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Large-scale circulation accounts for otolith chemistry in juvenile Dissostichus eleginoides on the Patagonian Shelf.

Bettina Fach (1), Julian Ashford (2), Alexander Arkhipkin (3), Cynthia Jones (2), and Baris Salihoglu (1)

(1) Institute of Marine Sciences, Middle East Technical University, Turkey (baris@ims.metu.edu.tr), (2) Center for Quantitative Fisheries Ecology, Old Dominion University, Norfolk, USA, (3) 3Fisheries Department, Falkland Islands Government, Stanley, Falkland Islands

Patagonian toothfish (Dissostichus eleginoides) are caught as adults in a longline fishery along the continental slope around the Falkland Islands, but the majority are caught as juveniles in a trawl fishery in the Falkland Islands Inner Conservation Zone. To determine where fish caught around the Falkland Islands originates, lagrangian modelling and otolith chemistry recorded by juvenile Patagonian toothfish sampled north and south of the Falkland Islands were combined to examine environmental exposures recorded in the otoliths and their relationship to large-scale physical transport pathways in the South Atlantic.
Lagrangian modelling showed differential transport of water to areas north and south of the Falkland Islands from south-west off Cape Horn and Burdwood Bank
indicating that distributions of juvenile toothfish on the Patagonian Shelf are not the result of early life transport from a single spawning ground on Burdwood Bank as previously suggested. This was confirmed by the strong discrimination in the chemistry laid down before capture at the otolith edge of captured fish, as well as the strong heterogeneity in the chemistry laid down during early life in the otolith nuclei. Taken together, modeling and otholith data suggest instead that juvenile toothfish north of the Falkland Islands are predominantly transported there from a western source associated with the shelf south of Cape Horn, whereas those to the south originate from both Cape Horn and Burdwood Bank.