

Small pelagic fish resources of the Western Indian Ocean: Estimates from RV Dr Fridtjof Nansen survey

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The RV Dr Fridtjof Nansen used a combination of acoustic methods (echo-integration) and trawl sampling to quantify the 'small pelagic fish' resources of the Western Indian Ocean. The initial Nansen surveys in 1975 provided the first estimates of pelagic fish biomass and distribution in the region, and these early estimates remain the only reference points for some countries. Common families were clupeids (sardines), engraulids (anchovies), carangids (jacks, scads, pompanos), scombrids (mackerels), sphyraenids (barracudas), trichiurids (hairtails) and myctophids (mesopelagic fishes). Carangids and clupeids were distributed in shallow shelf areas, from the horn of Africa, along the coast to the Mozambique Channel, and around Madagascar, Mauritius, the Mascarene Plateau, and the Seychelles. Engraulids were more abundant in the southern part of the East Africa Coastal Current sub-region, the Mozambique Channel and around Madagascar, associated with areas of high primary production. Myctophids were widely distributed off the shelf throughout the Western Indian Ocean, with high densities off the horn of Africa. Nansen surveys in Kenya and Tanzania during the early 1980s found low biomass of pelagic resources, and this information averted overcapitalization on a new fishing fleet. Surveys, done 25 years apart, found similar abundance, distribution patterns and species composition along the south and east coasts of Madagascar. In Mozambique, clupeid biomass was markedly lower in surveys done in 2007 and 2014, than in pre-1990 surveys. This finding was supported by declining catches experienced in the artisanal fishery. Pelagic fish often migrate widely, and stocks that cross international boundaries are therefore regional, instead of belonging to a specific country. Detailed studies are required to determine seasonal migrations, and to develop a more regional management approach, based on information from acoustic surveys over a large geographical area. The Nansen is well-suited to undertaking regional surveys of this kind.