

Fish farm drone to capsized Norwegian frigate

29 November 2018 – An underwater drone that is normally used for inspection work at fish farms has been chosen to assist the Norwegian Armed Forces during the marine salvage operations of its wrecked frigate *KNM Helge Ingstad*.

Trondheim-based technology company Blueye Robotics has this week delivered two “Blueye Pioneer” underwater drones to the Norwegian Armed Forces. The *Blueye Pioneer* drone is usually used by fish farmers and service operators to perform visual underwater inspections at fish farms without the need for divers or ROVs.

“Our underwater drone is normally utilised to inspect cages and fish welfare at fish farms or vessel hulls. Although the nature of this assignment is quite unusual, our drone is designed specifically for this type of inspection work. Compared to the total cost of the salvage operation, this is a very modest investment for the Norwegian Armed Forces as our drones are priced at a level where also private individuals can afford to buy it,” says Erik Dyrkoren, co-founder and CEO of Blueye Robotics.

Will inspect torpedo rooms

The compact and easily-manoeuvrable underwater drones from Blueye Robotics will, prior to the planned lifting operation, inspect the torpedo room and other important spaces inside the frigate that until now have been inaccessible.

“When the Armed Forces calls, you of course stand to attention. They want to utilise our drones because they can transmit live, HD-quality video feed to operators on the surface. At the same time, our drone measures only 45 x 25 x 35 centimetres and weighs only nine kilos. Hence, it will gain access to spaces that other underwater equipment cannot enter,” says Erik Dyrkoren.

Earlier this week, Blueye Robotics arrived with two underwater drones at the Haakonsværn naval base. The day was spent training personnel on how to operate the drone. The drone is easy to use so armed forces personnel will be in charge of handling it during operations. The drone is operated through a smartphone or a tablet, which received live video via a thin umbilical cable to the surface and thereafter wirelessly to the smartphone/tablet.

Despite being small in size, the drone is equipped with powerful thrusters that allow it to operate in strong currents, which Hjeltefjorden - where the frigate capsized – are affected by. The drone can also dive down to 150 metres, but this will not be necessary for the *KNM Helge Ingstad* operations.

Drone for fish farmers

Today, the fish farming industry normally carry out visual underwater and seabed inspections by fixed camera systems, divers or ROVs (remotely operated vehicles). While utilising divers is inefficient and represents significant HSE risks, ROVs have traditionally been very costly and required extensive training – and in most cases an external operator – to manage. Fixed cameras, on the other hand, have natural limitations when it comes to reach and flexibility.

The *Blueye Pioneer* underwater drone has therefore been designed to satisfy the aquaculture industry’s reliability requirements, but with a user-friendliness you normally associate with consumer technology products. The drone can be operated by anyone capable of using a smartphone or a tablet.

“The cost of our drone is significantly lower compared with divers and ROVs. Combined with an opex close to

zero, the drone can make inspection of fish cages more frequent and less cumbersome. This will allow for several drones at each fish farm or service vessel, which will make underwater inspections more efficient and enable fish farmers and service companies to identify and fix problems with both fish and facilities quicker than usual," says Dyrkoren.

Blueye Robotics has sprung out of the Norwegian University of Science and Technology's Centre for Autonomous Marine Operations and Systems (NTNU AMOS). Erik Dyrkoren, NTNU professor Martin Ludvigsen, Erik Haugane and Christine Spiten founded the company. Last year, renowned magazine *Forbes* placed Christine Spiten at its "30 under 30"-list of international technology entrepreneurs.

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