



Trawling disturbance in soft-sediment ecosystems: tracing carbon sequestration

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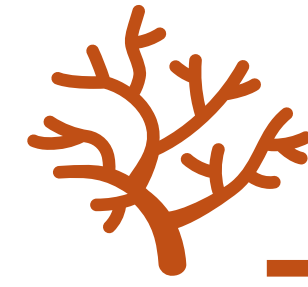
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AIM

Assess the impact of bottom trawling on carbon stocks in soft-sediment ecosystems and in Marine Animal Forests (MAFs).



INTRODUCTION

- ❖ Sandy and muddy seabed ecosystems are key components of marine carbon cycling, contributing to climate regulation through carbon storage and nutrient flux modulation.
- ❖ Anthropogenic activities such as bottom trawling disturb sediments, potentially resuspending and oxidizing buried carbon, and compromising long-term carbon sequestration capacity and conservation status of Marine Animal Forest (MFA).

STUDY AREA



GULF OF CASTELLAMARE



GULF OF CATANIA

PORTOPALO DI CAPO PASSERO

METHODOLOGY



- ❖ Analyses on sediments and water column samples will help us to assess carbon fluxes dynamics following trawling activity, quantifying resuspended carbon and investigating the fate of these carbon storages.
- ❖ Investigation on carbon and Lipids, Proteins and Carbohydrates (LPC) content and stress biomarkers presence will allow to establish MAFs health status.
- ❖ Controlled laboratory experiments will simulate single and multiple stressor conditions (e.g., sediment resuspension and changing temperature) to evaluate impacts on the performance (physiology, feeding efficiency) of key MAF species.

NORMAL CONDITION

SIMULATED RESUSPENSION

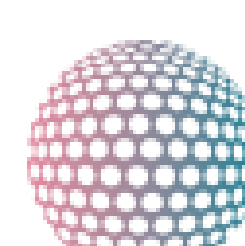


EXPECTED CONTRIBUTION

Linking human impacts on carbon storage and MAFs community to actionable pathways for sustainable ocean management.



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