OC14 - Active and dormant zooplankton metacommunities in temporary waters

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For groups forming resting stages like zooplankton, egg bank plays a pivotal role for ensuring long-term persistence in aquatic habitats and recruitment after harsh environmental conditions including food-limited or dry periods. While there is an increasing number of regional-scaled studies targeting zooplankton communities, there are only a very few that has so far dealt with regional patterns in egg banks. Samples from the active community generally underestimate species diversity of a local habitat (due to seasonal and among-year variation), while egg banks integrate temporal turnover across seasons and adjacent years. Investigating beta diversity in egg banks therefore could extend our knowledge not only on the long-term effect of local conditions but also of regional processes. Here we studied zooplankton (Rotifera, Crustacea) communities in 23 saline temporary waters (soda pans) located within 20 km in the Seewinkel region of eastern Austria. We compared the role of local and spatial effects on the species richness and composition found in the egg bank and active communities. While salinity is one of the most important local stressors constraining local species richness in the active communities, its effect was almost invisible on egg bank species richness. Turbidity, however, had a constraining effect on both on the active and dormant communities. In the extremely shallow and wind-exposed soda pans, turbidity caused by inorganic suspended solids can reach extreme amounts up to 30 g/l, and therefore can function as an important stressor for filter-feeders. Community composition found in the egg banks was more similar to summer than to spring communities. Although the mean local species pool of egg banks (11) was much higher than those of the spring and summer active communities (5 and 7), it was still far from the regional species pool (70). Beta diversity was also the lowest in the egg bank communities. Spatial effects were important for all three datasets (spring communities, summer communities, egg banks), while the strength of species sorting varied: it was the highest in summer, lower in spring, and no pure effect was visible in the egg bank. These altogether showed the long-term accumulative effect of the local egg banks, from which the highly variable local environment can sort seasonally, but where spatial effects are still not eliminated, indicating that the habitats function as a metacommunity.