MESOZOOPLANKTON IN THE AEGEAN SEA (E. MEDITERRANEAN SEA): DIFFERENCES AMONG DECADES


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Aegean Sea

Bathymetry, hydrology and circulation

NE: Entrance of modified Black Sea water - with low S-high nutrients
SE: Entrance of Levantine Sea water with high S-low nutrients
1991-1993 Eastern Mediterranean Transient
Shift of the source of E. Mediterranean Deep water from the Adriatic to the Aegean: increase of salinity (decrease of precipitation), intense deep water formation in S.Aegean, outflow in the EMedit

Pre-EMT (a) and Post-EMT (b) thermohaline circulation patterns

Uplifting of the old-EMDW (Adriatic) by several thousand meters.

Tsimplis et al., 2006
Consequences: Intrusion of the old deep Mediterranean waters -rich in nutrients-into the South Aegean (1992-2008), formation of a distinct layer 200-600m.

Increased availability of nutrients in the euphotic layer following winter mixing

Theocharis et al., 1999

Souvermezoglou et al., 1999
Aim
Comparison of the mesozooplankton total abundance and dominant species among the decades:

mid 1960’s,
late 1980’s,
late 1990’s
late 2000’s

Work performed within the EU project SESAME (Southern European Seas: Assessing and Modelling Ecosystem changes)
I. Changes in Mesozooplankton total abundance

Early spring

North Aegean Sea

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South Aegean Sea

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Causes
1. Increase of nutrients concentration in the inflowing modified Black sea water
2. Deep vertical mixing (deep water formation) in the troughs of N.Aegean

Cause
Intrusion of the old deep Mediterranean water during and after the Eastern Mediterranean Transient
II. Changes in the species dominance and rank order
North Aegean August-September

Increase
Clausocalanus spp. (C. furcatus): from 6th to 1st or 2nd
Oithona spp. rare - 3rd-1st
Paracalanus parvus
Calocalanus spp.

Decrease
T. stylifera
Corycaeus spp.
**Increase**
Clausocalanus spp. (C. furcatus): from 2nd to 1st
Calocalanus spp.

**Decrease**
T. stylifera: from 1st to 4-5th
Corycaeus spp., N. minor

**SIMILAR CHANGES IN SPRING**
Decrease
Temora stylifera, Nannocalanus minor, C. helgolandicus, Corycaeus spp.,

Increase
Clausocalanus furcatus, Oithona spp. (O. plumifera, setigera, atlantica), Oncaeidae (O. media, O. mediterranea), Calocalanus spp., Farranula rostrata, Ctenocalanus vanus

Probably related to temperature increase
Tropicalization of the Mediterranean Sea