

Changes in zooplankton community and its response to various environmental stressors – the case of the southern Baltic Sea

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Introduction and Goal:

Mesozooplankton is a key element in marine food web. In the southern Baltic Sea conditions it is extremely vulnerable to environmental forcing - observed changes in temperature and salinity have an impact on zooplankton community structure. Differences in abundance and biomass of key species at open-waters as well as coastal stations located in the Polish EEZ are analysed and their response to the environmental factors is tested.

Summary:

Profound changes in zooplankton community were recorded at the deep water stations of the southern Baltic Sea.

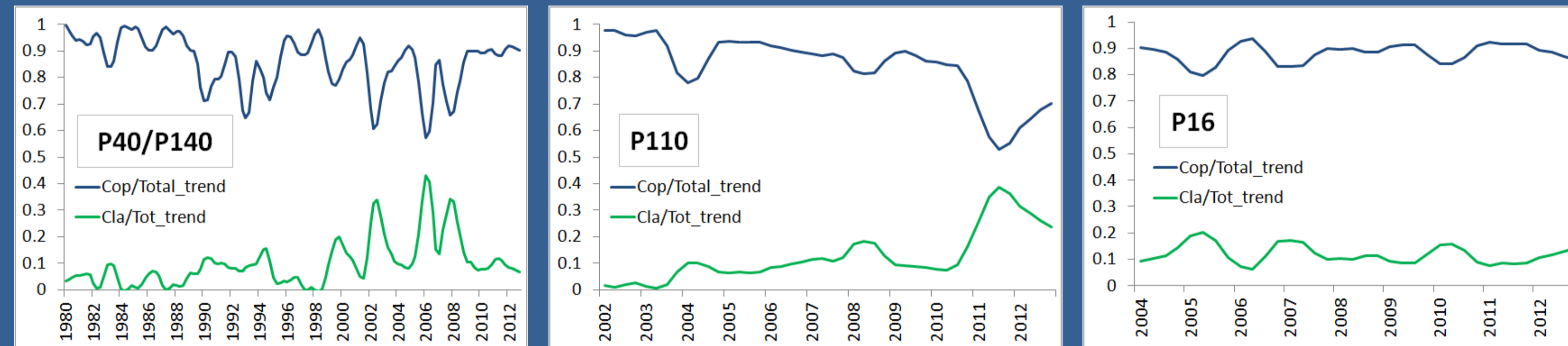
This is mostly caused by a decrease in abundance of *Pseudocalanus* copepods. *Pseudocalanus* is correlated with salinity and, thus, positively responding to each of the inflows from the North Sea.

Similar changes were not observed in more shallow-water stations.

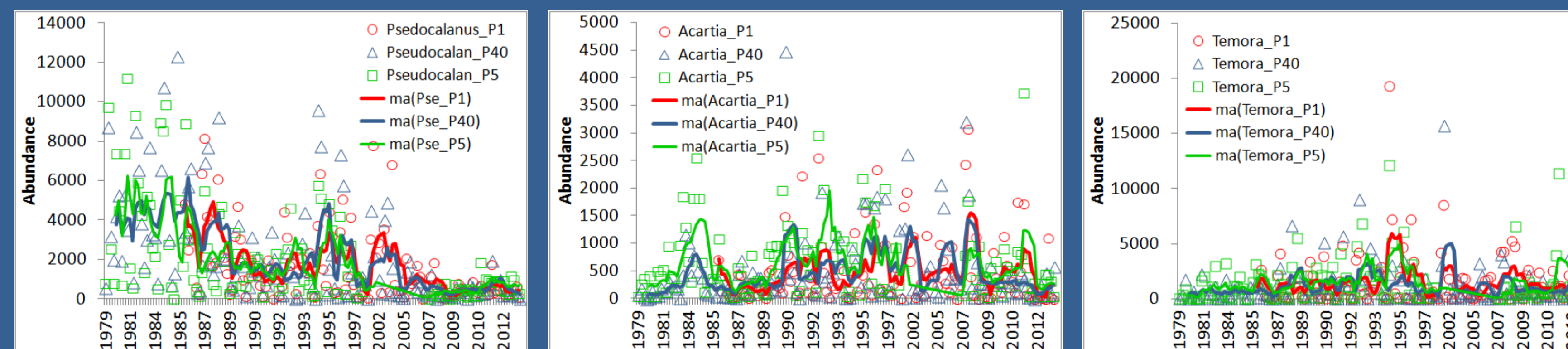
No clear long-term patterns were detected for *Acartia* and *Temora* copepods.

Results:

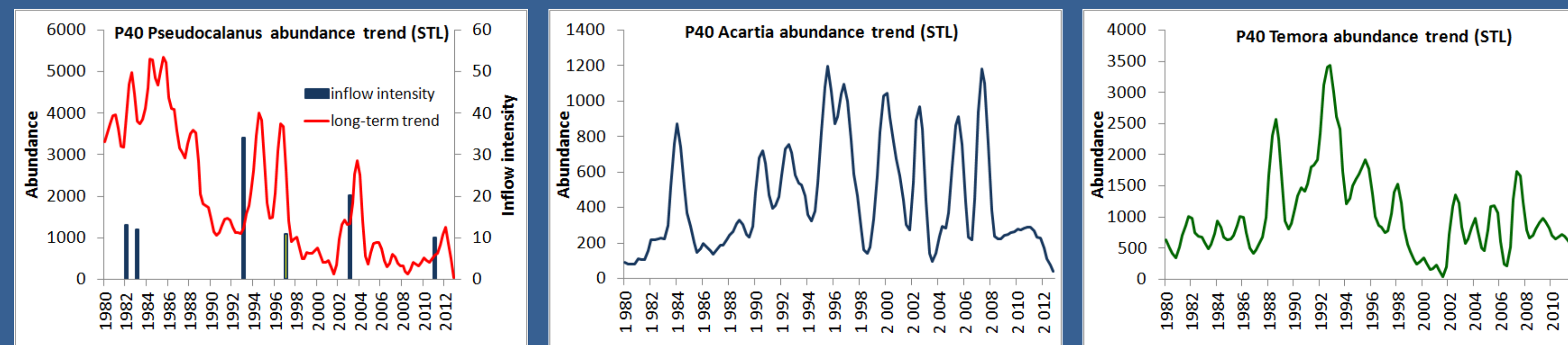
Decomposition of time series presenting the percentage of copepods and cladocerans long-term trends in total zooplankton biomass as observed at three stations: P40/P140 (southern slope of the Gotland Basin), P110 (Gulf of Gdansk), and P16 (open coast, shallow waters) with depth of 93, 70, and 21 meters, respectively.



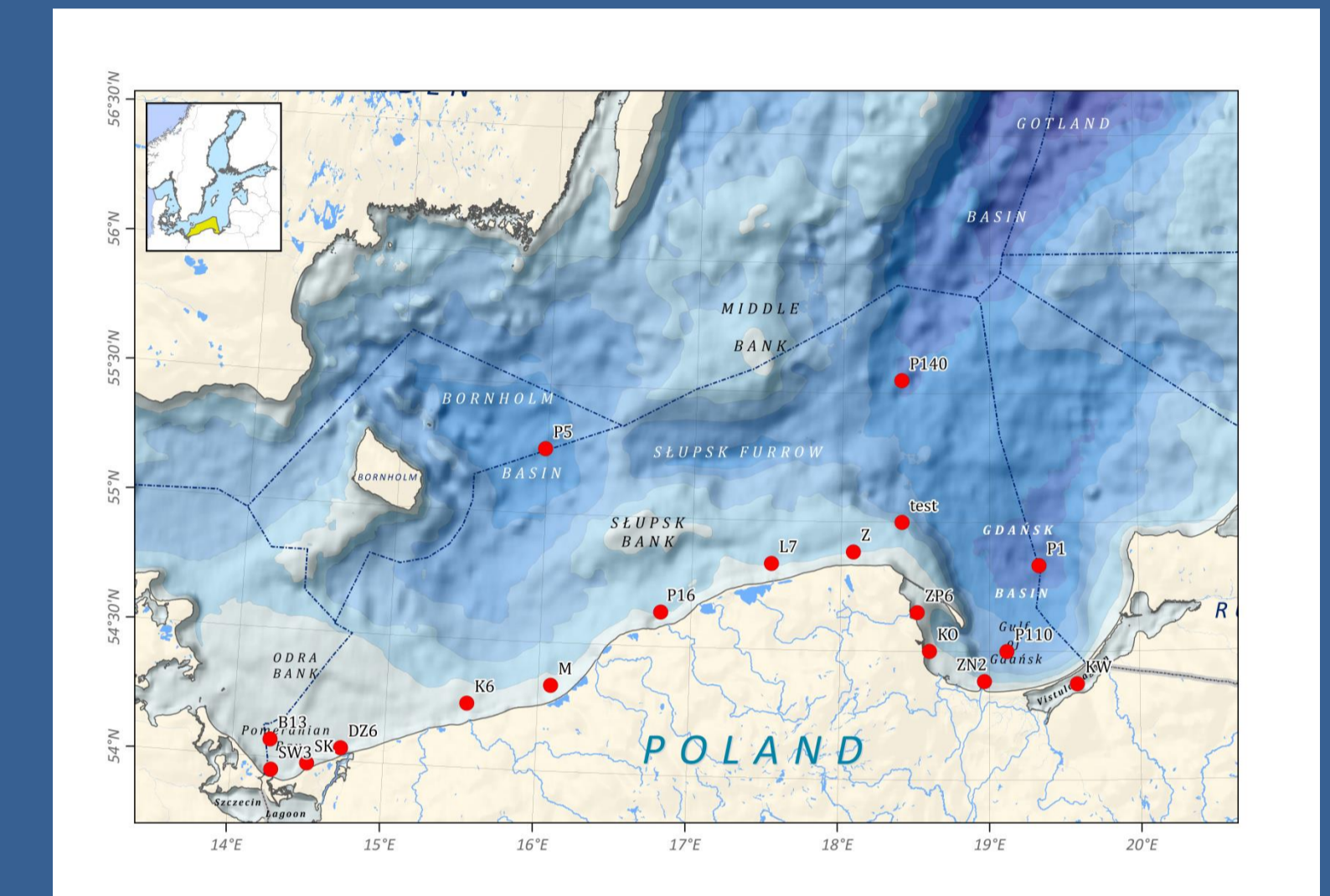
Long-term changes in abundance of *Pseudocalanus minutus*, *Acartia longiremis*, and *Temora longicornis* (n/m³) collected at the three deep-water stations. Solid lines denote moving averages.



Decomposition of copepods' time series, collected at the P40/P140 station, into long-term trend, seasonal, and irregular components using loess (STL). Figures are presenting the long-term components of *Pseudocalanus*, *Acartia*, and *Temora*.



Samples:



Presented data are the Polish contribution to the HELCOM COMBINE Programme. The longest data series (since 1979) were collected at deep-water stations whereas those taken at more coastal ones started within the last twenty years. In most of the cases, samples were taken 5 times per year using the WP-2 net.

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