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FUNCTIONING OF NECTOBENTIC COMPLEXES AS A RESULT OF OPOSSUM SHRIMP ACCLIMATIZATION IN THE CURONIAN LAGOON

ARTURAS RAZINKOVAS
KLAIPEDA UNIVERSITY

Extensive acclimatization work started in early sixties in the Kaunas reservoir caused infiltration of Ponto-Caspian relict fauna via Nemunas river to the Curonian lagoon of the Baltic sea. As a result two of three introduced opossum shrimp species (namely *Paramysis lacustris* and *Limnomysis benedeni*) became common in the lagoon, making up to 60% of biomass in some biotopes. Third species, *Hemimysis anomala*, successfully acclimatized in the Kaunas reservoir, in the Curonian lagoon found only occasionally. Finally three different nectobentic opossum shrimp complexes were formed. First consisting mainly of *Neomysis integer* and *Paramysis lacustris* formed in the northern part of the Curonian lagoon at depths 0.6-7 m. Second one is distributed along the water plant belt at depths 0.2-1 m with different proportions of *Limnomysis benedeni*, P.lacustris and other species and the last one at depths 1.2-6 m in the central and southern parts of the lagoon. Salinity regime and bottom sediments supposed to be the main factors determining the distribution of the complexes.

As a result of population and productivity dynamics computer-aided cohort analysis, it was shown, that the first complex is the most productive, but is mostly dependent on salinity fluctuations occurring in this part of the lagoon. Two obvious production and P/B coefficients' dynamics peaks are tightly related to significant salinity increase in this part of the lagoon in the early summer and autumn. It is supposed that *Neomysis integer* juveniles are mainly brought by seawater flow into Curonian lagoon considering a small number of fertile females in the Curonian lagoon population. Other marine opossum shrimp species - *Praunus inermis* and *P.flexuosus* were observed only in the autumn.

The second complex is strictly related to water vegetation, where the *L. benedeni*, the dominant species of this complex is mostly abundant. Production dynamics of this complex are subjected to drastic changes during the summer due to the vegetation decline in the period of blue-green algae bloom, while the P/B coefficients show constant increase.

The third complex is dominating over the major part of the Curonian lagoon and consisting mainly of pure *P.lacustris* population. It's production and P/B coefficient shows three obvious succedent peaks during the summer, each responding to a new generation of opossum shrimps.

All the observed species have different feeding patterns. The most abundant species - P.lacustris is typically detritofagous during daylight hours, while others vary in their feeding preferences. Significant amounts of blue-green algae were found in the stomachs of another acclimatized opossum shrimp - L.benedeni. Acclimatized opossum shrimps are supposed to shorten food webs of commercial predator fish species from fish->fish->zooplankton/benthos to fish->opossum shrimp. Significant amounts of opossum shrimps were found in predatorous fish juveniles stomachs in the stage when they are naturally turning to predatorous feeding. Opossum shrimps were also found in the stomachs of such bentofagous fish as bream and planctivorous ones (they feed on mysids during night vertical migrations). Planktivorous fish feeding on mysids can be considered as "energy and matter elevator" from benthic food chain with the detritus overproduction to the pelagic one.

Overall population and productivity dynamics are in a good agreement with seasonal production and destruction processes in the lagoon. Correlation analysis between production of the nectobentic complexes and the production in the various food chains (including chrolofill and primary production dynamics) showed significant correlation coefficients. It is despite the natural three-modal life cycle of the most abundant opossum shrimp species, P.lacustris, while the production and destruction processes in the lagoon have clear bimodal character. It is the reason to state that natural life cycles of the acclimatized opossum shrimp were quantitativly modified through biocenothic adaptation mechanisms.