

COPERNICUS MARINE 8th GENERAL ASSEMBLY

- **The NECCTON project**
Making marine ecosystem models operational



NECCTON

NEW COPERNICUS
CAPABILITY FOR TROPIC
OCEAN NETWORKS

Why NECCTON?

ICES Journal of Marine Science, 2023, 80, 2087–2098
 DOI: 10.1093/icesjms/ifsad143
 Advance access publication date: 21 September 2023
 Quo Vadimus

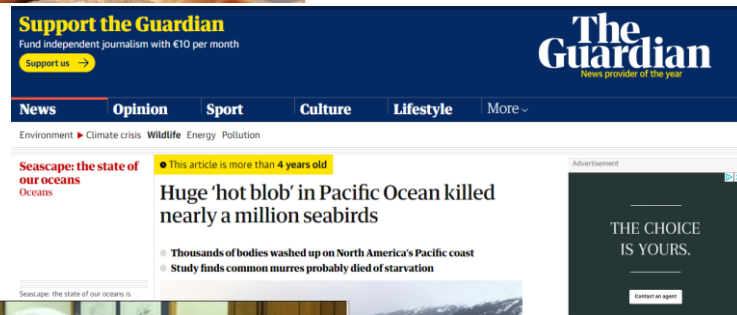


Why we need weather forecast analogues for marine ecosystems

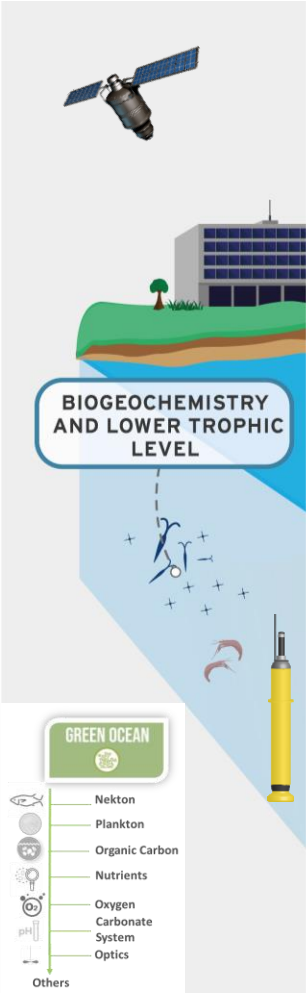
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NECCTON will advance the Copernicus Marine Service



NECCTON Key-facts

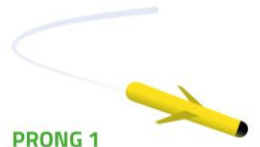
- Endorsed by UN Ocean Decade - Marine Life 2030
- Horizon Europe - Copernicus evolution project
- Coordination: S Ciavatta - Mercator Ocean int.
- Duration: 4 years (Jan 2023-Dec 2026)
- Budget: 10M Eur
- Partners: 23



This project has received funding from Horizon Europe RIA under Grant Number 101081273

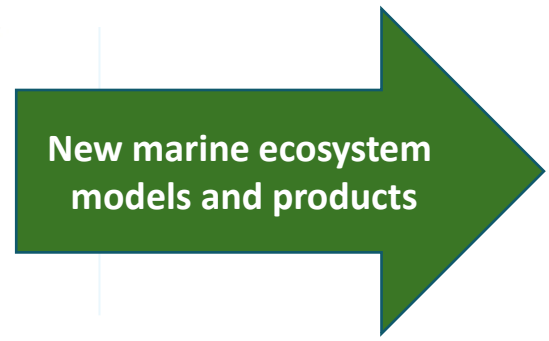
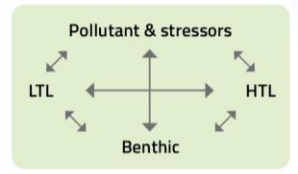


● The 3-prong approach



PRONG 1

**Conceptual innovation:
Process integration**
→ to better represent marine ecosystems
(Objectives O1-O4; WP5-WP8)





The 27 NECCTON model products

Pelagic Biogeochemistry



Mesozooplankton biomass
Microzooplankton biomass
Suspended particulate matter (SPM)



Particulate Organic Matter (POM)
Dissolved Organic Matter (DOM)
Reflectance

Benthic



Oxygen near bottom
pH near bottom
Light at bottom



Carbon flux to bottom
Carbon in sediment
Macrozoobenthos



Benthic flora



Sedimentary rates

Nekton



Small-pelagic biomass
Apex predator
Marine mammals



Unspecified fish and biomass
Higher Trophic Level Habitat
Demersal fish

Stressors



Plastic
Persistent Organic Pollutants
Mercury



Oil
Fisheries pressure
Climate change stressor index



Multi-stressor index



GREEN OCEAN



OBSERVATIONS

In-situ and satellites



MODELS

Calib., assim. & ML



HINDCASTS

Decadal



PROJECTIONS

Multi-decadal



44 datasets

10+ datasets



Thirteen case studies co-created with stakeholders

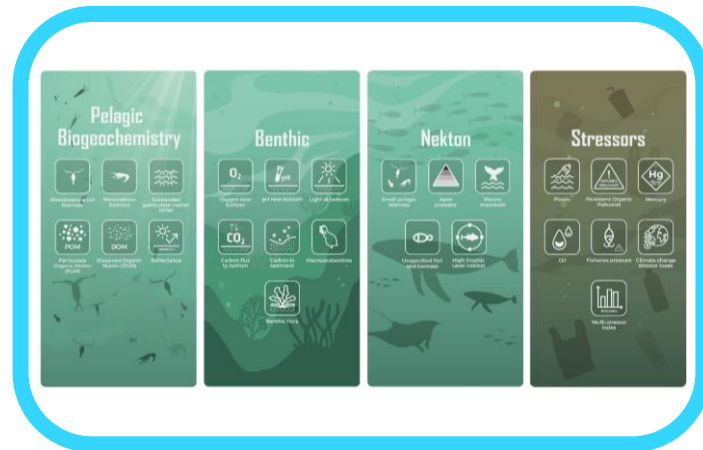
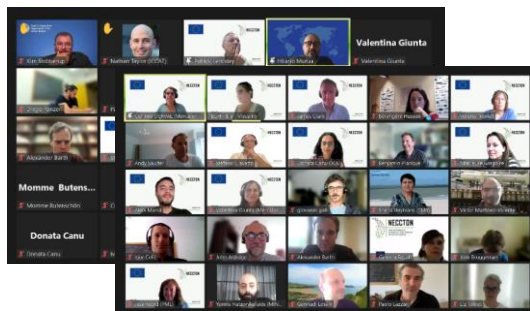
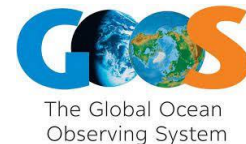


| ID | Title |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Monitoring a Natura 2000 marine protected area in the Adriatic Sea |
| 2 | Ensemble of species distribution models to determine hot spots of aggregation supporting management plans and MPA definition in the Mediterranean Sea |
| 3 | Mapping sources of pollutants transported towards Mediterranean aquaculture farm areas |
| 4 | Mapping the impact of fish trawling on functional biodiversity of the Black Sea |
| 5 | Ensemble model evaluation and projection of small pelagics in the Bay of Biscay |
| 6 | Climate-smart MPA planning in the North West European Shelf |
| 7 | Monitoring plankton diversity and dynamics in the Parc Naturel Marin d'Iroise (PNMI) |
| 8 | Monitoring pollution of marine protected areas surrounding Svalbard |
| 9 | Modelling and projecting fisheries potential in the Arctic Atlantic Ocean |
| 10 | Marine protected area monitoring and assessment in the Baltic Sea |
| 11 | Spatial Management of Tuna Stocks and Fisheries under Climate Change |
| 12 | Monitoring marine mammals in the Azores region |
| 13 | Forecasting climate change impact on potential catches of open ocean large pelagic fish |



- ✓ **Biodiversity conservation**
- ✓ **Fisheries management**





NECCTON
STAKEHOLDER WORKSHOP
 Co-design of future products
 28-29 June 2023 - Online

Register now!
<https://neccoton.eu/workshops>

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2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development



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