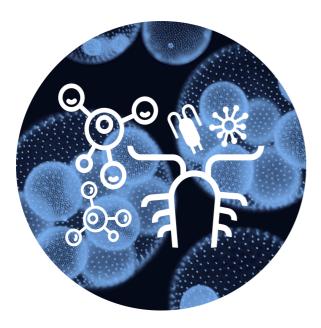
COSC Blue-Cloud2026

Virtual Labs



Carbon Plankton Dynamics

This VLab provides a **service to analyse** the relative contribution of the drivers in phytoplankton dynamics in the Belgium part of the North Sea and the northern Adriatic Sea. The Nutrient-Phytoplankton-Zooplankton-Detritus (NPZD) model is built using data containing phytoplankton and zooplankton abundances, nutrients (nitrogen, silica and phosphor), and carbon data (dissolved inorganic carbon, air-sea carbon flux). This model helps to understand the spatio-temporal variations of plankton dynamics and to determine whether they act as a carbon sink or source.

Partners Involved



Data Sources

EMODnet Biology/EurOBIS, EMODnet Chemistry, SOCAT, ICOS-Carbon portal.

Main Target Users

Blue-Cloud Hackathon and Training Academy participants, Blue-Cloud Task Forces, Researchers, Policy makers/EU initiatives.

Blue-Cloud Added Value

The collaborative and open science tools used in the Blue-Cloud VRE platform allow their re-use by other researchers, so it can be applied to fit their own research and/or to respond to other research questions, such as "How do marine ecosystem respond to changing environmental conditions, such as ocean acidification and warming?" or "What is the role of biogenic reefs in carbon sequestration and its implications for climate change migration?"

UN SDGs addressed





Steven Pint VI 17

Disruptions in phytoplankton communities will have a cascading effect throughout the food web, impacting both ecological and commercially significant fish species. In our model, we incorporate carbon data because phytoplankton plays a pivotal role in the ocean's carbon cycle, acting as carbon sinks through photosynthesis.



