

The ECOFISH project

The overall objective of ECOFISH is to develop a new framework for the ecosystem approach to fisheries (EAF) in the Benguela Current Large Marine Ecosystem (BCLME).

What is an ecosystem approach to fisheries management?

The ecosystem approach (EAF) is a modern approach to fisheries management. It is a holistic approach that has as its objective the sustainable use of the *whole ecosystem*, not just the species that are the target of fishers and fishing industries.

The ecosystem approach is built on the principle that healthy and resilient ecosystems are crucial for maintaining the sustainability of marine fisheries.

What is a marine ecosystem?

An ecosystem is a functional unit consisting of a collection of plants, animals (including humans), micro-organisms and non-living components of the environment and the interactions between them.

Marine ecosystems are unavoidably affected by fishery activities. The impact of fishing on the target species, associated and dependent species, the habitat, the seabed and the animals and plants that live there, can be particularly severe and long lasting. Marine ecosystems are also vulnerable to degradation and pollution from other industries, natural variability and climate change.

What is the Benguela Current Large Marine Ecosystem?

The BCLME spans 30 degrees of latitude, extending from Angola's Cabinda Province in the north, to just east of Port Elizabeth in South Africa. It is one of the richest marine ecosystems on earth and supports an abundance of life.

Stocks of small pelagic fish (sardines, anchovies, horse mackerel and sardinella) are particularly abundant in the BCLME, but top predators such as seabirds and marine mammals are also abundant. Substantial deposits of non-living natural resources, such as oil, gas, diamonds and other minerals, are the focus of industrial activities in the region.

How will ECOFISH develop a new framework for EAF in the Benguela?

ECOFISH will develop a new framework for EAF in the Benguela by (1) improving knowledge of basic ecosystem processes; (2) improving the assessment of fish stocks; and (3) involving stakeholders in the management of fisheries.

What are some of the activities planned for ECOFISH?

ECOFISH will focus on two fisheries: the trawl fishery for hake (South Africa and Namibia) and the pelagic fishery for horse mackerel and sardinella (Namibia and Angola).

ECOFISH activities are organised into four “work packages”. The work packages are integrated with the objective of building a knowledge base for the implementation of an ecosystem approach to fisheries in the BCLME.

Work package one concentrates on stock assessments. The goal is to extend existing stock assessment methods so as to take into account current data and knowledge. New models will be tested using new information.

Work package two aims to improve inputs to the stock assessment models applied in the management of hake, horse mackerel and sardinella stocks. In this work package, four distinct activities are planned:

- a genetic study to determine the transboundary nature of hake stocks;
- a study of the ways in which environmental variables (e.g. water temperature or algal blooms) affect catch rates of hake (the “catchability” of hake);
- a re-look at the aging of fish samples so as to improve growth rate estimates of hake, horse mackerel and sardinella;
- an analysis of the position of hake, horse mackerel and other demersal and pelagic fish stocks in the food web of the BCLME.

Work package three will bring together a wide range of information – including environmental indicators and stakeholder knowledge and experience – to develop a coherent assessment approach for two case studies: the Namibian hake fisheries and the Angolan purse seine fisheries for horse mackerel and sardinella.

Work package four will strengthen regional capacity in stock assessment and the implementation of the ecosystem approach through formal courses targeting fisheries scientists and managers; stock assessment workshops; and yearly project meetings.

Who is involved in ECOFISH?

The Benguela Current Commission will coordinate ECOFISH in partnership with scientists and fisheries managers in Angola, Namibia and South Africa.

The ECOFISH consortium is made up of scientists and fisheries managers in the three countries and a team of specialists from the Technical University of Denmark. Scientists from the universities of Cape Town and Stellenbosch are also participating in the initiative.

A key principle of the ecosystem approach to fisheries is that the ecosystem reaches beyond the fauna and flora of the ecosystem to the people who utilise its resources. Therefore, ECOFISH will formally incorporate the knowledge and experience of stakeholders – including fishers, fishing communities and fishing companies – in data collection and analysis.

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