IV ROSS SEA CONFERENCE 2023

Università degli Studi di Napoli "Parthenope"
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Topic: Marine biology and ecology

Dale Maschette

ABSTRACT Subject :

Circumpolar sampling reveals high genetic connectivity of Antarctic toothfish across their spatial distribution

Abstract 09/02/2023 04:35:32

Antarctic Toothfish are a circumpolar species which are targeted in multiple fisheries around Antarctica covering nine statistical areas within the Convention for the Conservation of Antarctic Marine Living Resources. Despite this, it is still unclear whether the species forms a single stock across its circumpolar distribution, shows a pattern of isolation by distance, or exhibits discrete stock structure between different regions. Recent genetics studies of Antarctic toothfish have shown connectivity between two areas (Ross Sea and Antarctic Peninsula), but earlier studies with smaller number of markers produced inconsistent results with regards to genetic connectivity between other geographic locations. Here we present a range-wide population genetic study of Antarctic toothfish using > 11,000 nuclear single nucleotide polymorphisms from 715 fish collected. Our results indicate that genetic diversity of the Antarctic toothfish is very low, with only 0.1% of genetic variability associated with geographic location. Multiple clustering methods, both supervised and unsupervised, indicated no distinct breeding populations. These results are consistent with current theories of egg and larval dispersal by the predominant Antarctic currents.