

Quantitative Acoustic Monitoring using fishing vessels in the Northern Region of the Humboldt Current System

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Abstract

Fishing vessels have been used for acoustic monitoring for 50 years in Peru. Since 1966 they have been performed 68 surveys to measure oceanographic conditions and biological aspects of the biology and distribution of pelagic species. During recent years they have been installed aboard the fleet acoustic systems similar to the ones deployed by scientific vessels. At the same time the cooperation between several institutions facilitated the design of acoustic calibration and data analysis protocols in order to enable the capacity of fishing vessels to contribute to the quantitative monitoring of the ecosystem. During November 2015, 11 fishing vessels and 2 scientific vessels participated in the first Joint Acoustic Survey officially authorized by the Peruvian government. The acoustic sampling design consisted in long transects parallel to the coast line with a separation of only 5 n.mi. in order to collect information with a higher resolution but in a smaller time interval than usual. Obtained results include the observed biomass and population length structure of anchovy and other species as well as the relative abundance of zooplankton and the topography of the minimum oxygen zone. Besides the adopted design allowed to reduce the biases common to acoustic assessments. This type of survey compensates the financial limitations of the scientific entities and demonstrates the feasibility of continuously using the fishing fleet to collect the needed information to support the adaptive ecosystem management of fisheries and the development and calibration of trophic models for the Humboldt System in the frame of climate change.

Keywords: quantitative monitoring, acoustics, fishing vessels, management

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