Fishing depth prediction for tuna longlines; An improved fishing ground forecasting system for Sri Lanka

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Fishing ground forecasting system for tuna fishery in Sri Lank was introduced in 2008 and methodology improvements have been continuing since its launch. Accurate swimming depth of yellow fin tuna (*Thunnus albacares*) is important to increase the catch efficiency in longline catches. An improved methodology had been developed in 2014 to predict fishing depths using sea surface temperature and sea surface height data obtained from satellites. However, accuracy of those predictions is limited due to ocean surface conditions affected by winds and mixed layer dynamics. Therefore, a new method was developed based on the temperature profile data provided by Copernicus marine environment monitoring service (CMEMS). The CMEMS provides regular information on physical state and dynamics of global oceans in 1/4° spatial resolution based on models. Information provided is more advantages due to its multiple data sources with high spatial and temporal resolutions. With the new methodology, prediction of fishing depths was improved. Fishing depths are critical information to enhance the catch rates. Thus, the fishing depth prediction was coupled with the existing tuna forecasting system. It is expected that the catch rates of longline operations will be enhanced with this improvement.

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