

Ecosystem-Based Fisheries Management in Fisheries Sector

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ABSTRACT

EBFM also known as an ecosystem approach to fisheries management takes into account the complexity of the ecosystems and interdependency of the species. Therefore, ecosystem-based fisheries management (EBFM) is defined as a shift from these ideas of stock management where every single species. The elements involved in this method enables people to balance the water systems through appropriate fish stock and also the correct balance of the diversification of certain species. Several recent works prove that such approach has a positive effect on the further sustenance of fishery resources, increasing the stability of the ecosystem to climate change, and support of wildlife in the marine environment. However, the strategies that have been implemented under EBFM developing some challenges which are Data limitations System complexity and stakeholders. The subsequent sections of the paper describe the theoretical framework of EBFM, and the benefits and drawbacks of this approach derived from the empirical findings. Additionally, this review provides case studies illustrating the practical use and effectiveness of EBFM along with the clarification of how these concepts of EBFM can be put into practice and carried out in the various marine environment. We can now confidently state that this project is aimed at the continuation of the existing knowledge regarding sustainable fisheries and preservation of marine life.

Keywords: Ecosystem-Based Fisheries Management, Sustainable fisheries, Marine biodiversity, Ecosystem approach

Introduction

EBFM also known as an ecosystem approach to fisheries management takes into account the complexity of the ecosystems and interdependency of the species. Compared to conventional approaches to management of specific species, EBFM takes into account the structure of the ecosystem analysing options to achieve not only sustainable fish stocks but also preserving the structure and functions of ecosystems. Thus, the need for an ecosystem-based method of fisheries management resulted in the development of the EBFM strategy. This approach recognizes the fact that the marine ecosystems are complex and interdependent and hence calls for compendious strategies to deal with the problem [1].

Modern discoveries in oceanic sciences have affirmed EBFM as a suitable approach for dealing with the complex issues affecting fisheries in the globe. EBFM applies three types of objectives namely ecological social and economic objectives for sustainable development and resilience of marine ecosystems. Compared with other existing frameworks of fisheries management, EBFM coordinates the physical chemical biological and human aspects in ecosystem modelling, and it guarantees qualitative decisions based on the up-to-date scientific data [3]. This approach has been more and more applied in many regions proving its capability to encourage sustainable fisheries and preserve marine ecosystems [4].

The streaming changes that largely inform the conceptualization of EBFM also stem from overfishing, loss of habitats and climate change effects on the ocean. Most the conventional methods of fisheries management where tool based have also resulted to other problems which include the collapse of ecosystems which is mainly due to the over exploitation of stocks mainly associate with non-target species [5]. On the other hand, EBFM focuses on the attempt to satisfy both the ecological requirements in the marine environment and socio-economic requisites of communities that directly rely on ecosystems. Management measures that are flexible enable adaptation to the prevailing conditions and information on the environment, making this balance possible. EBFM needs to include scientist's managers and other stakeholders within their decision making who integrate the different knowledge systems [6].

Principles of EBFM

EBFM has its premises on several principles as follows:

1.Holistic Perspective

Components considerate in EBFM fact includes physical, chemical, biological and human factors [1].

2.Adaptive Management

It draws an open approach that is flexible enough to overcome the continually changing environment [2].

3.Precautionary Principle

EBFM also takes pertinent issues through risk and applies preventative actions to actual risks as well as dealing with any issue of the irreversibility [3].

4.Stakeholder Involvement

EBFM also emphasises the increase in the involvement of the stakeholders that include the fish scientist's policy makers and those who conserve the resource among others. It is necessary to ensure that the various perspectives and information regarding the management procedures are incorporated [6].

Benefits of EBFM

The implementation of EBFM offers numerous benefits. The main advantages can be derived from the following indicators as a result of the implementation of EBFM.

1.Biodiversity Conservation

EBFM's primary objectives are to conserve habitats and improve ecosystem functions through the protection of biodiversity [4].

2.Sustainable Fisheries

When applying EBFM consideration is given to the relations between different organisms and abiotic environment and its changes in order to maintain the stock of fish [5].

3.Resilience to Climate Change

Benefits of EBFM enhance the globe's capacity for the climate change adaptation through efficiency and existence of various ecosystems in oceans [3].

4.Improved Fishery Yields

From the above explanation, healthy ecosystems result in enhanced fish stock; hence, more sustainable and perhaps larger fish yields in the future [7].

Challenges in Implementing EBFM

Despite its advantages EBFM faces several challenges. Therefore, although EBFM has several benefits the approach raised the following challenges:

1.Data Limitations

Primary factors in EBFM operate chiefly due to the effectiveness of the ecosystem information that may be difficult to obtain or is scarce [4].

2.Complexity of the Ecosystems

Marines are complex and their ecosystems are always changing which perverts or makes it difficult to make a prognosis or exercise resource management [2].

3.Stakeholder Involvement

Plans are often prepared and implemented with many different intentions and motives for different stakeholders, which only amplifies the inherent difficulties of the decision-making process [9].

Case Studies

1.The Baltic Sea

One of the examples of assisting the EBFM is the Helsinki Commission (HELCOM) Baltic Sea Action Plan that has focus on fisheries and marine surroundings [7].

2.Australia's Great Barrier Reef

Strategies in integrating management of the Great Barrier Reef Marine Park support EBFM as a right approach in conservation of diversity as well as maintaining sustainable fisheries [8].

Conclusion

Thus ecosystem-based fisheries management seems to be a quite prospective approach to attaining sustainable fisheries and healthy marine environment. With the concept of EBFM aimed at assuming whole-of ecosystem adaptive and precautionary measures the intricate features of the marine environment are comprehensively dealt with corresponding optimized socio-economic values in the long-term. Nevertheless, there are some important challenges that are hardly to be solved: data limitation, management of ecosystem complexity, and collaboration with stakeholders. To promote the successful implementation of EBFM, further academic studies, government legislation, and public participation are required.

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