

## Zoology Lab

Marine animal forests, benthic habitat restoration and citizen science.

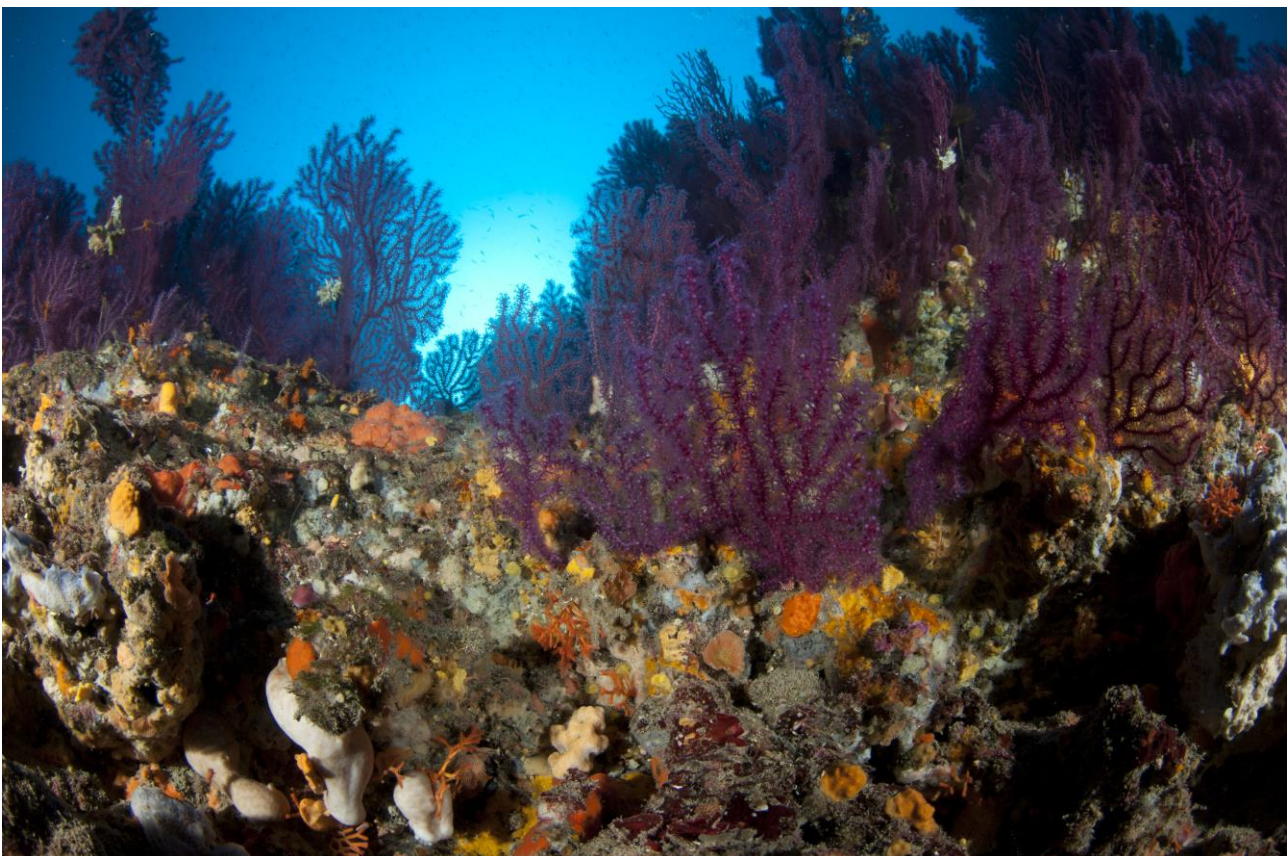
Habitat complexity is a key factor structuring biotic assemblages, both on land and underwater, but we still lack basic understanding of the underlying mechanisms.

In many systems habitat complexity can vary through space and time. Algal and hydrozoans forests can change seasonally while sponges and anthozoans can show trends lasting tens, hundreds or even thousands of years. In marine communities, habitat-forming organisms such as barnacles and algae provide substrate for other organisms to settle and grow, and can become the main source of structure once basal substrate becomes too competitive. The increased interest in studying facilitation processes in ecology in the last decade came, in part, from the recognition of the positive effect of these complexity-generating organisms on invertebrate richness. Effects of basal substrate complexity may change over time, but the complexity of the substrate is buffered by habitat complexity provided by resident species.

Individual organisms can both reduce and add to habitat complexity: resource utilization decreases the amount of available substrate, but some species can themselves provide habitat for others.

Increasing habitat complexity may decouple trophic interactions and subsequently increase ecosystem stability, and these questions would be promising subjects to explore in future studies.

The mesophotic zone in temperate areas is currently representing a perfect natural lab where to study these complex net of interactions, offering the possibility to better interpret long-term dynamics and evolutionary processes shaping these high-biodiversity systems. Climate crisis is triggering a fast fragmentation of marine forests asking for rapid measures to face this emergency. Restoration is among the strategies we can use to take actions and invert this negative trend but it is fundamental to engage also volunteers to collect data. Volunteers engagement will increase the spatial scale of assessments and build an an effective network of observers that can work as an alert system signalling unusual events.



<https://www.disva.univpm.it/content/zoology?language=en>