

Foreword

Global ecosystems are under enormous pressure. The pressure comes mainly from the increasing human population, which is attempting to extract resources at an accelerating rate from a planet that is finite. The pressure on fishery resources is manifested in a variety of ways, including: (i) reduced access to, and availability of, land and water (especially freshwater); (ii) overfishing of commercial fish stocks; (iii) degradation of fish habitats; (iv) pollution and deoxygenation of waters; (v) increasing competition for the use of the aquatic space; and (vi) changes in atmospheric processes, such as climate change and its consequences.

The FAO Fisheries and Aquaculture Department is charged with the important responsibility of tackling these issues. Its principle “mission” is to “promote policies and strategies aimed at sustainable and responsible development of fisheries and aquaculture in inland and marine waters.” More specifically, within the Fisheries and Aquaculture Resources Use and Conservation Division (FIR), the Aquaculture Branch (FIRA) is responsible for “programmes and activities related to development and management of marine, coastal and inland aquaculture, with regards to technical, socio-economic and environmental aspects, and conservation of aquatic ecosystems, including biodiversity”, and the Marine and Inland Fisheries Branch (FIRF) is “responsible for all programmes and activities related to management and conservation of fishery resources, including mainstreaming biodiversity and ecosystem concerns in fisheries management through an ecosystem approach to fisheries”. Readers of this technical paper will see that its subject matter goes right to the heart of both of these remits.

In order to directly address the serious aquatic issues described above, how is it best possible for FAO to meet its responsibilities? Although each of the issues has to be dealt with in an individual way, a detailed look at the full range of issues reveals that spatial problems are an important commonality.

The use of spatial planning tools such as Geographic information systems (GIS) and remote sensing for fisheries and aquaculture can greatly help in the identification, analysis and possible allocation of specific geographical areas to be used for fisheries and aquaculture, particularly in those countries that have limited natural resources that are in high demand by competing users. Spatial tools can also simplify the process of zoning and site selection for aquaculture and can match other demands on the marine space. These tools, therefore, become important considerations in bridging the future supply and demand gaps in fishery products. And now that planning, management and research in the marine and other aquatic spaces is dominated by “ecosystem approach” considerations, and with the need to better consider other users of marine space through “marine spatial planning”, it is certain that GIS will prove to be an indispensable tool. GIS and remote sensing technologies are invaluable technologies to support sustainable aquaculture expansion and intensification as well as sustainable fisheries.

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