

This overview on tropical Asian reservoir fisheries was prompted by issues raised in "Tropical reservoir fisheries: a preliminary analysis."¹ Considerably different but building upon the above preliminary study, the present review emphasizes the theoretical concepts of trophic relations in harvesting and managing multispecies fisheries, integrated within a whole ecosystem perspective. This was made possible by an insight into the ecosystem dynamics and stability in tropical Asian reservoirs, especially lowland reservoirs with recruitment potential from adjacent inundated swamps.

The collated information from relevant works on tropical Asian reservoirs was synthesized to present a thorough review of the questions raised on the value of exotic fish introductions. It was concluded that an alternative to exotic fish introduction in tropical Asian reservoirs is cage culture of exotic (introduced) fish. The choice of fish culture system depends on the educational level of the fishermen, the tradition for culturing fish and the availability of seed stocks for culture.

In Southeast Asia, it is preferable to support the prevailing capture fisheries by traditional fishermen, and to assist their development through introduction of culture fisheries. However,

¹C.H. Fernando. 1980. Tropical reservoir fisheries: a preliminary analysis, p. 883-892. In J.I. Furtado (ed.) Tropical ecology and development. Proceedings of the Vth International Symposium of Tropical Ecology, 16-21 April 1979, Kuala Lumpur, Malaysia.

In some Malaysian reservoir fishing communities, catches by women are unrecorded yet sizeable.



A Summary of "An Overview on Reservoir Fisheries in Tropical Asia" by S-Y. Yap and J. I. Furtado

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YAP SIAW-YANG

Zoology Department
University of Malaya
Kuala Lumpur, Malaysia

culture fisheries are capital and technology intensive and fairly labor intensive; they need a good marketing infrastructure and research in order to be successful. Research for each species cultured should focus on (1) the hatchery production of cheap seed, (2) varieties with improved food conversion and adaptation to different culture techniques, (3) control of fish diseases, (4) availability of cheap supplemental foods and (5) proper monitoring of water quality.



Fish traders at reservoir site.

Ideally, stocks of existing indigenous species should be enhanced through artificial breeding and stocking in view of the complex ecology of tropical Asian reservoirs and the numerous hazards of exotic fish introductions. Such a stocking program may enhance fish production without endangering community structure or trophic stability.

Predictions of fish trophic relationships in tropical Asian reservoirs (ICLARM Newsletter, April 1983, p. 10-11), are useful for strategic stocking of complementary indigenous fish species and for multispecies stock management in terms of fish interactions, maximizing niche utilization of different trophic groups, and minimizing dietary overlap.

Fish production from tropical Asian reservoir fisheries involves: (1) a pyramid of production at lower trophic levels, (2) an array of adaptive and efficient yet traditional fishing gears constructed with indigenous materials, (3) the fact that fish products are marketed on local and regional scales and (4) the fact that small-scale fisheries are embedded in a larger national social context. In view of the paucity of detailed studies on reservoir fisheries in the humid tropical Asian lowlands, these fisheries may be best managed by employing a holistic and ecosystemic approach together with land-water use considerations, by enhancement of indigenous species stocks, and by optimal level of exploitation using the existing traditional gears.