

“EFEP”

A Fisheries Ecosystem Plan for the North Sea

Traditional singles species fisheries management fails to consider the influence of the physical environment and other impacts such as predation, on the harvested species; nor does it consider social aspects and human behaviour. For this reason, it has not been able to deliver sustainable fisheries. As a result, ecosystem-based management, or the ‘ecosystem approach’ to fisheries management was called into existence. This approach considers all the components of the ecosystem (biological, chemical and physical) and their interactions. This includes an appreciation of the natural ecosystem dynamics and it explicitly recognises that man is part of the system and seeks to include stakeholders in setting management goals. But how does one put this ecosystem approach to fisheries into practice?

The EFEP project aimed to **develop a fisheries ecosystem plan (FEP) for the North Sea (as a case study), with the ultimate aim of developing a framework for the implementation of Fisheries Ecosystem Plans in Europe.** Such FEPs are designed to incorporate the principles and policies of ecosystem conservation into fisheries management. Specifically, a FEP provides a description and understanding of the basic environmental and human context in which a fishery is managed, directs the use of that information for fisheries management and defines strategies by which management objectives can be developed and implemented.

EFEP consulted extensively with the people affected by fisheries management in the North Sea and other with strong interest in the marine environment. They were asked for their opinions and views on the North Sea ecosystem and the management measures and tools they preferred.

Coincident with this stakeholder consultation, the biological and physical-chemical environment of the North Sea that supports the fishery was characterised and models to study the North Sea’s key processes and food web were

reviewed. The North Sea ecosystem was refined into a “significant web” based on the importance of the various components of the North Sea (fish, marine mammals, seabirds, habitats and benthos) according to functional, societal, economic and ecological criteria.

Consequently, EFEP assessed the mortality – both natural and anthropogenic – of those species and habitats identified as important within the significant web, with consideration of the species life stages where possible. Total removals/fishing induced mortality of target species could be calculated from MSVPA model outputs, but for the estimation of the fishing mortality of non-target fish species, an EFEP direct effect model (DEM) had to be developed since there was no appropriate modelling method. The mortality estimation of other significant species (e.g. seabirds and marine mammals) required an extensive review of existing databases and literature.

After assessing the uncertainty associated with the assessments made, a set of possible regimes to manage this uncertainty was developed. Subsequently, the effects of different fisheries management methods and combinations of management methods on the marine



Project acronym:

EFEP

Full title of Project:

European Fisheries Ecosystem Plan.

EU contract number:

Q5RS-CT-2001-01685

Web-site:

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ecosystem were derived through testing using ecosystem models, direct effect models, spatially explicit models and expert analyses. In this phase, stakeholders were consulted again to identify the management measures acceptable to them. Finally, a draft document for the North Sea Fisheries Ecosystem Plan was developed and disseminated widely to members of the fishing industry, policy makers, NGOs, MPs (Members of the Parliament), MEPs (Members of the European Parliament) and the press.

The North Sea FEP for the sustainable exploitation of resources in the North Sea ecosystem, and associated

documents provide a fisheries management scheme that

- allows an ecosystem approach
- addresses the priority areas for fisheries and ecosystem protection
- uses a suite of management measures that have been developed in consultation with the stakeholders
- advocates a management scheme that is participatory and inclusive
- provides a clear roadmap for moving from the current fisheries governance procedures to the ecosystem-based, participatory governance regime advocated by this project.

“EFEP DEVELOPED A DRAFT FISHERIES ECOSYSTEM PLAN FOR THE NORTH SEA THAT WAS WIDELY DISSEMINATED TO MEMBERS OF THE FISHING INDUSTRY, POLICY MAKERS, NGOS, MPS (MEMBERS OF THE PARLIAMENT), MEPS (MEMBERS OF THE EUROPEAN PARLIAMENT) AND THE PRESS“

