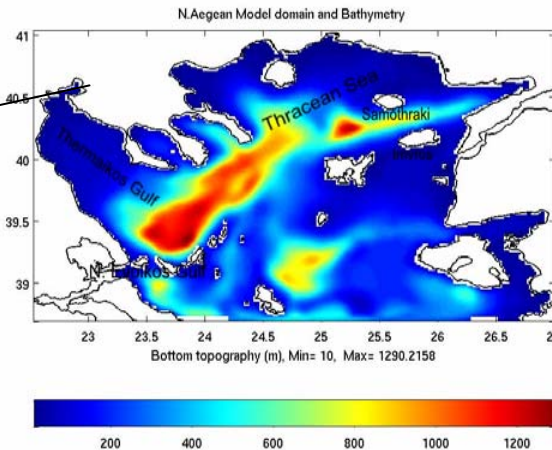
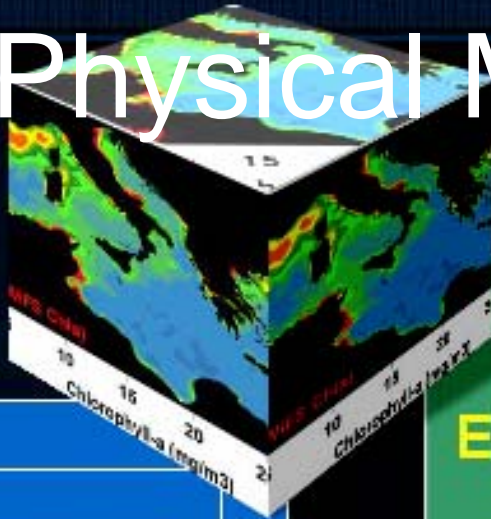


Regional Sea: Northern Aegean

- The most important area for small pelagic fisheries in the eastern Mediterranean
- It is influenced by Black Sea waters
- Annual acoustic & daily egg production surveys have been conducted since 2003



Bio-Physical Model



Hydrodynamic model

POM (Blumberg and Mellor, 1983)

- free surface elevation
- sigma-coordinate
- Mellor-Yamada turbulence scheme
- Lin advection scheme

Ecosystem model

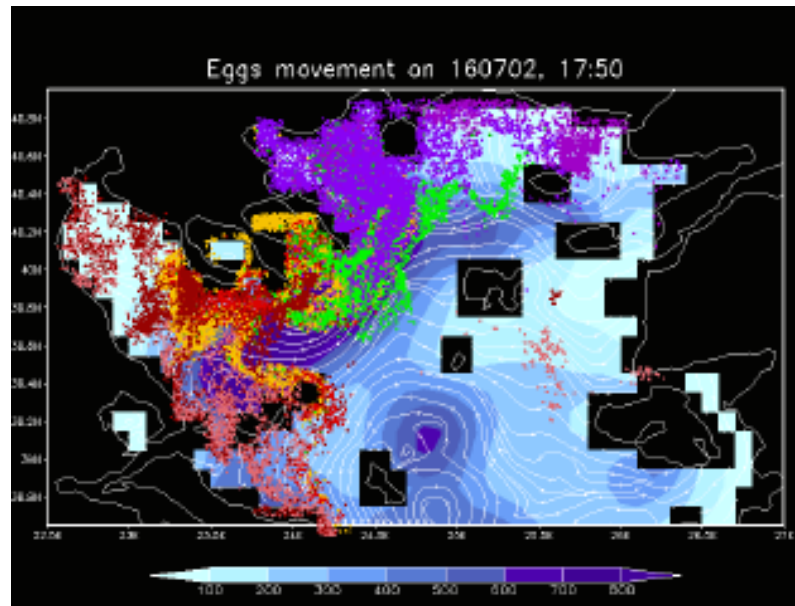
ERSEM

- ▶ Off-line coupling
- ▶ On-line coupling

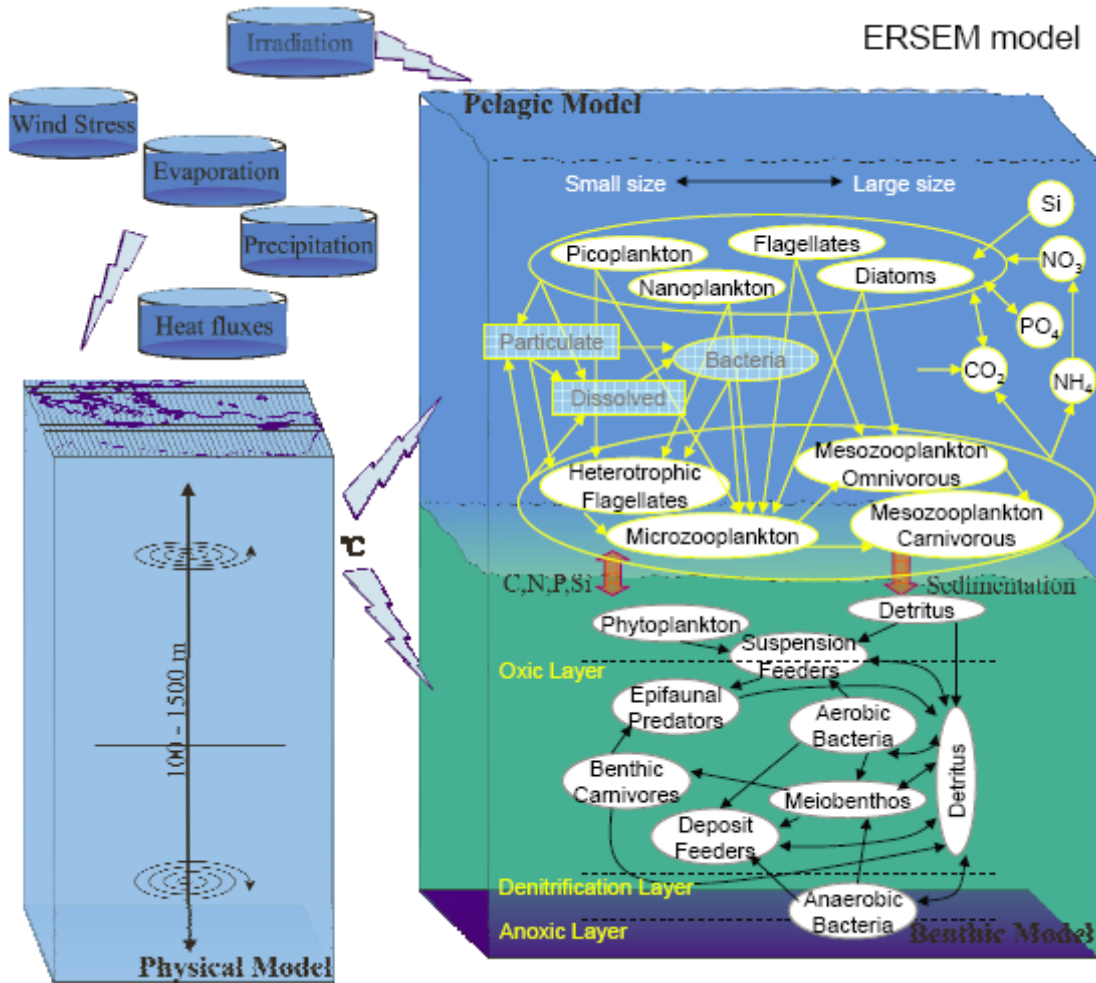
A complex Lower Trophic Level (European Regional Seas Ecosystem Model coupled with a Princeton Ocean Model) have been fully implemented for this Sea

The hydrodynamic model

- The high resolution north Aegean POM (1/10° x 1/10°) is currently being used to simulate the advection of anchovy eggs and larvae using an IBM tool



N. Aegean Ecological Model

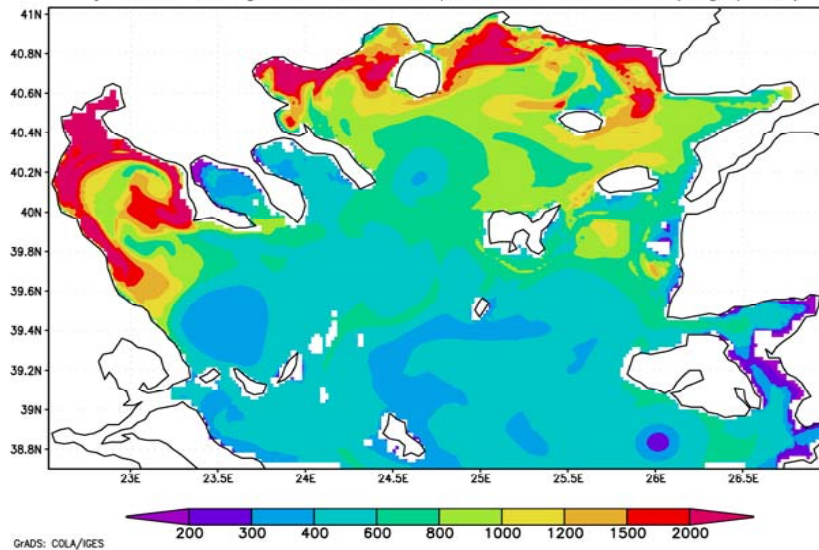


The lower trophic level model provides three zooplankton densities (heterotrophic flagellates, microzooplankton and mesozooplankton), which serve as the available energy intake via consumption for a recently developed anchovy bioenergetics model

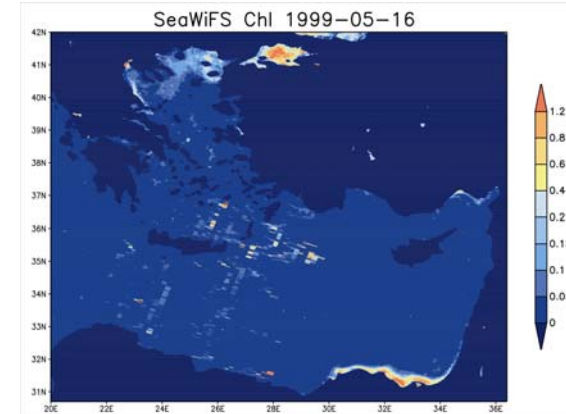
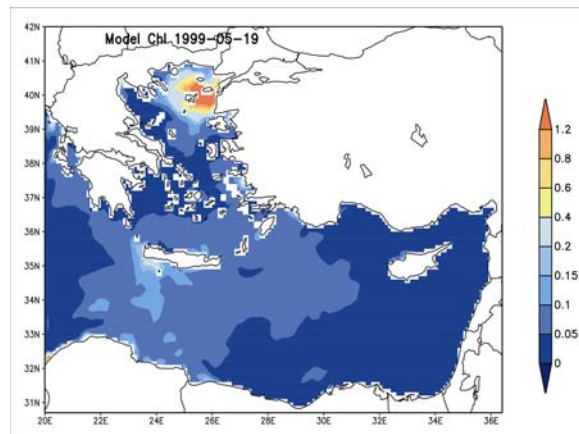
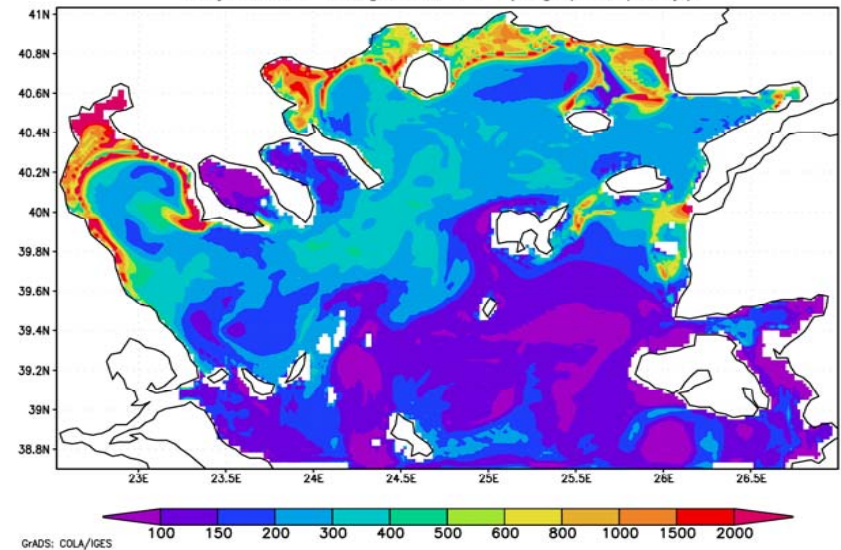
Circulation and ecosystem forecasting

The POM and ERSEM models can be used for forecasting small pelagic fish habitat

July 2003 integrated Mesozooplankton biomass (mgC/m²)



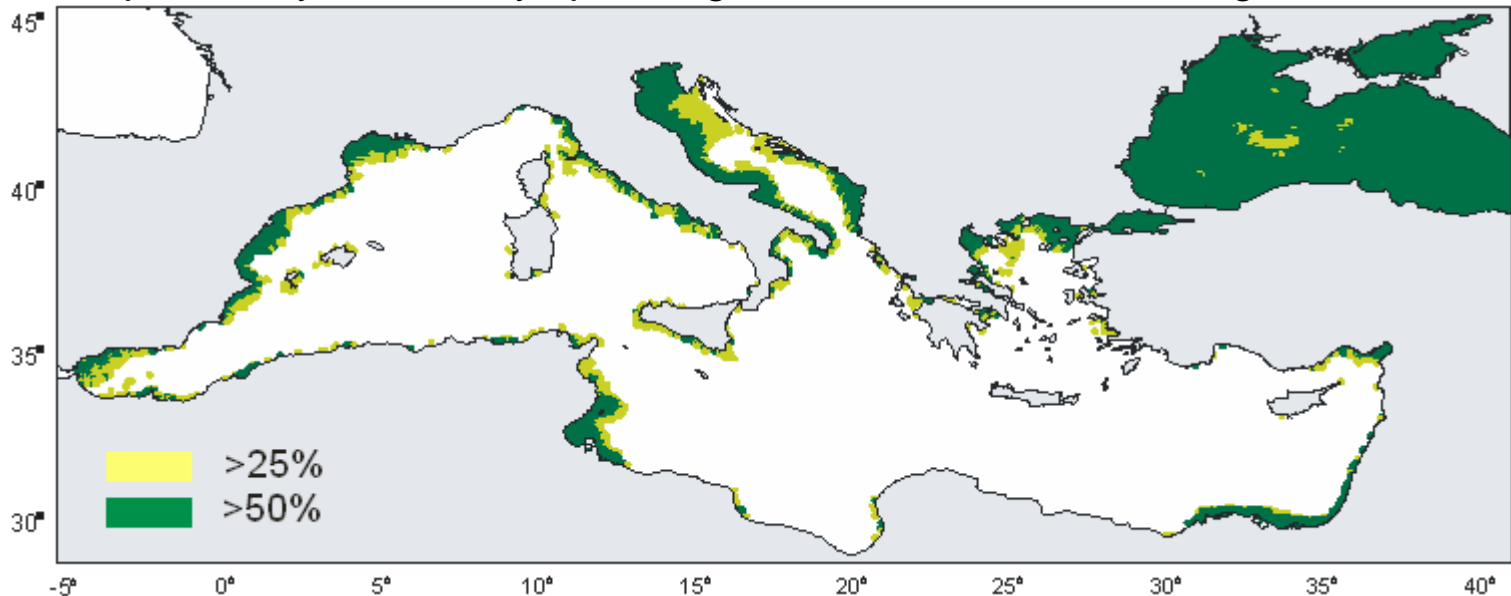
July 2003 integrated PP (mgC/m²/day)



Habitat modelling

- Efforts have been made in recent years to model and predict the spawning, nursery and adult habitats of small pelagic fish
- Single parameter quotients or GAMs have been used based on *in situ* CTD and zooplankton measurements or satellite environmental data

Predicted probability of anchovy spawning estimated from a north Aegean Sea GAM model



Research interests

- To advance habitat modelling of small pelagic fishes in the Aegean Sea
- To couple ecosystem with habitat models
- To investigate the relationship between spatiotemporal variation in suitable habitats and recruitment strength
- To identify the seasonal dimension of recruitment (do the different phases of the prolonged spawning period contribute equally to recruitment?)
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