# THE FISHING ENTERPRISE AND FISHERIES MANAGEMENT

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## Contents



## Summary

This chapter focuses on how the motives and behavior of fishing enterprises may impact on the sustainable use of fishery resources. A simple description is given of what an enterprise is and how it is expected to behave in the course of its activities. For fishing enterprises, it is demonstrated that the usual tendency of enterprises to act as profit maximizers puts the long-term sustainability of fisheries in great danger. A key challenge for managers is to devise and implement incentive systems that make fishing enterprises more responsible for the long-term well-being of the industry and its resource base.

## 1. Introduction: The Economic Dimension of Fisheries

Fisheries are economic and social activities involving an estimated 12.5 million fishers operating from more than 3 million vessels globally. Most of these fishers are organized into fishing firms or enterprises that land around 90 million tonnes (t) of fish per year, and discard an unwanted “by-catch” of about 30 million t. Note that aquaculture, the farming of fish and aquatic invertebrates, is not considered here.

To design appropriate fisheries management regimes, one needs to understand the

reasons why fishing enterprises or firms go out fishing. This contribution is thus structured around four questions. First, what is an enterprise? Second, how do enterprises behave? Third, how does this behavior impact on the long-term sustainability of fishery resources? Fourth, what challenges confront fisheries managers because of the way enterprises operate and behave?

## 2. What is an Enterprise and How Does an Enterprise Behave?

Most economic definitions of the firm share the idea that a firm or enterprise should be able to produce (or sell) more efficiently than would its constituent parts acting separately. Hence, economic definitions of the firm entail very explicit optimizing approaches. For instance, the firm is usually regarded as a synergy between different units, jointly exploiting economies of scale. However, describing the behavior of the firm is not a simple matter. In general, economic theory prescribes profit-maximizing behavior as the typical behavior of the firm or enterprise. However, clearly this is not a complete description, since there is empirical evidence to show that business executives may occasionally deviate from profit-maximizing behavior. This caveat notwithstanding, economists generally believe that the profit-maximization hypothesis is still a useful guide for predicting, in most sectors, the behavior of the firm or enterprise. The next question to ask here is, do enterprises of the fisheries sector also behave according to the profit-maximization hypothesis? The evidence at hand suggests that this is the case for firms involved in commercial and distant-water (deep sea) fishing, that is, for the firms contributing the bulk of the world fisheries catches, though this may not always apply in aboriginal and other traditional fisheries.

## 3. How Does the Behavior of Enterprises Affect Fishery Resources?

### 3.1 Market Versus Non-market Values

Thus, given that fishing enterprises generally seek to maximize their discounted profits from their fishing activities, what are the chances that the goal of sustainable fisheries will be achieved?

One can categorize the benefits from marine ecosystems into market and non-market benefits. Even though economic theories, especially of the Rawlsian and to some extent the utilitarian variety, are broad enough to conceive of non-market benefits, it is almost always the case, in practice, that economic actors put more weight on market benefits when they go out to exploit resources embedded within marine ecosystems. This leads to the ecosystems being treated as “mines” for products that are traded in the market. As expected, this results in the degradation of the ecosystem. Economists attribute this degradation to what they call an “externality,” that is, a situation in which economic agents impose external costs upon society. With no market values to provide incentives for the preservation of those features of ecosystems that provide non-market values and services, the inevitable result is the misuse of ecosystems by enterprises, each separately seeking to maximize its profit.

For most economists, the source of an externality is typically found in the absence of fully defined property rights, whether to a group such as a community, a country, or an individual or firm. Hence, the further discussion in this section is structured around

open access and common or private property.

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**Biographical Sketch**

**Ussif Rashid Sumaila** is an economist—a senior research fellow at the Chr. Michelsen Institute, Bergen, Norway, and an adjunct professor at the Fisheries Centre, University of British Columbia, Vancouver, Canada. His research interests include multi-agent modeling of fisheries, the evolution of global fish catches and prices, and ethical issues in the use of common property resources. A selection of Sumaila's recent publications are:

A review of game theoretic models of fishing, *Marine Policy*;

Protected marine reserves as fisheries management tools: A bioeconomic analysis, *Fisheries Research*;

Cooperative and non-cooperative exploitation of the Arcto-Norwegian cod stock in the Barents Sea, *Environmental and Resource Economics;*

Strategic dynamic interaction: The case of Barents Sea fisheries, *Marine Resource Economics.*