

EXECUTIVE SUMMARY OF M R P

Title : **Survey and surveillance of freshwater bivalves in West Bengal**

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1. Species richness of freshwater bivalves at West Bengal are decreasing : Population of freshwater bivalves in the ponds and lakes of West Bengal are decreasing both species wise and number wise. Present study have recorded only 9 (nine) species from 19 districts of West Bengal. But according to the survey work of ZSI Calcutta twenty eight (28) freshwater species of the Order Unionoida were recorded from West Bengal. The recorded species of the present studies are *Lamellidens corrianus* (Lea), *Lamellidens marginalis* (L), *Parreysia favidens* (Benson), *Parreysia favidens* var. *Deltae* (Benson), *Parreysia favidens* var. *marcens* (Benson), *Parreysia favidens* var. *plagiosoma* (Benson), *Parreysia favidens* var. *viridula* (Benson), *Parreysia (radiatula) caerulea* (Lea) and *Parreysia corrugate* (Muller).
2. So 19 species of West Bengal were either Vulnerable (VU) or Critically Endangered (CR).
3. IUCN status of all the recorded 9 species will be evaluated now based on the data obtained from this research output.
4. Population diversity of *Lamellidens corrianus* is much higher than population diversity of *Lamellidens marginalis* and other recorded species. However they are encountered in greater abundance in waterways located in alluvial soil areas (like Howrah, Hooghly, North and South Twenty-four Parganas, Nadia, Medenipore, Malda, Murshidabad, Dinajpur and Cooch Bihar districts) with soft soil substrate harboring green algae. Species of the genus *Lamellidens* are normally distributed in stagnant to slow flowing habitats like ponds, tanks, lakes and reservoirs at a depth of 0.5 m and beyond.
5. Among the species the allometry (b values) of *Lamellidens corrianus* is positive. The b values of length-breadth and length-width relationships varied from 0.7149 (March 2013) to 0.7891 (August 2013) and from 0.3055 (July 2013) to 0.4173 (August 2013) respectively. The relationships between length-total weight, length-wet weight, length-shell weight and length-dry weight were $W = 0.0005028L^{2.117}$, $W = 0.00005197L^{2.832}$, $W = 0.0003028L^{2.802}$ and $W = 0.00003357L^{2.832}$ respectively.
6. Neutral to slightly alkaline waters are in general conducive for the colonization of the recorded mussels.
7. The nitrate concentration of the freshwater pond have negative effect on diversity of all the 9 recorded species.
8. However presence of moderate to high dissolve oxygen concentration in water have positive effect on the population of these recorded bivalves.
9. Deposition of mud due to siltation in the siphon of all the species were recorded during the study period. Presence of mud in the siphon of bivalves creates suffocation, which leads to death of these species.

10. There is a positive correlation between indigenous fish population diversity in relation to mussel population, distribution and diversity. Indigenous freshwater fish population are the host species for increasing the population of mussels. Any effects on fish communities may ultimately affect mussels as well.
11. It was recorded that a high host fish density may result in high recruitment of juvenile.
12. It was recorded that the indigenous host fishes decreasing steadily in West Bengal.
13. Experimentally it was proved that because of the filter-feeding habitat- the freshwater bivalves make them especially vulnerable or Critically Endangered to sedimentation and chemical pollution events.
14. As mussels were harvested heavily for food in all the districts of West Bengal in a large quantity, they are available almost in all the village markets in all the districts of West Bengal. – it should be stopped by creating new law.
15. It was identified that fine particulate matters may reduce the survival of the bivalves. So a holistic approach of the pond periphery have to maintain to develop forestry – this will involve the reducing erosion and sedimentation of the soil.
16. From this studies it was revealed that population of freshwater mussels in the pond are determined by the following facts-
 - a) Interaction with the host species.
 - b) Substrate structure.
 - c) Water chemistry.
 - d) Sedimentation and
 - e) Water depth.

-So proper steps or approach were enforce to maintain or increasing the population of the freshwater mussels.