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Landmark Based Catch Trends Assessment of Gray Eel Catfish (Plotosus canius) at Mangrove Estuary in Bangladesh

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Abstract : The present study emphasizing the catch trends assessment of Gray eel catfish (Plotosus canius) that was scrutinized on the basis of monthly length frequency data collected from mangrove estuary, Bangladesh during January 2017 to December 2018. A total amount of 1298 specimens were collected to estimate the total length (TL) and weight (W) of P. canius ranged from 13.3 cm to 87.4 cm and 28 g to 5200 g, respectively. The length-weight relationship was W=0.006 L2.95 with R2=0.972 for both sexes. The von Bertalanffy growth function parameters were L∞=93.25 cm and K=0.28 yr-1, hypothetical age at zero length of t0=0.059 years and goodness of the fit of Rn=0.494. The growth performances indices for L∞ and W∞ were computed as Φ'=3.386 and Φ=1.84, respectively. The size at first sexual maturity was estimated in TL as 48.8 cm for pool sexes. The natural mortality was 0.51 yr-1 at average annual water surface temperature as 22 0C. The total instantaneous mortality was 1.24 yr-1 at CI95% of 0.105–1.42 (r2=0.986). While fishing mortality was 0.73 yr-1 and the current exploitation ratio as 0.59. The recruitment was continued throughout the year with one major peak during May-June was 17.20-17.96%. The Beverton-Holt yield per recruit model was analyzed by FiSAT-II, when tc was at 1.43 yr, the Fmax was estimated as 0.6 yr-1 and F0.1 was 0.33 yr-1. Current age at the first capture was approximately 0.6 year, however Fcurrent = 0.73 yr-1 which is beyond the F0.1 indicated that the current stock of P. canius of Bangladesh was overexploited.

Keywords : Plotosus canius, mangrove estuary, asymptotic length, FiSAT-II
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