

Beaufort Award in Ecosystem Approach to Fisheries Management (EAF)

Terms of Reference

OVERALL OBJECTIVE

To develop research capacity focused on the field of the Ecosystem Approach to Fisheries Management (EAF). The research team will turn the available concepts and principles into pragmatic action plans that can be used for the sustainable management of fisheries in the waters around Ireland.

STRATEGIC CONTEXT

The Beaufort Award in EAF will be a key component in the delivery of national Strategies. The Award addresses the vision and challenge in the Government's *Strategy for Science Technology and Innovation 2006-2013* (SSTI). In addition, this award directly addresses a number of key objectives of *Sea Change: A Marine Knowledge, Research & Innovation Strategy for Ireland 2007-2013* (www.marine.ie). Specifically, it addresses key objectives within the Fisheries Resources Research Programme, as follows:

- Improve scientific advice for stakeholders—to deliver clear, reliable and impartial advice on the fish stocks of economic importance to Ireland;
- Contribute to the rebuilding of depleted fish stocks; and
- Build integrated data capacity and knowledge management.

Finally, the award will address the *Strategy for a Restructured, Sustainable and Profitable Irish Seafood Industry 2007-2013* (Cawley *et al.*, 2007). In launching the Cawley Report in January 2007, the Taoiseach stated that "*the bedrock of the fishing industry is the state of the fish stocks in our waters and the Government is committed to working nationally and at EU level to seek to ensure that the stocks are managed sustainably and re-built. Beyond that, we need to restructure the Sector to put it on a sustainable development path where it can maximise its potential into the future*".

DELIVERABLES/KEY OUTPUTS

- Centre of excellence in Ireland focused on the Ecosystem Approach to Fisheries Management (EAF);
- Review practical worked examples of the successes and failures of EAF in a global context;
- Turn available concepts and principles into pragmatic EAF actions plans relevant to Ireland;
- Develop Area Based, EAF Management Plans for waters around Ireland (both inshore and offshore);
- Establish close working relationship and regular contacts with scientists, industry and other stakeholders on the island of Ireland, principally through the Regional Advisory Councils (RAC's);
- Develop international partnerships and attract external funding;
- Develop a close working relationship with MI scientists that adds value to the knowledge derived from their extensive research and monitoring programmes; and

- Ensure Ireland is internationally recognised as providing research leadership in the emerging integrated marine science required for the application of EAF.

ACCESS TO MARINE INSTITUTE DATA/FACILITIES

The Marine Institute has facilities and data which may be applicable to this research programme. This national infrastructure will be made available to anyone who wishes to compete for this award. Candidates should contact Aengus Parsons (aengus.parsons@marine.ie) to discuss further details on access.

KEY ADDITIONAL INFORMATION

The waters around Ireland contain some of the most productive fishing grounds and biologically sensitive areas in the EU. There are major spawning areas for mackerel, horse mackerel, blue whiting, hake and cod in Ireland's Exclusive Economic Zone (EEZ) and the biological sensitivity of Irish waters has been recognized in the establishment of the 'Biologically Sensitive Area' by the EU (Anon. 2006). The fishing sector makes a significant contribution to the social and economic fabric of peripheral coastal regions. However, against a background of resource depletion, fleet overcapacity, misreporting of catch, discarding, poor scientific data and degradation of ecosystem processes, scientists, managers and the fishing sector face great challenges (Cawley et al., 2007). Furthermore, the impending European Marine Directive (MFD) seeks to ensure that all human activities are sustainable and embraces the ecosystem approach. Managing the environment in an ecologically sustainable manner has now shifted from being an option, to being a legal necessity: sustainability is now the overarching goal of environmental management policy (Frid et al., 2006). The European marine Directive will have a profound impact on the fishing sector in the coming years.

Ecosystems are complex and dynamic natural units that produce goods and services beyond those of benefit to fisheries. Because fisheries have a direct impact on the ecosystem, which is also impacted by other human activities, they need to be managed in an ecosystem context. Humans have affected marine ecosystems for hundreds of years. Some of these effects have been sustainable and have not compromised the options of future generations to benefit from the full range of goods and services that ecosystems supply or the capacity of the ecosystems to respond to environmental change. Conversely, some impacts have not been sustainable and have led to species depletion, fish stock collapse and the degradation of ecosystem processes (Rice et al., 2005).

Ecosystem Management (EM) has been defined as "*a management philosophy which focuses on desired states rather than system outputs and which recognizes the need to protect or restore critical ecological components, functions and structures in order to sustain resources in perpetuity*" (Cortner et al., 1994).

The 1992 UN Convention on Biological Diversity defines the **Ecosystem Approach (EA)** as "*ecosystem and natural habitats management.....to meet human requirements to use natural resources, whilst maintaining the biological richness and ecological processes necessary to sustain the composition,*

structure and function of the habitats or ecosystems concerned. Important within this process is the setting of explicit goals and practices, regularly updated in the light of the results of monitoring and research activities." The EA is embedded in the concept of sustainable development and defined by the twelve Malawi Principles (see Garcia et al., 2003).

Ward et al. (2002) define the **Ecosystem approach to fisheries management (EAF)** as "*an extension of conventional fisheries management recognizing more explicitly the interdependence between human well being and ecosystem health and the need to maintain ecosystems productivity for present and future generations*". The EAF embraces the conservation of critical habitats, the reduction of pollution and degradation, the minimizing of waste, and the protection of endangered species.

Garcia et al. (2003) state that EAF is recognized as a form of fisheries governance framework, taking its conceptual principles and operational instruments from conventional fisheries management on one hand and ecosystem management on the other. EAF is an evolution of the fisheries management paradigm which borrows some central principles of ecosystem management and gives to them a practical operational meaning. However, both paradigms are evolving and the interaction between their respective trajectories is not immediately obvious. The future of EAF and fisheries depends on the way in which the two fundamental concepts of fisheries management and ecosystem management, and their respective stakeholders, will join efforts or collide. This programme will seek to ensure they join efforts.

Global societal concerns regarding the human use of the natural resources of the planet have been translated into marine policy since 1945. Global ocean governance policy drivers have evolved and led to a cloud of ideas, concepts and tools which represent the present form of the EAF. National and regional governments, government institutes and other stakeholders are presently trying to disentangle or unpack these concepts in order to arrive at a realistic, pragmatic and workable way forward towards a new approach to operational management which will replace or augment the present single species, fish stock orientated methods (Turrell, 2004).

The wide ranging set of international agreements of relevance to EAF encompass a large number of principles and conceptual objectives. These provide fundamental guidance and a significant challenge for the implementation of EAF. One of the major difficulties in defining EAF lies precisely in turning the available concepts and principles into pragmatic operational objectives, from which an EAF management plan can be more easily developed. The EAF programme will specifically address this issue.

Garcia et al. (2003) have stated that an outright elimination of fisheries as the main user of the marine ecosystem is unlikely. He also states that the ecological footprint of an alternative solution to production of the 150 million tonnes of food now coming from the seas would probably be worse. Furthermore, the socio-economic impact resulting from the demise of world fisheries would be unacceptable to society.

Guided by the twelve Malawi principles, the EU Common Fisheries Policy (CFP), the MFD, and the new EU Maritime Policy, this Beaufort programme will explore the type of actions needed to achieve EAF for the waters around Ireland.

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