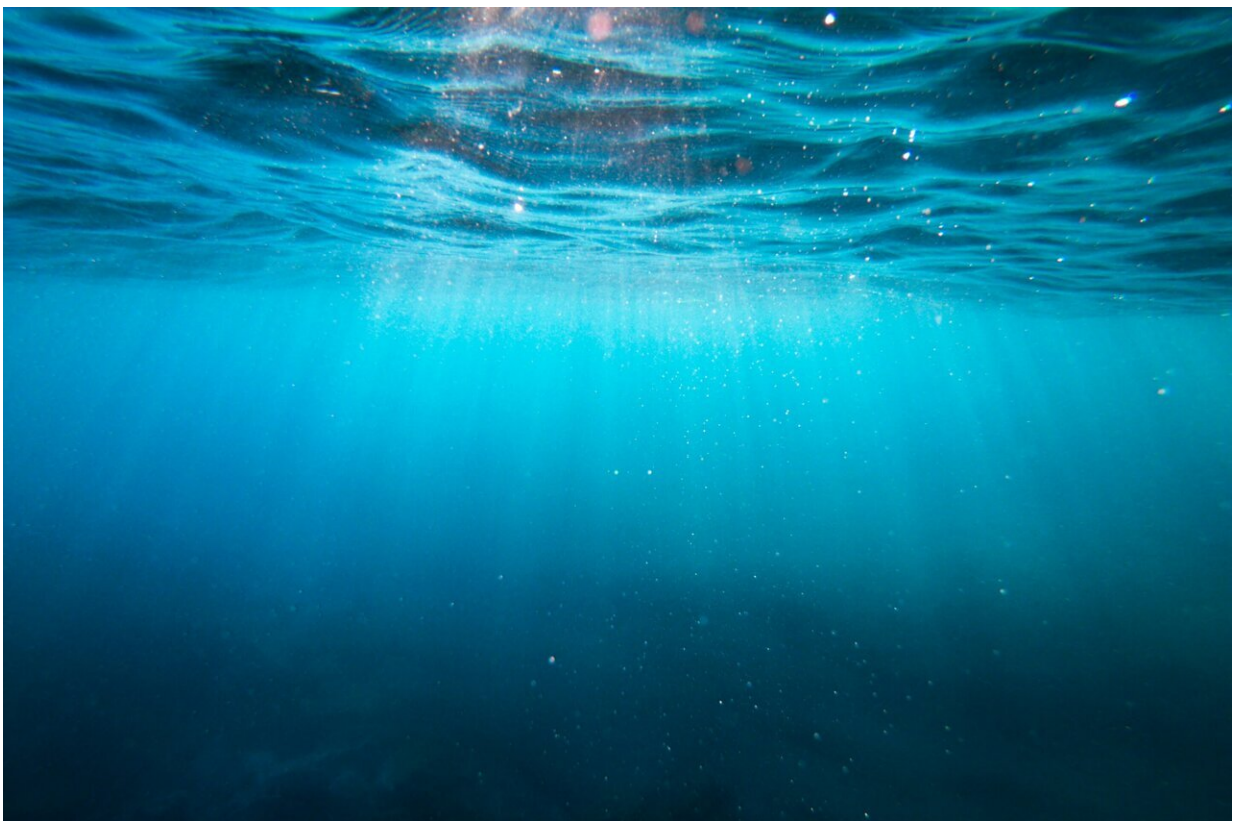


# Bayesian yacht disaster: How specialist search and rescue teams work underwater

August 24 2024, by Jamie Pringle, Kristopher Wisniewski and Vivienne Heaton

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Search and rescue for missing persons is always challenging for the specialist recovery teams involved, regardless of the environment they're

working in.

But the teams looking for the missing aboard [the Bayesian yacht](#) which sank off the coast of Sicily leaving several people dead, have faced particularly challenging conditions. Even though the boat lies in relatively shallow water of 50 meters, underwater operations are affected by numerous factors which make them the most complex of search and rescue efforts.

Best practice shows that searches should be coordinated, with areas that are being searched expanding outwards from the last known location. This makes the most efficient use of available teams and equipment, which are selected depending on targets and environments being searched, while updating and refining the operation as new information becomes available.

[Land-based searches](#) may be more straightforward as the recovery team can usually walk or move about more easily. [Searching in water](#) is more challenging, whether in rivers, lakes or the open ocean.

Inland waterway searches, such as rivers, canals and lakes are more constrained in their extent than the sea and open ocean due to surface area and depth.

Searchers use a variety of techniques, such as trained victim recovery search dogs, [sonar](#) to reflect sound waves from target objects, [water penetrating radar](#) that can detect objects below sediment, and [remotely operated underwater vehicles](#) (ROVs). The combination of techniques used are dependent on the environment and the scenario.

Marine searches, by contrast, can be more difficult as they usually cover significantly larger areas both spatially and in terms of water depth. Additional issues to consider include salinity, temperature and strong

currents, and the fact that there may be a [rugged seabed](#) which could hamper divers, sonar and ROVs.

[Drowning](#) was the third leading cause of "unintentional injury" death worldwide, claiming around 360,000 victims in 2021, and revealing a globally increasing trend in cause of death.

And for every drowned person recovered, there are many others who remain missing. Recent [Danish research](#) showed that only 45% of missing individuals in water are successfully found and recovered within 12 months of their disappearance.

Marine searches cover a wide range of disasters, from tsunami victims, such as the [Boxing Day tsunami in 2004](#), to fishermen on sinking trawlers and [migrants on unseaworthy boats](#). Then there are issues related to mechanical difficulties, such as the [Argentinian San Juan submarine in 2017](#), and plane crashes such as the still-missing Malaysian Airlines MH370 plane in 2013.

Finally, there are searches for missing divers or underwater craft like the Titan submersible which imploded during a dive to the Atlantic wreck site of the Titanic in 2023.

## **Diver caution**

The search for the missing sunken Bayesian yacht—the cause of which is currently uncertain—should have been relatively straightforward. Helicopters, likely equipped with thermal imaging equipment, and rescue boats were rapidly deployed to look for survivors, although the body of chef Recaldo Thomas was found floating on the surface.

Five victims have been recovered from inside the yacht that was discovered close to the shore in comparatively shallow water (50m) and

where there was good local knowledge of ocean currents. If they had been washed out to sea, ocean currents, the decomposition process, scavenging activity and other factors could all have made this forensic search even more problematic.

However, it is [challenging for divers](#) to work at depths of 40 meters or more. One reason is the risk of [nitrogen narcosis](#). The deeper divers go, the higher the pressure gets.

At higher pressure, the gases divers breathe in from their tanks cause symptoms such as drowsiness and impaired judgment, which is an obvious danger underwater. Decompression sickness—when divers ascend too rapidly, and often known as "the bends," is another issue. This means divers can only spend ten minutes on the wreck itself.

In the case of the *Bayesian*, underwater ROVs were deployed, likely with live audio, lighting rigs and sonar equipment to assist with navigation and location, and minimize the risk to divers in this difficult environment. The 56m yacht was rotated onto its side, had 1.3 cm thick glass windows that were hard to break, and was full of debris that made it difficult to retrieve the missing people.

The chances of finding the missing alive declined rapidly the longer the underwater search went on. However, in rare cases, people have been found clinging onto debris or flotation devices, or within air pockets in sunken vessels after several days.

Harrison Okene, a fisherman on a trawler that sank 19 miles off the Nigerian coast in 30 meters of water in 2013, was [found by divers still alive](#) after 60 hours being trapped in an air pocket in the upturned boat. He later published a book on his rare survival story. There are also several famous maritime stories of [people rescued from rafts](#) after being adrift at sea for weeks and even months.

While tragically the initial search and rescue operation turned into a recovery mission, the rapid deployment of search teams, including specialist divers, helicopters, rescue boats and ROVs resulted in a rapid "successful" operation.

This is of paramount importance when it comes to identifying the victims and determining the cause of death. Sadly, this is not always the case in such rescue operations, such as undocumented [migrants lost at sea](#).

The lack of funding to recover sunken vessels in relatively shallow waters, which would allow the cause of their sinking to be diagnosed, would help prevent future vessel sinkings and the tragic loss of life that all too often goes with it.

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