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Introduction

Even though the Belgian part of the North Sea (BPNS) is a well studied system, there is a lack of information about the interaction between physicochemical stressors, such as temperature, salinity, nutrients and pollutants, and zooplankton communities in the Belgian part of the North Sea.

Which are the factors influencing mesozooplankton communities in the Belgian Part of the North Sea (BNPS)?

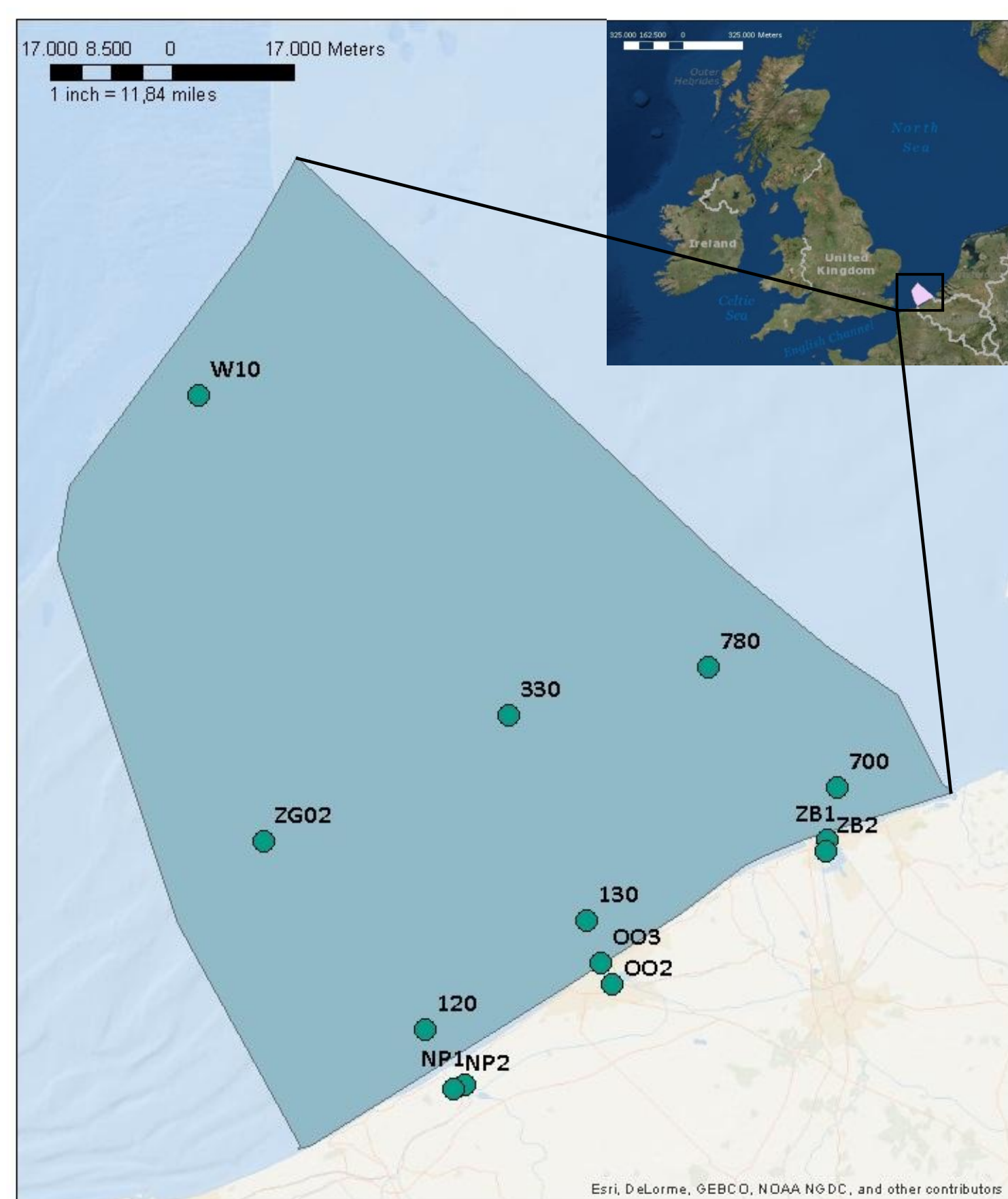
Environmental variables 1

Seasonality 2

Demography 3

Methods

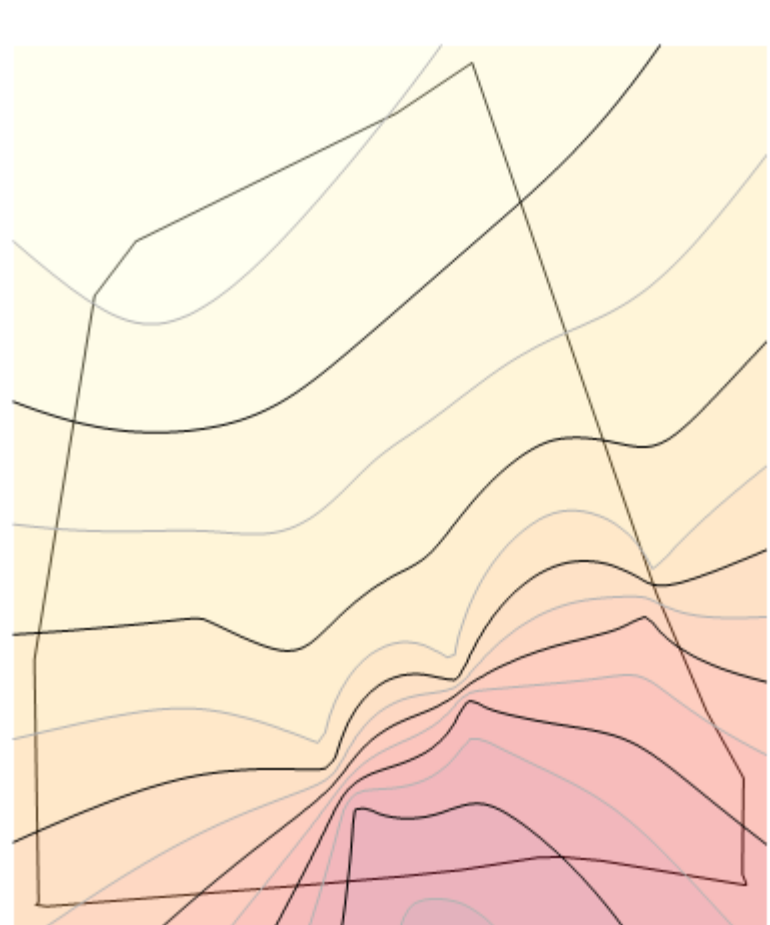
Sampling was carried out during the months of March and June 2015 at 13 stations covering the harbors, nearshore, midshore and offshore axis. The parameters measured included zooplankton densities, sea surface temperature, pH, salinity, chlorophyll a, nitrate (NO_3^-), nitrite (NO_2^-), ammonium (NH_4^+), orthophosphate (PO_4^{3-}), silicate (SiO_4^{4-}), polychlorinated biphenyls (PCBs): PCB 52 and PCB 153 and polycyclic aromatic hydrocarbons (PAHs): acenaphthene, fluorene, phenanthrene, fluoranthene and pyrene.



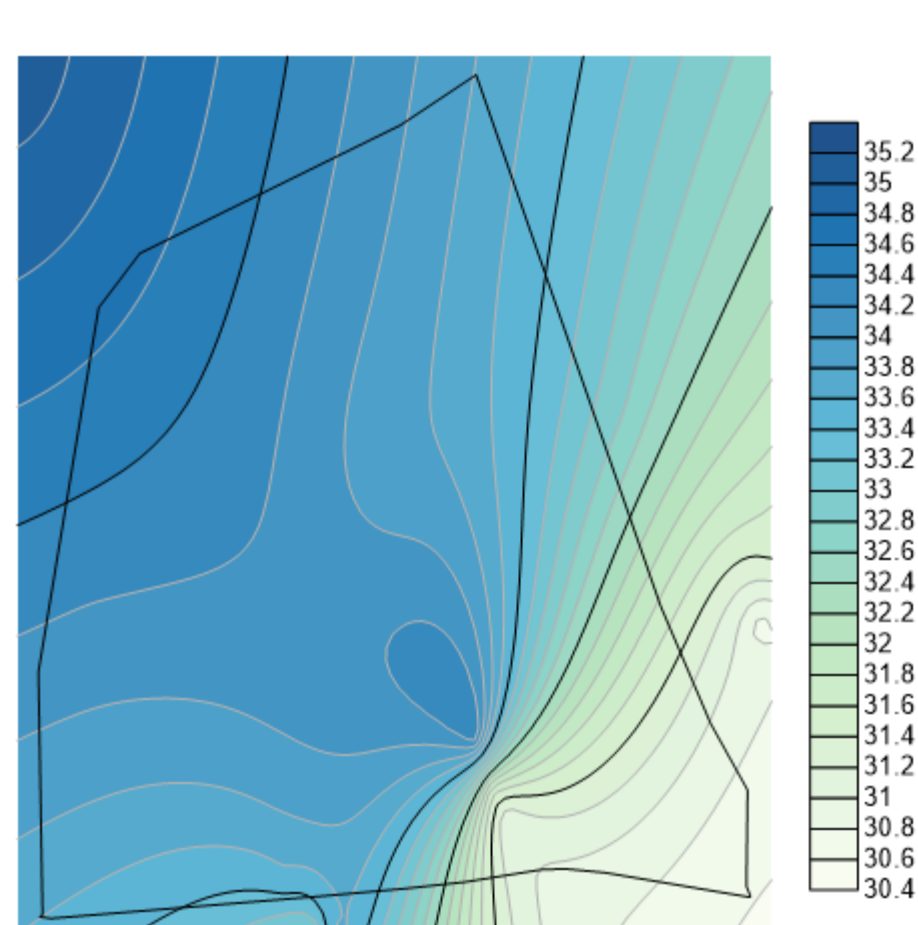
Results

1 Influence of environmental variables during April and June

Temperature



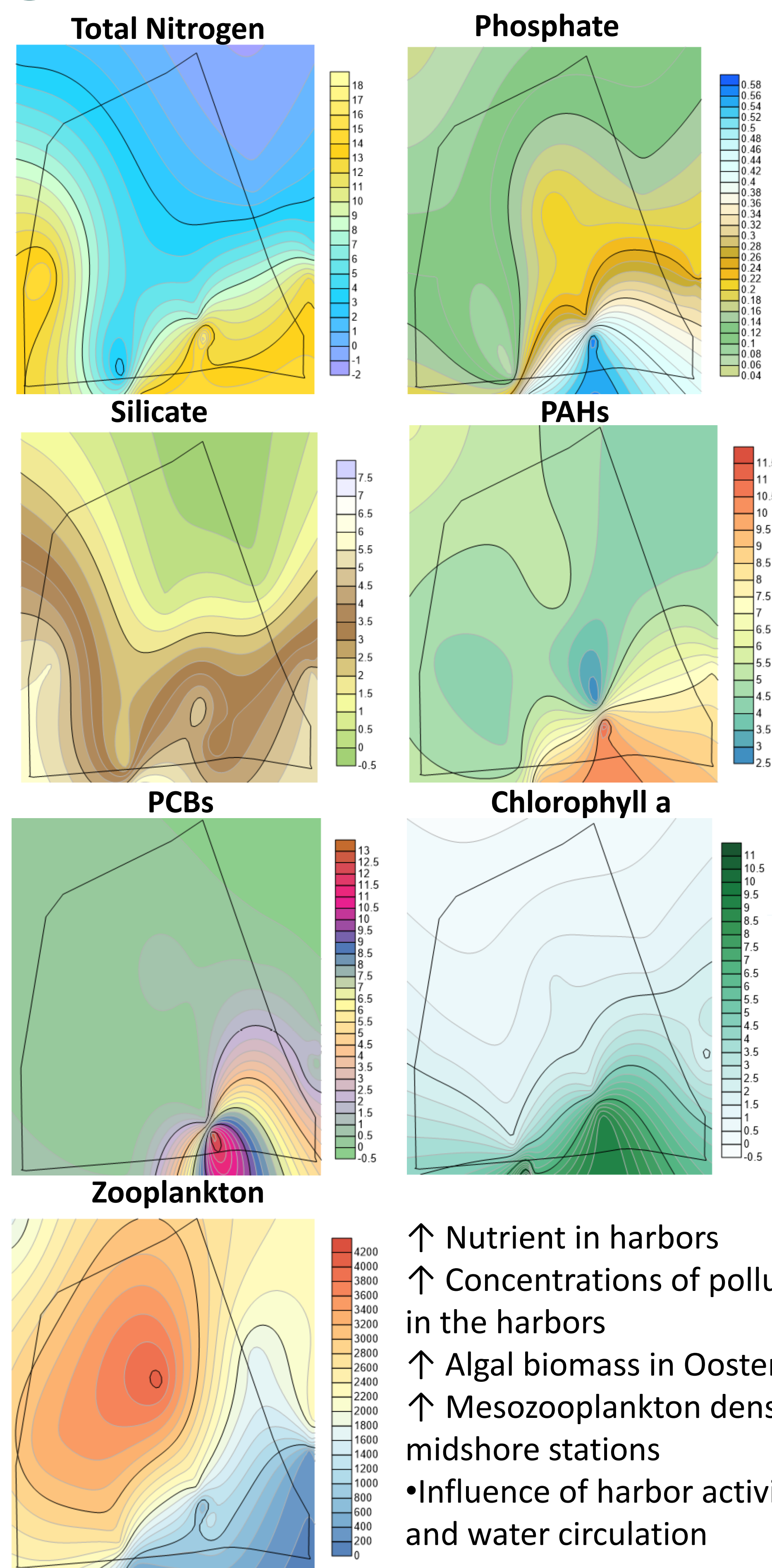
Salinity



Harbors:
↑ Temperature
↓ Salinity

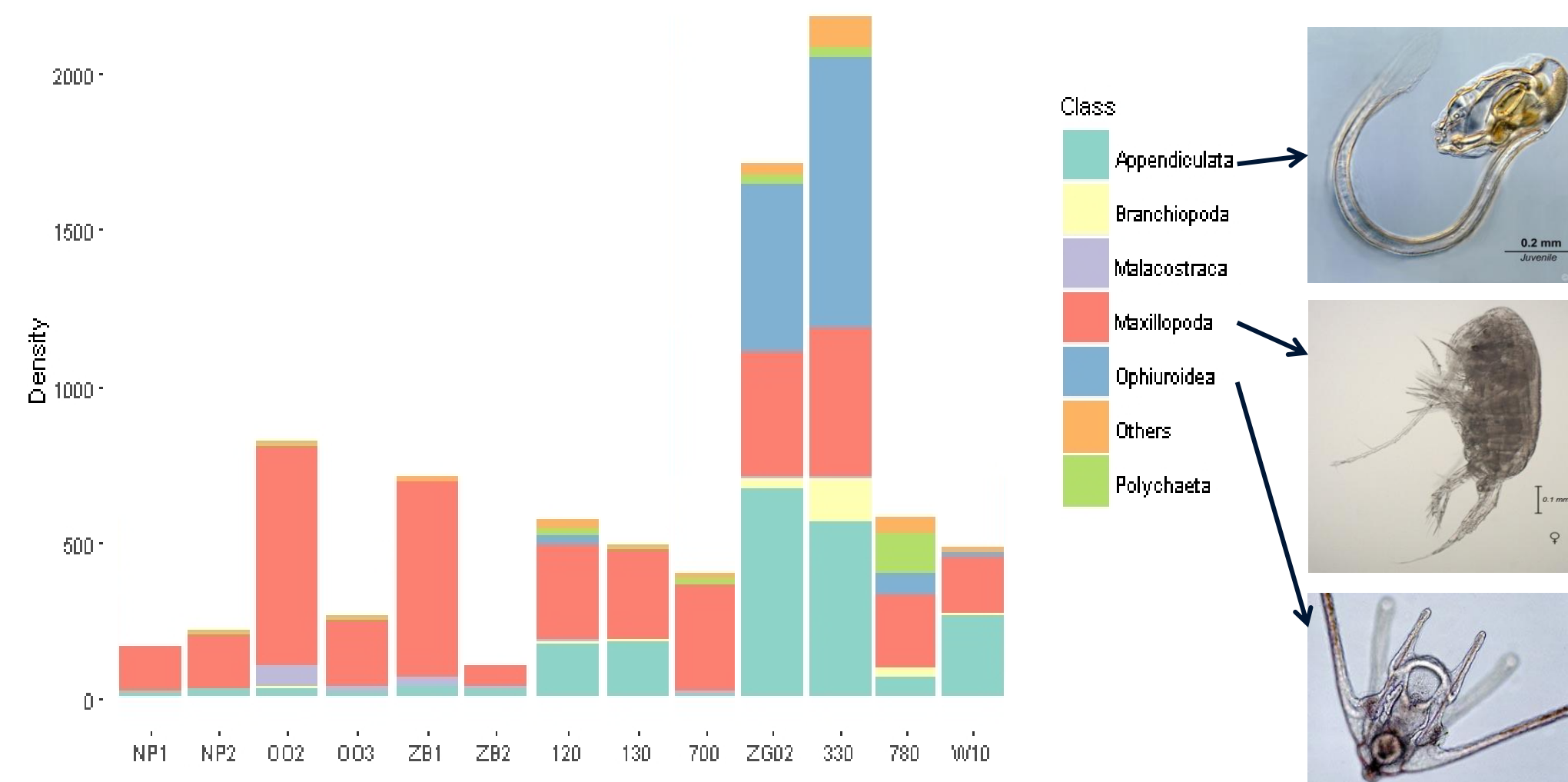
Results

1 Influence of environmental variables



↑ Nutrient in harbors
↑ Concentrations of pollutants in the harbors
↑ Algal biomass in Oostende
↑ Mesozooplankton density in midshore stations
• Influence of harbor activities and water circulation

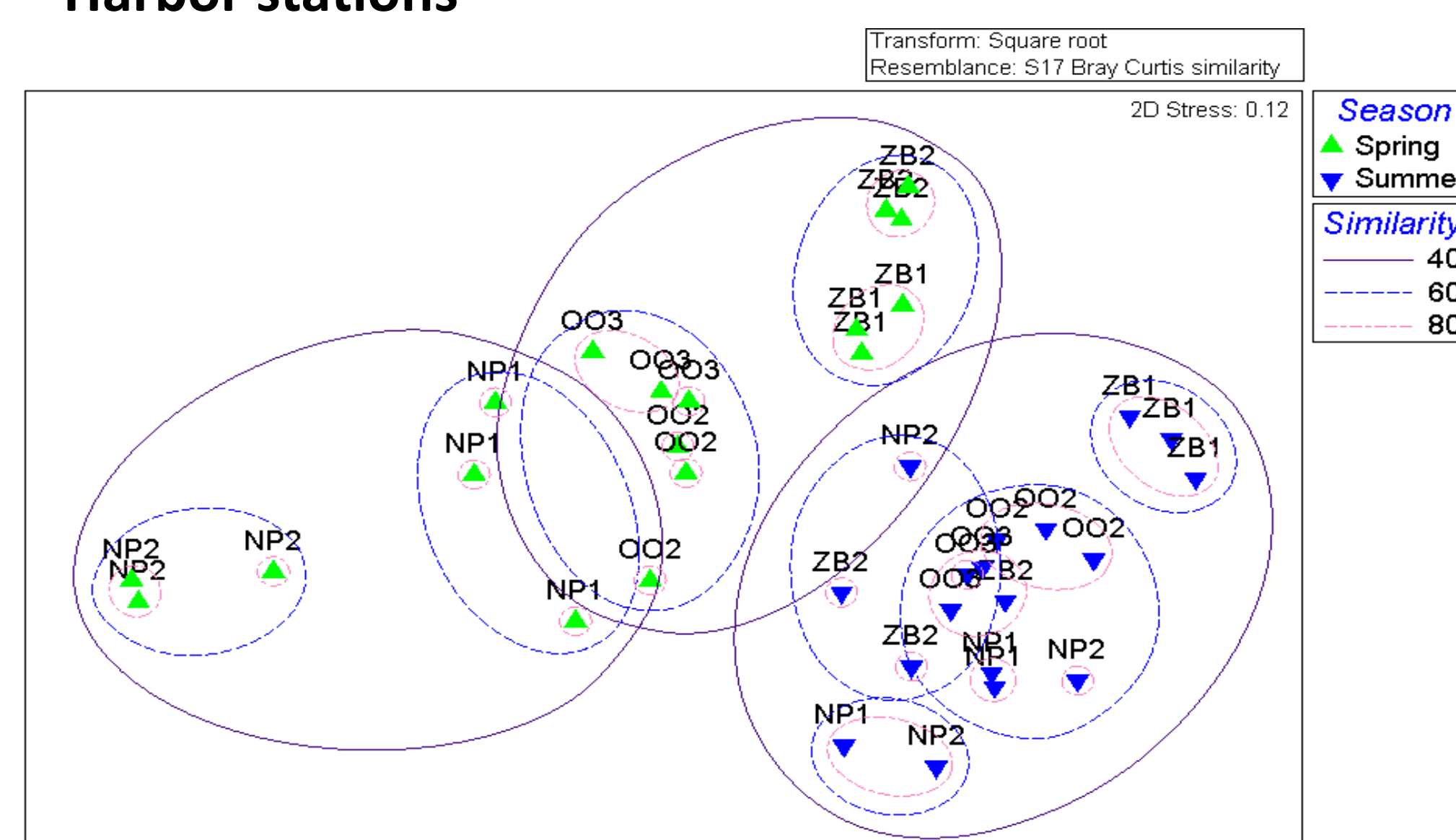
Mesozooplankton composition



• Temperature, salinity, nitrogen, phosphate and PAHs were the best combination of variables that determined the density and distribution of mesozooplankton.

2 Influence of seasonality

Harbor stations

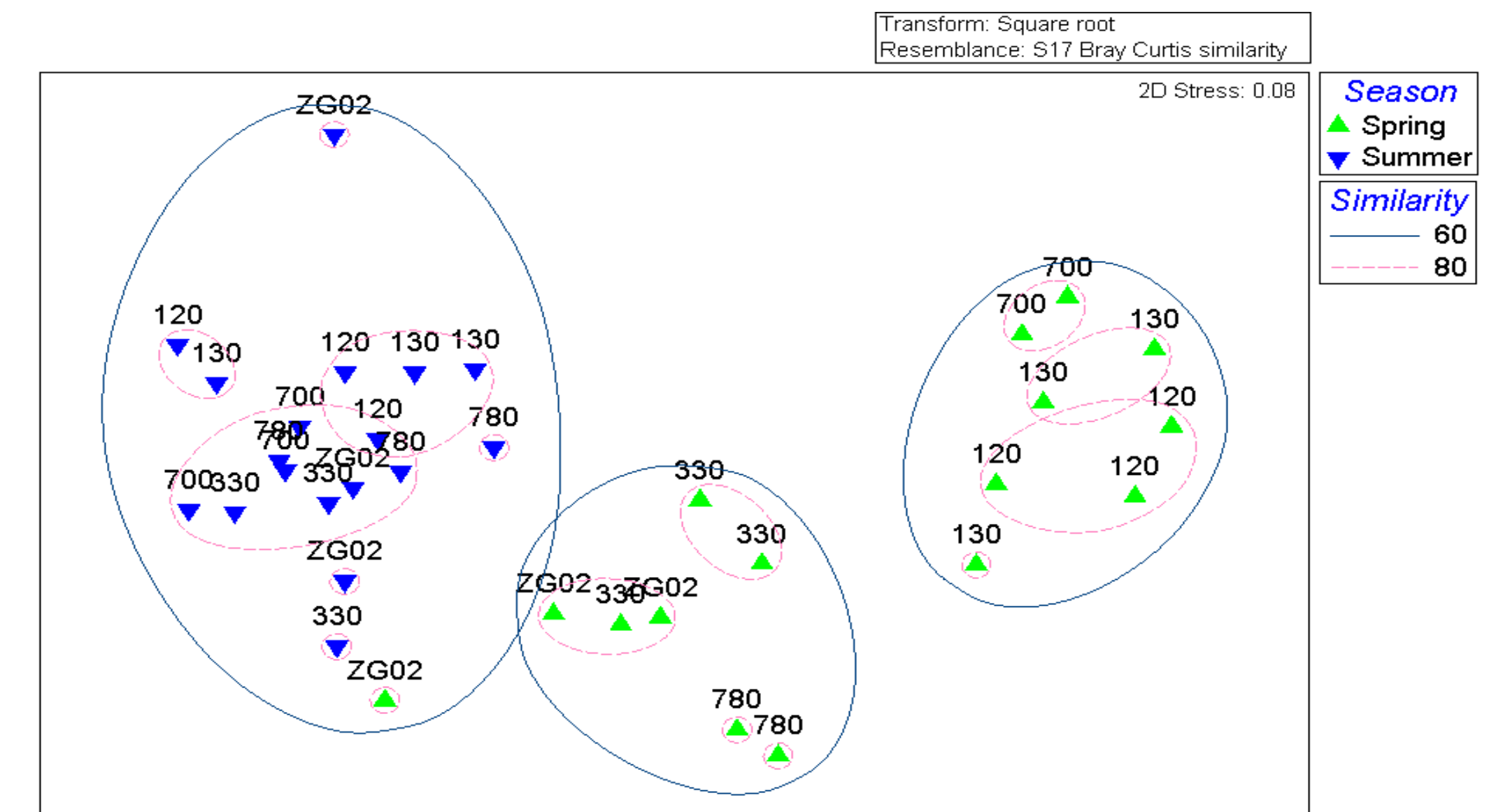


• Differentiation between spring and summer communities. Summer communities were represented mainly by calanoids, while spring was represented by a mixture of cyclopoids and calanoids.

Results

2 Influence of seasonality

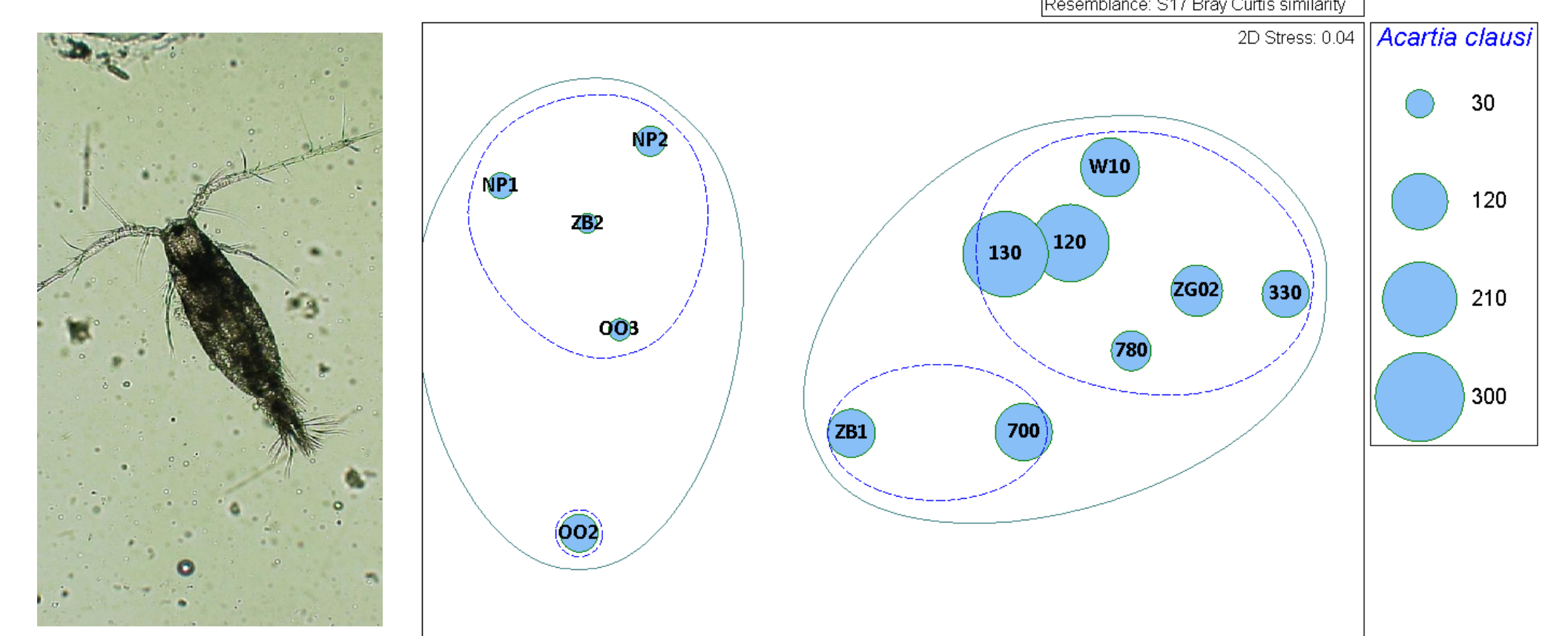
Marine stations



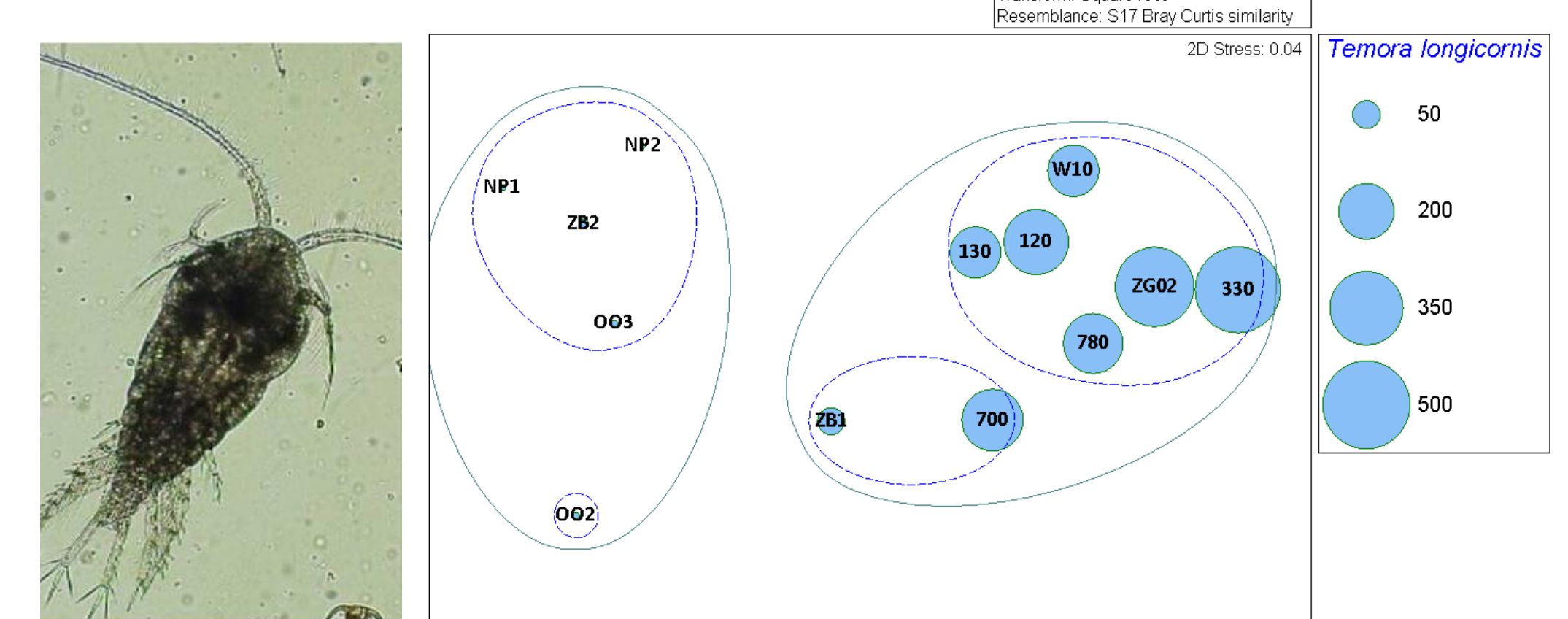
• Differentiation between spring and summer communities. Spring was characterized by differences in species composition between coastline and midshore

3 Demography of key copepod species

Acartia (Acartiura) clausi



Temora longicornis



• Differences in sex ratio (more females than males)
• Copepodite stages were more abundant than adults
• Species showed zonation with differences in abundance between zones

Conclusion

1 Mesozooplankton communities are distributed in small-scale assemblages with dominance of certain species in different zones. The effect of environmental factors can be detected at density variations.

2 The communities exhibited a strong seasonality with a succession of species. However, the effect was more marked in the harbors.

3 Copepodite stages I-III were the most common stage found of *A. clausi* and *T. longicornis*. These species tended to occupy different zones.

Acknowledgements

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