INTRODUCTION TO AQUATIC SCIENCES

12. Week	Introduction to Fisheries Economy

Introduction to Aquatic Sciences

WEEKLY TOPICS (CONTENT)

Week	Topics
1. Week	Aquaculture in Turkey and world
2. Week	The role of fish in human consumption
3. Week	What is fish? Taxonomy of fish
4. Week	Aquatic Crustacean
5. Week	Water quality for aquaculture
6. Week	Introduction to marine fish
7. Week	Introduction to freshwater fish
8. Week	Live foods (microalgae, zooplankton and *Artemia*)
9. Week	Introduction to fishing techniques
10. Week	Fish transport
11. Week	Introduction to fish disease
12. Week	Introduction to fisheries economy
13. Week	Processing and marketing of fish
14. Week	Introduction to fisheries and aquaculture management

Food and agriculture in a market economy: an introduction to theory, practice and policy.

Author(s) : Tracy, M.
Book : Food and agriculture in a market economy: an introduction to theory, practice and policy. 1993 pp.286pp. ref.

Abstract : The success of the food and agriculture system in the developed market economies in providing ample food at affordable prices, as compared with the relative failure of socialized agriculture, is described. The book seeks to identify the causes of this success, while emphasizing the problems which agricultural policies have failed to solve or have even aggravated: inadequate farm structures and incomes, over-production, costly price support and trade conflicts. An explanation of basic economic theory is combined with description and analysis of the agri-food sector in Western Europe in particular and, to some extent, in North America. The structure of the farm sector is explained, and that of the 'agri-business' sector, i.e., the industries 'upstream' from farming which supply inputs such as machinery, feed and fertilizer, as well as the 'downstream' activities of marketing, processing and distribution. The second part of the book deals with agricultural policies: the evolution of national policies and the formation of the EC's CAP. The support and protection mechanisms of the CAP are given particular attention; chapters also deal with structural, regional and environmental policy, and with food policy. Policies in the USA and in other developed market economies are described. Trade issues (the Uruguay Round negotiations and recent agreements between the EC and countries of Central and Eastern Europe) are also studied. The political forces which influence decision making in agricultural policy, explaining the processes in the EC and its Member States, and in the USA are analysed. A concluding chapter considers implications for countries making the transition from socialized agriculture with regard to how they can learn from the success of the Western agri-food system in terms of food supply, without encountering similar problems.

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The livelihoods approach and management of small-scale fisheries

Abstract

An approach to poverty reduction in low-income countries known as the ‘sustainable livelihoods approach’ is applied to understanding the strategies of artisanal fisherfolk confronted by fluctuating fisheries resources. The livelihood approach is explained, and the insights it provides into conventional fisheries management policies in developing countries are explored. It is argued that both state-led management and some of the newer, community or territorial use-rights approaches, if predicated on an incomplete understanding of livelihoods, can result in management directives incompatible with both resource conservation and the social and economic goals of management.

The political economy of fisheries development in the third world

Authors | Authors and affiliations

Conner Bailey

Abstract

International agencies have contributed significantly to the promotion of capital-intensive fisheries development programs in many Third World nations. Activities of both bilateral and multilateral development assistance agencies are examined and shown to have certain common features, notably production-oriented programs typified by the introduction of powerful new fishing technologies, and the promotion of fishery exports as a means of increasing foreign exchange earnings. The argument is advanced that these programs have been largely detrimental to the best interests of recipient nations because they have ignored both resource limitations and the distributional consequences of such development.

Fisheries development programs in the Third World are seen as being shaped by a convergence of institutional and class interests between national and international agencies. The perspective of political economy is used to examine these interests and explain their relation to policy outcomes. Evidence is presented to show that international agencies have contributed to dualistic patterns of industry growth which have skewed development benefits towards a narrow urban elite. Rural small-scale fishers have been increasingly marginalized as a result of their inability to compete over a limited and, in some cases, depleted resource.

Fisheries development and resource management need to be seen as complementary aspects of a single process rather than as separate activities. Central to fisheries management is the question of resource allocation between competing users. Suggestions are offered by which international development agencies can play an important role in encouraging resource use patterns which are both biologically sustainable and socially just.

The Political Economy and Ecology of Capture Fisheries: Market Dynamics, Resource Access and Relations of Exploitation and Resistance

Capture fisheries are constituted through historically specific environmental conditions and social and economic relations of production. Fisheries, whether saltwater or freshwater, are an important source of animal protein, livelihoods and exchange value in international trade, and are presently undergoing rapid socio-ecological change. To explore the political economy and ecology of capture fisheries around the world, this paper synthesizes the insights of 11 empirical studies and places fisheries in the broader context of the capitalist relations of production through which they operate. The competitive market dynamics of fisheries production and consumption are examined, as well as the forms of social-property relations, social differentiation, labour exploitation and resistance that occur within them. This paper highlights some of the ways in which the unique combination of characteristics associated with fish and fisheries complement and complicate familiar questions in agrarian political economy. It concludes by identifying future research directions.

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World review of fisheries and aquaculture

FISHERIES RESOURCES: TRENDS IN PRODUCTION, UTILIZATION AND TRADE

OVERVIEW

Despite fluctuations in supply and demand, caused by the changing state of fisheries resources, the economic climate and environmental conditions, fisheries and aquaculture remain very important as a source of food, employment and revenue in many countries and communities.

Reported global capture fisheries and aquaculture production contracted from a figure of 122 million tonnes in 1997 to 117 million tonnes in 1998. This was mainly owing to the effects of the climate anomaly, El Niño, on some major marine capture fisheries (Figure 1, p. 4 and Table 1, p. 6). However, production recovered in 1999, for which the preliminary estimate is about 125 million tonnes. The production increase of 20 million tonnes over the last decade was mainly due to aquaculture, as capture fisheries production remained relatively stable.

For the two decades following 1950, world marine and inland capture fisheries production increased on average by as much as 6 percent per year, trebling from 18 million tonnes in 1950 to 56 million tonnes in 1969. During the 1970s and 1980s, the average rate of increase declined to 2 percent per year, falling to almost zero in the 1990s. This levelling off of the total catch follows the general trend of most of the world's fishing areas, which have apparently reached their maximum potential for capture fisheries production, with the majority of stocks being fully exploited. It is therefore very unlikely that substantial increases in total catch will be obtained. In contrast, growth in aquaculture production has shown the opposite tendency. Starting from an insignificant total production, inland and marine aquaculture production grew by about 5 percent per year between 1950 and 1969 and by about 8 percent per year during the 1970s and 1980s, and it has increased further to 10 percent per year since 1990.

The global patterns of fish production owe much to the activities of China, which reports production in weight that accounts for 32 percent of the world total. Other major producer countries are Japan, India, the United States, the Russian Federation and Indonesia.

When China is excluded, however, the production of fish used as food for humans has remained relatively stable (Figure 2), but the production of fish destined for animal feed has decreased in recent years – the decline registered in 1998 was largely due to the El Niño effect, particularly on the anchoveta fishery which supplies a significant proportion of the fish used for fishmeal and fish oil. However, the event had much less impact on the supply of fish for food, which declined only slightly to 11.8 kg per capita. Outside China, the world's population has been increasing more quickly than total fish production and the per capita fish supply has declined since the mid-1980s.

In contrast, China has reported increases in fish production and shows little sign of slowing growth (Figure 3). Most of the production is used domestically and for human consumption, but there has also been a recent expansion in the production of feed. There has been a major growth of aquaculture, which now dominates China's production, although capture fisheries have also seen increases. Per capita fish supply, based on reported production, has increased dramatically over the last 20 years, indicating the growing importance of fish as food. This increased supply has been helped by China's slowing population growth.

Employment in the primary capture fisheries and aquaculture production sectors in 1998 is estimated to have been about 36 million people, comprising about 15 million full-time, 13 million part-time and 8 million occasional workers. For the first time, there is an indication that growth in employment in the primary sectors of fisheries and aquaculture has ceased (Figure 4). Employment in inland and marine aquaculture has been increasing, and is now estimated to account for about 25 percent of the total. Marine capture fisheries account for about 60 percent and inland capture fisheries for the remaining 15 percent.

International trade in fishery commodities fell back from a peak of US$53.5 billion dollars (f.o.b.) in 1997 to US$51.3 billion in 1998. This is probably the result of a combination of factors, including a recession in East Asia which weakened demand,

The ecological basis for economic value of seafood production supported by mangrove ecosystems

Abstract

The undervaluation of natural products and ecological services generated by mangrove ecosystems is a major driving force behind the conversion of this system into alternative uses. This trend of undervaluation is partly due to the difficulty involved in placing a monetary value on all relevant factors, but lack of ecological knowledge and a holistic approach among those performing the evaluation may be even more important determinants. This article identifies and synthesizes ecological and biophysical links of mangroves that sustain capture fisheries and aquaculture production. Fish, crustacean and mollusc species associated with mangroves are presented and the ecology of their direct use of this system is reviewed. Through a coastal seascape perspective, biophysical interactions among mangroves, seagrass beds and coral reefs are illustrated. The life-support functions of mangrove ecosystems also set the framework for sustainable aquaculture in these environments. Estimates of the annual market value of capture fisheries supported by mangroves ranges from US$750 to 16 750 per hectare, which illustrates the potential support value of mangroves. The value of mangroves in seafood production would further increase by additional research on subsistence fisheries, biophysical support to other ecosystems, and the mechanisms which sustain aquaculture production.

Socio-economic impacts of shrimp culture

Farmed shrimp contributed 27% of total world shrimp production in 1995 with a volume of 712 000 tonnes. Undoubtedly, the shrimp culture industry earns valuable foreign exchange for developing countries and generates jobs across the industry from fry gatherers to growers and processors. However, grave socio-economic consequences – including conversion, expropriation and privatization of mangroves and other lands; salinization of water and soil; decline in food security; marginalization of coastal communities, unemployment and urban migration; and social conflicts – have followed in the wake of, shrimp farm development in the Philippines and other tropical countries.

The paper focuses on mangrove ecosystems: the valuation and cost-benefit analysis of their goods and services, and the mangrove-offshore fisheries connection. Research gaps in these areas and the need to internalize the ecological and socio-economic costs ('externalities') of shrimp farming are highlighted. Other recommendations include mangrove conservation and rehabilitation, enforcement of existing legislation, and introduction of environment-friendly aquaculture within the broader framework of community-based, integrated coastal area management, e.g. the traditional, extensive polyculture ponds in Indonesia.

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