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ABSTRACT

The development of an integrated stock assessment for Patagonian toothfish (*Dissostichus eleginoides*) in the Kerguelen Islands EEZ

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Abstract

The Kerguelen Islands French EEZ (CCAMLR division 58.5.1) has a long fishery history, including illegal, unregulated and unreported (I.U.U.) catches during the period 1997-2004. Today, only Patagonian toothfish (*Dissostichus eleginoides*) is commercially harvested in this area, from shelf slopes to the abysses. Longline has progressively replaced the bottom trawl fishery. Nowadays, only national vessels operate using automatic weighted bottom longlines. A modelling project using CASAL (C++ Algorithmic Stock Assessment Laboratory) has started with a preliminary stocks assessment of toothfish in 2011. CASAL has been approved by CCAMLR Scientific Committee, and used to assess stocks of Antarctic toothfish (*Dissostichus mawsoni*) in the Ross Sea (CCAMLR sub-areas 88.1 and 88.2), and of Patagonian toothfish in South Georgia (CCAMLR sub-area 48.3), in South Sandwich (CCCAMLR sub-area 48.4) and in Heard and McDonald Islands (CCAMLR division 58.5.2). Since 2014, the model has been updated annually using data from both fishing activities and scientific surveys. A tagging program conducted during commercial fishing operations since 2007 has proved to be of particular interest for the estimation of toothfish biomass. In addition, results show that recent otolith age readings are useful to estimate biological parameters and study demographic structure for this species. The modelling of this fishery allows us to estimate stock status in the northern part of the Kerguelen plateau, with the aim of establishing catch limits in accordance with sustainable management requirements.