

LIFE IP INTEMARES

Effects of the demersal fisheries on benthic habitats diversity



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Instituto Español de Oceanografía



LIFE + INTEMARES project



"Integrated, innovative and participatory management of the Natura 2000 Network in the Spanish marine environment"

Achieve a consolidated network of marine spaces of the Natura 2000 Network, managed efficiently, with the active participation of the sectors involved and with research as basic tools for decision making

Management plans

Habitats and species conservation

Public awareness

Blue economy

Monitoring and surveillance using new technologies

Marine governance

Habitats restoration

Capacity building



Work Package 4: Diagnostic of human impact



Know the effects of fishing activities on RN2000 habitats in the future Spanish MPA Network



Managements Plans



Maximize protection of the RN2000 habitats and minimize the effects over the economical activities in the area



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Workflow



Spatial Distribution of the fisheries



Spatial Distribution of the benthic habitats



Fisheries-Habitat Interaction (Overlap)



Study of the Impact of Fishing on Benthic Habitats

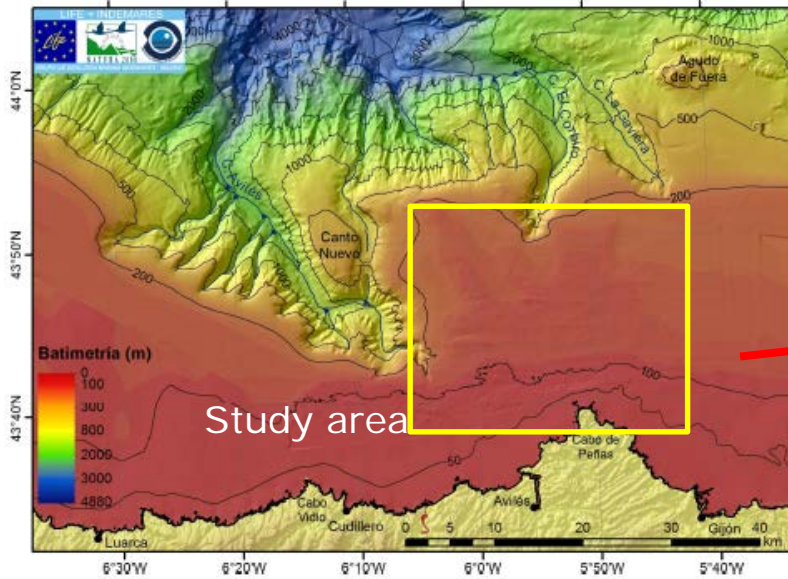


Impact Assessment

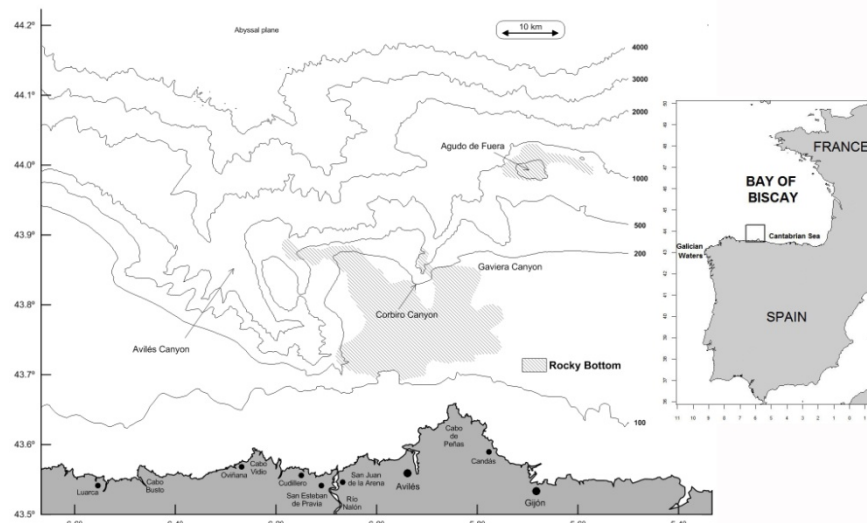
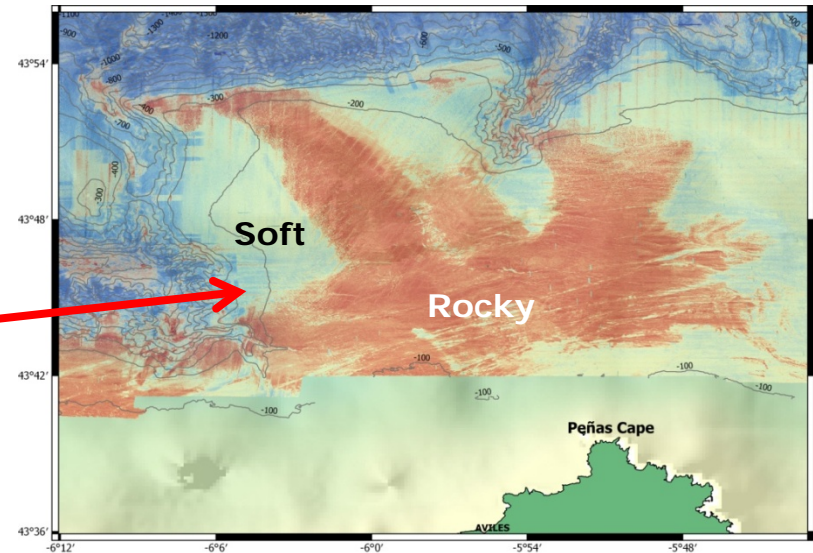
Study Area: Avilés Canyon



Bathymetry



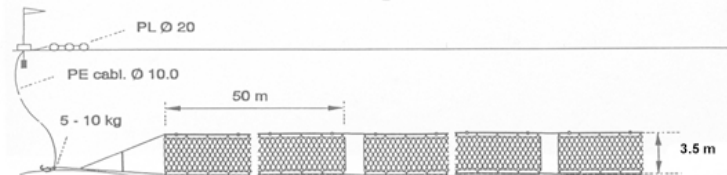
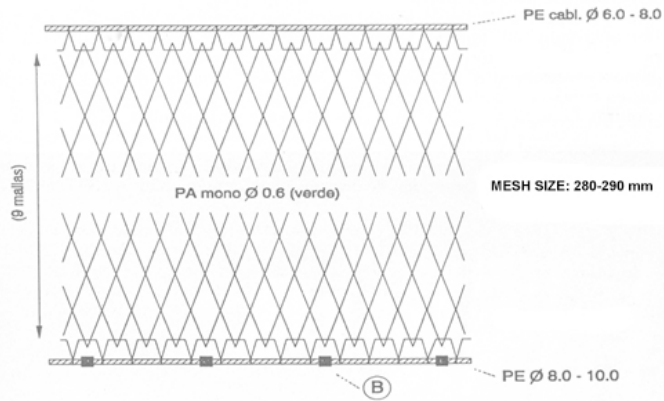
Reflectivity



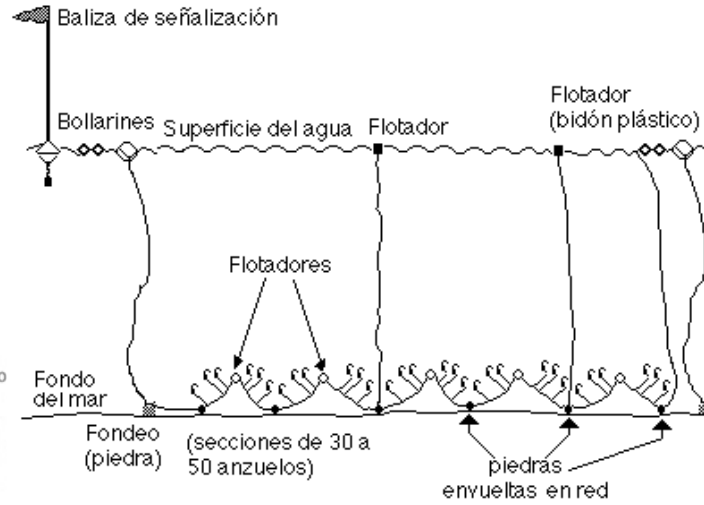
Fishing Gears



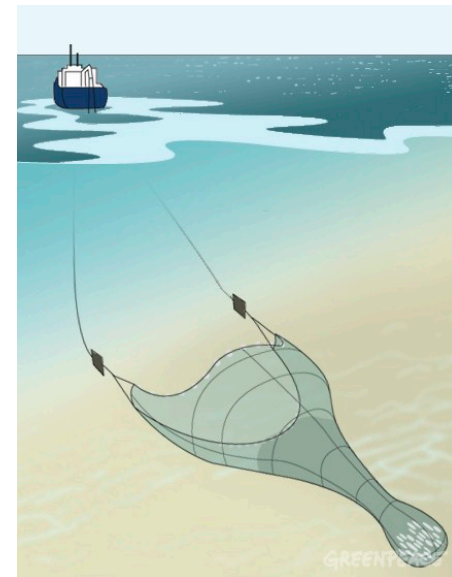
GILLNET



LONGLINE



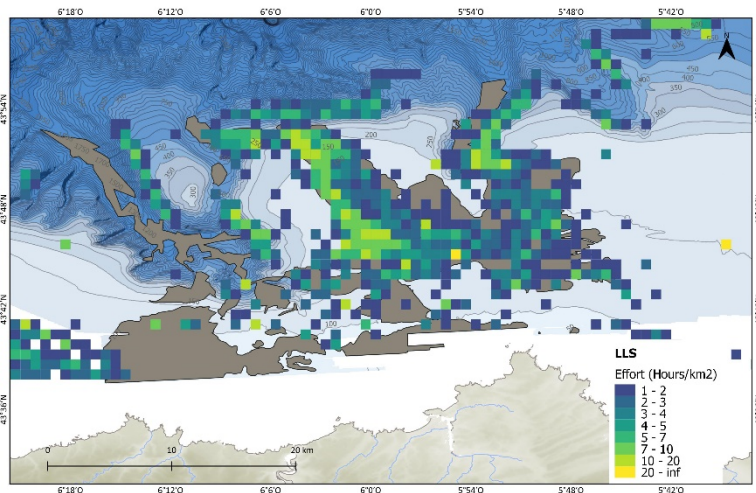
TRAWL



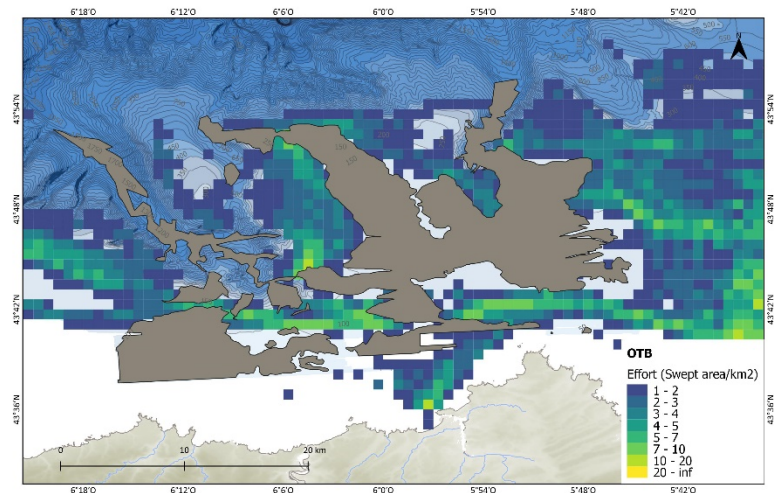
Spatial Distribution of the Fishing Effort



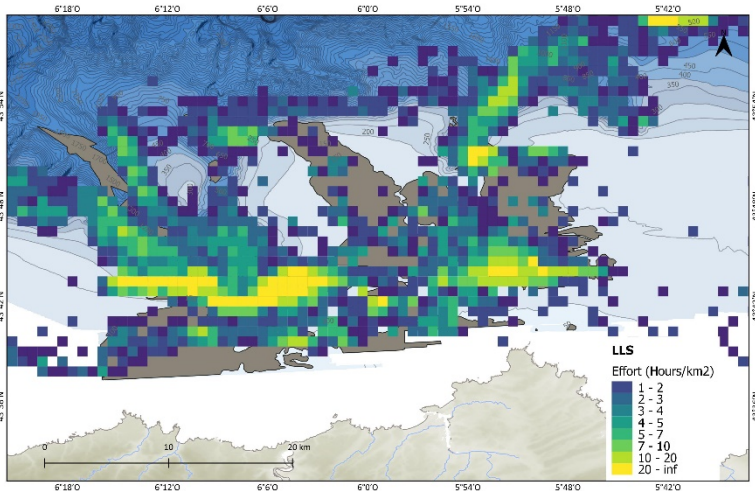
GILLNET



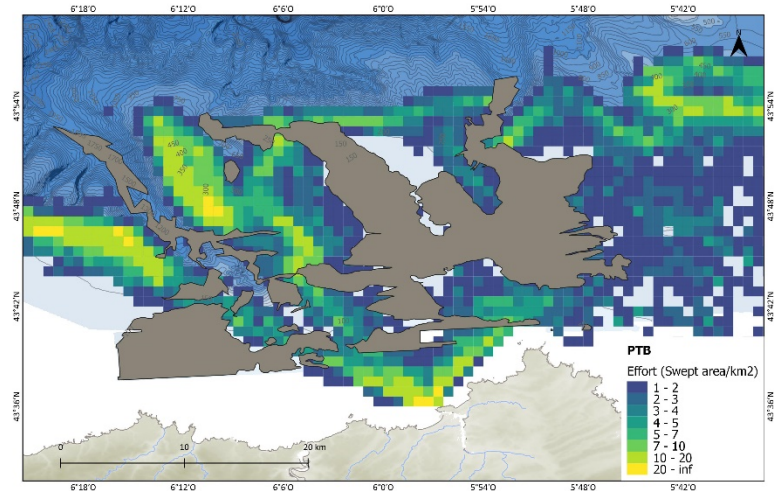
OTTER TRAWL



LONGLINE



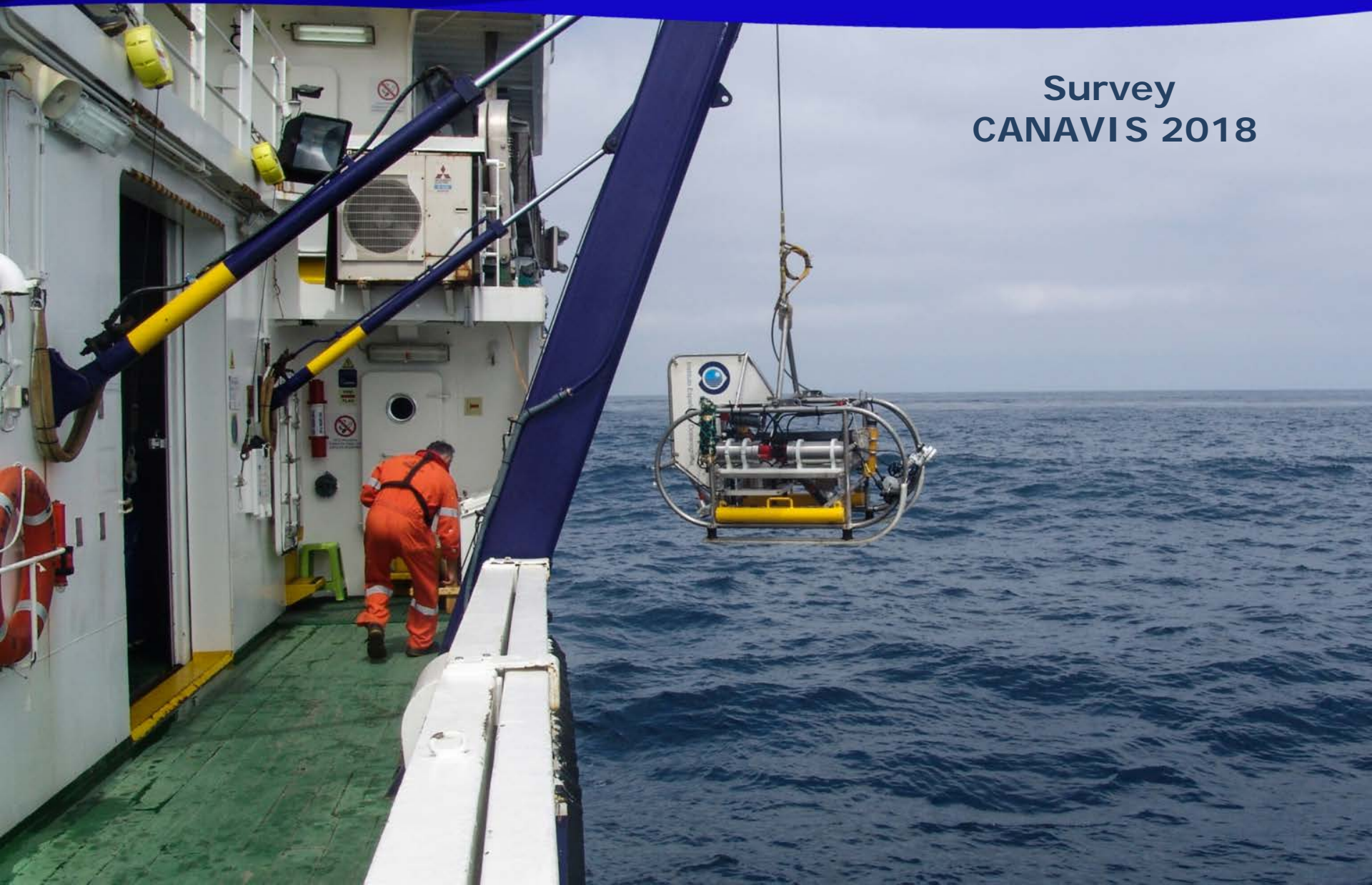
PAIR TRAWL



Study impact of the Fisheries in Benthic Habitat



Survey
CANAVIS 2018



Study impact under “Controlled Situations” (BACI Experiment)



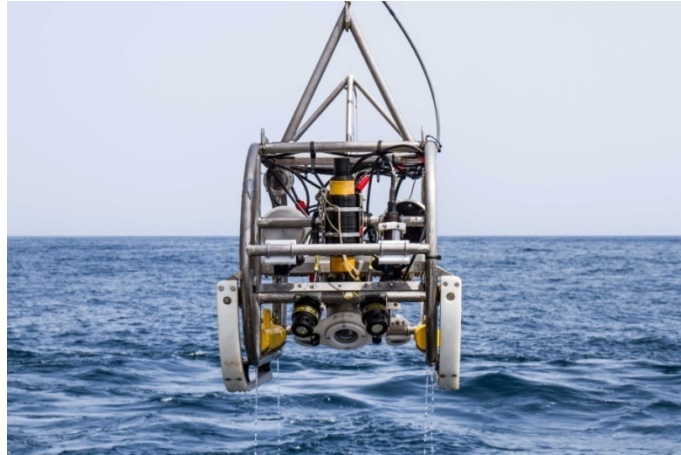
Survey
CABEFAP 2019



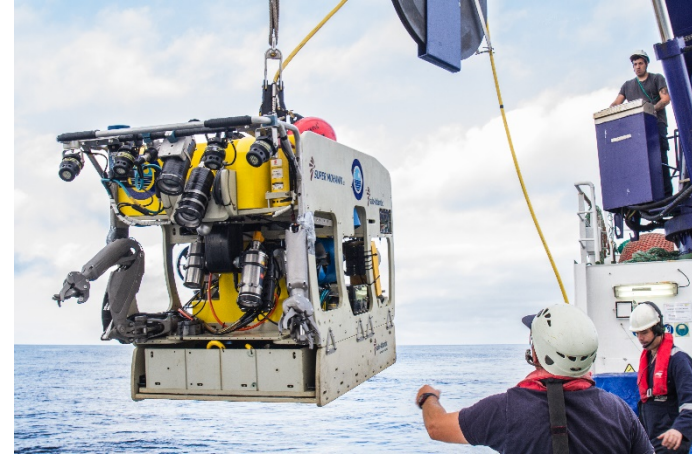
Samplers



Photogrammetric Sledge



ROV



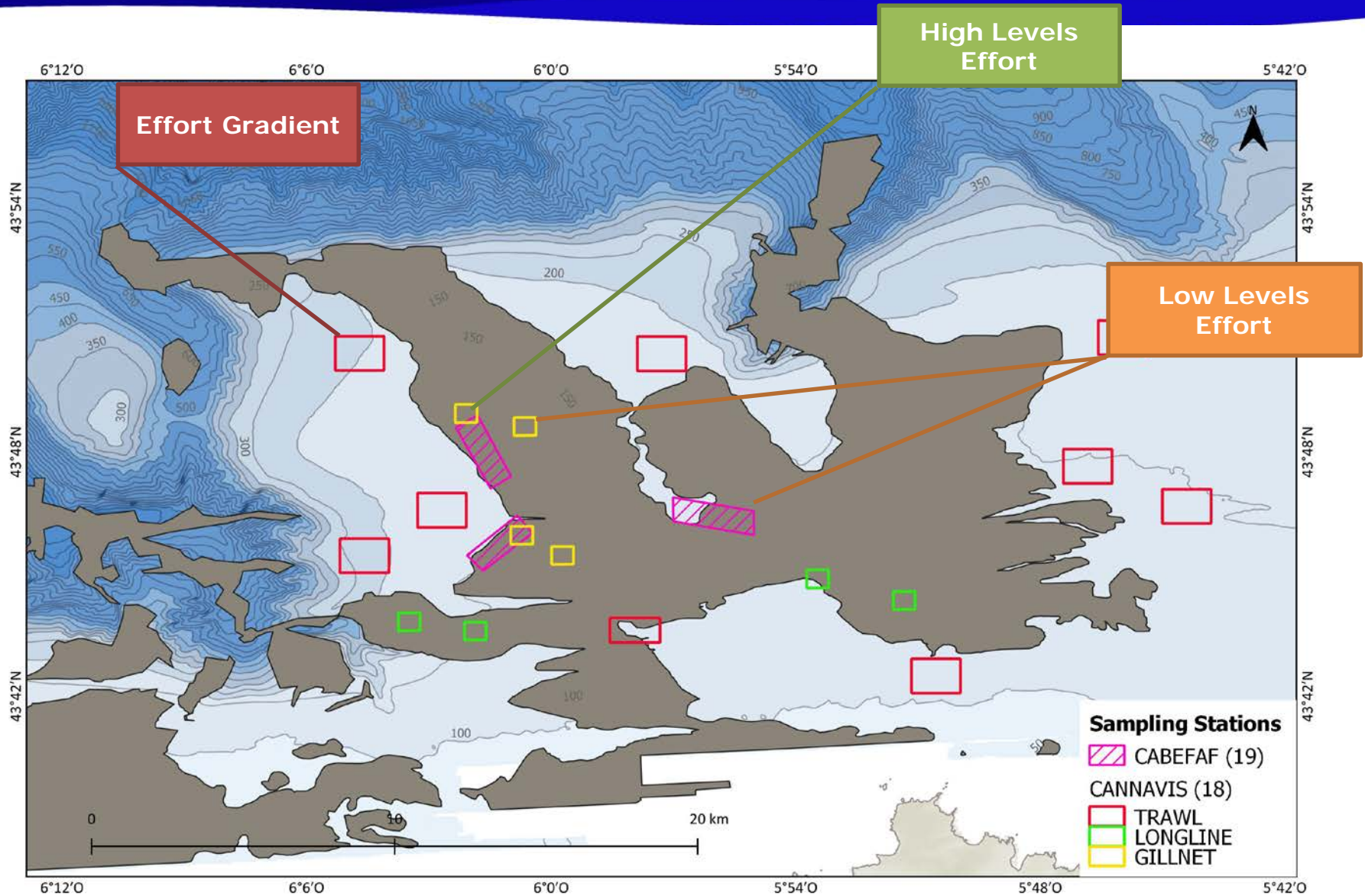
Gillnet & Longline

Beam Trawl



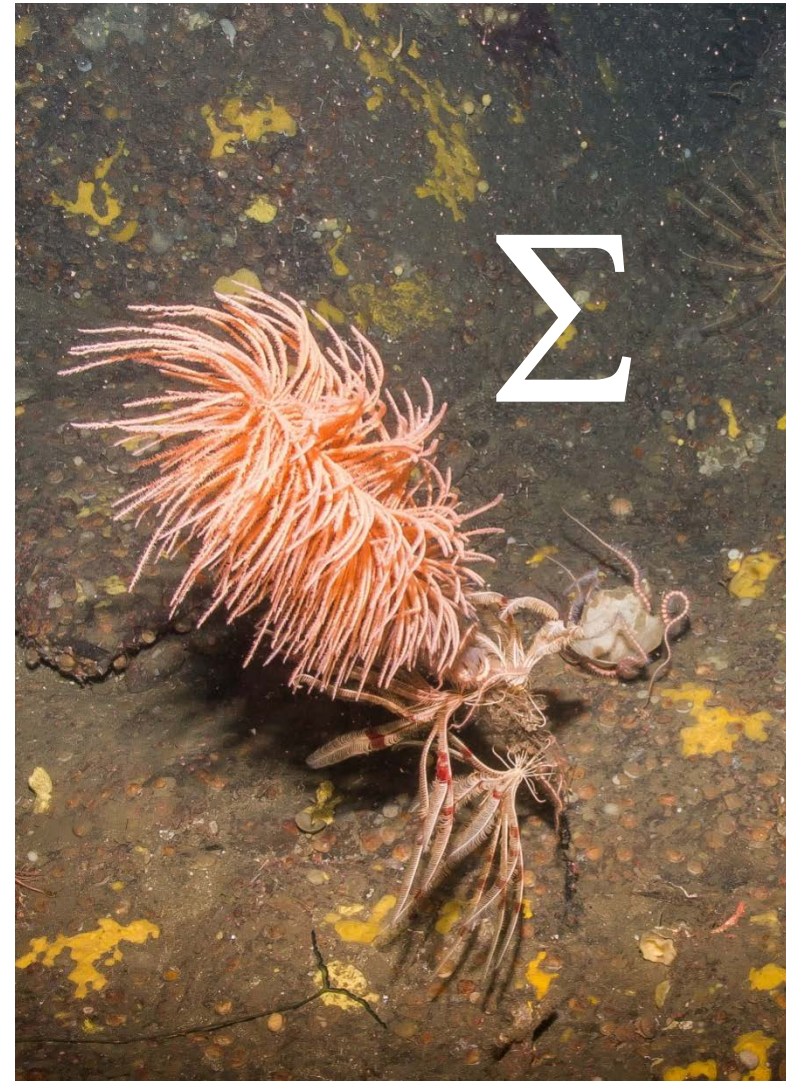
Trawl

Sampling Design

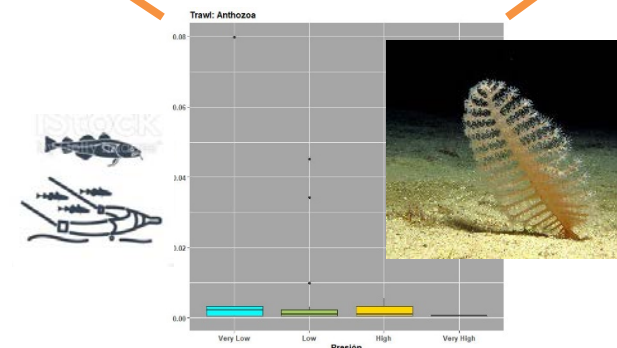
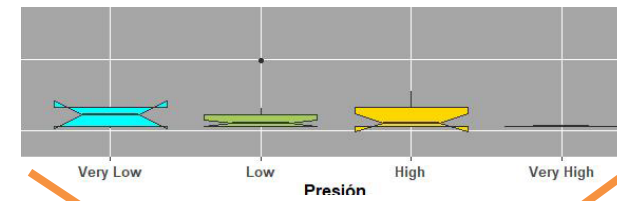
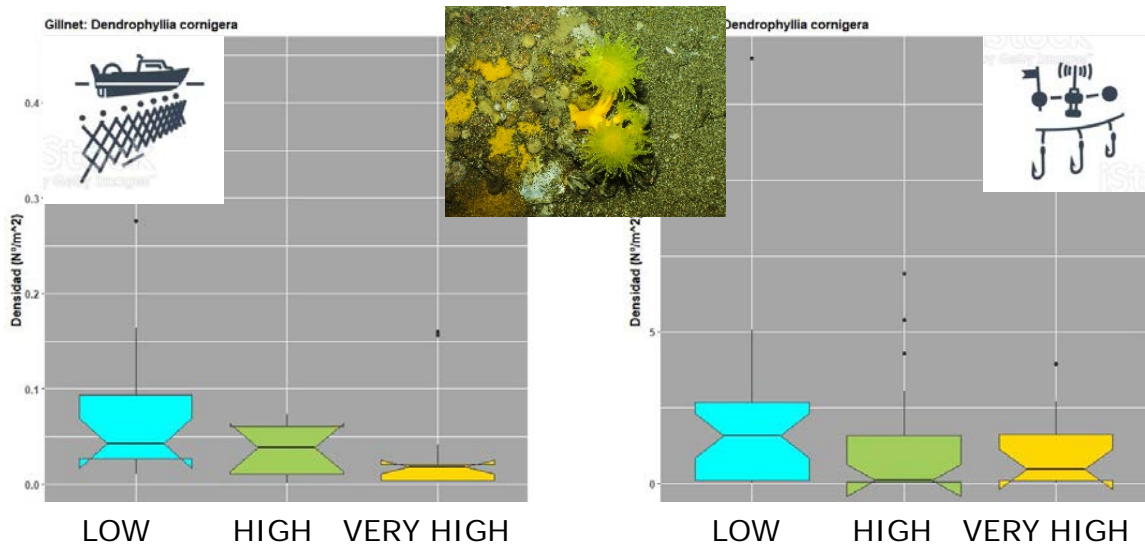
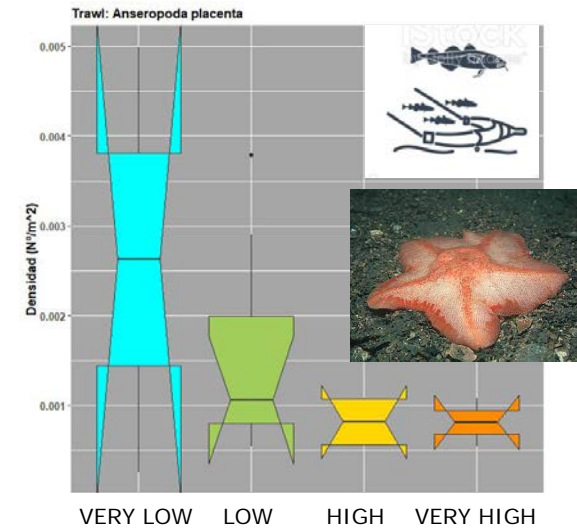
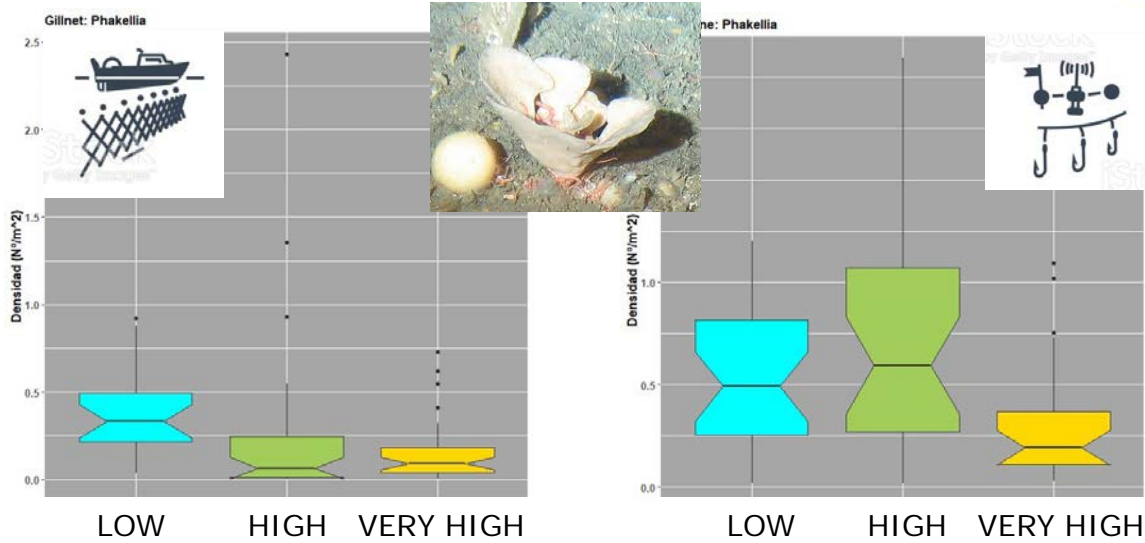




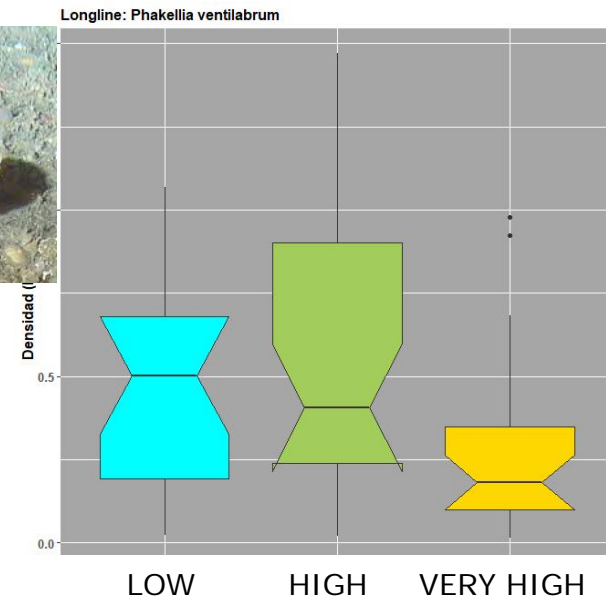
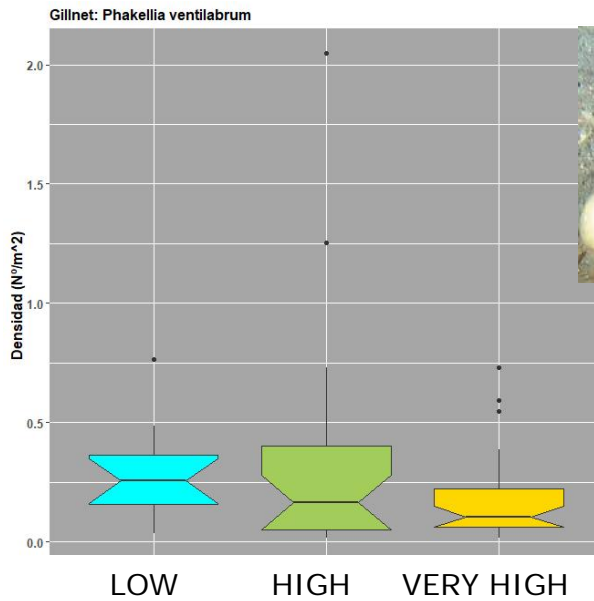
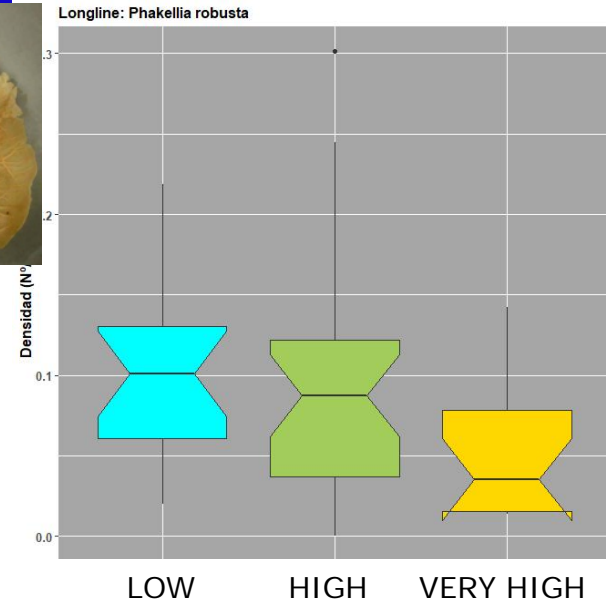
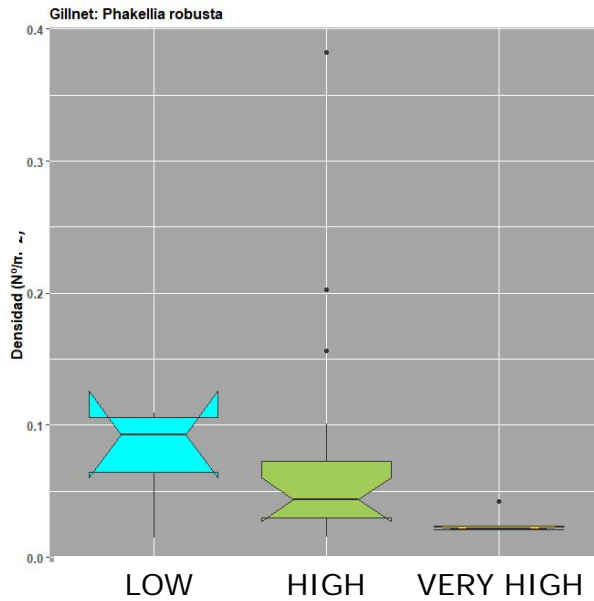
- **Density** Structurant Species: Number/m²
- **Richness**: Number of species
- **Shannon Index (H)**: The index reflects the heterogeneity of a community based on two factors: the number of species present and their relative abundance. Maximum diversity is reached when all species are equally present.
- Margalef, Pielou, Simpson, etc



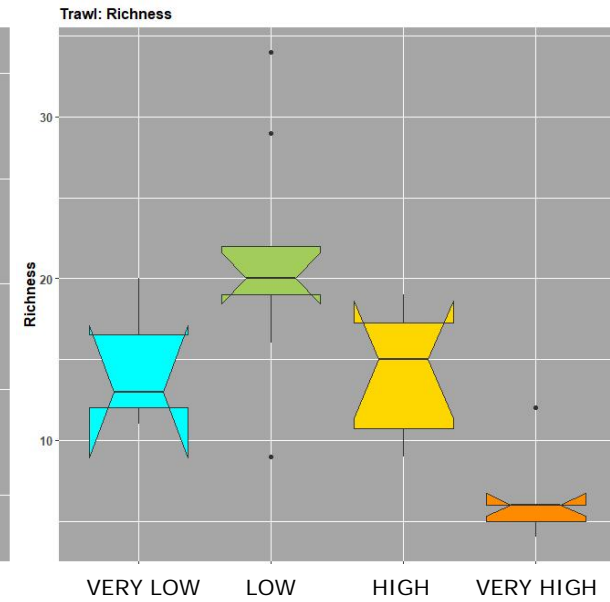
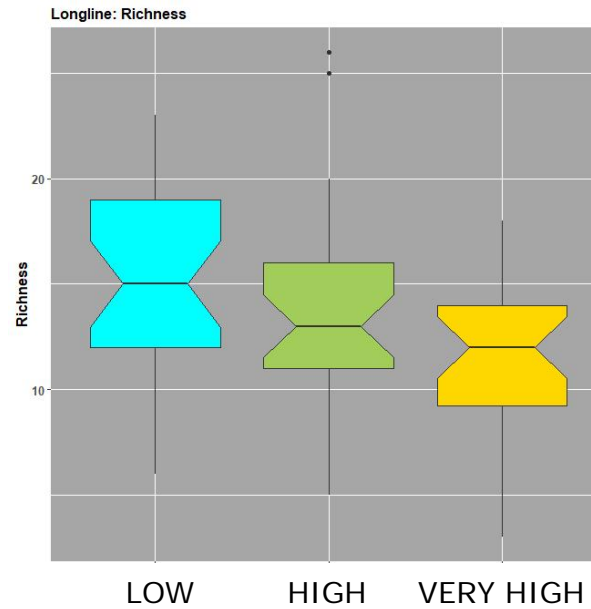
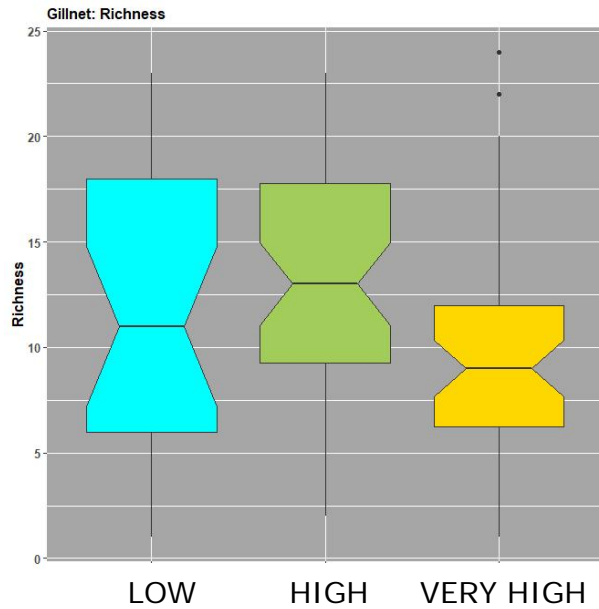
Effects on Species Density



Impact vs Size and Flexibility



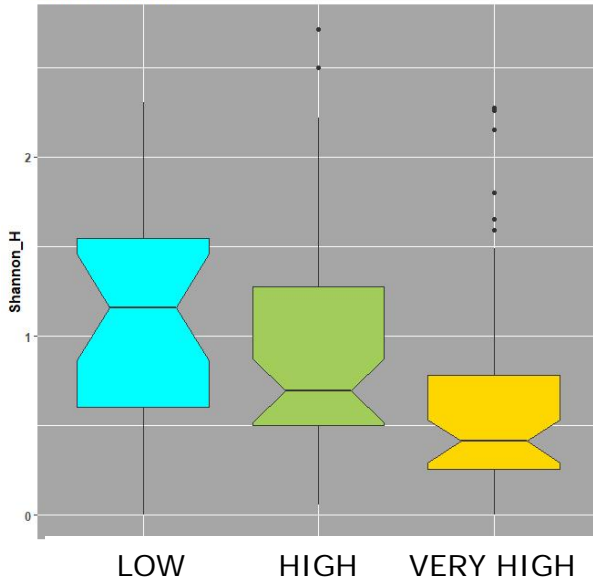
Fishing Effects on Richness



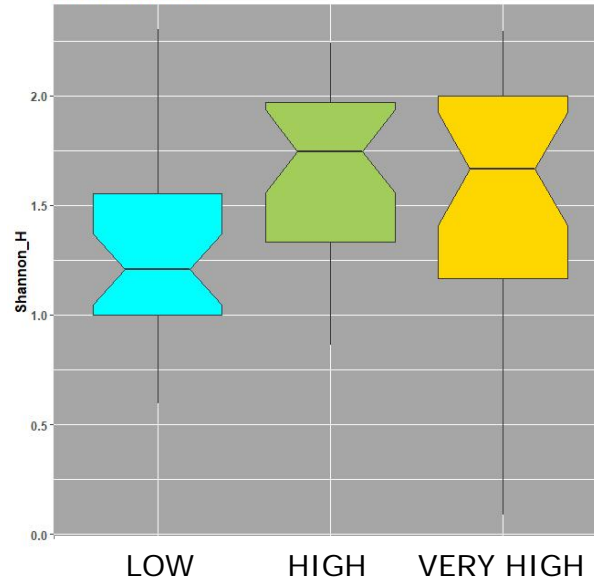
Fishing Effects on Diversity (Shannon)



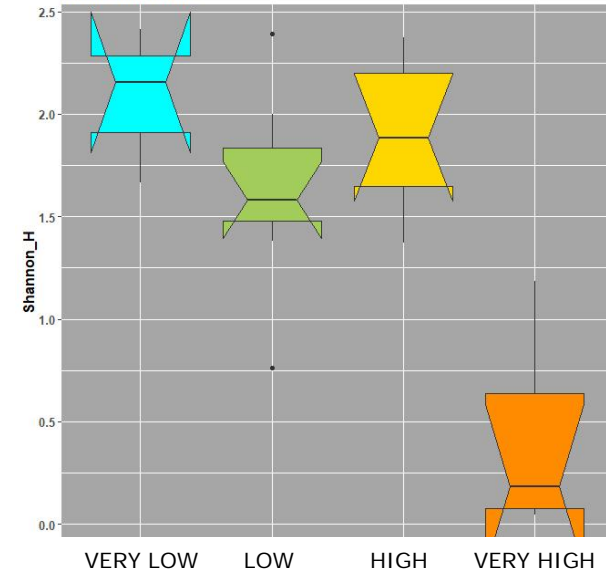
Gillnet: Shannon_H



Longline: Shannon_H



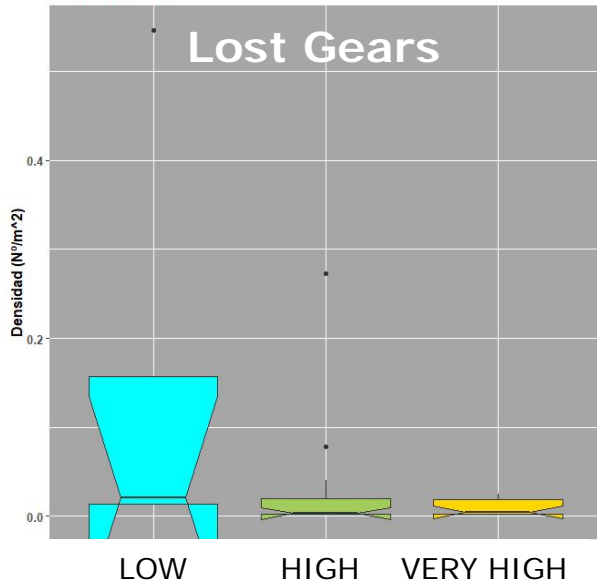
Trawl: Shannon_H



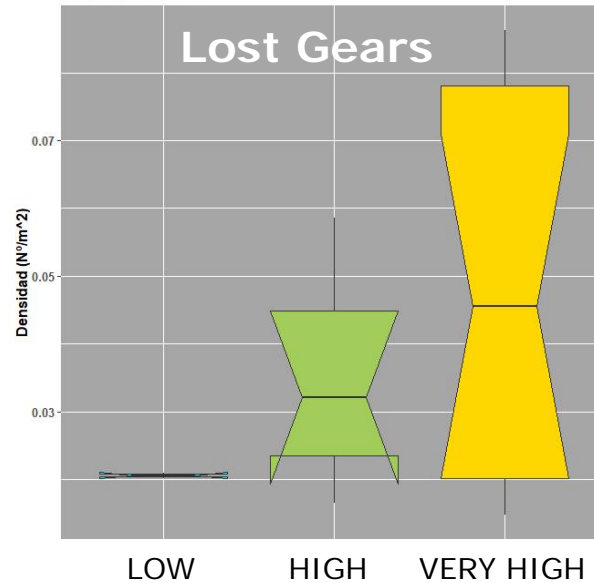
Effects on Lost Gears and Benthic Litter (Density)



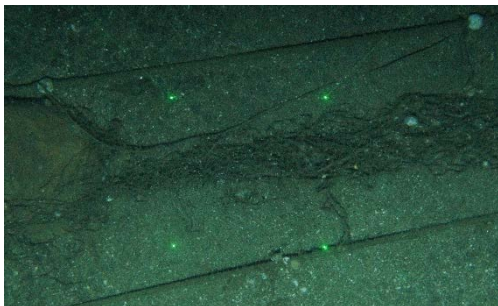
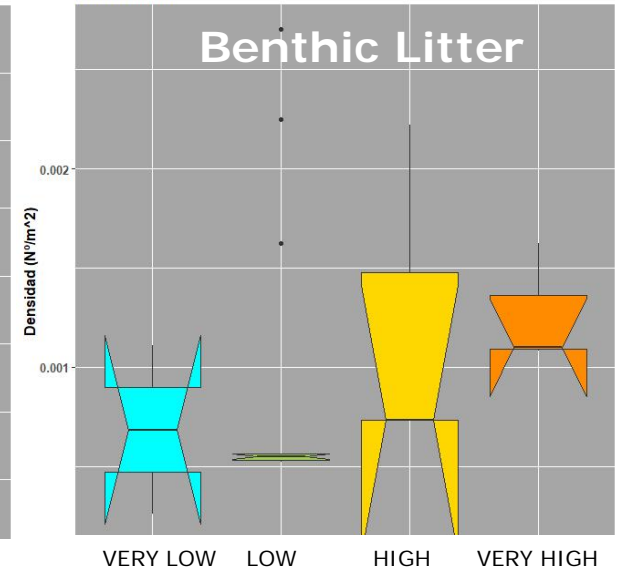
Gillnet: Arte Pesca



Longline: Arte Pesca



Trawl: Basura



Preliminary Conclusions



1

GILLNET:

There is a negative effect on the density of the main structuring species and on most diversity indices.

It is relevant at the highest levels of pressure.

2

LONGLINE:

There is a negative trend in the densities of the structuring species and some indices, although they are not significant in the majority.

Many lost gears are found in maximum effort zones

3

TRAWL:

There is a very negative effect on all indicators at high pressure levels.

In the areas of maximum effort there is a significant increase in garbage

4

- Next Step: It is necessary to relate it to VVAA, although it has been carried out under 'experimental' conditions
- It is necessary to improve Longline effects knowledge

How can we solve the longline impact problem?



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IMPALHA

IMPACTO DEL PALANGRE EN
LOS HÁBITATS MARINOS BENTÓNICOS

Thank you for your attention

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