

Effects of Reservoirs on River Nile Fisheries

MOUNIR M. ISHAK

EGYPT has rich freshwater fishery resources in its extensive River Nile system and the vast network of irrigation canals and reservoirs. About 7,000 persons are engaged in fishing in the waters of the Nile and its diversions. Their annual catch is some 20,000 t.

The River Nile and its system of navigable canals total around 3,200 km in length. Its wide variety of fish can be a good source of food to meet the requirements of the country at a time when Egypt is facing an acute shortage of relatively cheap protein. In fact, from the fisheries point of view, the Nile has remained neglected, and is neither managed nor exploited efficiently.

Our present knowledge of the catch composition of the River Nile fisheries is very useful. The pattern of catch and fishing effort over a period of time provides a measure of the total fish stocks, from which one can formulate management measures. In the case of a large river system like the Nile, the catch-effort relationship is complicated by such factors as changes in water level and hydrology as well as spawning movements of the fish, which result in uneven distribution of the fish and fishing. Fish aggregate in certain regions of the Nile River, especially in the areas downstream from the Asyut Dam.

Construction of the Aswan High Dam has affected the ecology of the fish fauna. It is unfortunate that very little attention has been paid to fishery resources in the planning of such projects. It is well known that construction of dams on the main river course causes considerable changes in the environment of fish populations and greatly affects the river fisheries. A recent survey showed that only 25 species of fish are now present in the River Nile, compared to 72 species recorded in 1940. Those of commercial value number only 15 species of which the three *Tilapia* species—*nilo-*

THE AUTHOR is Director of Inland Waters and Fish Culture Division, Institute of Oceanography and Fisheries, Cairo, Egypt. Dr. Ishak is also in the Associate Editorial Staff of the ICLARM Newsletter.

tica, *galilea* and *zillii*—contribute more than 65%, followed by the catfishes (*Clarias* spp.), which comprise about 15% of the catch. Only four species occur in the Damietta or eastern branch of the lower Nile between Zifta and Faraskour; this is attributed to the Faraskour earth dam that blocks the river and prevents any exchange between it and the sea. Moreover, all the sewage of Faraskour city is discharged directly in this sector of the river below the dam.

The distinct effects of the Faraskour dam on the river fishery are:

1. The reservoir proper has the capacity to contain almost all the river flooding. Only the spilled outwater and occasional discharge form the flow in the river below, which does not provide sufficient stimulus for the fish to reproduce, especially those fish that usually move upstream against the flow to breed. Among these fishes are some cyprinids, catfishes and mormyrids.
2. The construction of the dam also has drastically reduced both the flow and level of the water. Due to the presence of shallow areas and islands, many of the river pools are now exposed and indiscriminate fishing is carried out by the local fishermen.
3. The deep summer pools which formed the refuges for breeders, especially in the areas below the dam, have been lost.
4. There has been great reduction of the spawning grounds of some fishes that utilize the flood plains for spawning and nursing their young.
5. Tilapias constitute the majority of the catch due to the favorable conditions that evolved for their spawning and the relatively high concentration of micro-organisms on which they feed.

