

Distribution of zooplankton community in Toli shad (*Tenualosa toli*) habitats, Sarawak, Malaysia

ABSTRACT

The river ecosystems of Sarawak has been identified as important-spawning ground for economically important Toli shad (*Tenualosa toli*) fisheries. In these river ecosystems, zooplankton serves as a secondary producer to the different types of fish larvae including Toli shad. The productivity and biomass of zooplankton are important factors to control the production of higher trophic level organisms like fish larvae and fishes in different stages including *T. toli* larvae. In this viewpoint, the composition and abundance of zooplankton were investigated at 5 (five) sampling stations (considered to be spawning and nursing areas of Toli shad) at Batang Lupar and Batang Sadong estuaries from July 2016 to June 2017. A total of 29 zooplankton taxa were recorded that belong to 14 major groups comprised of Copepoda (Arthropoda), Crustacean nauplii (Arthropoda), Fish larvae (Chordata), Mollusca (Mollusca), Luciferidae (Arthropoda), Cnidaria (Cnidaria), Ostracoda (Arthropoda), Cirripedia (Arthropoda), Polychaete larvae (Annelida), Chaetognatha (Chaetognatha), Appendicularia (Chordata), Amphipoda (Arthropoda), Echinodermata larvae (Echinodermata) and Cladoceran (Arthropoda). Copepod was dominant group of zooplankton (82.40-94.41%) at all stations, contributing 477.37-25921.89 ind/m³ and 88.38% of total abundance. The second highest was crustacean larvae (2.45-9.38%) in all stations, contributing 0-2391.7 ind/m³ and 5.88% of total abundance. Zooplankton abundance was higher at downstream station 1 (8460.72 ind/m³) followed by station 2 (5479.80 ind/m³), station 3 (4571.95 ind/m³), station 4 (4394.20 ind/m³) and upstream station 5 (4156.73 ind/m³). Canonical Correspondence Analysis showed that the abundance of copepods was highly influenced by total turbidity and nitrate in the riverine and estuarine ecosystems. Abundance of zooplankton was relatively higher (9549.31 ind/m³) during the post-monsoon and lower (3534.56 ind/m³) during the southwest monsoon.

Keyword: Malaysia; Sarawak; Toli shad; Tropical Borneo; Zooplankton