Chapter 16
Marine Living Resource Management and Fishing Effort Control in View of Socioeconomic Reality:
Alternatives and Measures

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ABSTRACT

For proper fisheries management, it is important to know fishing effort. One of the main problems in the Black Sea region is the lack of comprehensive information concerning the fishing activity, catch quantities, and composition and how it affects the current state of fish stocks. In the present research, different alternatives concerning measures to decrease the fishing effort on some over exploited fish stocks using REPOMP method are reviewed and evaluated. In task formulation, some socioeconomic impacts on the people engaged in the sector are taken into account as well as possibilities for control of the execution of some concrete restrictions. Preliminary assumption is the possibility for applying the combination of methods for fishing effort restrictions; as such an alternative or set of the methods were searched. The main goal using corresponding methodology is to achieve the most positive result regarding marine living resource stocks conservation, economic dimensions of métier and the weakest influence on the socioeconomic status of all participants engaged in the process.

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INTRODUCTION

In general, natural resources management is a governmental system of management rules based on defined objectives. A mix of management means is used to implement the rules, by a system of monitoring control and surveillance. Modern natural resources management is most often based on ecologically-founded scientific arguments where the aim is to protect biological resources in order to exploit them in a sustainable manner. Where natural resources are confined to geographically discrete regions but spread across different political territories, integrated and internationally coordinated resources management strategies become crucial in order to regulate exploration and insure sustainable exploitation of natural resources.

The marine natural resources of the basin of the Black Sea are an outstanding example of this situation. Equitably shared and appropriately managed, the marine resources of this sea can offer sustainable employment opportunities for coastal communities surrounding it. Yet, ensuring the sustainable availability of marine resources is not only the responsibility of the riparian countries, but of all countries whose land drains into the seas and whose atmospheric emissions of pollutants contribute to climate change and are ultimately deposited in the Sea itself (BlackCasp ECOMAMA, 2009).

One of the main aims of CFP (Common Fishery Policy of EU) is to undertake protection measures in order to prevent the over exploitation of the fish stocks. These measures tend to mitigate the impact on the fishing activities, which endanger reproductive capacity or directly put in jeopardy the fish stocks. Many fish stocks in EU waters are out the safe biological limits (Official web site of the European Commission – Fisheries, 2009).

In order to assure development of some fisheries, two types of inter-annual management plans have been elaborated with the aim to path the way of necessary conditions for stock restoration. Restoration plans have been developed in order to rehabilitate some depleted stocks, since management plans tend to keep the stocks in safe biological limits. In the frame of these plans, some target levels could be set such as population size, reproduction levels in long-term plan, mortality rate and stability of the catches. In order to support the sustainable development of the sector in all of its dimensions and to preserve given stock or stock group, EC could apply system of protection measures. These measures include:

- **Total allowable catches (TAC):** With aim restriction the maximum amount of fish/ shellfish, which could be extracted from given stock for a given period of time;
- **Technical measures:** Selectivity and mesh-size of the fishing gear, fishing closed areas, minimum catch size, by-catch limits;
- **Fishing effort limitations:** Lessen the days at sea of the fishing vessels;

Limited number of fishing vessels with fishing licenses;

In addition to these measures, some economic criteria could be applied:

- Replacement of the fishing gears with more selective;
- Diminish the fishing effort;
- Diminish the economic effect from the measures applied on the socioeconomic status of the fishermen (Official web site of the European Commission – Fisheries, 2009).

In this chapter, a formalized approach towards expert panel subjective opinion processing is presented, which allows a criteria hierarchy to be structured and different environmental program alternatives to be ranked taking into consideration not only the total marginal indicators, but also their deviation with the use of the Bootstrap modification of the Monte Carlo computer intensive