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Estimation of Fish Production in India using ARIMA, Holt's Linear, BATS and TBATS Models

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***Abstract*:** The main aim of this study was to estimate fish production in India and this study is linked to time series data. The fish production forecasts are based on BATS and TBATS, Holt's Linear Trend and ARIMA models and tried to compare the above methods with actual data. Following the development of the best-in-class model, forecasts are carried out for marine, domestic and total fish production areas, between 1980 and 2012 (80%) as in-sample model validation forecasts, and between 2013 to 2020 (20%) as out-sample forecast which confirms that all best selected models are effective. The prediction is considered between 2021 and 2025 for all series of data; marine, domestic and total fish production, Linear Holt's Trend Model is regarded as the best-fit model in the production range of marine areas, based on the lower value of fitness criteria. Similarly, ARIMA (2,2,1) and ARIMA (3,2,0) are chosen as the best model in inland areas and overall production based on the minimum fitness value of the criteria. From the predicted values of the best fit models, the trend is increasing for fish production in all areas in the coming years. The fish production in marine areas can be estimated at 126337 tons by 2025. Similarly, 169466tons can be gained for inland fish production by 2025. For total fish production, the order was constantly rising to 295792 tonnes in 2025. These findings are extremely important to obtain the information in advance, so that can fully understand and develop strategies for investing in it in the future and is important to develop a strategic plan for fish supply, fish demand and fish prices by Indian policy makers to improve oversight and future planning strategies.

***Keywords*:** BATS, TBATS, Holt's Linear Trend, ARIMA, Forecasting, Fish production, Time series