

PHOTO GALLERY

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BENTHIC INDICATORS FOR MONITORING BOTTOM-TRAWL FISHING IMPACTS

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Study description

There is increasing interest in developing indicators to assess the state of benthic communities in shelf seas primarily affected by bottom trawling. Yet, many indicators have been developed in specific geographic regions making it difficult to determine their broader applicability. In the study, we systematically evaluated the complementarity, sensitivity, and specificity of 18 indicators in response to the pressure of bottom trawling using a shared dataset with broad regional representation. We found distinct clusters of indicators with similar response patterns. In addition, we identified the type of indicator that is most sensitive to bottom-trawling pressure.



Photo 1. Gulf of Lion. Photo credit: Ifremer.



Photo 2. Typical benthic fauna found in several trawl gradient datasets in the southern part of the North Sea. Photo credit: Hans Hillewaert.

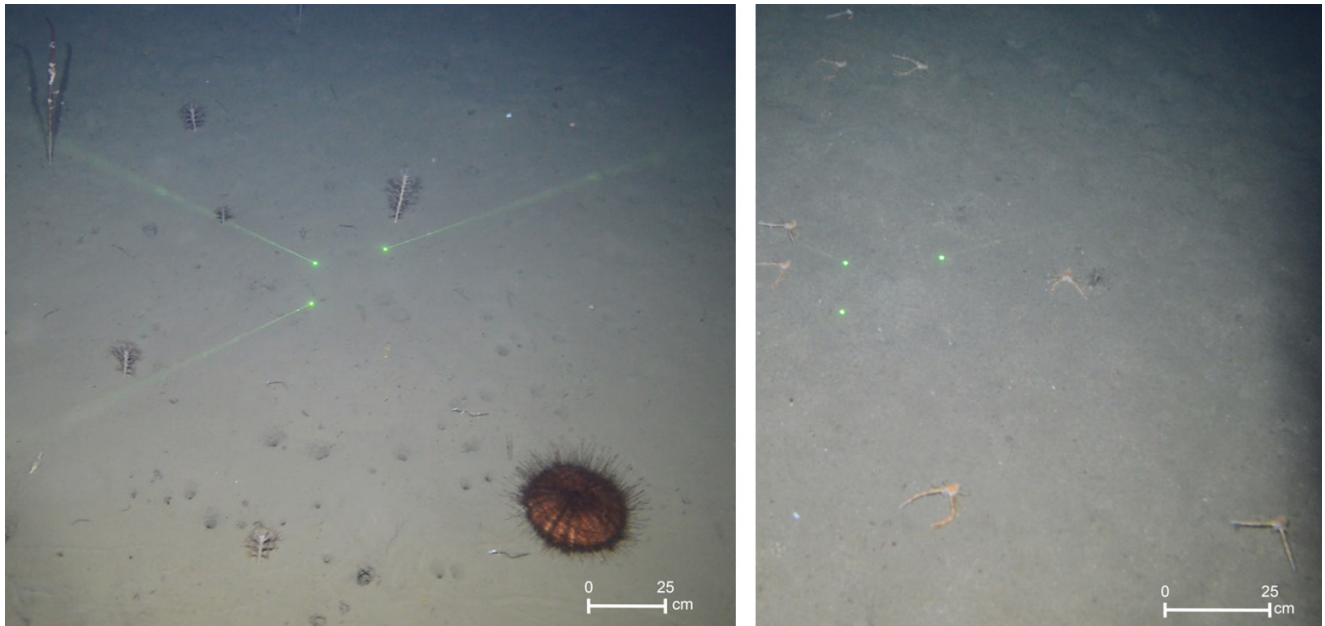


Photo 3. Upper bathyal mud in an area north of the Iberian Peninsula. The image on the left shows the dominance of the seapens *Kophoblemnon stelliferum* and *Funiculuna quadrangularis*, species sensitive to trawling. The image on the right shows the dominance of the squat lobster *Munida sarsi*, which is usually present at high biomass in trawled areas. Photo credit: IEO-CSIC.

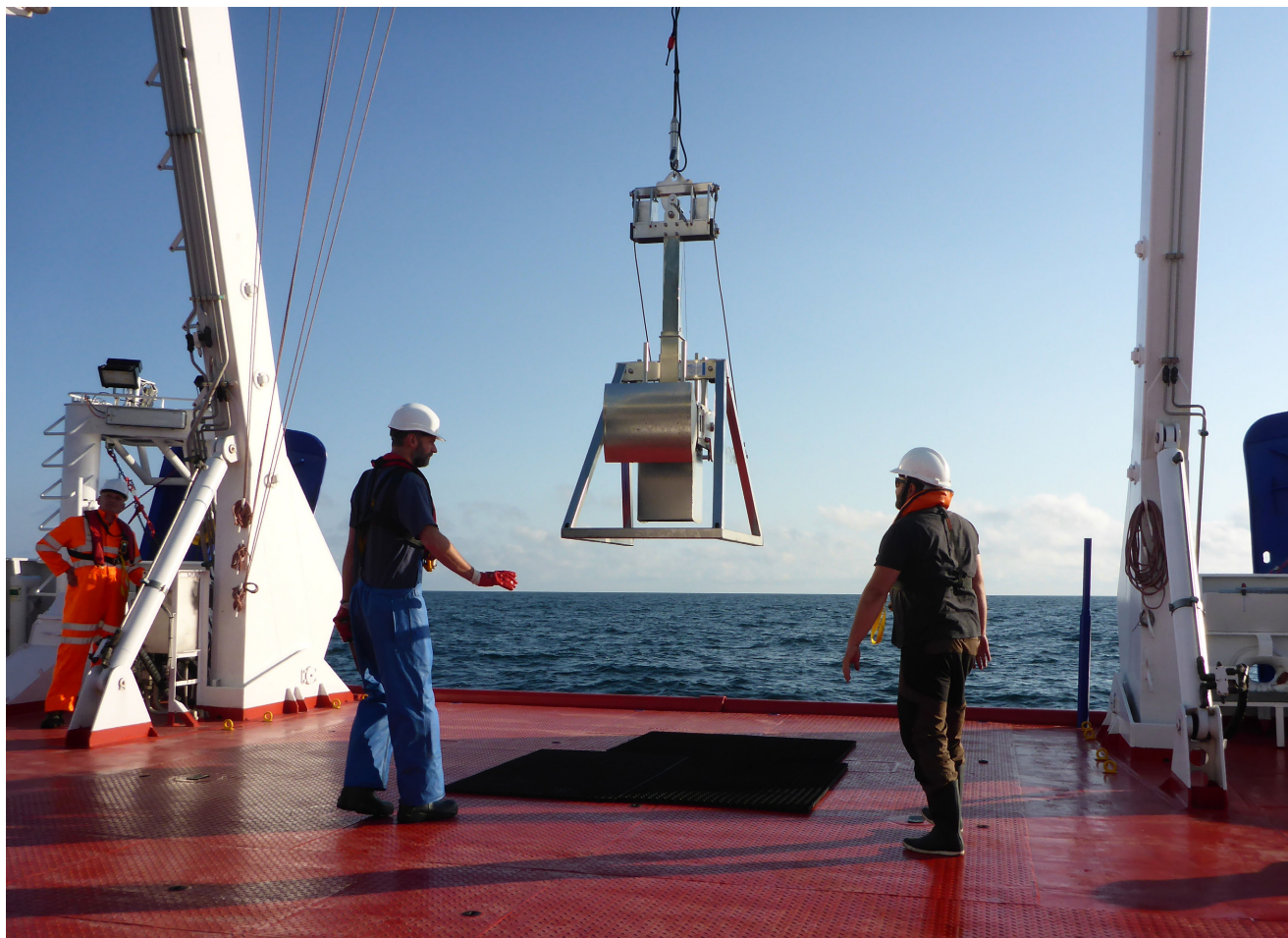


Photo 4. Benthic sampling with a box corer, a sampling tool used in many of the studied trawl gradients. A box corer collects a sample from the top ~40 cm of sediment. Photo credit: Sebastian Valanko.



Photo 5. Typical benthic fauna found north of the Gulf of Gdańsk in the Baltic Sea. Photo credit: Sebastian Valanko.

These photographs illustrate the article “Complementarity and sensitivity of benthic state indicators to bottom-trawl fishing disturbance” by P. Daniël van Denderen et al. published in *Ecological Applications*. <https://doi.org/10.1002/eap.3050>