ADVANCED ROBOTIC MANIPULATION FOR

EMERGENCY DIVE RESPONSE

CASE STUDIES ON EMERGENCY SITUATIONS

REACH ROBOTICS

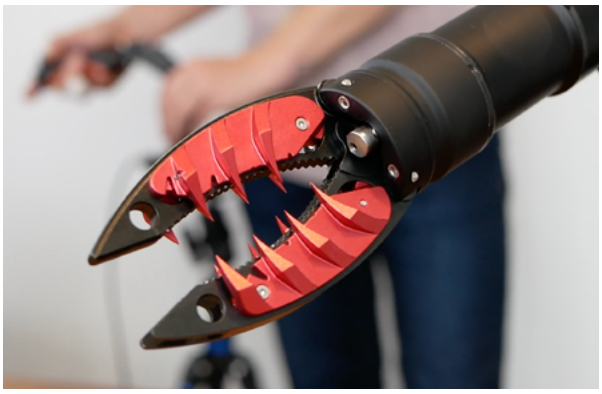
HUTTERIAN EMERGENCY AQUATIC RESCUE TEAM, CANADA

REACH ROBOTICS DEVELOPS CUSTOM ALPHA SPECIAL RECOVERY TOOL FOR HEART

The Hutterian Emergency Aquatic Rescue Team (HEART) are a volunteer group of certified divers from Manitoba, Canada who specialise in emergency water search, rescue and recovery. Using a combination of highly-skilled human divers and specialised technology, they are able to recover victims of tragic drowning accidents from the waterways of their region, including arctic underwater environments.

HEART has been using Reach Robotics's Reach Alpha subsea robotic grabber to assist them in these recovery missions but were having trouble with the intense grip stability required to resurface deceased victims. They temporarily installed a makeshift DIY nail modification to their grabber and then approached Reach Robotics for a more long-term solution.

Our engineering team began developing and testing a grabber upgrade that would fulfil these specific task requirements, resulting in a new tool specialised for Search and Recovery – the Reach Alpha Special Recovery Tool. As well as looking the part, the Special Recovery Tool is strong, sturdy and sharp making it an effective solution for HEART's requirements.



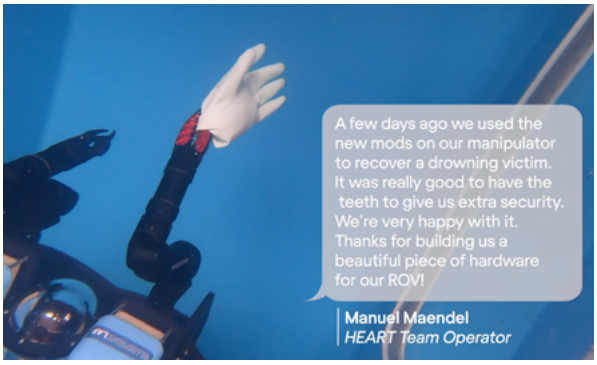
Finalising the tough and effective Special Recovery Tool for the Reach Alpha

The Reach Robotics team are thrilled to have worked with HEART to ensure their continued mission success. Always keen to rise to the operational challenges faced by our partners and customers, we encourage you to contact us with your specific task requirements today!

In their own words, this was HEART's experience with Reach Robotics:

> **"Here at HEART Team we use the Reach Robotics manipulator on our VideoRay Pro 5 ROV for body recoveries. We had an opportunity to speak with the folks from Reach Robotics at UI2020 about our work and the need for a grabber that is more suitable for taking hold of fabric during recoveries without pulling free. They told us they would come up with something special for us that they believe should work well. We were very impressed with the beautiful design they sent us! A few days ago we used the new mod for the first time and successfully recovered a drowning victim. Thank-you for being there and working together with us to bring solutions that not only work but look pretty darn good too!"**
>
> **Manuel Maendel**
> HEART Team Operator

Developing a custom Special Recovery Tool for HEART



Our engineers developing and testing the customised grabber to fulfil the specific task requirements

BOXFISH RESEARCH INTEGRATES REACH ALPHA GRABBER FOR SUBSEA EXPLORATION & INTERVENTION

Boxfish Research is a New Zealand-based ROV and underwater camera manufacturer established by three entrepreneurial engineers seeking to improve the capabilities of portable subsea technology. They specialise in ultra-high definition, underwater vision systems, including a 360° camera and actively stabilised ROV technology which has been verified to depths of 1000m. Boxfish technology facilitates a range of solutions for subsea industries, including Submerged Asset Inspection, Offshore Energy, Defence & Security, Marine Science, Luxury Superyachts, Aquaculture, Police/ Search & Rescue, VR/ AR and Cinematography.

Recently, Boxfish Research integrated Reach Robotics's Reach Alpha Grabber onto their portable ROV, which features a 3D vectored thruster layout allowing six degrees of freedom and independent movement in any direction. The Reach Alpha Grabber is a high-strength linear actuator with interchangeable jaws, making it a versatile and compact unit capable of grabbing, cutting and sampling.

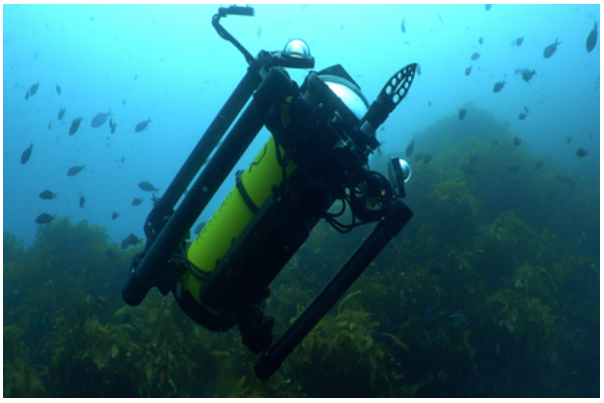
When combined, the Boxfish ROV and Alpha Grabber are a powerful offering for robust and reliable subsea manipulation and intervention tasks, capable of precise, targeted movement, delicate object retrieval and high-force applications. The Boxfish team seamlessly integrated control of the Alpha Grabber into their topside console for intuitive control of vehicles and manipulators from one operating system. After the integration, Boxfish has conducted several successful sea trials and seeks to integrate Reach Robotics's more dexterous Reach Alpha manipulators in future tests.

The intuitive topside control interface

At Reach Robotics, we love collaborating with companies pushing the boundaries in subsea innovation and are proud of our partnership with Boxfish Research. Here's what they had to say about our collaboration:

> **"Blueprint lab offers a great range of grabbers and end effectors to solve various tasks. We have only positive experience working with the Reach Robotics team, starting from technical support through to the grabber's integration and operation, and we are looking forward to integrating and offering more advanced manipulators in the nearest future!"**

The combined force of Boxfish's subsea vision systems and agile ROV with Reach Robotics's tough, dexterous manipulator technology offers a highly capable solution for underwater exploration and operation in harsh environments.



Reach Alpha Grabber integrated on Boxfish ROV during sea trials