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Previous studies focused in fisheries have been analyzing the impact of bottom-trawling on the seabed, only a few studies have evaluated the effect of static gears such as longlines. In that sense **IMPALHA** arises with the spirit of contributing to the knowledge of the interaction between longline gear and the benthic habitats. The goal of this project is the diagnosis of the impact of bottom longline gear (hook fishing gear) on the seabed (benthic habitats) in the Site of Community Interest (SCIs) of the Nature 2000.

Phase I

Characterization of bottom longline fisheries and their interaction with Benthic Habitats in the SCIs from the Nature 2000.

Two study areas have been selected (Figure 1) the SCI of Avilés Canyon System and the future SCI of Cap Bretón. These two areas are important for longline fisheries activity, being “piedra-bola”, “palangrón” and “pincho”, are the main fishing gears. Depending on the fishing tactic, target species, kind of long line gear, etc., the benthic species impacted are different.

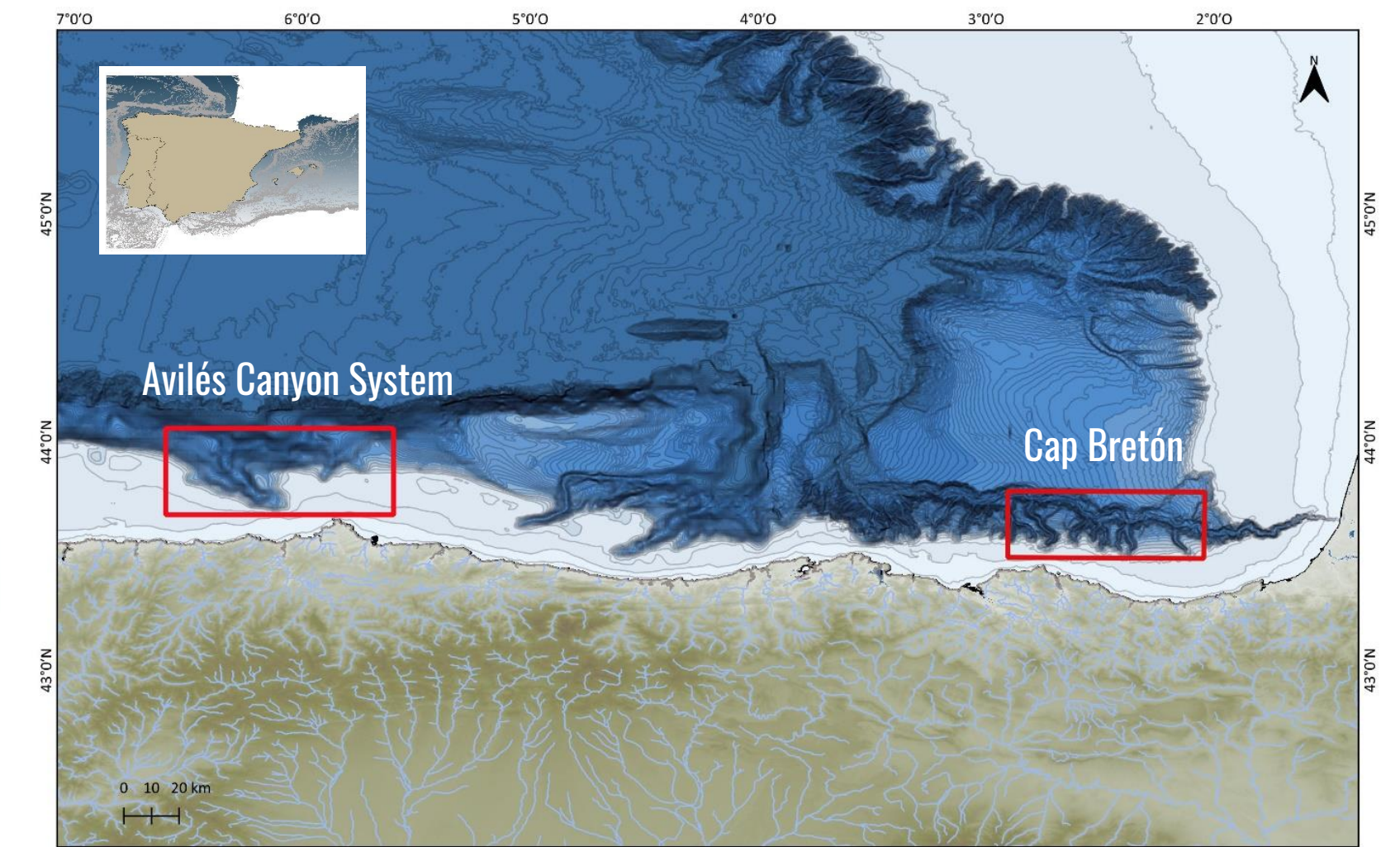


Figure 1. Study areas: SCI of Avilés Canyon System and the future SCI of Cap Bretón.

Activities

1

Fishing information collection, in a geodatabase, and analysis.

During this project, the historical series of the fishing activity and spatial distribution will be collected from different sources.
 ERS (Electronic Recording and Reporting System): Information about catches and fishing effort will be used.
 First-Sale Price: Economical values of the landed species.
 VMS (Vessel Monitoring System): This tracking device mandatory for industrial fleet (>15m length) sends a satellite signal every two hours (ping) issuing ship code, date, time, position, speed, heading and whether or not the vessel is fishing (Figure 2a).
 AIS (Automatic Identification System): This is a security device that emits a much higher frequency than VMS, it sends a satellite signal every 3 minutes. Actually, there is not a VMS for the artisanal fleet but is available on AIS date (Figure 2b).
 This allows us to have a total coverage of the fleet (artisanal and industrial).

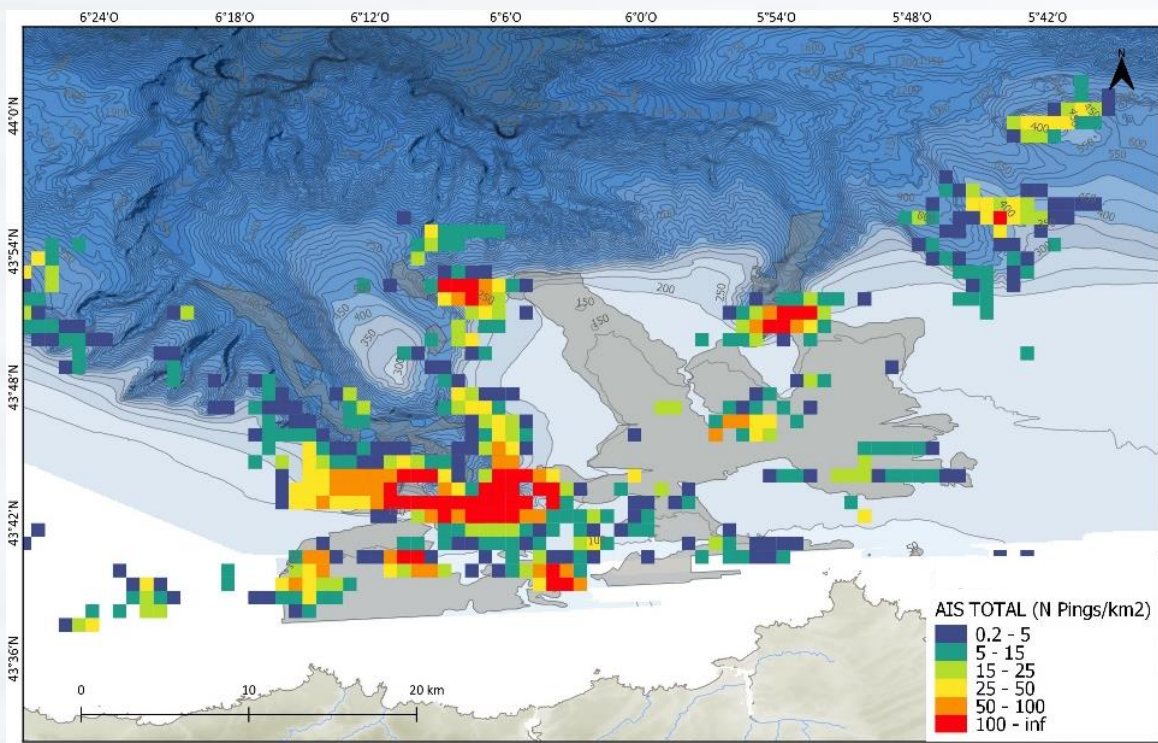


Figure 2a. Ship distribution map according to data from AIS.

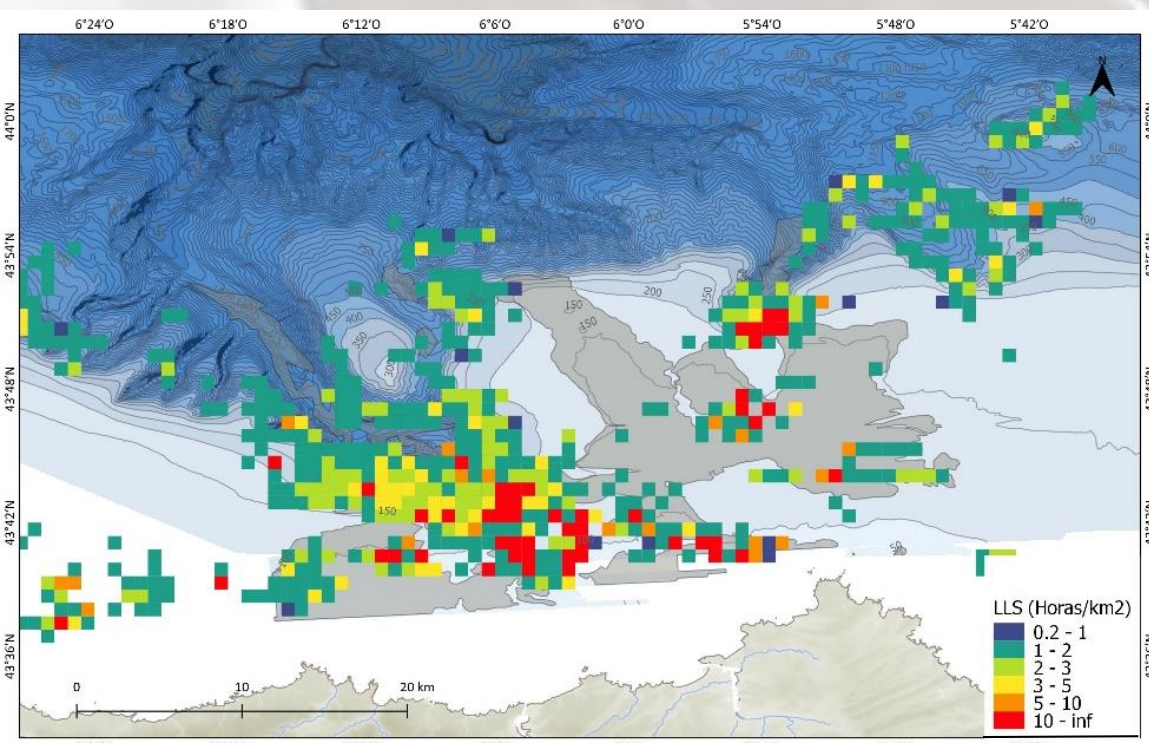


Figure 2b. Ship distribution map according to data from VMS.

2

Characterization of bottom longline fishing activity.

Spatio-temporal analysis of fishing effort combined with information about catches and economical values of longline fisheries in the area. The main fishing grounds will be determined. Also, spatial overlap analysis with other fishing activities in the area and identification of spatial conflicts will be determined. Preliminary analysis showed that fishing effort is mainly located on the head of the Avilés canyon System (Figure 2 and 3).

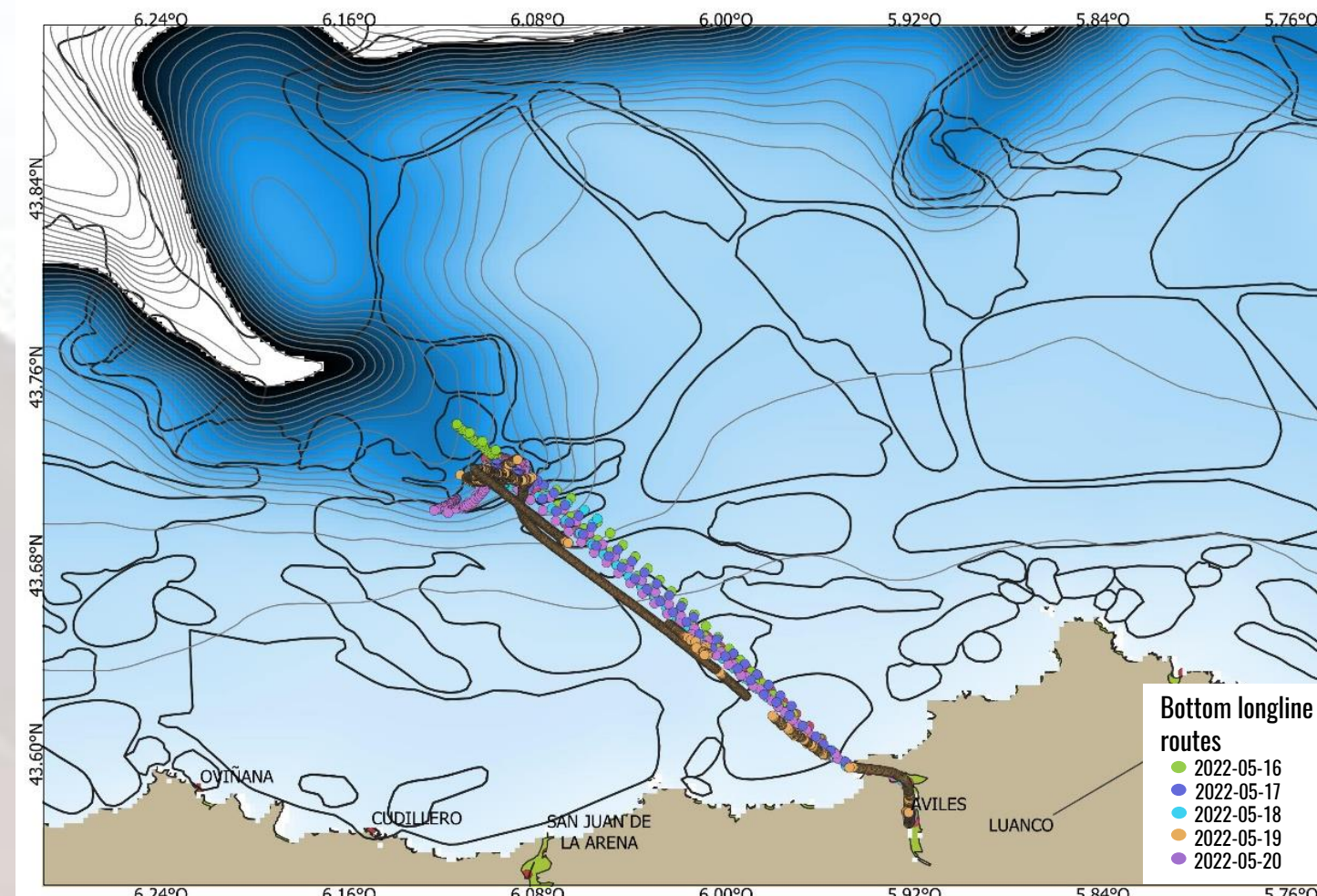


Figure 3. Five days route of a bottom longline vessel and the fishing grounds.

3

Overlap of fishing activity with habitats and economic returns.

Environmental information and habitats of the study area will be copilation (Figure 4). The identification of the impact, its quantification and the analysis of its overlap with benthonic habitats are essential to conduct effective management on this areas, but at the same time allow the development of sustainable fishing. Spatial data of target species catches and their economic value will be analyzed for the first time.

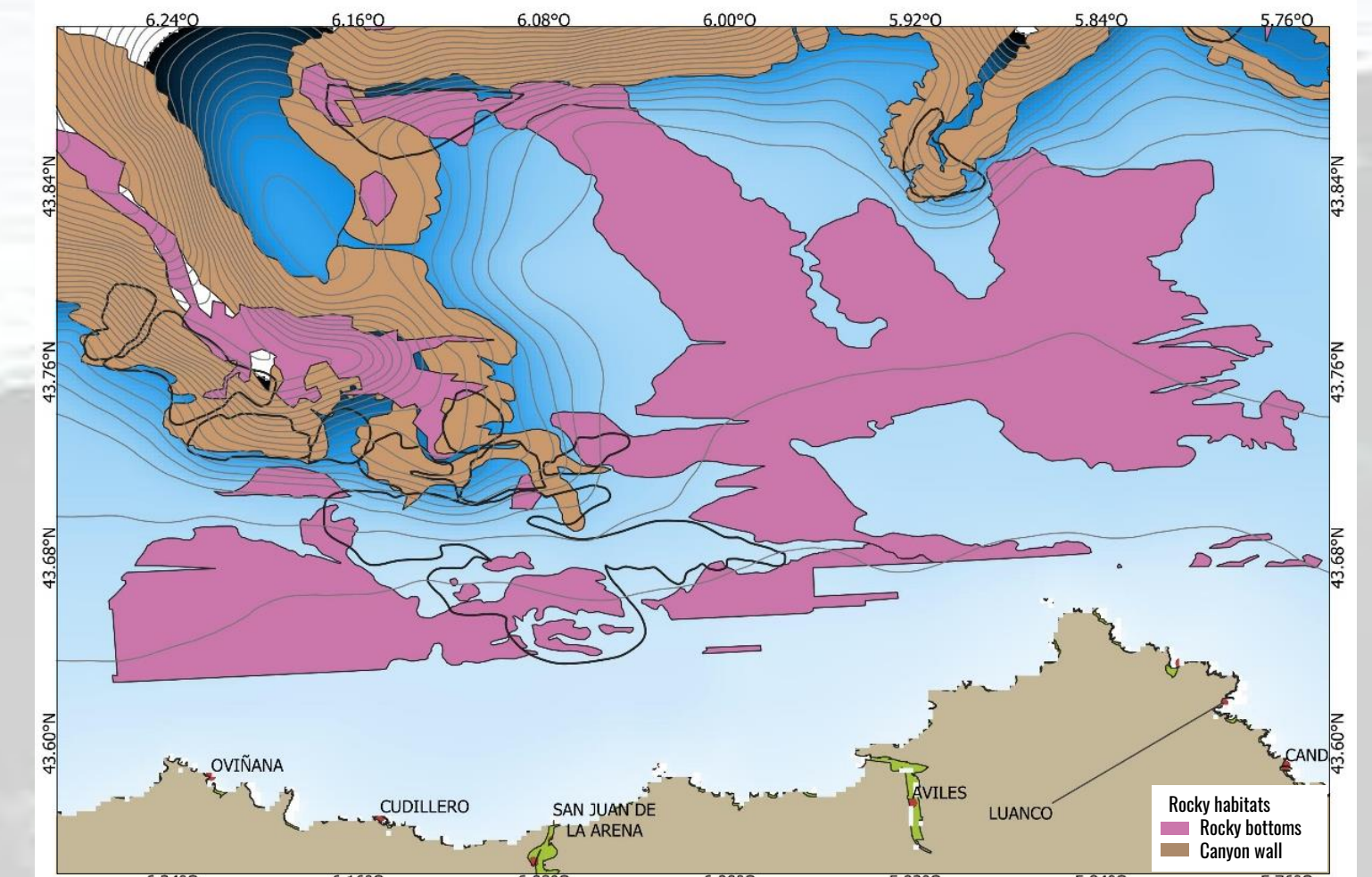


Figure 4. Main fishing grounds for bottom longline vessels and rocky habitats.

Phase II

BACI (Before-After Control Impact).

BACI survey will be conducted to analyze the status of a specific area before and after being impacted with a bottom longline under controlled conditions. The state of the bottoms and benthic habitats before and after the impact activity will be evaluated with the Remotely Operated Vehicle (ROV) (Figure 5).



Figure 5. ROV used in other survey BACI.

Divulgation

Scientific dissemination that encourages participation and social interaction.

One of the most relevant aspects of the project is the scientific dissemination. Spread project results, methodologies and concepts used in the study of human impact activities on benthic habitats for all audiences (Figure 6).

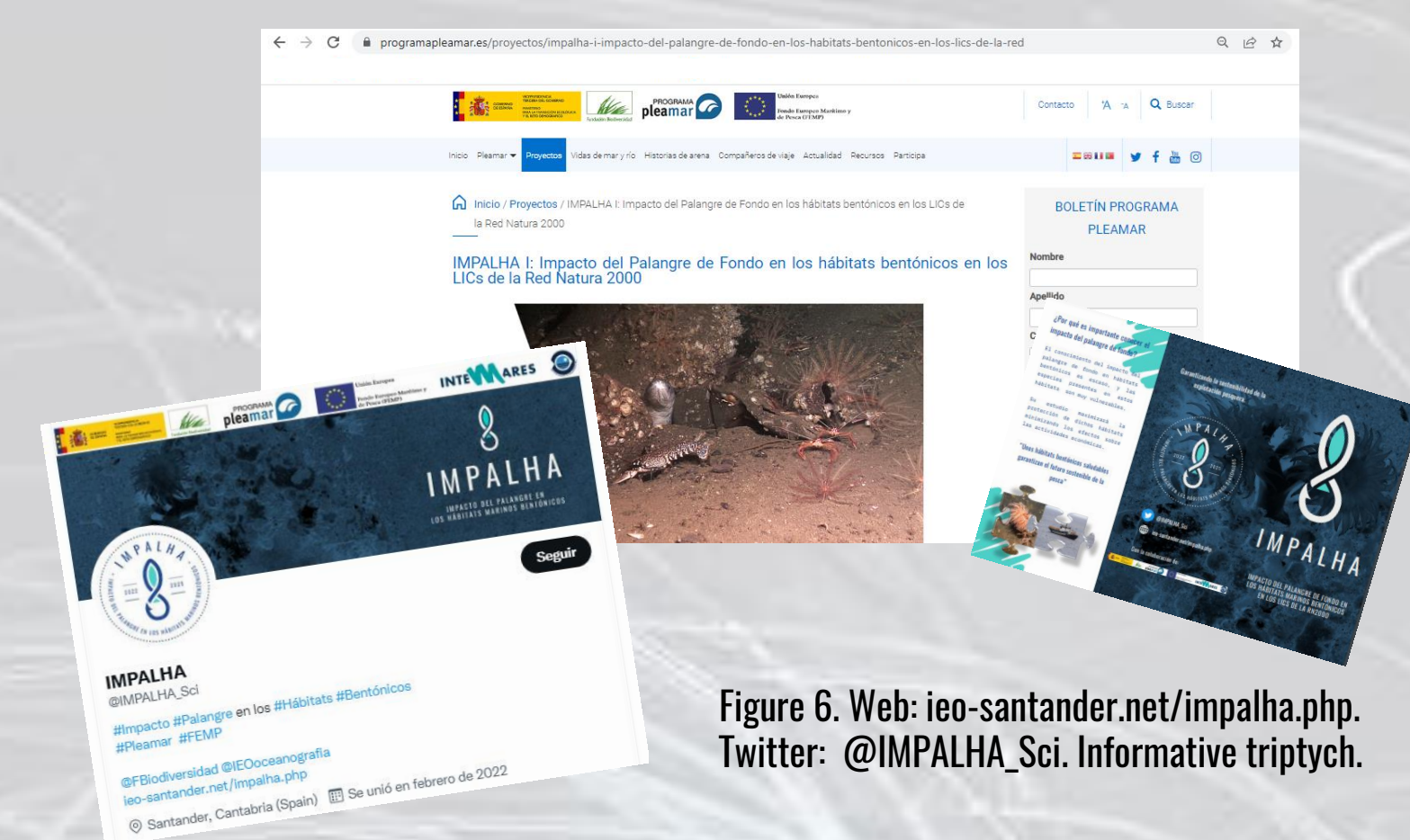


Figure 6. Web: ieo-santander.net/impalha.php. Twitter: @IMPALHA_Sci. Informative triptych.

IMPALHA will contribute to improve the knowledge about bottom longline fisheries and their impact on benthic marine habitats and will help us the management of these areas, could maintaining the uses and exploitation of resources in a sustainable manner and compatible with the protection of space, habitats and species. The results of this project will be essential for the future participatory management plans of the SCIs of the entire Spanish Exclusive Zone. In addition, its results will have international relevance, as they can be used as a proxy to quantify the area adversely affected by this static fishing gear over seabed habitats.

Proyecto IMPALHA I – Impact of bottom longline gear on the benthic habitats in the SCIs of the RN 2000. This Project is developed with the collaboration of the Biodiversity Foundation, Spanish Ministry for Ecological Transition and the Demographic Challenge, through the Pleamar Program, co-financed by the European Maritime and Fisheries Fund.