



2019
General Assembly meeting
CEIMAR, Cádiz, Spain

30-31 January 2019

From genes to ecosystems in changing oceans
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▶ **SERGIO ROSSI**

*The marine animal forests of the world:
challenges, frontiers and the role of science in its management
and conservation (ANFORE)*

**EuroMarine General Assembly Meeting
17-18 January 2018**



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Forests of the sea: seagrasses



Forests of the sea: seaweeds

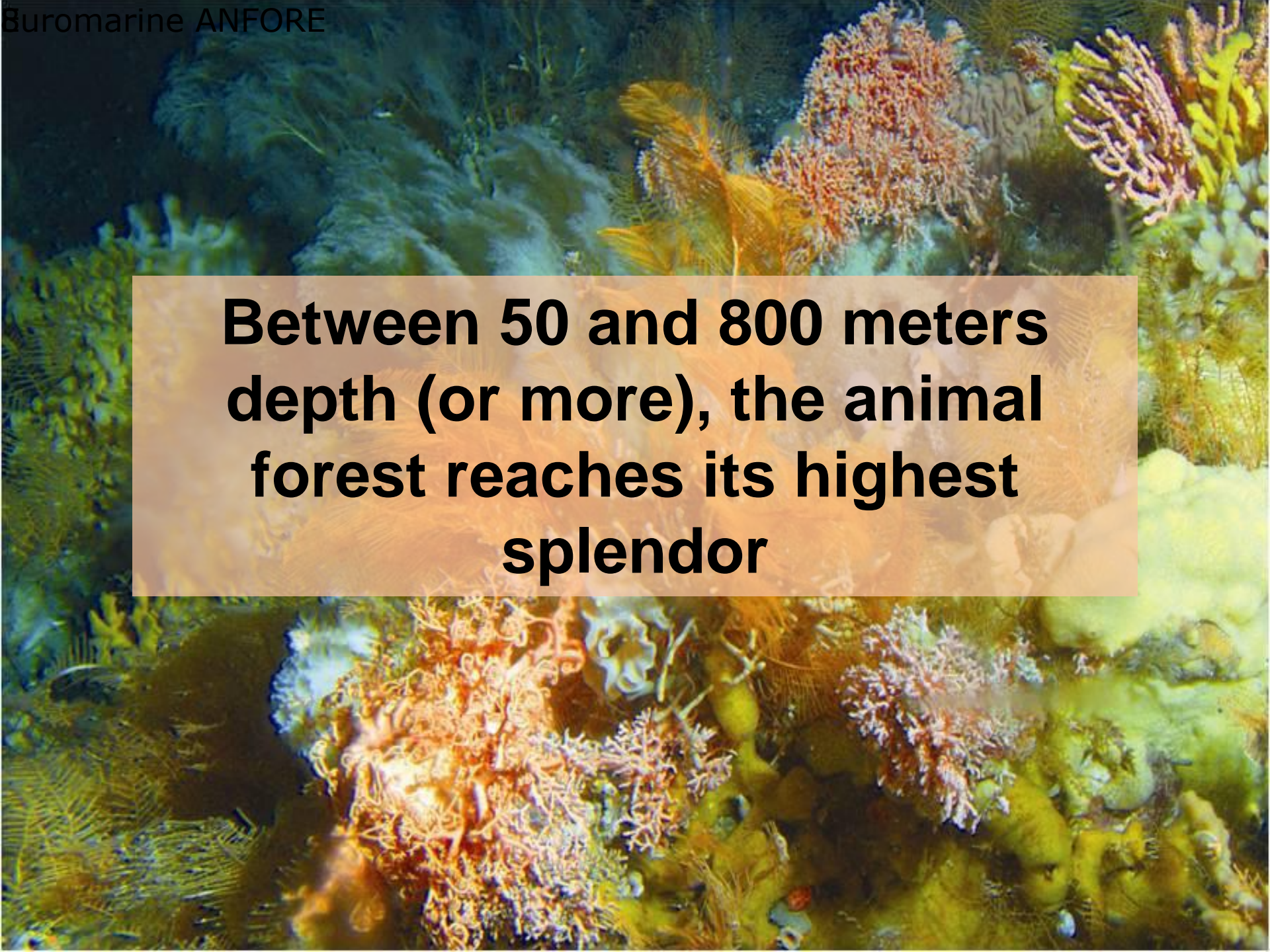


Below the light compensation point (photosynthesis), the animal forest dominates the landscape, increasing its biomass



Forests of the sea: coral reefs





**Between 50 and 800 meters
depth (or more), the animal
forest reaches its highest
splendor**

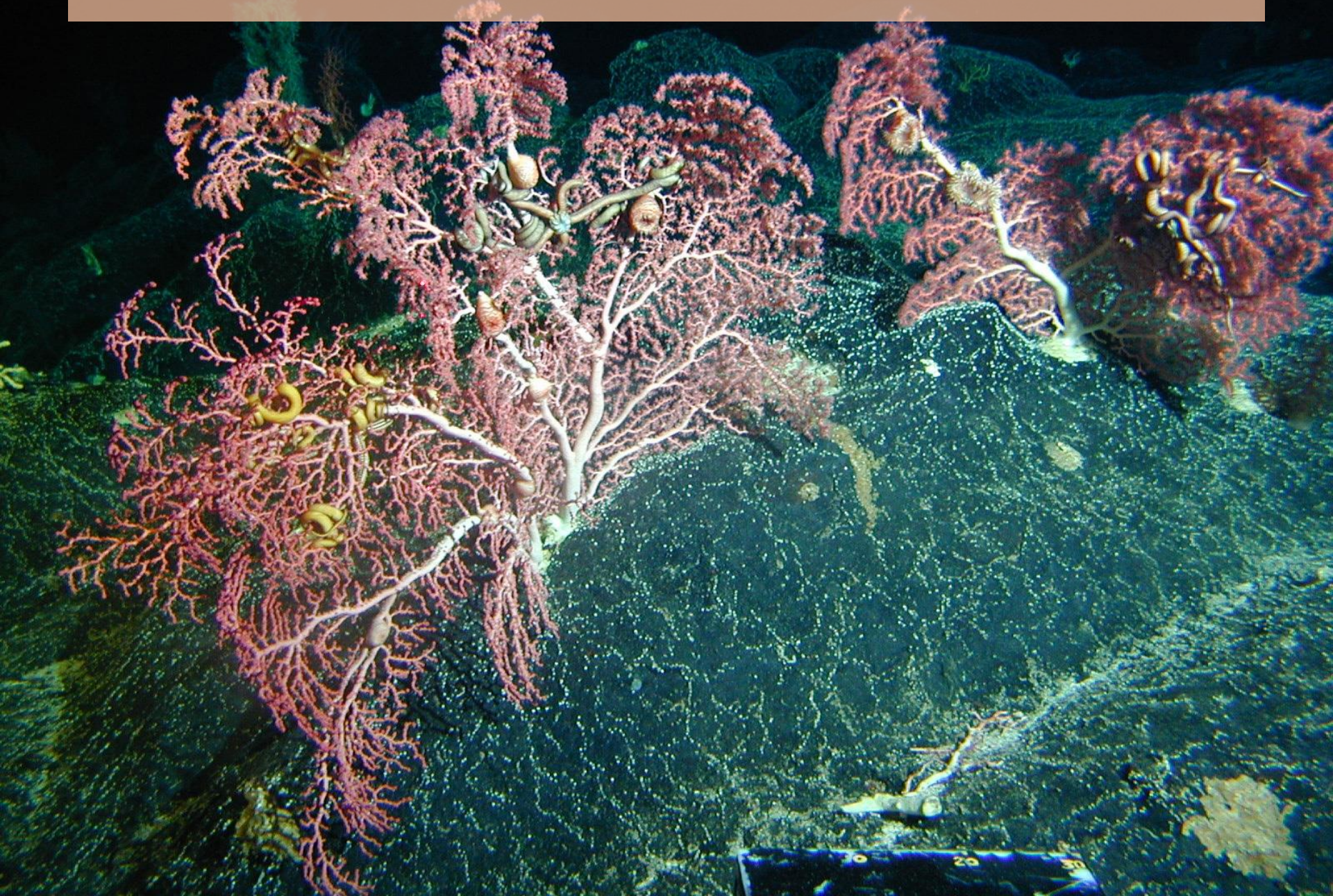
Forests of the sea: mesophotic



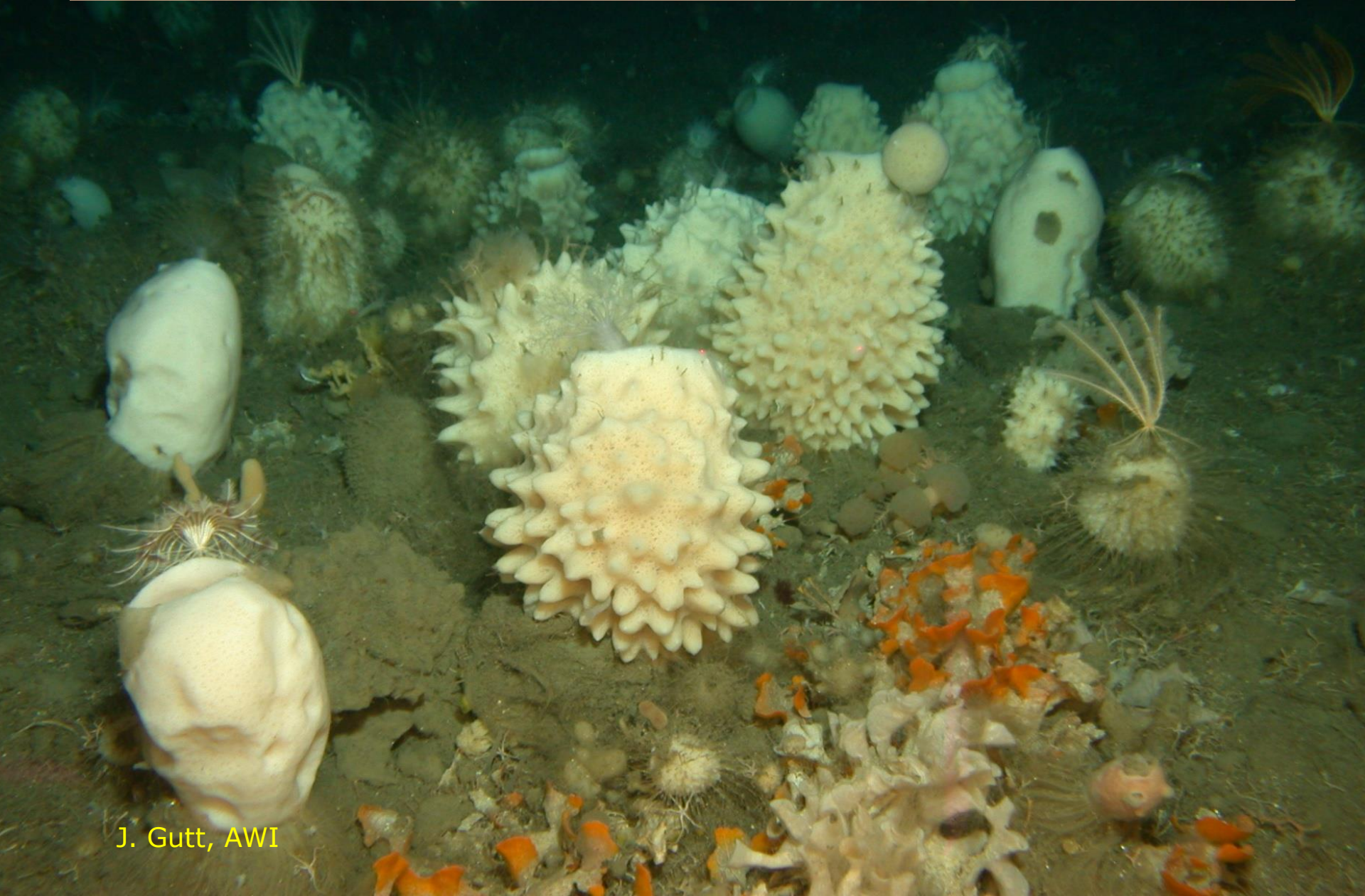
Forests of the sea: cold water corals



Forests of the sea: Arctic



Forests of the sea: Antarctic



J. Gutt, AWI

Forests of the sea: Antarctic

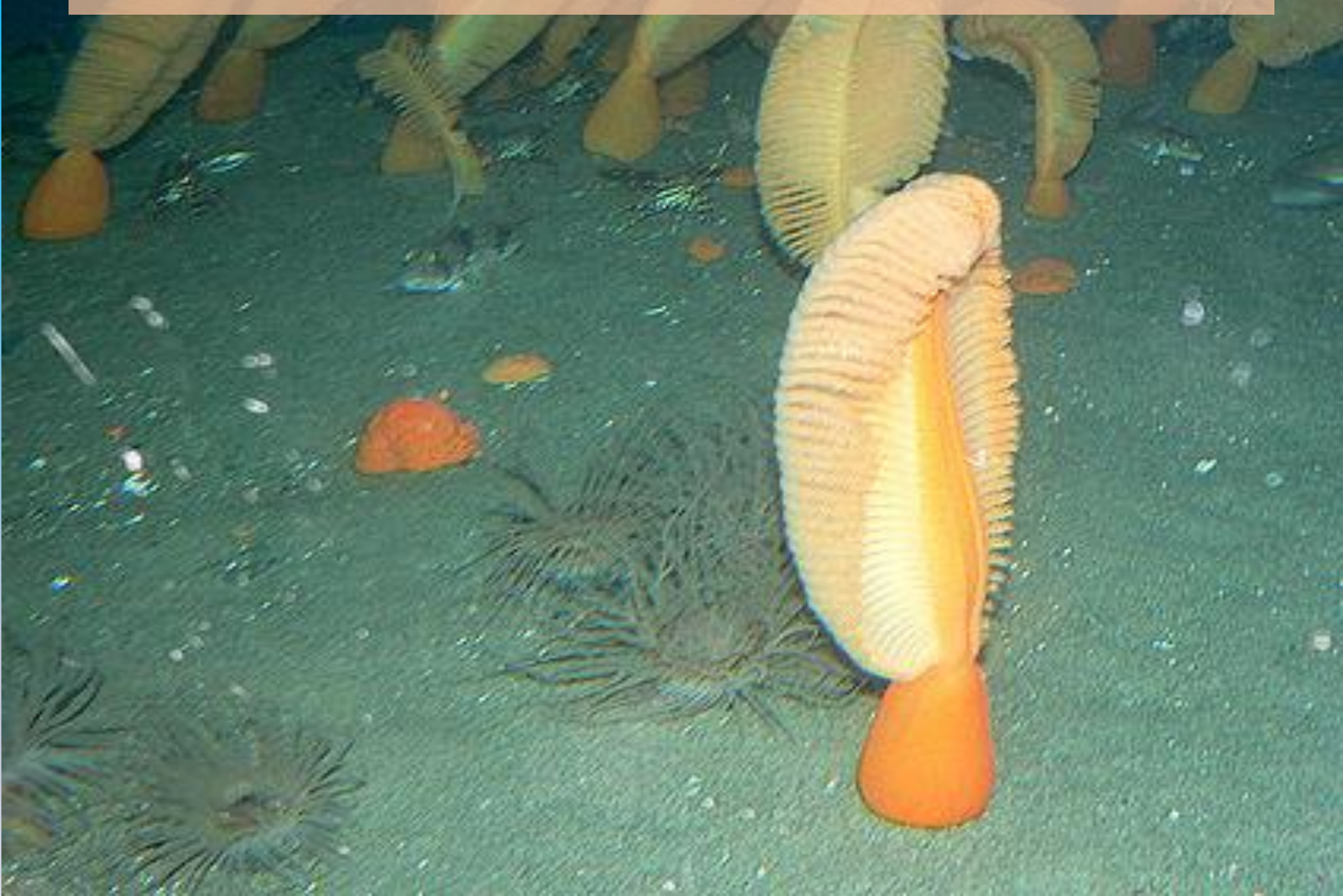


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Forests of the sea: Coralligene



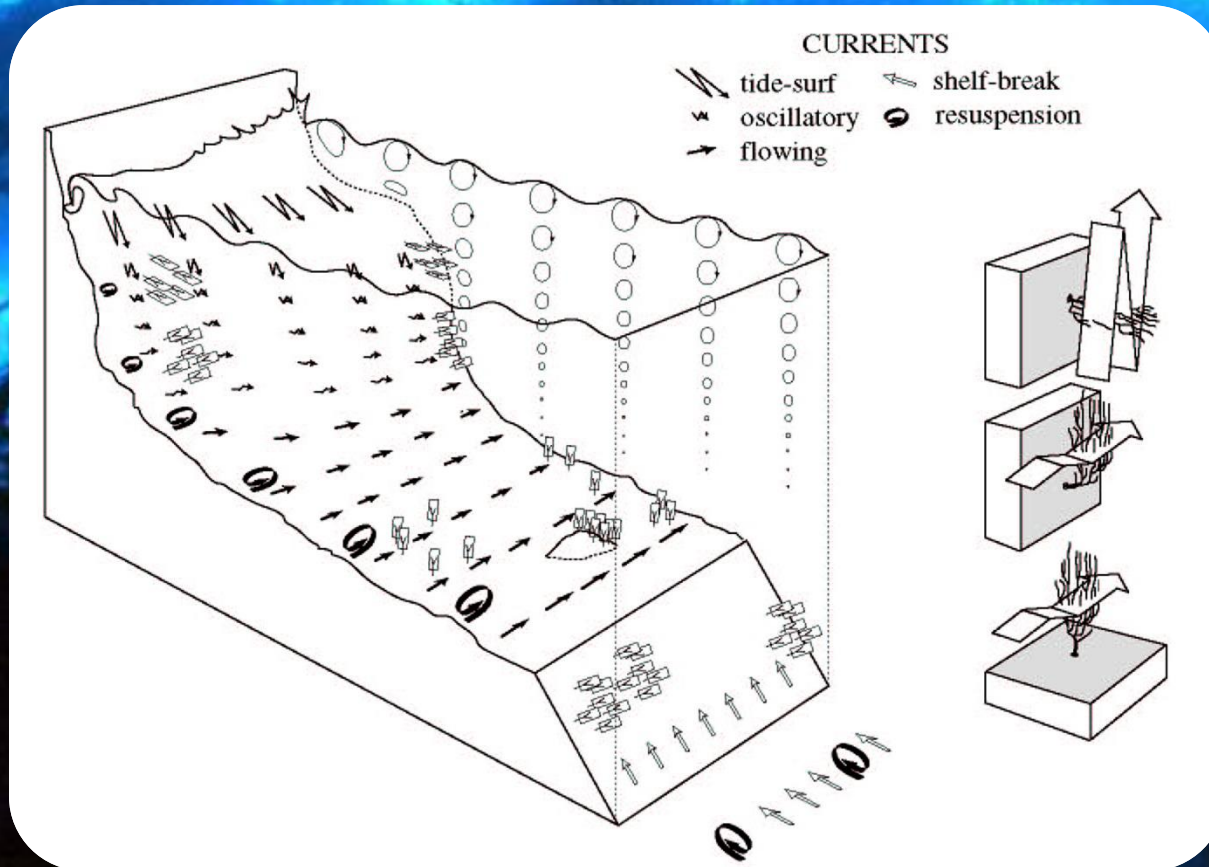
Forests of the sea: soft bottoms





How it works the animal forest?

No movement, no life: the oceans can be considered an hydrodynamic machine that never stops, allowing the particle transport



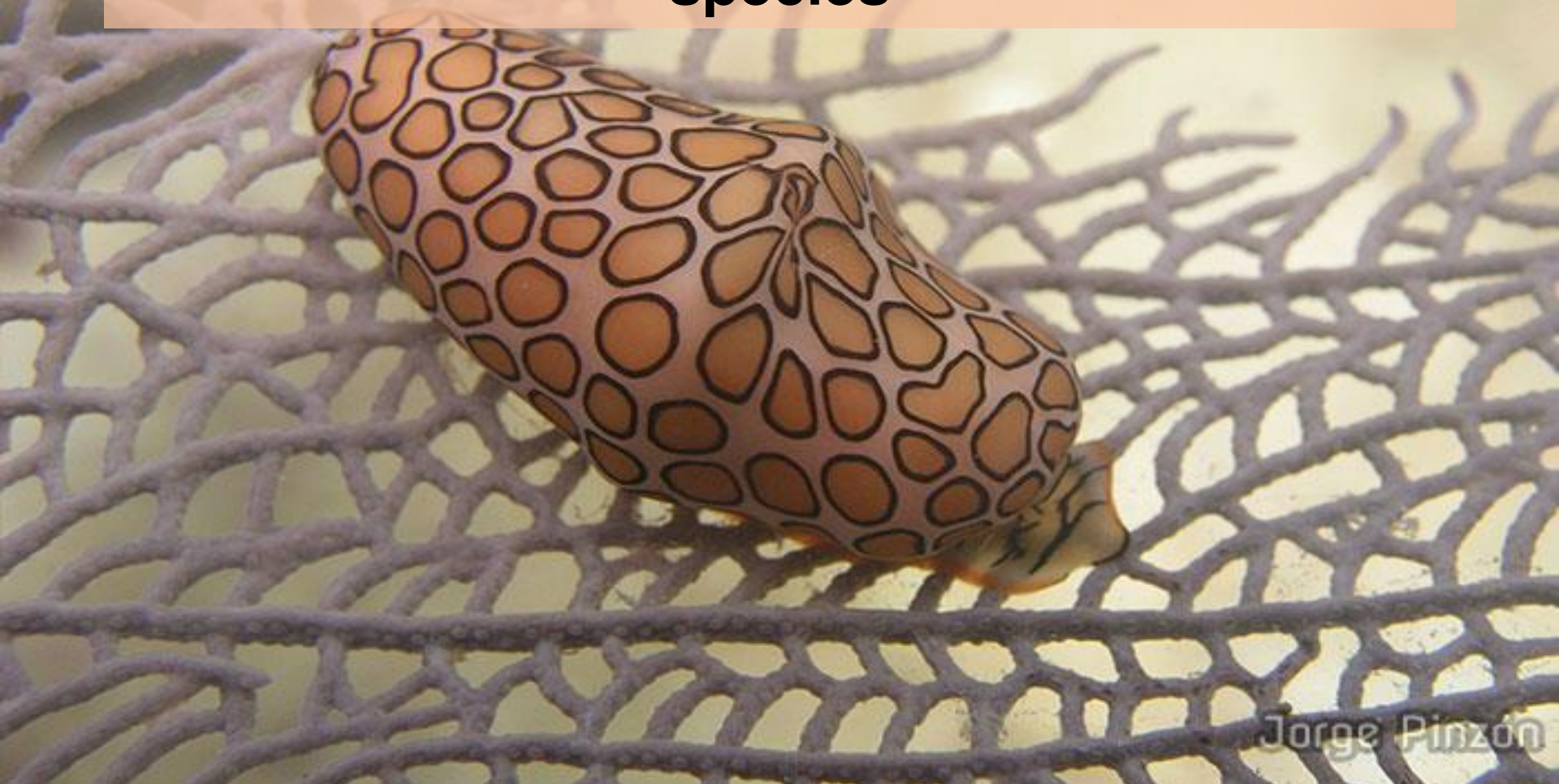
The animal and vegetal forest can significantly modify the local physical and biogeochemical environment





**Why the forests of the sea are
so important?**

Nursery effect: the forests of the sea are a key habitat for the first life stages of many species



Jorge Pinzón

An aerial photograph of a coastal area. In the foreground, there is a large, vibrant red coral reef structure extending into the water. The water is a deep blue-green color with visible ripples. In the background, a blue lagoon is visible, surrounded by a rocky coastline with some green vegetation. A semi-transparent tan box with black text is overlaid on the center of the image.

**They feed and shelter vagile
species of commercial interest**



**The forests of the sea are
biodiversity hotspots**

Nutrient cycling is one of the key factors that has also to be considered



Euromarine ANFORE



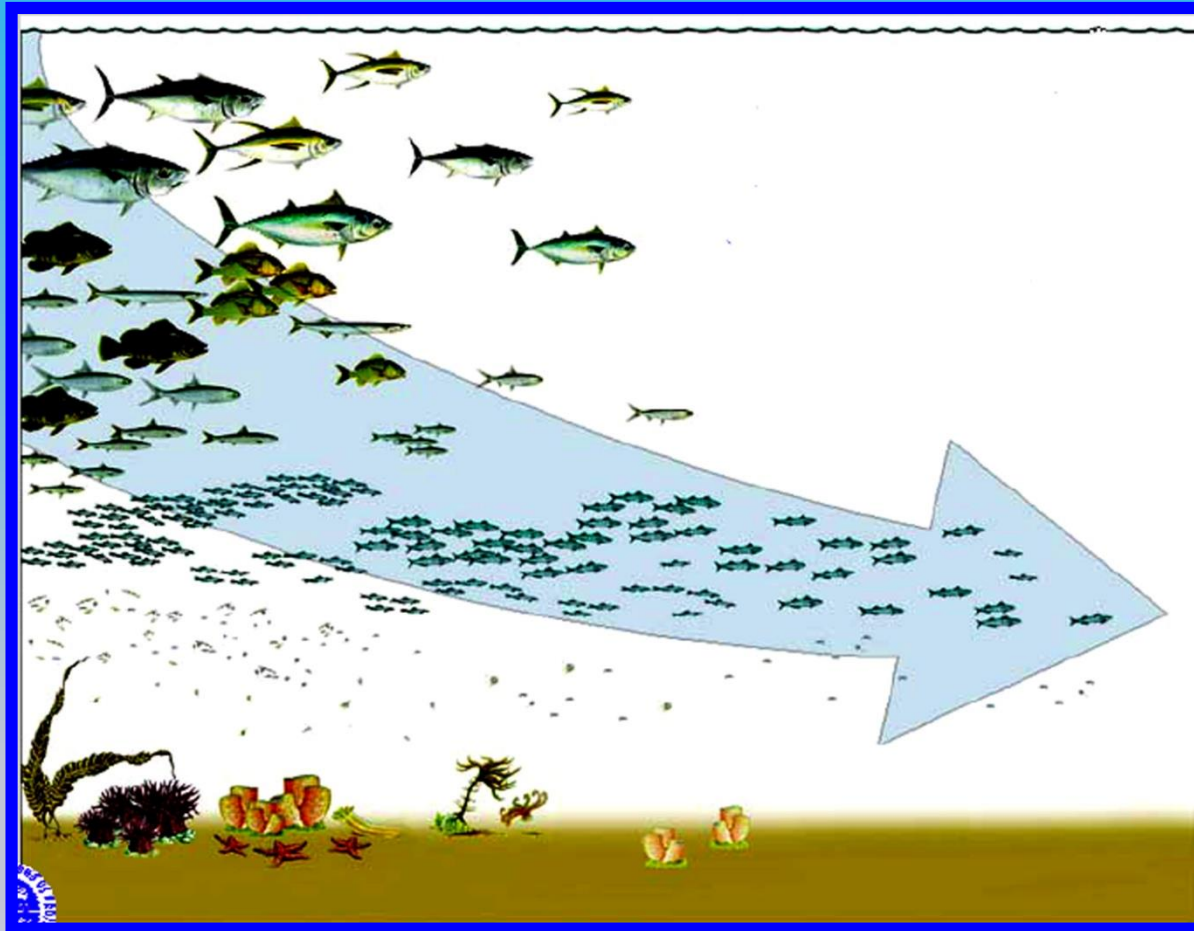
Animal forests are important tourist attractions

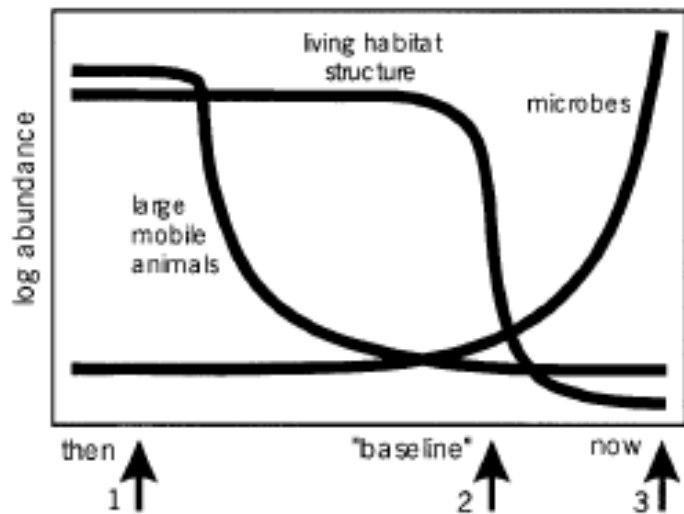
The animal forest act as carbon sinks

The destruction of three dimensional alive structures is faster than our knowledge of these ecosystems



Ecosystem simplification





**What we are witnessing
is a great loss of
vertebrate and
bioengineering (long-
lived) species**

SPRINGER
REFERENCE

Sergio Rossi
Lorenzo Bramanti
Andrea Gori
Covadonga Orejas
Editors

Marine Animal Forests

The Ecology of Benthic
Biodiversity Hotspots

 Springer

**Three volumes, 45
chapters of a Major
Reference Springer
book about the Marine
Animal Forests of the
World**

**Now a second book will
be published in 2020
(Springer-Nature):**

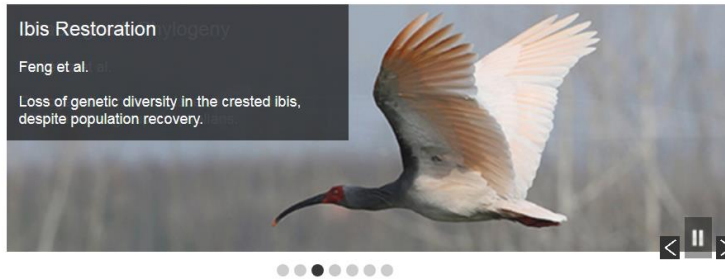
**PERSPECTIVES ON THE
MARINE ANIMAL
FORESTS OF THE
WORLD**



Euromarine ANFORE working group (Tricase Porto, Salento; ITALY)

**Aims: create a wider
network, present an
H2020 Project, and write
perspective/position
papers**





Current Issue

Vol. 29 Iss. 2, January 21, 2019

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The DNA Damage Checkpoint and the Spindle Position Checkpoint Maintain Meiotic Commitment in *Saccharomyces cerevisiae*

Ballew et al.
In Brief

Risks of Biological Invasion on the Belt and Road

Liu et al.
In Brief

Dynamic Displacement Vector Interacts with Tactile Localization

Durin et al.

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Paper #1 (Note in Current Biology): **Who cares about marine animal forests? A plea for increased awareness** Covadonga Orejas , Trevor J. Willis, Ruth H. Thurstan, Wolf E. Arntz, Fabio Badalamenti, Lorenzo Bramanti, Carlo Cerrano, Federica Costantini, Giovanni Galli, Andrea Gori, Michele Gristina, Gianmarco Ingrosso, Enrique Isla, Stefano Piraino, Massimo Ponti, Andreja Ramsak, Lucia Rizzo, J. Murray Roberts, Giovanni Santangelo, Ester Serrao, David Stanković, Xavier Turon, Sergio Rossi



Global Change Biology

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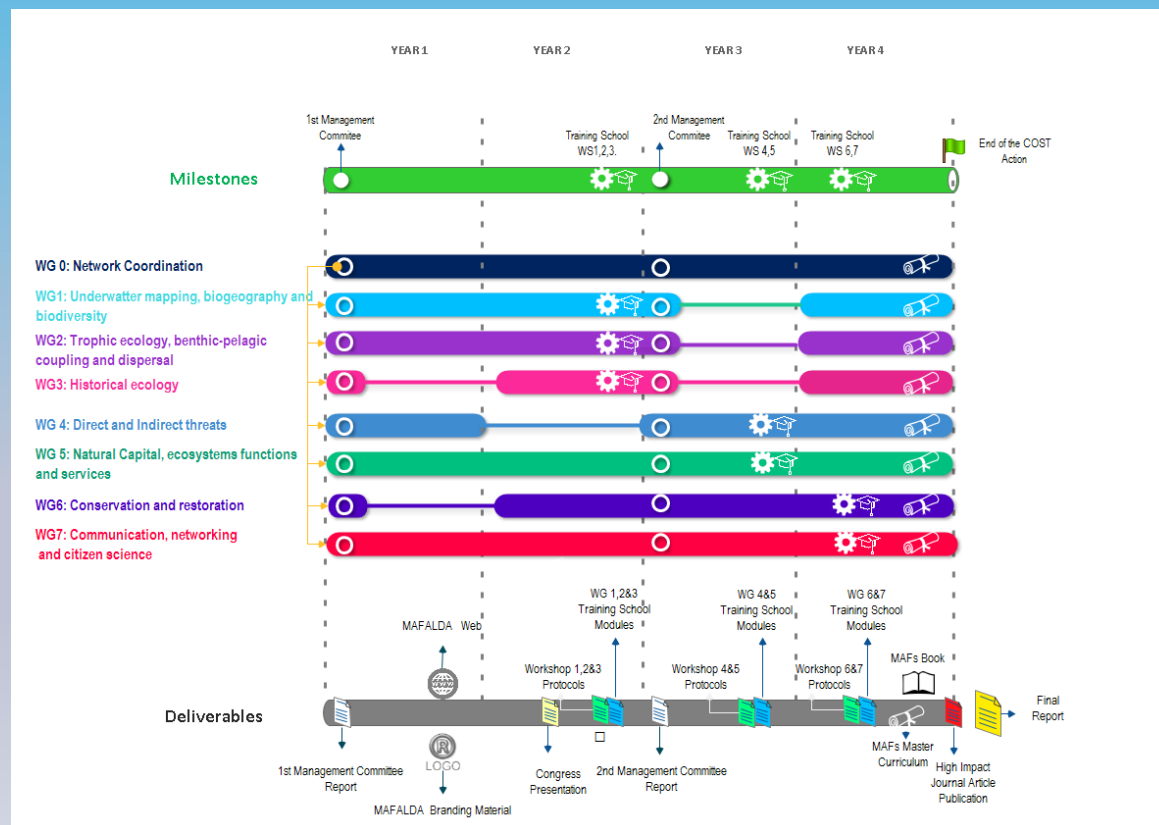
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Paper #2 (Opinion Paper in Global Change Biology): **Changes of energy fluxes in marine animal forests : factors shaping the future seascape.** Rossi S, Isla E, Bosch-Belmar M, Galli G, Gori A, Gristina M, Ingrosso G, Milisenda G, Piraino S, Rizzo L, Schubert N, Soares M, Thurstan RH, Viladrich N, Willis TJ, Ziveri P

MARINE ANIMAL FORESTS: CHALLENGES, FRONTIERS AND CONSERVATION IN A FAST CHANGING WORLD

MAFALDA

106 proposers, from 22 EU and associate EU countries, and 14 non-EU countries. PI: Sergio Rossi

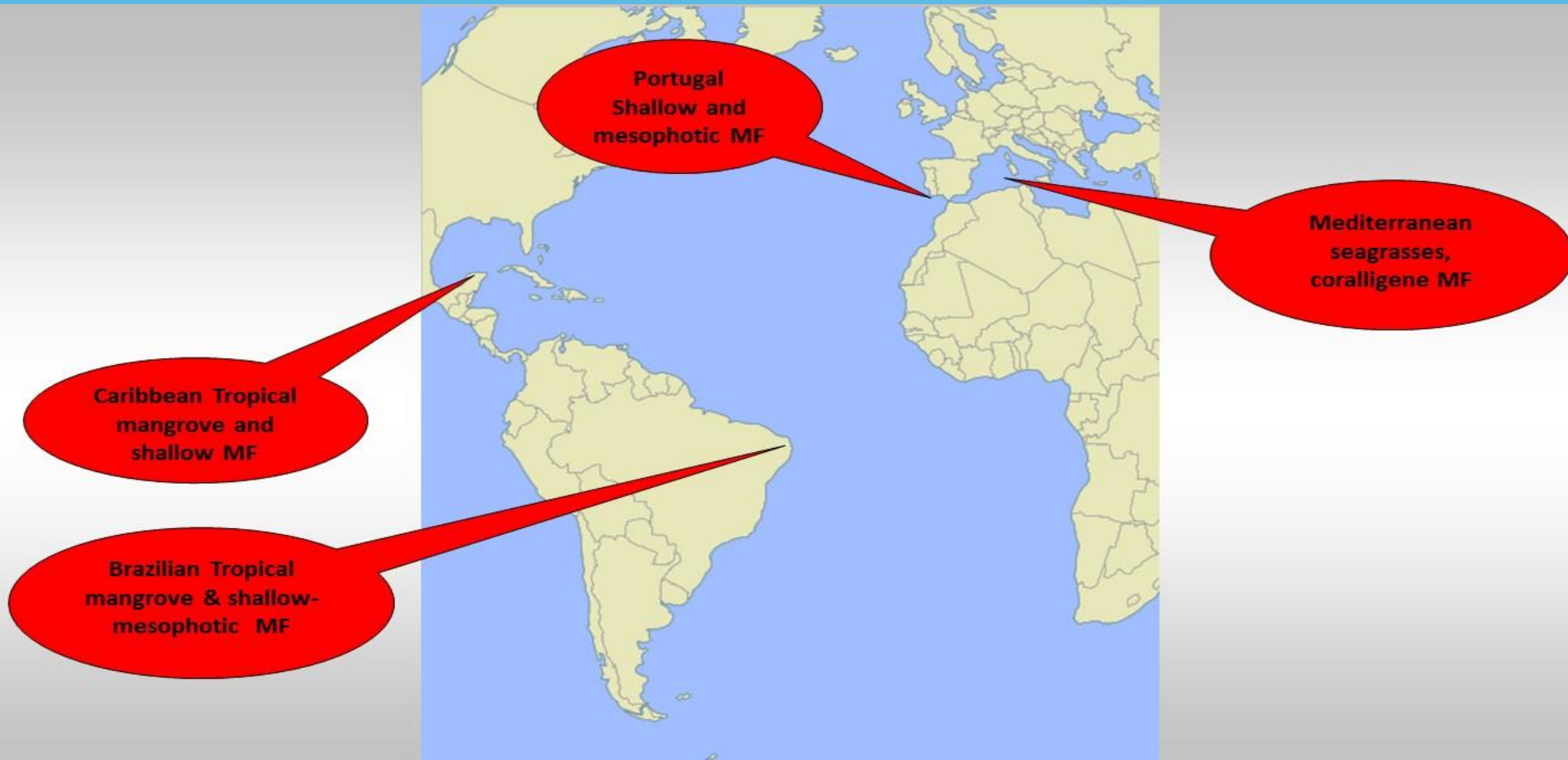


PROPOSAL #2: H2020 Climate Change program (to be submitted before the 19/02/2019)

MARINE FORESTS IN CHANGING OCEANS

SEA FORESTS

22 partners: EU Countries: Spain, Portugal, Italy, France, Sweden, United Kingdom, Slovenia, Neetherlands, Israel; **Non- EU countries:** Brazil, Mexico, South Africa, Monaco, United States



THANK YOU

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