



Paper ID 16206

Variation in sediment quality and hydrology – Is it a reason for short-neck clam biomass depletion in Ashtamudi Lake?

Jenni Babu^{*1}, Venkatesan V², Geetha Sasikumar³, Laxmilatha P⁴, Prema D⁵, Shelton Padua⁵, Vidya R⁶, Alloyicious P S⁶, Sajikumar K K⁶, Jestin Joy K M⁶, Sheela P P¹, Ratheesh M¹, Sunil Mohamed⁷

¹Molluscan Fisheries Division, CMFRI, Kochi, India

²Molluscan Fisheries Division, ICAR-CMFRI, Kochi, India

³Molluscan Fisheries Division, Mangalore Regional Centre of ICAR-Central Marine Fisheries Research Institute, Mangalore, India

⁴Molluscan Fisheries Division, ICAR-Central Marine Fisheries Research Institute, Cochin, India

⁵Marine Biodiversity and Environment Management Division, ICAR-Central Marine Fisheries Research Institute, Kochi, India

⁶Molluscan Fisheries Division, ICAR-CMFRI, Kochi, India

⁷MFD, ICAR- CMFRI, Ernakulam, India

The internationally renowned short neck clam *Paphia malabarica* is India's first MSC certified resource. Its fishery is well established in Ashtamudi Lake (Lat.8°45'-9°28'N and Long.76°28'-77°17E) one of the Ramsar site in India and the second largest wetland in Kerala. As a locally marketed clam till 1981, its demand increased as export market began in 1981. The clam was overexploited and the stock was depleted in the year 1990, but the resource was revived through the implementation of self imposed ban suggested by CMFRI. In the present scenario, this resource is showing a declining trend in the fishery. The decadal trend in the landings, 2014 showed a peak 10810.98 and 3056 t (2020) followed by 706t in 2021. This decline is aggravated by the flood in 2018. The studies conducted by CMFRI, the textural analysis of sediment in Ashtamudi Lake showed distinct changes in the sediment quality. The preferred bottom texture for the short neck clam is sandy clay. The consecutive surveys (biomass, sediment and hydrography) and monthly sampling results revealed the prominent changes in sediment texture. High values for silt was observed after the flood in 2018. In the year 2010 the average silt percentage was 3 to 5% and 10 to 22% in 2020. Hydrographic parameters analysed for the survey samples also showed drastic changes in temperature (28.6 to 31° C), nitrite (0.002 to 0.009 mg-L), dissolved oxygen (5 to 3.49 mg-L), and chlorophyll (4.2 to 1.8 mg-L-day) values. The possible role of various environmental parameters determining the water and sediment quality on the decline of short neck clam biomass in Ashtamudi Lake is analysed in detail in this paper.

Keywords: Ashtamudi Lake, Hydrology, Short Neck Clam, Sediment Quality