



Some 20,000 artisanal fishers in Angola catch enough fish to provide a direct income for 100,000 people, including women who dry and process the fish for market.

LARGE MARINE ECOSYSTEMS

Managing Benguela: an African partnership

Mick O'Toole and Claire Attwood

Despite a turbulent history, the three countries that border the Benguela Current Large Marine Ecosystem (BCLME) are working together to manage their shared marine resources in an integrated and sustainable way, combining an ecosystem-based approach coupled with transboundary cooperation.

Angola, Namibia and South Africa share one of the most productive ecosystems on Earth. The Benguela Current is a narrow, ribbon-like system that extends from Angola's Cabinda Province in the north, to just east of Port Elizabeth in South Africa. It is one of the four major coastal upwelling ecosystems of the world and is highly unusual because it is bounded to the north and south by warm waters of tropical origin.

What is an LME?

Large Marine Ecosystems are regions of ocean space encompassing coastal areas from river basins and estuaries to the seaward boundaries of continental shelves and the outer margins of the major current systems. They are generally on the order of 200,000km² or greater, and characterized by distinct geographical, physical and biological conditions and populations that are related through a common food web. On a global scale, the total number of 64 LMEs currently described produce 95% of the world's annual marine fisheries biomass yields, among other resources.

Abundant harvest

The ecosystem supports a number of commercially important fish stocks such as hake, anchovy, sardine, horse mackerel and tuna. Rock lobsters are harvested in the southern Benguela, while shrimp and deep-sea crab provide small scale fishers in the north with an important source of food and work.

Fisheries are an economic mainstay in the Benguela region, accounting for 10% of gross domestic product (GDP) in Namibia, 4% in Angola and 0.37% in South Africa. There are also rich reserves of oil, gas and minerals, within the sediments of the Benguela Current. The marine diamond-mining industry in Namibia and South Africa yields close to a million carats of diamonds each year and Angola is the second largest producer of oil in sub-Saharan Africa. Both Namibia and South Africa are actively developing their own oil and gas industries.

Threats and obstacles

While the integrity of the Benguela Current is still largely intact, the ecosystem faces accelerating threats which, if left unchecked, would threaten vital economic and ecological values. The primary threats include habitat loss and pollution – particularly in areas adjacent to urban centres – and the increasing exploitation of straddling fish stocks. The oil, gas and mining industries

could pollute sensitive marine areas if they are not undertaken in an environmentally safe manner.

These environmental problems are compounded by the fact that the legacies of colonialism, apartheid and civil war persist in the Benguela region, in the form of depleted resources, poor infrastructure and, above all, limited human capacity to cope with the complexity and variability of the ecosystem.

In spite of these difficulties, the governments of Angola, Namibia and South Africa are working together to deal with the environmental problems that occur across national boundaries so that the Benguela Ecosystem may be managed as a whole. Their efforts are being supported by the Global Environment Facility (GEF), which has invested US\$15 million in the Benguela Current Large Marine Ecosystem Programme, through the United Nations Development Programme (UNDP). The GEF's funding complements an investment of approximately \$16 million by the three countries and over \$7 million from Norway (NORAD) and Germany (GTZ).

How does it work?

Over the next three years, some 80 projects will be supported by the BCLME Programme, with the aim of developing baseline scientific and economic information on the Benguela Current Large Marine Ecosystem, how this is changing over time and how the transboundary management problems associated with fishing, mining, oil exploration, coastal development, biodiversity and pollution can best be addressed across the entire Benguela region.

Half of these projects have already been initiated and a few are at an advanced stage of completion. Most of the projects have been designed primarily to address key transboundary management questions such as

- What are the cumulative effects on the environment of marine mining?
- Is it possible to establish an early warning system so that the three nations are prepared for harmful algal blooms and low oxygen water events, two of the most serious marine phenomena to occur in the region?
- How can Namibia and South Africa derive maximum socio-economic benefits from their shared hake resource, while at the same time ensuring the long-term sustainability of the stocks in the BCLME?

Benguela Current Commission

One of the Programme's major goals is to establish a Benguela Current Commission which will enable the three countries to constructively and peacefully resolve the transboundary issues that threaten the integrity of the BCLME.

An Interim Benguela Current Commission (IBCC), to be set up within a few years, will complement the work of the two regional fisheries organizations regulating high seas and tuna fisheries in the Benguela region, the South-East Atlantic Fisheries Organisation (SEAFO) and ICCAT (see page 26). It is envisaged that the existing regional fisheries research and training programme (BENEFIT) will serve as an advisory arm to the IBCC on

aspects of fisheries management, scientific research and training.

An auspicious beginning

Thanks to the strong commitment of the three governments and their international partners, the BCLME Programme is fast becoming a concrete and constructive initiative which clearly addresses and supports some of the overall goals of the New Partnership for Africa's Development (NEPAD). It is a country-driven initiative that will address some of the most pressing environmental issues in the Benguela region and contribute materially to the sustainable and responsible development of the rich oceanic resources of southern Africa.

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Visit <http://www.bclme.org>



A red tide discolours water off Cape Peninsula, South Africa. The BCLME Programme is funding projects to establish an early warning system for such destructive events.

IUCN's role

IUCN through its Marine Programme supported the BCLME Programme to demonstrate the feasibility of applying an ecosystem-wide, cross-national approach to marine conservation. The Marine Programme assists in technical issues of BCLME implementation, particularly advising on MPA development, and provides financial support to the portfolio of LME programmes along with its international partners like NOAA, the US National Oceanic and Atmospheric Administration.

A new project under GEF will enable IUCN to add a structured learning component to the set of 17 LME programmes currently operating, including BCLME. This will facilitate the exchange of experiences between programmes and foster the practical applicability of the LME concept.

Recent IUCN supported developments also include an update of the status and managing efforts of all 64 existing LMEs. Visit www.edc.uri.edu/lme/ for information on LME cases and maps, operating programmes and the overall concept.

The IUCN Marine Programme, in partnership with the IUCN Commission on Ecosystem Management, plans to further promote the practical application of the LME concept at the forthcoming 3rd IUCN World Conservation Congress in Bangkok (17-25 November 2004).

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