

Search and Recovery



New Zealand's National Institute of Water and Atmospheric Research (NIWA) recently used the Boxfish Remotely Operated Vehicle (ROV) to search for and recover a scientific monitoring buoy worth NZD400,000 that disappeared from its mooring off the coast of Wellington.

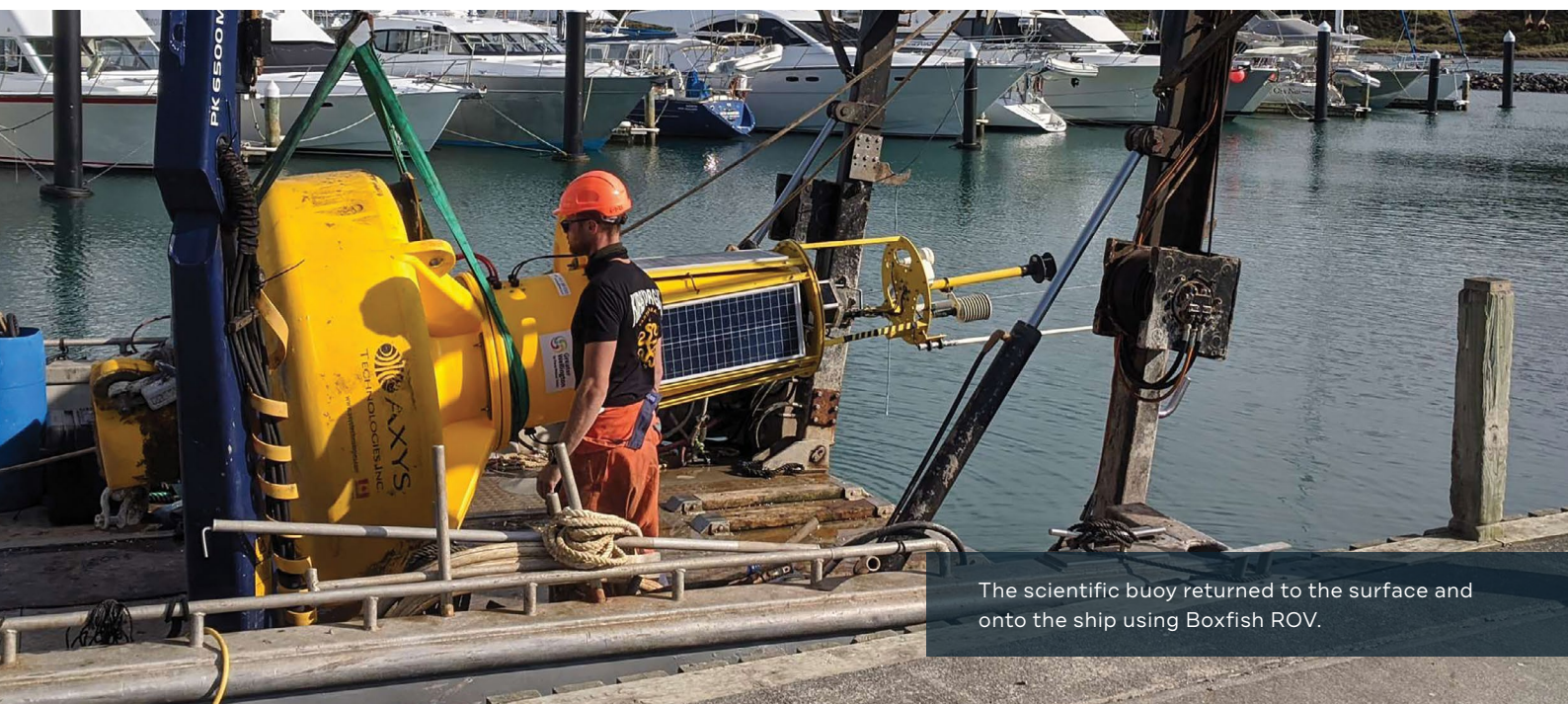
The buoy, which was programmed to send real-time data from its location about ocean and weather conditions, stopped sending data and was confirmed missing in March. The reason for its disappearance was unknown, and the research team at NIWA assumed it had sunk after being hit by a large vessel.

Using underwater search tools, including an echosounder and drop cam, the NIWA team located a lump on the ocean floor near the buoy's initial mooring at a depth of 45 metres. However, more sophisticated underwater search and recovery tools would be needed to positively identify the buoy and facilitate its recovery to the surface.

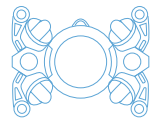
The depth of the buoy ruled out the use of divers, so NIWA selected the Boxfish ROV for the search and recovery mission.

Boxfish ROVs can be deployed in as little as ten minutes by a team of just two and descend to depths of up to 1000m. Additional integrated sonar and USBL accessories allow the ROV to quickly perform underwater search missions and make repeated dives with high precision.

Once the item is located, the Boxfish ROV's remotely-controlled camera streams live 4K video to the surface for viewing on a 17K UHD screen, giving detailed coverage of what is happening beneath the surface.



The scientific buoy returned to the surface and onto the ship using Boxfish ROV.



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After anchoring the boat and accounting for drift, the search and recovery boat sat some distance away from the buoy's suspected location. GPS coordinates of the identified site were used to deploy the ROV in the correct direction. Then, using the USBL application on the Boxfish surface Control Station, the team could see a visual representation of the position of the ROV as it moved towards the buoy relative to the fixed position of the ship.

Although visibility on the day was good at around 8 metres, the USBL and ROV camera alone would not

provide the most efficient way to search for the buoy. So the team used an underwater survey tool – the sonar accessory – to scan for the buoy on the sea floor. On the sonar visualisation software, the team found a line on the sea floor that was a buoy's chain and manoeuvred the ROV towards it. Following the chain, the buoy emerged in view of the ROV's camera shortly after.

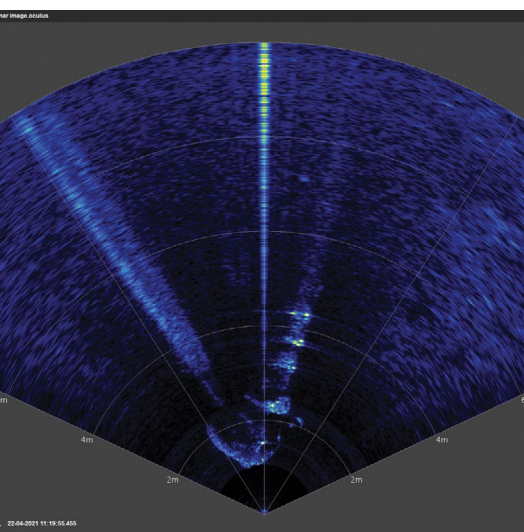
The camera feed from the ROV, viewable live at the surface via the ROV's Control Station, revealed a detailed video of the buoy lying on the sea floor. Thanks to the 4K video

resolution, the NIWA team was able to identify a suitable place for attaching the recovery cable.

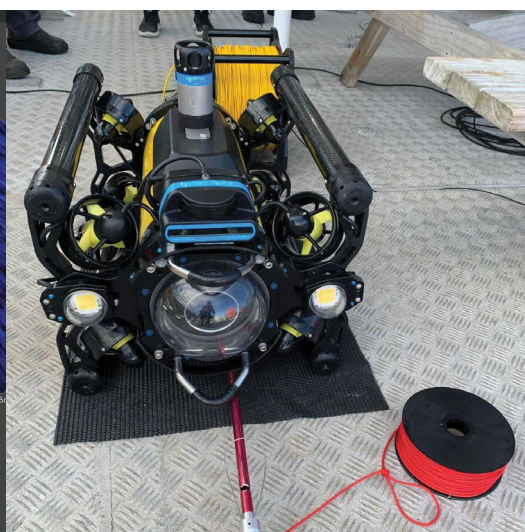
The team then manoeuvred the ROV to the opposite side of the hole to capture the cable and bring it to the surface.

Once the recovery cable was attached, the NIWA team could bring the buoy back to the surface and onto the ship.

Watch underwater footage from the Boxfish ROV main camera during the “thread the needle” mission under 1-knot current. Click on the icon to view.



Sonar image of the scientific buoy during recovery mission, the multibeam sonar is mounted on the Boxfish ROV.



Boxfish ROV with Blueprint Subsea USBL and Multibeam Sonar on its search and recovery mission.



Boxfish Console allows to monitor the underwater mission from 4K 17 inch monitor in real-time.