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Concept of Fishing

4TH SEM, HONS, CC-9

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What is fishing?

The science of producing fish and other aquatic resources for the purpose of providing human food, although other aims are possible (such as sport or recreational fishing), or obtaining ornamental fish or fish products such as fish oil. Fisheries are harvested for their value either commercial, recreational, or self-consumption.

Fishing can be defined as the collection or capture of wild organisms from the oceans, seas and inland waters (lakes, rivers, streams, etc.) and is one of humanity's oldest activities. Fishing is an important economic activity which provides food from the sea and thereby creates employment not only for whoever (the fishermen) directly collects that food (fish, crustaceans, molluscs) but also for those who operate in the entire chain, from the construction of vessels and equipment supplies related to the marketing of products. Therefore, fishing is one of those human activities that includes ecological (about populations and aquatic ecosystems), socioeconomic (those working in the sector), technological (boats, motors, tools, etc.) and, consequently, political and administrative concerns. Organisms exploited by fisheries mainly belong to food chains whose first link is microscopic algae with distribution limited to the availability of light, more or less in the first 200 m of depth. Primary productivity due to phytoplankton is related not only to the availability of light but also to that of nutrients (nitrogen, phosphorus, iron, etc.) as well as to particular subsidiary energy sources (upwelling currents, tidal flows, etc.). Estimates by Pauly and Christensen (1995) indicate that on average 8 % of the global primary productivity of the sea supports global fishing or, in other words, this is the percentage of primary productivity that becomes food for humans. This percentage drops in the open ocean (approximately 2 %) and increases in coastal areas and in areas with rising currents (between 24 and 35 %), confirming the increased productivity of these latter environmental systems in terms of resources exploited by man.

The study of fishery resources implies a substantial leap in the complexity typical of ecological studies of the connection and interaction between the parties (living forms as well as physical, chemical and biological factors, climatic conditions, etc.) which determines a unique and unrepeatable scenario. The study of relations and connections between natural phenomena on different space–time scales requires the integration of different scientific disciplines. Economics and social sciences play an important role in issues related to the management of fisheries' resources.

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Alternative income-generating fishing activities

Overexploitation of marine resources has led to the decline of many demersal stocks as well as to habitat degradation, which is particularly severe in marine coastal zones, where human activities have historically been concentrated. In fact, the increasing discharges of waste and materials from the coast, pollution as well as urban and tourism developments have often led to definitive loss of natural habitats that has severe implications in the coastal small-scale fishing activity and consequent economic and social effects. Apart from the regulation of fishing activities previously reported and the protection and conservation of marine habitats, the promotion of alternative actions has been developed in recent years to transfer fishermen from fishery to tourist activities. In particular, the Ministerial Decree 293/99 regulates “fishing tourism” which represents fishing activity for tourist and educational services with which the local fishing community can supplement its income. Fishing tourism is the best way to participate in local development while also integrating socio-economic and cultural activities. Tourist fishing aims not only to discover the resources of the sea, but also to teach people how to experience and respect nature. It is the best way to learn the culture of the sea and of fishing, coastal areas and lagoons, as well as to discover the ancient professions and traditions while also eating excellent fresh fish cooked on board. In fact, aboard a traditional fishing boat everybody can learn from the ancient heritage of fishing techniques and Italian traditions, in the same way as in a museum or a natural park. Moreover, the fishing tourism activity prolonged to different seasons could contribute to the seasonal adjustment of the tourism flow, also reducing resource exploitation in the critical period.

By means of this activity, fishermen could decrease their total fishing effort and be directly involved in the local socio-economic development. The gradual decrease of the main fishing activity produced by the fishing tourism could guarantee sustainable management of resources and/or habitat maintenance either directly through a contribution to conservation and/or indirectly by providing revenue to the local community sufficient for local people to value, and therefore protect, their wildlife heritage as a source of income. An additional important contribution that the fishing world can offer is related to the growth of tourism centered on traditional local products and local cuisine, as well as various activities in which the tourist takes an active role in demonstrational fishing activities, also proposing the start-up of new services, such as fishing tourism, whale–dolphin watching and environmental education.

Human impact leads to decreasing diversity of habitat and species as well as to changing the population and community structure with a severe effect on ecosystem functions.

Although the institution of Marine Protected Areas (MPAs) along the Italian coasts is regulated by the Ministry of the Environment for biodiversity protection and nature conservation and not for fisheries’ objectives as in other countries, the MPAs also represent an available and promising management strategy for sustainable use of marine resources. Mediterranean MPAs provide crucial goods and services that support local communities and economies, including recreational and tourist opportunities, producing social and economic development and other benefits. They could also promote environmental education and research. Moreover, MPAs maintain high productivity and high diversity in marine ecosystems, provide a refuge for the conservation of unique species and habitats as well as for exploited species allowing them to

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recover, increase biomass and restock fishing grounds through the spill-over of egg-larvae, juveniles and adults to replenish commercial stocks in the adjacent fisheries.

Even though each of these areas can have limited relevance when considered in isolation, all of them together (in an MPA network) can contribute effectively to safeguarding the marine environment, also thanks to the spill-over effect for species covered by the analysis.

An MPA must involve local institutions, as well as stakeholders (fishermen, shipbuilders, tourist cooperatives, etc.). The management and the control of the area should benefit from the active involvement of stakeholders (especially fishermen), who should collaborate with the entities in charge of controlling the area (Coastal Guard, etc.), motivated by a direct economic advantage for them. Collaboration between the various actors involved is a necessary condition to promote a sustainable process for fishing, which marries the need for economic development with that of protecting the environment. There is no question that the first step towards establishing the right relationship between the MPA management and the fishing world is that of sharing rules based on shared understanding and shared planning of the goals and potential of the MPA. In any case, managerial uncertainty can also be caused by the efficacy of the checks with regard to the various anthropic impacts, and not only those of fishing, which may take place in the area. In particular, fishermen's involvement can involve: (a) participation in the definition of areas and perimeters, (b) identification and sharing of management practices, (c) implementation of environmental protection activities and surveillance in the MPA territory.

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