

TOWARDS AN INTEGRATED SUSTAINABLE MANAGEMENT OF FISHERIES

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Summary

This article discusses the underlying causes for the problem of managing fish stocks and the aim of fisheries management. It reviews some of the research development in the area and practical experiences. Further, it deals with the future challenges and discusses potential successful strategies and outlines the necessary conditions for actual progress from the current state. The main theme is that the fundamental problem of fisheries is the lack of well-defined property rights. Any attempt to solve the problem of fisheries must deal with the property right issue. Two approaches, which meet this requirement, individual transferable quotas (ITQs) and common property resource (CPR) management, are discussed. Further, it is held that fisheries management should be part of an integrated sustainable use of marine resources, where efficient use of fish stocks is one aim. Equal attention should be given to other values from aquatic ecosystems, like ecological services, biodiversity and recreation possibilities. It is concluded that despite the fact that a lot of the world's fisheries are in severe crisis, the future situation can be improved. Necessary conditions for a prosperous future are that current knowledge is used and that all concerned agents, scholars of different disciplines, fishermen, and managers, are involved in the decision-making and management process.

1. Introduction

The world's population continues to grow, before the turn of a new millennium we will exceed six billions and within another ten years the population is expected to reach seven billions. More than 60 percent of the population lives in the coastal areas, where most of the big cities are situated, and the figure will grow due to the urbanization. This leads to increasing pressure on coastal areas and meanwhile, important breeding grounds for fish, like mangrove forests and lagoons are depleted, polluted or silted up. Global fish production, excluding aquaculture is constant at 80–85 million tons for the period 1987–1996. At the same time, we are fishing down marine food webs as larger and more valuable species disappear, leading to impoverished ecosystems. A recent FAO report provides an estimate in the discards of “by catch” in commercial fisheries, low-value species that are “accidentally” caught and discarded on the spot, of about 25 percent of total landed catch. In some areas industrial fisheries, i.e. fisheries with small-meshed gear directed at catching fish for reduction purposes, have reached a level where they threaten the food supply of seabirds. The well being of seabird communities comprise substantial values in terms of recreation and biodiversity. FAO reports that “69 percent of the world's marine [fish] stocks ... are heavily exploited, overexploited, depleted ... and therefore are in need of urgent conservation and management measures” (FAO, 1995) and as late as in 1993, six Canadian populations of Atlantic cod had collapsed to the point when a moratorium was declared. This was due to discarding and too high levels of fishing mortality. Contrasting this with the statement made by Thomas Huxley in 1883: “I believe that the cod fishery...and probably all the great sea-fisheries are inexhaustible; that is to say that nothing we can do seriously affects the number of fish” (cited in McGoodwin, 1990), one might get the impression that fisheries management has deteriorated constantly during the last century.

This article discusses the underlying causes for the problem of managing fish stocks and the aim of marine resource management. It reviews some of the research development in the area and practical experiences. Further, it deals with the future challenges and discusses potential successful strategies and outlines the necessary conditions for actual progress from the current state. Two of the most fruitful approaches advocated here are individual transferable quotas (ITQs) and common property resource (CPR) management.

2. Historical Background

By the mid-nineteenth century it was still an undisputed belief that marine resources were inexhaustible and could not be influenced by human actions. Before the twentieth century, the greatest issue was allocation of rights to fish in particular areas or for particular species. Even before any over-fishing occurred, certain rich fishing grounds became crowded and fishers sought explicit agreements defining rights of access.

However, concern for development of fish stocks and the potential risk of over-fishing are not completely new findings. By the end of the nineteenth century Scandinavian scientists initiated the start of an organization for hydrographic and biological investigations of the sea, the International Council for the Exploration of the Sea (ICES), with a secretariat in Copenhagen, Denmark. The original ICES formed three

committees, which would focus on migration of commercial fish stocks, The Baltic Sea, and over-fishing. Ninety years ago, a Danish economist described the problem of fisheries. He compared two fishing grounds and showed that, given that access was free to both, the resource rent would be completely dissipated. The problem was that Warming wrote in Danish, so the article did not reach an international audience, and the forces and outcome of open access for fisheries were not known until the mid 1950s.

Before World War II, harvesting of marine resources rarely reached such levels that risk of stock depletion occurred. One exception is the 40 years of pelagic sealing in the North Pacific, starting with the American purchase of Alaska in 1867. When Great Britain, the U.S., Japan, and Russia signed the North Pacific Fur Seal Treaty in 1911, stock estimates indicated a reduction from some 1–2 million animals down to 150 000.

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