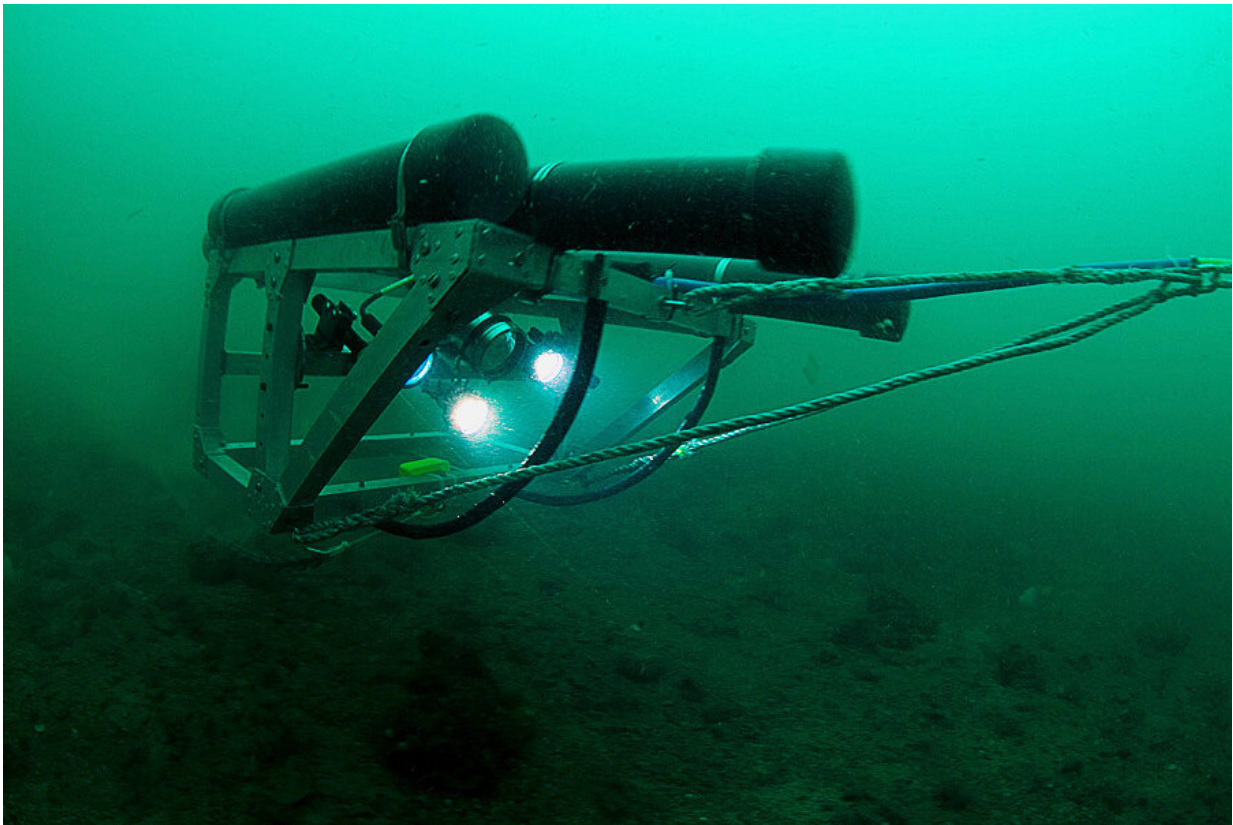


Cats of the sea offer insights into territorial behavior of wild fishes

November 12 2019, by Alan Williams



The towed sled used for monitoring of the Lyme Bay seabed. Credit: University of Plymouth

The entertaining spectacle of wild fishes chasing lasers shone onto the seabed could provide scientists with an innovative way of measuring

their territory size and therefore helping to sustainably and spatially manage fisheries and associated habitats in the future, a new study suggests.

Research led by the University of Plymouth has for the first time explored how wild fishes behave spatially when reacting to an artificial stimulus, in this instance lasers used for routine monitoring in a Marine Protected Area (MPA).

Focussing on the wrasse populations of Lyme Bay, off the coast of southern England, it found that certain [species](#) would 'chase' the lasers—mounted on a sled towed above the seabed—apparently as if to try and ward them off and protect their territories.

The researchers then compared chase distance between species, showing that some wrasse would chase the lasers for up to five metres and that there were also differences based on size and gender within species.

Writing in the *Journal of Applied Ichthyology*, scientists say that understanding the territory size and home range of marine organisms is an important factor to consider for the implementation and management of MPAs.

And while this study focussed on wrasse, which are increasingly being used as cleaner fish within salmon aquaculture, they believe the method has the potential to be developed in order to investigate aspects of territoriality and aggression in other species of wild fish.

The project was conceived by Senior Research Fellow Dr. Emma Sheehan, and carried out by Pete Davies, who was at the time based at the University of York.

Dr. Sheehan said: "We have been entertained by wrasse chasing our

flying array video lasers ever since we built the sled in 2008. However it was only in more recent years, since the live wrasse fishery has emerged in the south west, that I had the idea that this [laser](#) chasing behaviour could be used to assess territory size and inform future sustainable management of these amazing fishes."

Pete Davies, now working towards a Ph.D. at Bournemouth University, said: "Wrasse are fascinating, abundant and under-appreciated citizens of coastal [fish](#) communities around the UK. They also seem to revel in chasing lasers, a bit like some domestic cats. In this study we hoped to shine a spotlight on their complex territorial behaviour and pave the way for more much needed research, at a time when wrasses are increasingly threatened by overfishing."

Lyme Bay was designated as a Marine Protected Area (MPA) in 2008, with the legislation including a ban on dredging and trawling, and researchers from the University's School of Biological and Marine Sciences have been assessing the seabed recovery since its designation.

They have previously demonstrated that several species have returned to the area since the MPA was introduced, with management recommendations from this work being included within the Government's 25-year Environment Plan.

More information: Peter Davies et al, Laser chasing behaviour of wild fishes exploited as a tool to compare space use between size, sex and species, *Journal of Applied Ichthyology* (2019). [DOI: 10.1111/jai.13982](https://doi.org/10.1111/jai.13982)

Provided by University of Plymouth

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