

CPUE standardization of *Amblygaster sirm* in small meshed gillnet fishery on the West Coast, Sri Lanka

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The small mesh gillnet fishery, the most popular small-scale fishery on the West coast of Sri Lanka is conducted year-round targeting small pelagics. The fishery is characterized by relatively smaller fishing vessels, multiple landing sites, multispecies catches and a large number of dependents. Small meshed gillnets on the West coast are widely operated with Outboard-engine Fiber Reinforced Plastic (OFRP) boats and the main target species in the fishery is spotted sardinella (*Amblygaster sirm*). There is a rapid increase in the OFRP vessels operating on the West coast fishery after the tsunami in 2004 and the addition of new vessels has largely contributed to increased fishing pressure on coastal species particularly spotted sardinella-like species. The present study was undertaken to standardize the Catch Per Unit Effort (CPUE) of spotted sardinella in the small meshed gillnet fishery on the West coast of Sri Lanka. Twenty years of data (2000- 2019) collected by the National Aquatic Resources Research and Development Agency (NARA) via small pelagic port sampling were utilized for CPUE standardization. A delta-lognormal model comprising of a Gaussian-based Generalized Linear Model (GLM) for positive catch rates and a Bernoulli-based GLM model for binary data of spotted sardinella were used. Six explanatory variables: year, fishing season, fisheries district, total fishing time, number of net pieces used, and gear operated depth were taken into the consideration for CPUE standardization. The response variable, the CPUE was expressed in terms of the total catch of spotted sardinella in kilograms per boat per hour. Two GLM models explained 17.5% and 23.2% of the total deviance respectively. A considerable variation in the annual and seasonal abundance indices of spotted sardinella was observed throughout the study period. The fluctuations in the abundance index were attributed to the population changes due to environmental variability and fishing-induced changes.

Keywords: CPUE, GLM, small meshed gillnet, spotted sardinella

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