

Survey tool underestimating damage from fish farming and platforms

The camera system used to survey seabeds could be seriously underestimating disturbances to ecosystems, according to new research from Heriot-Watt University.

The new report says that sediment camera systems, known as SPI cameras, are probably painting an inaccurate picture for regulators and authorities.

SPI cameras have been used for 50 years to document the health of the seafloor around fish farms and oil and gas platforms.

The camera works by penetrating the sediment and taking a side-on picture. The images can tell researchers how healthy or polluted the sediment is based on its colour and thickness, and the presence or absence of animals.

Annabell Moser, from the Lyell Centre, a partnership between Heriot-Watt and the British Geological Survey (BGS), led the research.

With scientists from BGS and the Scottish Association of Marine Science (SAMS), she developed a laboratory version of the SPI camera to test the likelihood that the SPI camera system was giving inaccurate results.

Moser said: "Our tests showed that the model camera caused particles from the top layer to be dragged down into deeper layers, which very possibly makes the sediment look much healthier than it actually is.

"This is concerning, because for 50 years this camera system has been used by authorities as a way to determine whether industrial activity is harming the seafloor.

"Our research shows that the damage from fish farming or oil and gas activities may have been underestimated.

The team will work with the Flanders Marine Institute in Belgium later this year to test the extent of sampling artefacts associated with actual SPI camera systems.

This research has been published in *Frontiers in Marine Science* (<https://www.frontiersin.org/articles/10.3389/fmars.2021.582076/abstract>) and was funded by the Natural Environment Research Council.

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Notes to editors

More about the SPI camera system

The camera works by penetrating the sediment and taking a side-on picture of the seabed, the level of pollution provides some indications of the activity of tiny animals living within the sediments. Knowing what the inside of the mud looks like can be very informative as, for example, the colour of the sediment can tell researchers how healthy the sedimentary environment is. In healthy sandy sediments, one can see the depth that the animals live at and their digging activities, while in polluted sediments, there is a conspicuous absence of the animals and the features they create. The colour and thickness of the oxygenated top layer of the sediment are also crucial as it provides another indicator of how polluted an environment is. In general, a thick layer of lighter coloured sand/mud indicates a healthy seafloor environment.