Treatment of acoustic data obtained from echosounder buoys for tuna biomass estimates

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Summary

Satellite linked echo-sounder buoys are deployed with fish aggregating devices (FADs) in tropical tuna fishery which allow skippers to monitor in real time the track of the FADs and the aggregation of fish underneath. The extensive use of echosounder buoys provides valuable acoustic data that, properly treated, can be used for monitoring tropical tuna biomass. Thanks to the collaboration with buoy manufacturers and vessel owners of ANABAC and OPAGAC, historic information from echosounder buoys in the Indian and Atlantic Ocean has been gathered for the 2010-2018 period. Different echosounder brands in use provide each own biomass index derived from the acoustic signal, and therefore inter-buoy/brand harmonization approach for acoustic signal consistency is needed. Thus, in this work a method for setting all data sources at same acoustic units and sampling volume is proposed. Latest findings of species-specific target strengths (TS), species-specific composition and fish lengths information by area are integrated to convert the acoustic signal on biomass estimation.