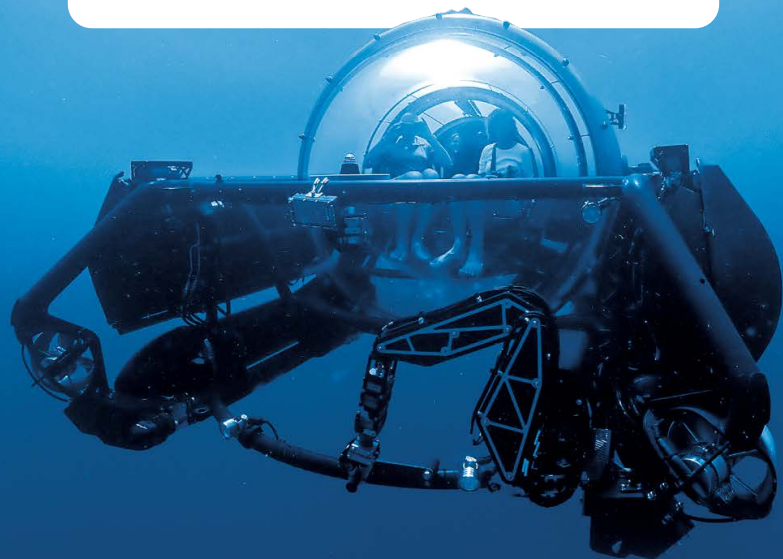


VOYAGE OF A LIFETIME



Voyage to the Bottom of the Sea

Seeking to emulate the passengers in *Twenty Thousand Leagues Under the Seas*, the classic science fiction adventure novel by French writer Jules Verne, Frances and Michael Howorth voyage below the surface of the seas in a personal submarine.

BY FRANCES AND MICHAEL HOWORTH (ENGLAND)

Ever since we read the classic science fiction adventure novel, *Twenty Thousand Leagues Under the Seas* by French writer Jules Verne, we have dreamed of voyaging under the surface of the sea. Such an adventure seemed to us to not be readily available unless you have, of course, enlisted in or been commissioned to serve in, His Majesty's submarines. So, when the opportunity presented itself to dive below the ocean's surface, we were quick to accept.

We love diving, and we love the tranquillity it affords. We adore the colours of a healthy coral reef and are always enchanted by the antics of tropical fish as they go about their daily business. But if we are truthful, we have got to the age when the thought of slapping on our rash guards, hefting buoyancy jackets and two air cylinders onto our backs, checking our regulators, and the spares, is all getting to becoming a bit of a faff.

It is hard work getting ready for a dive, and once you surface, the job is not done yet. Gear must then be rinsed, checked, dried, and stowed correctly for the next dive. Do not misunderstand us; we would still do it if the rewards underwater outweighed the on-surface kerfuffle. When we were

serving about charter yachts, diving was an everyday part of our jobs when we were cruising the Caribbean. As a PADI-qualified dive instructor and divemaster, we were, as a team, unbeatable and enjoyed the benefits of several repeat charter guests because of our diving capability. But slowly, the hassle of diving began to outweigh the benefits, and we stopped scuba diving. That said, shipwrecks have always held a fatal fascination for us, and they are the one thing that might get us diving again. Some of the most memorable dives we have been on were spent exploring underwater ships and boats. So, the opportunity to go wreck diving off the coast of Venezuela was, we must admit, very, very tempting!

To undertake the voyage, we first had to find our way to Curaçao, a Dutch island in the Southern Caribbean. A constituent country of the Kingdom of the Netherlands, Curaçao, together with its sister islands of Aruba and Bonaire, forms an island chain off the northern coast of Venezuela known colloquially as the ABC islands. Curaçao is the largest of these islands in both area and population, as well as being the largest of the Netherlands Antilles.

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LOCATION

The island was discovered by the Spanish in 1499 by Alonso de Ojeda, one of Columbus' lieutenants. There are different explanations for the origins of the word Curaçao. The most likely is that the Spanish called the Island Corazon (heart). At some point, Portuguese mapmakers adopted this word into their own language as Curaçao.

The island remained Spanish until the Dutch conquest of 1834. From the end of the 17th century to the beginning of the 19th century, there was a good deal of trading places between the British and the Dutch, with the French also trying to take over the island. The French came close to succeeding but left after extorting a healthy ransom. It was not until the 1920s and 1930s that the largest influx of worldwide immigrants came and turned the island into the multicultural melting pot that it is now. The colonial status of Curaçao and that of the other islands in

the Dutch Antilles changed in 1954 when the islands became completely self-governing within the Kingdom of the Netherlands. Today it is a tourist haven known for its expansive coral reefs rich with marine life. Scuba divers from around the world flock to the island, eager to dive the crystal-clear waters and enjoy the sandy beaches tucked into coves. The capital, Willemstad, is renowned for its pastel-coloured colonial architecture and the maritime novelty of the famous floating Queen Emma Bridge.

Our interest in the island lies in that it is the testing base for, and the submarine pilot training school of, U-Boat Worx, a Dutch manufacturer of civilian submarines. The U-Boat Worx story began in 2005 in Breda in the Netherlands where it continues to have its design and manufacturing base. Founded by Dutch entrepreneur Bert Houtman the company designs, builds, and delivers crewed submersibles for exploration, research, yachts,

and tourism applications. When Houtman founded the company, he created a movement that has since then enabled many people to be introduced to ocean exploration. They have followed in the footsteps of the iconic diving greats the likes of Cousteau, who preceded him. Before Houtman created U-Boat Worx, submarines used to be perilous, costly, and inaccessible to the private sector.

Focused on his pursuit to find a suitable submarine for his own use but unable to, he decided to build his own. In its first decade of existence, his company grew to become the largest private submarine manufacturer globally. With an expanding, robust business, he is committed to his quest to make subsea exploration more accessible to a wider audience than ever before. The future awaits, and with his submersibles, effortless underwater exploration beckons us on.

We have come to Sub Centre Curaçao, a purpose-built U-Boat Worx test facility and training centre. With its deep reefs, the seas around Curaçao are a major hot spot for scuba diving and snorkelling. Curaçao has well-developed fringing coral reefs that are home to an array of barracudas, sea turtles, manta rays and sharks. These reefs are home to 65 species of coral and more than 350 species of fish. The reef area close by Sub Centre consists mostly of a submarine terrace covered with a wide array of fringing reef types, both biologically and geologically interesting, and that is one of the

Fiction Vs Fact

Electric power and the ability to carry passengers submerged are about the only things *Sea Explorer* has in common with Jules Verne's *Nautilus*. The fictitious submarine was 70 metres overall, with a beam of 8 metres. *Sea Explorer* is tiny by comparison at just over 5 metres overall with a beam of 3 metres, and while *Nautilus* weighed in at 1,500 tonnes, *Sea Explorer* is just 7.45 tonnes. *Nautilus* could stay below the surface for days, while *Sea Explorer* has an endurance of just 16 hours. Despite the fact that *Nautilus* could do 45 knots, or so Captain Nemo claimed, and our little craft could muster, at best, just 3 knots, we know which one we would prefer to own and travel in. *Sea Explorer* is a millionaire's dream toy. Many people believe Verne's submarine could travel to a depth of 20,000 leagues. They are mistaken. The book's title refers to the distance the submarine travelled under various seas: 20,000 metric leagues is, in fact, 40,000 nautical miles, nearly twice the circumference of the Earth.





capacity than traditional private submarines. A total capacity of 62 kWh allows the submarine to extend mission time and minimise operational limitations. Six powerful thrusters facilitate both easy manoeuvrability, and speed. They also provide sufficient power for an effective air-conditioning system that can be operated without restriction. Speed both on the surface and underwater is important to keep the submarine on course and in position, and these powerful batteries mean that greater depths can be reached in record time.

The Pressure-Tolerant Battery System that houses the batteries and electronics is inside oil-filled pressurised enclosures. The use of these pressure-resistant components reduces the size and weight of the submersible, particularly on these deep-diving models. The Maximum Depth Protection (MDP) feature prevents the pilot from diving deeper than the submarine's maximum operating depth. In case the submersible should ever find itself too deep, this safety feature will automatically raise the sub until it is once again within its certified depth. At no point in our dive were we anxious we simply sat there enthralled, listening to our pilot explaining what we were looking at and how he was able to handle the machine so easily while getting so close to fish coral and other fascinations.

prime reasons this location was chosen on which to build the facility.

"We chose this location because of the deep reefs around the island. It's a hotspot for divers because of the multiple species of coral and fish. And with the collaboration with Adrien 'Dutch' Schrier, a well-known Caribbean entrepreneur and diving expert, this location was an easy choice," says Sophy Willemsen, marketing and communication executive for U-Boat Worx." She adds, "Your sub-sea voyage of a lifetime will be an exhilarating hour-long dive that will take you through untraveled depths of the sea that few eyes have seen before." She continues, "During this dive, we submerge to 150 metres, and as we descend, we will get to see a wreck lying at around 100 metres that has been resting on the seafloor for more than 30 years. But first, you need to attend your pre-dive briefing."

For us diving in a submarine is akin to entering another world. It is as familiar to us as space travel, and the relevant characteristics we need to consider cannot be easily referenced to our previous selection of transport modes like yachts, ships, aircraft, or anything else for that matter. So, we give all of our attention to the submarine pilot as he begins his briefing as he shares some general information about submarine dives and what

to expect during the dive. Here we learned that there is no noticeable pressure difference once you are aboard the submersible and that inside the craft, temperatures will remain moderate (it is unlikely you will need a sweater). We were advised to wear comfortable clothes such as a t-shirt and shorts and asked to avoid wearing a dress or skirt. Because the Perspex dome is so susceptible to scratching, we were asked to remove rings from our fingers and bracelets from our wrists but were allowed to keep our wristwatches on.

Surprisingly, it was then suggested that we decorate Polystyrene cups and that the reason for doing so would later be revealed. We complied, and, to give some authenticity to the feature you are now reading, we annotated ours with the name of the magazine. Once that, and everything else we



had been asked to do, had been completed, we were asked to join the submarine commander at the dockside. There we handed over our Polystyrene cups and watched in fascination as one of the shore crew placed them inside a nylon mesh bag.

THE VESSEL

Our craft is **Sea Explorer**, a submarine capable of carrying four guests and the Pilot. Some may believe that getting a submersible ready to dive is a time-consuming operation. However, getting into **Sea Explorer** was simple, efficient, and easy. We posed for photographs and then climbed inside and settled down in our comfortable armchairs. From a viewing perspective, **Sea Explorer** offers the most immersive dive experience. The absence of top or side floats on the exterior design gifts an unhindered interior observation window. All occupants benefit from a clear line of sight in all directions at all times. The innovative elliptical pressure hull is made from three sections that are bonded together to form one undisturbed seamless viewpoint.

Almost totally silent in operation, **Sea Explorer** is powered by a Pressure-Tolerant Lithium-ion battery system. This battery technology offers up to 100% more

First Submarine

It is the Dutch engineer and inventor Cornelis Jacobszoon Drebbel who built the first operational submarine. He did so in 1620 while working for the British Royal Navy. Drebbel was an innovator who had earlier contributed greatly to the development of measurement and control systems in the scientific fields of optics and chemistry.



THE VOYAGE

Our plan was to descend to just 150 metres for one and half hours and engage in some wreck spotting. **Stella Maris** is an old freighter intentionally sunk in the mid-1980s off the coast of Curaçao as dive tourist attraction. Suspected of drug trafficking, the freighter had originally been confiscated by the Dutch and Curaçao authorities in 1981. She was later purchased for 1 guilder (about 44p) by Seaquarium, who planned to sink her with the aim of creating an artificial reef in front of the Lions Dive Hotel. The sinking did not go according to plan. Instead of coming to rest on a plateau 25 metres under the surface, **Stella Maris** slid over the top of a wall and plunged into waters 160 metres deep and was never seen again until she was relocated in 2005. Having ended up deeper than originally intended during the sinking, she now rests on her starboard side on a deeper plateau that starts at approximately 131 metres at the bottom of her bow dropping to 142 metres at the

bottom of her stern. Until recently, **Stella Maris** was only suitable as a dive site for technical divers. Small personal submarines that can descend to such depths have now made it possible for everyone to view the wreck in all her glory.

Expertly, our pilot brought us first to the ship's anchor. Sinking slowly, we followed it down towards the ship's bow and then down further until we reached the propeller and rudder. Deftly the pilot brought us close to each point of interest, the bright lights of the submarine illuminating them so that we could take photographs. At one point in our dive, we were buzzed by **Nemo**, one of the company's brand-new 2-person mini-sub. At the helm, we saw someone very rich and famous, and we could tell you who it was if we never wanted to write for another magazine. So, readers will just have to guess, but suffice to say, he has just bought himself a very large superyacht that no doubt you will have seen mentioned in this magazine's Superyacht News sections.



First Practical Submarine

Submarines have come a long way since Robert Fulton's submarine, the real-life **Nautilus** was first tested in 1800. Although she was preceded by Cornelis Drebbel's vessel of 1620 and later by **Turtle**, built in 1775, **Nautilus** is often considered to be the first practical submarine. It is generally accepted that Jules Verne named his fictitious submarine after the machine Fulton built.

Nautilus was designed by the American inventor Robert Fulton, then living in the French First Republic. He originally but unsuccessfully proposed that the Government subsidise her construction to ensure French naval dominance. His second, proposal was also unsuccessful. On that occasion he suggested that he only be paid when **Nautilus** had actually sunk merchant shipping, saying that he would accept just a small percentage of the prize money. Fulton finally directed a successful proposal to the Minister of Marine, who granted him permission to build her.



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We began our ascent through the coral nursery created by the Coral Restoration Foundation located in the same location but in more shallow water. Numerous species of fish and dazzlingly beautiful coral reefs surround us, brilliantly illuminating the submarine's spotlights. As we approach shallow waters, yet another surprise awaits us. A scuba diver suddenly appears in front of us, his camera in hand and flashlight popping as he takes photographs of us photographing him. We do not know if he is there because a millionaire is testing a potential new purchase or whether our fame has spread further than we were led to believe. Either way, it was nice to have a record of our dive - finally, the 'coup de grace' of this voyage of a lifetime. We are handed the controls and allowed to pilot the craft under watchful supervision. Sitting behind the controls of a small submersible is among the most thrilling adventures anyone could imagine. Witnessing underwater life firsthand from the inside of a mini-submarine with its panoramic view can only be described as "out of this world".

Summing up the experience, we would describe diving in a personal submarine as having all the advantages of snorkelling and scuba diving. It grants freedom of movement, spectacular views, and the same almost indescribable feeling of weightlessness experienced

when diving. What is more, the nasty parts, like being cold, worrying about decompression, and having difficulty breathing, are all missing. Best of all, when you surface, you walk away, and the submarine crew look after all the clearing up! So why get cold and wet for 45 minutes when you can sit comfortably in a single environmental pressure yet sink down to 150 metres or so, limited only by battery power, lasting up to 8 hours? And stay dry at the same time.

As we surfaced and began to disembark, we were reminded that our polystyrene cups were still in their mesh bag, tied to the outside of the vessel. The crew retrieved them and handed us what were, by now, somewhat shrunken examples. Increased pressure at depth had driven all the air from the product, compressing the molecules of polystyrene and shrinking the cup in the process.



FOLLOW IN OUR WAKE

Sub-Base Curaçao operates several dives a day in the season, and dives can be booked locally or pre-arranged before you fly there. Additionally, you can arrange a dive to coincide with your arrival as a passenger sailing in one of the many Caribbean cruise ships calling at Willemstad the island's capital. Elsewhere in the world, adventure-style cruise ships have equipped themselves with U-Boat Worx Cruise Sub 7 submersibles. Viking Expeditions, Seabourn Cruise Line, and Scenic Expedition cruise ships are among those who have cottoned on to the fact that they can sell the experience to onboard passengers seeking an alternative to the ubiquitous shore excursion. Powered by electric propulsion, with the ability to dive to 300 metres while emitting no pollutants, U-Boat Worx Cruise Sub 7 submarines have completed more than 1,000 Antarctic submarine dives in a single season.

Doing so, has granted thousands of passengers an unparalleled underwater insight into one of the world's most remote and pristine destinations.

The submarines were aboard cruise ships operated by different owners. Scenic's submarine was first introduced on the **Scenic Eclipse** back in 2020. Viking Expedition cruises followed soon after with their **Viking Octantis**; and not much later, **Seabourn Venture** embarked upon her maiden voyage. The three cruise lines together have completed more than 1,000 dives, taking passengers on immersive underwater journeys exploring mesmerising marine life and the spectacular natural wonders of Antarctica.

The U-Boat Worx Cruise Sub 7, model is built for optimal comfort and safety. It has large acrylic windows that provide 360-degree views of the underwater world and seats specially designed to maximise legroom and headroom for guests. Being battery-powered is an environmentally friendly way for passengers to explore the depths of the Southern Ocean. Each submarine is equipped with powerful external lights to illuminate the sea floor. With only a small number of guests per dive, the experience is intimate, exclusive, and unforgettable.

Every dive into the cold Antarctic waters provides an opportunity for new discoveries. Recently a giant phantom jellyfish was spotted three times from **Viking Octantis'** yellow submarines. According to National Geographic, since first being described in 1910, there have only been around 126 confirmed encounters with the rare giant phantom jellyfish "scyphozoan *Stygiomedusa gigantea*".

With discoveries like this, it's not hard to imagine what thrilling possibilities might lie ahead. It's clear why an increasing number of cruise ships are now featuring these submersibles onboard as part of their offering. The triumphant achievement of 1,000+ successful submarine dives in a single Antarctic season is a testament to the outstanding performance and durability of personal submarines. Try it! You might like it! ●