

DEEPFLIGHT FAQs

THE DEEP FLIGHT SUBMERSIBLE TECHNOLOGY:

How are the Deep Flight submersibles different than all other submersibles? All conventional submersibles use ballast to sink and rise in the water column. The Deep Flight winged submersibles do not use ballast; they operate on the same principles as flight through air, using downward “lift” on the wings to fly down to depth. Deep Flight submersibles are also microsubmersibles and weigh 1/10th the weight of other conventional submersibles.

What is the significance of underwater flight? The transition to underwater flight gives us the range and speed to explore the three quarters of our planet that is covered by water. From a pure “experience” point of view, underwater flight is the ultimate. Imagine flying over ancient shipwrecks, or keeping up with the marine mammals -- barrel-rolling with dolphins and spyhopping with whales.

Why a microsubmersible? Why not try to accommodate more crew? One of the goals for our submersibles was to develop a new class of manned vehicles that could operate independently from a mothership. Motherships are the cost drivers of all other submersible programs. Additionally, key to offering a unique, high-end experience of underwater Lear jet versus an underwater tour bus, was to keep our designs limited to ideally 2, 3 or 4 passengers.

How do the Deep Flight submersibles actually work? The Deep Flight submersibles are positively buoyant. Similar to an aircraft on a runway, Deep Flight has to gain speed (about 2 knots) on the surface of the water, and then the pilot pushes the joystick down and the sub’s nose will dive down.

Is anyone else designing and building winged submersibles? As far as we know, no one else is designing and building winged submersibles that operate on the same principles as flight through air.

Why/how are production costs for Deep Flight so much lower than others? Deep Flight subs are only 1/10th the weight of conventional subs, which accounts for the main cost savings. Compared pound per pound, Deep Flight craft are approximately 50% of the cost of conventional subs.

SAFETY ISSUES:

How safe are submersibles? Submersibles, in general, are very safe; and the Deep Flight submersibles are among the safest. The Deep Flight submersibles have higher safety factors than aircraft, and the positive buoyancy of our craft adds greatly to the safety.

Can people get “the bends” and other pressure-related illnesses? In our pressurized submersibles (ie DeepFlight Super Falcon), cabin pressure remains at one atmosphere, and so there are zero pressure-related issues for the human body. In our “open cockpit” (ie DeepFlight Merlin) submersibles, the craft are equipped with a patented safety system which keeps the craft in pre-proscribed depth limits and controls rate of depth change as per scuba limits. Additionally, all “open cockpit” DeepFlight pilots follow standard SCUBA procedures.

How long does the air last in the submersibles? In our pressurized submersibles, there is generally 24 hours of life support in the Deep Flight submersibles. Dives are typically 1-3 hours. In our “open cockpit” submersibles, each pilot/passenger has two 80 cubic feet oxygen tanks. Dives are typically 1 – 2 hours.

What happens in emergencies -- the sub runs out of power, etc? The Deep Flight craft are fixed positively buoyant. If, at any time, the craft runs out or otherwise loses power, it will naturally glide back up to the surface -- an obvious and valuable safety advantage.

Is there ongoing communication with the sub while it is diving? Yes, with our pressurized submersibles, we use off-the-shelf voice communication systems that act as if they are two-way radios but use acoustic carrier waves, rather than electromagnetic carriers waves. Pilots of our “open cockpit” submersibles typically use hand motions, or, in some instances, can use specialized dive masks equipped with communications.

How do recovery ships find the sub if it surfaces at a distance from where it started? The craft carry automatic positioning beacons so that the surface ship tracks the relative position of the sub at all times.

OPERATIONS ISSUES:

Are there operational regulations (government etc)? In the US, the Code of Federal Regulation requires that passenger-carrying vessels (boats, submersibles etc), built or operating in US waters be certified by the Coast Guard as being seaworthy and meet requirements for safety at sea.

Outside the US, coastal nations have jurisdiction over their Exclusive Economic Zones (200 nautical miles out from their border). International waters are regulated by the UN Law of the Sea Treaty and its associated International Seabed Authority – for those countries who are signatories. The US is not a signatory.

Certification/Classification/Insurance: There are several certification/classification organizations worldwide which certify submersibles, including Lloyds and Detski Norske Veritas. All of Hawkes’ previous submersibles that went for classification received their class rating through Lloyds..

There are several leading insurers in the world who specialize in marine insurance.

THE EXPERIENCE OF UNDERWATER FLIGHT:

Do you need to know how to scuba dive or swim? You do not need to know how to dive or swim to fly in our pressurized submersibles. For our “open cockpit” submersibles, you should know how to swim, and if you are not scuba-certified, you will need to be taken on a flight with a certified scuba instructor as your pilot.

Aren’t the submersibles claustrophobic? No. The viewing space is much greater than conventional submersibles, and the optical qualities of the glass couples with the water and makes the glass dome disappear.

How do you see down there? For our deeper subs, we mount specially designed underwater lights. One of our goals is to create as little a footprint as possible as we explore the oceans so we are working with LED lights to minimize the light we are putting into the oceans.

Is underwater flight a high adrenaline experience? Underwater flight is extremely quiet and balletic. However, if you choose to have a more fast-paced experience, the sub is completely hydrobatic and can perform maneuvers, such as standing on its tail and spyhopping out of the water, or pointing its nose straight down and diving in a few seconds from blue to inky black waters.