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ESTIMATION OF MAXIMUM SUSTAINABLE FISH YIELD AND STOCKING DENSITIES
OF FISH FINGERLINGS IN FRESH WATER LAKES AND RESERVOIRS

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The Maximum Sustainable Yield (MSY) of all fish species for nine man made reservoirs in Sri Lanka were calculated by the simplified version of Shaefer model. A significant relationship at 5% level was observed between MSY and Morphoedaphic Index (MEI). The relationship for Sri Lankan inland reservoirs was found to be.

$$\log_e \text{MSY} = 0.9005 \log_e \text{MEI} + 1.9320$$

The MSY for these reservoirs were then estimated using this relationship.

The Number of *Sarotherodon* sp. juveniles needed to be recruited to the fisheries of some reservoirs in addition to the present recruitment to increase the production to the level estimated by the above relationship were calculated by the following equation.

$$S = \frac{\text{MSY}_{\text{cal}} - \text{MSY}_{\text{est}}}{Q} e^{z(t_1 - t_0)}$$

- S = Number of fingerlings needed to be recruited.
MSY_{cal} = MSY calculated by catch and effort statistics.
MSY_{est} = MSY estimated by Morphoedaphic Index relationship.
Q = Mean weight of fish at capture.
t₀ = Age at recruitment.
t₁ = Age at capture.
z = Total mortality rate.