

MARBEF investigates biodiversity of fish

By Brian MacKenzie

EUROPEAN SEAS HAVE HUNDREDS OF species of fish (Fig 1), and fish are one of the commonest marine animals encountered by Europeans. We see them in fish markets (Fig 2), restaurants, pet stores and aquaria, and many of us devote entire weekends and vacations trying to catch or observe them in the sea. Fish also provide thousands of jobs for Europeans, either directly for fishermen or indirectly (e.g. in processing, transport, tourism, research).

The different kinds of fish occupy a wide range of habitats characterised by differences in biotic and abiotic conditions, such as the availability of food, presence of predators, temperature, salinity, oxygen concentration and light intensity. It is not surprising, therefore, that fish distributions can change over time and space, and that fish have specialised functional roles (e.g. as predators of certain types of zooplankton or of other fish) within marine ecosystems, or that distributions and functional roles change as fish grow.

Increasingly, however, we are seeing that many human-related factors are affecting fish distributions and therefore the biodiversity and functionality of local fish faunas. These factors include high fishing rates, eutrophication and structural changes to fish habitats (e.g. dredging). This means that the biodiversity of present and future fish communities is changing and may be quite



Fig 1. Slope fishes in deepwater corals at 800-900m, south-west of Ireland. **Clockwise from top left:** *Phycis blennoides*, a gadoid species landed as by-catch on the offshore shelf and upper slope; *Trachyscorpia cristulata echinata*, a scorpaenid fish bycatch of deepwater fisheries; a monkfish (*Lophius* sp; these species are highly valued fishes throughout European waters, which are heavily exploited on shelf areas and found down to 1,000m); *Lepidion eques*, a small morid species abundant on all slope areas from 500m to 1,500m in the North-east Atlantic, discarded by fisheries. (© Ifremer, Caracole cruise, August 2001).

different from what it was many years ago (i.e. before humans began to impact marine ecosystems). Society, including scientists and conservation organisations, is recognising that many of these changes are for the worse and is now considering ways to slow down and perhaps even reverse the changes.

MARBEF will be considering some of these issues as part of its activities. At the

Bruges kick-off meeting (17-19 March 2004), the topic "fish and fisheries" was identified as a cross-cutting subject within MARBEF, having elements addressing several key actions and main themes of MARBEF.

A workshop was organised at IFREMER (Brest, France) from 14-16 June 2004 to define a responsive-mode project addressing biodiversity of fish, including effects of fisheries. The general aim of the project will be to address the following issues:

- fish biodiversity within EU waters (temporal/spatial variability, functioning);
- threats to fish biodiversity (direct impact from fisheries, other local anthropogenic impacts, global change, methods to stop fish biodiversity losses);
- genetic diversity of EU fish populations;
- fish biodiversity and human society (e.g. impacts of different conservation measures on stakeholders).

The project will be designed to extend the activities of various recent and ongoing EU and national projects and to promote new approaches for biodiversity research within the fields of fish and fisheries ecology. ●

Fig 2. A fish market in Copenhagen showing some of the species local consumers can buy. Will they have the same kind of fish to choose from in the future?



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