There is a growing body of evidence to suggest that fishing and fishing methods have far reaching impacts on marine ecosystems. The latest evidence is presented in the paper Global Seabird Response to Forage Fish Depletion – One-Third for the Birds, a groundbreaking study that was published in the prestigious journal Science, late last year.

Authored by 14 scientists, the paper demonstrates the importance of ecosystem considerations in the management of fisheries by providing convincing evidence that seabirds begin to suffer when the food available in the ocean declines below a critical level. Evidence is presented for 14 seabird species, including murres, gannets, jaegers, terns, puffins, penguins and a species of gull from seven different ecosystems. The seabirds’ success at producing offspring was measured over periods of between 15 and 47 years, and the scientists correlated this measurement with the abundance of the seabirds’ main fish food around breeding colonies.

All 14 seabird species scrutinized by the study are highly dependent on forage fish for food. Forage fish such as sardines, anchovies and sand eels are key species in marine ecosystems. They are an important source of food for seabirds and are also exploited by humans – as in the Benguela region where pilchards are an important source of protein and anchovy are the basis of a commercially important fishmeal industry.

In all, the scientists gathered 438 years of observations and compiled one of the most comprehensive global databases ever assembled for marine predators and their prey. And, they found that wherever the species of seabirds occurred in the world, the effect of low fish abundance was the same: when the biomass of forage fish fell below one-third of the maximum recorded biomass, their success at producing chicks declined and in some cases failed. Cleverly, the scientists capture this notion in the title of their paper: “one-third for the birds”.

They suggest that the motto “one-third for the birds” could be used to guide fisheries managers, limit the amount of forage fish taken from the sea and thereby maintain seabird populations in the long-term.

An ecosystem approach

The robust results reported in the Science paper provide unequivocal support for an ecosystem approach to ocean governance. They demonstrate that it is inadequate to manage fish stocks with the goal of safeguarding food security, or ensuring the prosperity of fishing fleets – it is also necessary to maintain a balanced ecosystem so as to protect seabirds and other top predators, like sharks, seals and whales, that are affected by fishing and other deep-sea activities like marine mining or oil and gas extraction.

The ecosystem approach is a “big picture” approach to ocean governance. It promotes the management of entire ecosystems, not for short-term economic gain, but to derive optimal benefits from their goods and services, without damaging the ecosystem itself. The concept is central to many environmental conventions and agreements such as the United Nations Convention on Biological Diversity and the FAO Code of Conduct for Responsible Fisheries.

Over the past decade, Angola, Namibia and South Africa have made considerable progress with introducing an ecosystem approach to the management of marine and coastal resources of the Benguela region. Progress has been facilitated by regional and international programmes such as the BCLME Programme (2003 to 2008), the Benguela Current Commission, and the EAF-Nansen project of the UN’s Food and Agriculture Organization (FAO). Strong support has also come from the global conservation organisation, WWF.

Where the BCLME Programme laid the foundations for the countries to begin to implement an ecosystem approach to fisheries management (EAF), the BCC
has taken this a step further. For example, several initiatives are being implemented under the umbrella of the EU-funded ECOFISH project, which aims to improve the scientific assessment of hake, horse mackerel and sardinella – three fish stocks considered most important for the fishing industries of the three countries. As the coordinator of ECOFISH, the BCC is effectively building the capacity of the three countries to generate new fisheries data, better process existing data and thereby facilitate the implementation of EAF which is known to be a particularly “data hungry” system.

One of the most anticipated outcomes of ECOFISH is that it will help the three countries to improve the collection and usage of socio-economic data, and ensure that the knowledge of fishers and fishing communities is taken into account, thereby improving fisheries management.

**Boosting the capacity of scientists and managers**

Inadequate participation by stakeholders in fisheries decision making is one of the weaknesses identified by a BCC-funded study of the institutional arrangements necessary for implementing EAF across the Benguela region.²

Authors by fisheries consultant Derek Staples, the report notes that stakeholder participation in decision-making is generally good in the large-scale industrial fisheries, but could be improved in small-scale artisanal fisheries in both Angola and South Africa.

Other findings were:

- All countries have similar institutional structures for the implementation of EAF. The main weakness is a lack of a dedicated fisheries management “unit”; although this exists to some extent in South Africa, in many cases the role of fishery manager is carried out by scientists, even though they are inadequately trained in many of the competencies required for EAF management.
- All countries have comprehensive policies and legislation but these are spread across a number of organisations and are generally not well harmonised. The lack of fishery specific management plans (or EAF management plans) that set out the objectives for a fishery, strategies for achieving the objectives and the measures needed to evaluate their performance, is more of a challenge. EAF implementation will not proceed until these EAF Management Plans are in place and used a guide for day-to-day management.
- Coordinating mechanisms, especially at the technical level, are adequate. However, coordination is often focused on an annual cycle of stock assessments. This TAC setting process is very time consuming and narrow and leaves little time, or energy, for considering broader EAF issues.

The study makes a number of recommendations for addressing gaps at the national level and suggests that broader, more integrated approaches are required to facilitate the implementation of EAF in the region. For example, the BCC has an important role to play by boosting the capacity of national scientists and managers through the provision of support and training in the fields of fisheries science and management, economics, environmental management, planning, communication and leadership. The BCC and the FAO, through its EAF-Nansen project could also assist the countries with the development of EAF management plans for each fishery, suggests the study.

**The Benguela Current Convention**

The concept of the ecosystem approach is an integral part of the Benguela Current Convention which the three countries are preparing to sign.

Though detailed and wide-ranging, the objective of the Benguela Current Convention is to promote a coordinated regional approach to the long-term conservation, protection, rehabilitation, enhancement and sustainable use of the BCLME and thereby provide economic, environmental and social benefits. Once it is ratified, the Convention will provide a legal basis for the three countries to tackle some of the environmental challenges that threaten the integrity of the Benguela region and its resources. These include addressing the threat of oil spills through the development of a regional oil spill contingency plan; mapping ocean and coastal resources so as to accurately identify especially sensitive and productive marine ecosystems; and getting to grips with the scientific and management aspects of shared fisheries stocks such as hake (South Africa and Namibia) and horse mackerel (Namibia and Angola).

Not only does the Benguela Current Convention provide a legal platform for the countries to cooperate in the management of marine and coastal resources, it also encourages the implementation of an ecosystem approach, so that the diverse commercial activities that take place in the BCLME region may be managed in an inclusive way. Therefore, the management of fisheries should logically take into account the activities of marine diamond mining operations and the exploitation of deep-sea oil and gas and other seabed resources.

The signing and ratification of the Benguela Current Convention is expected to rapidly advance the implementation of an ecosystem approach in the Benguela region so that, in time, resource managers in all three countries will be obliged to take simple and unequivocal scientific advice – like “one-third for the birds” – into account when allocating or managing natural resources. The Convention and its working arm, the Benguela Current Commission, have an important role to play by giving the countries the tools they need to meet this challenge.

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