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Impact of trawling in the Gulf of Lion

In order to improve marine environment management, it is necessary to describe both marine habitats and the distribution of the main macrobenthic species, to characterize anthropogenic pressure effects and to assess the capacity of benthic ecosystems to adapt to human-induced disturbances. **On the continental shelf, fishing with bottom gears (trawls and dredges) is known to be the major source of disturbance of seabeds.** Our study attempts to assess the impact of bottom impacting fishing activities, in a number of contrasted hydrodynamic and sedimentary environments. This objective will be met through investigating the answers to three questions: How should the ecological status of continental shelf benthic habitats be monitored? For each given habitat, which species should be considered as indicators of the benthic habitat sensitivity to fishing effort? In the different habitats considered, can hydrodynamics mask the effects of fishing, and how can 'good ecological status' be defined without any reference state?

To answer these questions for each habitat type, the combination of seabed sediment and abrasion pressure maps should enable the identification of those stations that are impacted and those stations that are not (or only slightly) impacted by bottom-impacting fishing gears. A differentiation may be made between the effects induced by natural processes (such as hydrodynamism and sediment type) and those induced by trawling. In addition, exhaustive sampling of these stations, using a trawl, a dredge and a video sled, will enable the compilation of complete faunal lists and indicator species to be sought. Furthermore, the deployment of video systems (such as the underwater video system Pagure2, see below) will enable the improved observation of the macro-invertebrate fauna that is fixed to the seabed and constitutes, given its exposure, a very precise indicator of benthic habitat susceptibility to fishing efforts. **Our research should ultimately contribute to the development of mesoscale indicators. If necessary, several observation methods will be combined in order to support the monitoring of the impact of towed fishing gear on benthic habitats.**

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▼ *Benthic underwater video sled.* © *Sandrine Vaz/IFREMER*