharks. Some local channel reefs feature overhangs full of colorful sponges and invertebrates, and there are quite a few shipwrecks to explore.

“It is impossible to enter these waters and not see something incredible,” said Alexis Vincent, managing director and founder of Dive Butler, the esteemed water sports, diving and excursion operator at the Fari Islands. Vincent’s company was the first to offer luxury diving services to superyacht owners and guests, yacht charter and management companies, and individuals seeking personalized experiences around the world.

In the Fari Islands, elite adventurers can choose to uniquely take in the underwater sights from the comfort and safety of a luxury submersible – a SEAmagine vehicle called *Ocean Pearl*.

With locations already established in the Maldives, Dive Butler recently opened its new Fari Islands dive center and is working closely with the islands’ resorts to offer bespoke activities that are putting the island chain on the map. These include traditional snorkeling, SCUBA and jet ski activities, as well as exclusive submersible tours. The *Ocean Pearl*, while primarily tagged for

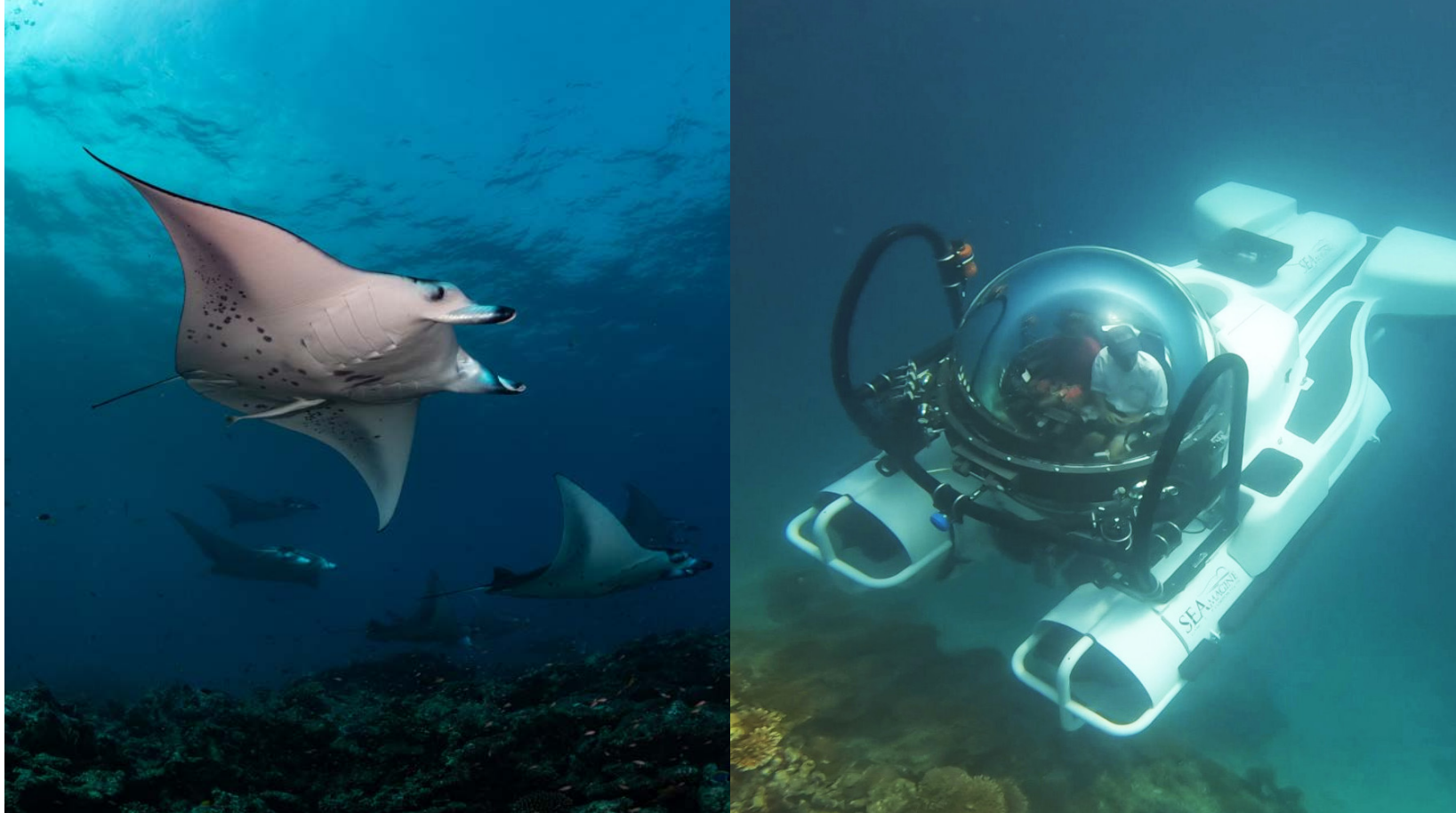
luxury tourism, will also be used for marine research in the local area, helping to protect and preserve the Maldives for generations to come.

“This ground-breaking addition [of the *Ocean Pearl*] promises to elevate the resort experience to unparalleled depths of exploration and adventure, while also making significant contributions to environmental protection and marine biology projects,” a press release announcing the availability of the submersible stated. “With cutting-edge technology and exceptional safety features, the *Ocean Pearl* offers a once-in-a-lifetime opportunity to explore the mesmerizing depths of the Indian Ocean in the utmost comfort and security. The panoramic windows provide an unobstructed view, ensuring that every guest can marvel at the awe-inspiring underwater landscapes.”

“There are few other opportunities to see the underwater world from the perspective of a sub,” said Vincent. “SEAmagine’s subs are some of the safest on the market. Guests can feel confident about stepping aboard and will certainly never forget the experience, all while feeling good about the positive impact they are making on the environment.”

Explore the Maldives in a Sub, While Contributing to Ocean Science

The idea behind Dive Butler’s decision to launch submersible tourism services is rooted in exposing guests to the beauty and fragility of our oceans, while also contributing to marine research in the region. Guests who ride aboard the *Ocean Pearl* will actively participate in marine-conservation initiatives. Under the guidance of marine biologists and environmental experts, passengers will engage in data collection and documentation, aiding ongoing research efforts. By contributing to



marine biology projects, guests will become part of a vital force dedicated to understanding and preserving this delicate marine ecosystem.

Because Dive Butler specializes in bespoke experiences, guests can prioritize what they want to experience, whether they prefer to cruise alongside current-surfing turtles, explore vibrant reefs up close or dive deep to learn about a wreck. For each personalized tour, a highly trained pilot will ensure guests’ safety while sharing profound knowledge. Cameras will take footage of the dives, providing lasting physical memories of the adventures.

“These guided tours are also educational for superyacht owners who are considering the purchase of a submarine, as it allows them to test out the technology first,” shared Vincent. “The Fari Islands and Dive Butler extend an invitation to all adventure-seekers, marine enthusiasts and travelers to embark on this extraordinary and immersive journey into the depths of wonder. Whether it’s seeing exotic marine life up close and personal, actively participating in marine conservation efforts or simply reveling in the sheer beauty of the ocean’s depths, the *Ocean Pearl* promises to deliver unforgettable memories and a profound sense of connection to our planet’s most treasured aquatic ecosystems,” said Vincent.

To learn more or book your trip, visit fariveli.dive-butler.com.

“

The Fari Islands and Dive Butler extend an invitation to all adventure-seekers, marine enthusiasts and travelers to embark on this extraordinary and immersive journey into the depths of wonder.



WATCH A MALDIVES DIVE



SEAmagine Makes Citizen Science Possible

When people choose to enter the ocean aboard a SEAmagine submersible, they can travel deeper and for longer periods than while SCUBA diving. For this reason, sub passengers have a greater chance of witnessing never-before-seen creatures, artifacts or subsea structures. Read about a few of the discoveries made on SEAmagine vessels here.



Training Dive Leads to Discovery of Historic Amphora

During a training dive in the waters off the Aeolian Islands in Italy, passengers aboard a SEAmagine Aurora-3C submersible made an unexpected discovery. At 135m (442 ft.) deep, the crew spotted an amphora, an ancient Roman jar. Careful not to disturb the artifact, the civilian discoverers noted the GPS coordinates and kept a safe distance.

Amphoras became obsolete by the end of the 14th century. Sometimes they were used as grave markers or as containers for funeral offerings.

As Published in *Cybium*: Shark Sighted in New Waters

Yachters aboard a SEAmagine recreational sub recently made a discovery that challenged what scientists know about an elusive breed of nocturnal Chondrichthyes (sharks), the prickly shark. Captured on



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video, the crew submitted their findings to marine scientists who produced a paper that was published in the International Journal of Ichthyology *Cybiu*m.

The crew’s observation of a mature, male prickly shark at a depth of 500m (1,640 ft.) on a barrier reef off the island of Moorea, was its first sighting in French Polynesia. This extended the range of this species in the Eastern Tropical Pacific. The prickly shark is completely gray-colored and rarely seen in specific parts of the Pacific Ocean.

Underwater Everest Revealed

On another training dive off in Costa Rica, submersible Pilot Shmulik Blum, of Undersea Hunter Group, a preeminent adventure dive operator, directed the SEAmagine DeepSee sub into the depths of the scenic Isla del Coco. As they descended, Blum noticed an unexpected mountain-like structure on his sonar.

“It looked like the underwater Alps,” said Blum, “But there were avalanches of fish pouring over the sides. One side was a stream of all red fish, the other white. There were sharks swirling on top. It was incredible.”

As it turned out, what Blum and his cohorts discovered was in fact a mountain – a seamount now officially named “Everest.” A paper later co-authored by Blum, called “Life to 450m Depth at Isla del Coco, Costa Rica,” shared the following:

“The *DeepSee* has been exploring the deep-water environments of Isla del Coco ... the fauna is highly diverse, with many new species likely ... groups of organisms that were thought to be absent in the eastern Pacific Ocean have now been photographed. *DeepSee* has opened a new window to Isla del Coco.”



READ
CYBIUM
PAPER



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Amazing Underwater Discoveries Aboard



Sulfur Deposits

Passengers discovered a previously unknown sulfur deposit along a natural wall in the deep waters of the Aeolian Islands. Some of the sulfur fell from the wall as if in slow motion.



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Great Forkbeard

A group of passengers aboard a SEAmagine Aurora-3C sighted a great forkbeard at 368m (1,200 ft.) in the Mediterranean Sea. This fish typically resides from 400 to 630m (1,312 to 2066 ft.) deep.



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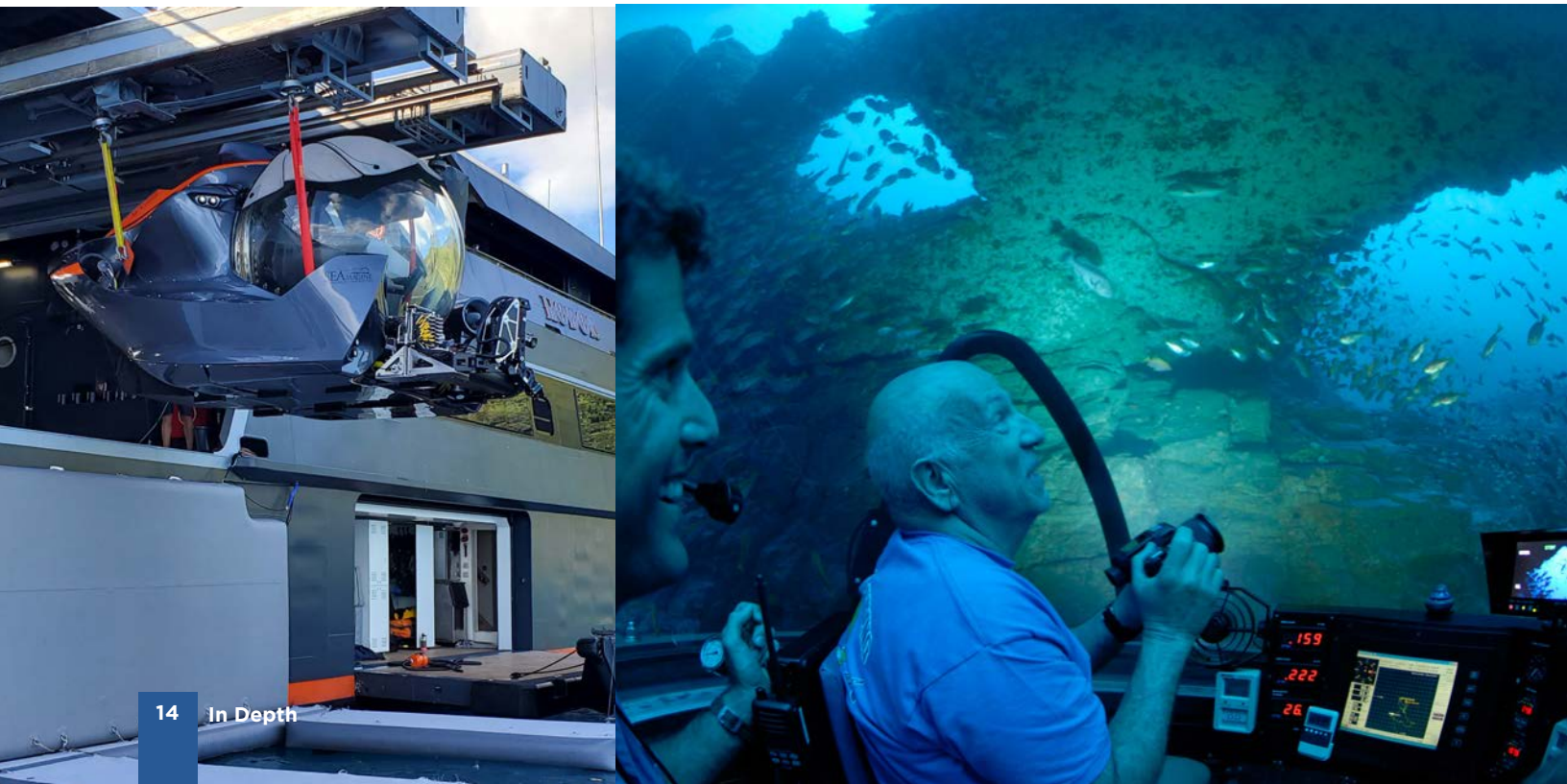
Long-Lost Anchor

During a recent sub dive in Nassau, Bahamas, passengers discovered a very old anchor resting on the seabed. The crew discovered the anchor near a sea wall at a depth of 80m (262 ft.).



WATCH
DISCOVERY

“**Deep-sea penetration technologies** such as SEAmagine’s are a Godsend for scientific research and a better knowledge of these extremely difficult-to-access environments. They embody the valuable and virtuous partnership between researchers and private sea enthusiasts,” said Dr. Eric Clua DVM PHD of the Center for Insular Research and Observatory of the Environment.



A Training Program that Goes Deeper

SEAmagine is the first to have created a professional submersible pilot training program, in 1999 in conjunction with the U.S. Coast Guard (USCG). The program expanded over the years into today's extremely well-structured and proven training process, with more than 100 pilots now licensed. The company's pioneering effort is now industry standard and represents the top training program available for submersible pilots.

The objective of SEAmagine's training program is not only to have trained pilots, but also to ensure that the full crew of the ship is familiar with the overall operation and the contingencies. The training is typically performed on the client's ship with the delivered submersible.

"The extensive usage of SEAmagine subs in the leisure, commercial and defense sectors equips us with invaluable experience and firsthand know-how that can only be gained at sea," said SEAmagine's Charles Kohnen. "Our goal is to pass this knowledge on to our customers through a robust, hands-on training program that starts in the classroom and ends in the water."

Training Program Overview

The first week of training is spent in the classroom. This intensive course work provides future pilots with intimate knowledge about SEAmagine subs' systems, operations and emergency contingencies. After passing the written exams, pilots hit the water with a SEAmagine instructor. There, they will complete 20 one-hour dives, with three dipping to the maximum depth rating of the vehicle.

Support Beyond the First Dives

Once the full three-week training program is complete, SEAmagine awards passing pilots with a license good for three years. For this to remain current, pilots may not go longer than 12 months without operating a sub. At the end of this three-year period, pilots must re-certify.

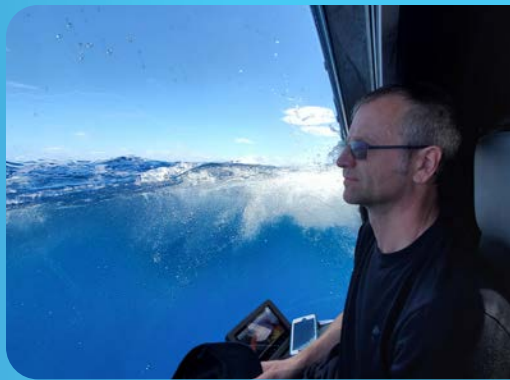
"We pioneered this licensing training program nearly 25 years ago based on technical professionalism, vigorous guidelines and oversight from the USCG," said Kohnen. "Over the years, it's become the gold standard for certifying some of the best personal submersible pilots in the world."



Quality and Safety are in SEAmagine's DNA

For SEAmagine, quality and safety are always top priorities.

"Our dedication extends to all aspects involved in the fabrication of our submersibles. Starting with effective designs, we use superior materials ideal for the harsh marine environment, and we apply detailed workmanship on the fabrication of each submersible," said SEAmagine's Ian Sheard, co-founder and director of engineering.



Simplicity & Redundancy

All SEAmagine submersibles are purpose-built for simplicity and with redundancies in place. Each sub features independently operated manual systems, including the ballasts, batteries and propulsion. This means no central "brain" controlling everything on board – an intentional design decision that reduces risk of systemic failure. Double monitoring systems, such as the one controlling the cabin's oxygen levels, ensure the wellbeing of guests.



Highest Quality Materials

From the grade of stainless steel to the acrylic viewing windows, thrusters, batteries and cables, all parts and equipment on board are carefully selected and many are third-party tested.

"When selecting materials, we don't just consider their immediate use," explained Sheard. "We consider how each piece helps the long-term maintenance, performance and life cycle of the sub, as well as how they will stand up to regular inspections."

The subs utilize super duplex stainless steel for the main pressure vessel, which has a higher strength and greater corrosion resistance than typical austenitic stainless steel. The acrylic viewing windows feature no bond

lines to disrupt the view or cause maintenance concerns. The thrusters are quieter and offer two times the battery efficiency of other brands. The subs use the best lithium-ion pressure balance batteries available. The cables on board are predominantly rubber-molded instead of pressure balanced, making them easier to service in the field.

Third-Party Certifications

When it comes to certifications for quality and safety, SEAmagine leads the industry. The American Bureau of Shipping (ABS) performs a design review of each sub and approves all materials used, including batteries, which are certified to 6,000msw (19,685 fsw). It provides approval for the submersible testing plans and analysis, and inspects the final product, approves the pressure tests (including those that subject vessels to 1.25 times its maximum-allowed working pressure and depth), and oversees sea trials. SEAmagine's thrusters are certified for reliability by the U.S. Navy.

"We put so much effort into quality and safety because we care about our customers like family, and because we have pride in the experiences we make possible," said Sheard.



Underwater Destinations that Rise to the Top

Ofer Ketter, president of Sub-Merge, a leader in the personal submarine tourism industry, shares his top picks for unforgettable submersible voyages around the world.

“Places like Fiji, French Polynesia and even the Bahamas are all spectacular places to explore in a submersible, but this list offers incredibly unique experiences off the beaten path,” said Ketter, who has personally explored beneath the waves around the world for decades. “Visiting even one of these places is sure to be a memorable experience like no other.”

1 **Solomon Islands**

Located in a remote portion of the southwestern Pacific Ocean, the Solomon Islands is a country consisting of a double chain of volcanic islands and coral atolls. Home to diverse sea life and spectacularly colorful reefs, these islands are also a top choice for history buffs. It features many WWII-era sites, as well as sunken battleships, planes and underwater monuments placed in honor of fallen soldiers. Some wrecks are located 65m (213 ft.) or deeper, and experts say many have not yet been discovered.

2 **Galápagos Islands**

The Galápagos Islands is a volcanic archipelago also located in the Pacific Ocean. It is considered one of the world’s foremost destinations for wildlife viewing. A province of Ecuador, its isolated terrain shelters a diversity of plant and animal species, many found nowhere else. A protected environment, the Galápagos require a special permit for diving, and submersible owners are often asked to donate some dives to scientific research.

3 **Red Sea**

As one of the seven wonders of the underwater world, the Red Sea offers sub passengers some of the world’s most beautiful coral reefs, plentiful marine life, dramatic sheer walls, shipwrecks, sunken artifacts and close encounters with manta rays and a variety of sharks. Its proximity to Egypt and Jordan provides additional significant history and interest.

4 **Antarctica**

For the extremely adventurous, submersible owners may choose to explore the frigid waters of Antarctica during the summer months. Excursions will reveal incredible marine life, including penguins, ghost octopus, whales, yeti crabs and anemones; hydrothermal vents; unique coral; and perhaps even a rare view of 30,000-year-old black ice – all sights that never fail to impress.

With an unwavering commitment to safety, professionalism and delivering unforgettable experiences, SubMerge offers a comprehensive suite of private leisure submersible services tailored to the unique needs of discerning clients. With over two decades of expertise in the personal submersible tourism industry, SubMerge has earned a stellar reputation as a trusted partner in submersible adventures, underwater technology and exploration. Learn more at sub-merge.com.



COSTA RICA



FRENCH POLYNESIA



MEDITERRANEAN



BAHAMAS



LET'S GO
DIVING!

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