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## Cage Culture of Tilapia in the Philippines

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The Philippines has vast freshwater resources suitable for the culture of fish. There are about 250,000 hectares of lakes, rivers, and reservoirs in the country that could be tapped for the production of fish in floating cages.

Although experiments on the cage culture of *Tilapia nilotica* in Laguna Lake were conducted as early as 1973 (Delmendo and Baguilat, 1974), commercial production of *Tilapia mossambica* in floating cages in Lake Bunot, San Pablo City was started by the private sector in 1975.

### Tilapia Species Cultured

Four species of tilapia are cultured in the Philippines. These introduced species are *Tilapia mossambica*, *T. nilotica*, *T. zillii* and *T. aurea*. While experiments on the cage culture of *T. zillii*, *T. nilotica*, *T. aurea* and tilapia hybrids have been conducted, only *T. mossambica* is commercially grown in cages at present.

### Design and Construction of Floating Cages

The commercial floating cage used in Lake Bunot for *T. mossambica* is constructed of locally-available materials such as bamboo, wood and nylon netting (12.7 mm mesh). A 50 x 25 x 5 m cage is estimated to cost ₱15,000 (US\$2,000).

The 1 m<sup>3</sup> cage used for *T. nilotica* is made of wooden frame with polyethylene netting (25 mm mesh) and styrofoam floats. Each cage costs about ₱75 (US\$10).

### Management and Production of Cages

*T. mossambica* grown in the commercial cages of Lake Bunot is stocked at densities as high as 100,000 fingerlings per cage or 16 fingerlings/m<sup>3</sup>. The fingerlings weigh 5-10 g each on the average. The fish mainly subsist on the natural food in the lake. Rice bran is occasionally given as supplemental feed. Harvest is done every six months with yields of 10-15 tons per cage being reported. Marketable size of the fish is 100-150 g.

Cages with *T. nilotica* are stocked with densities of 250-1,000 fingerlings/m<sup>3</sup>. The stocking size ranges from 5-20 g per fish. An artificial feed in moist pellet form consisting of 23 percent fish meal and 77 percent rice bran is fed to the fish at the rate of 5 percent of the body weight per day. The feed costs ₱1.26 (US\$0.17) per kilogram and has a mean conversion ratio of 2.5 (Guerrero, 1978a). The fish reach marketable size of 80-100 g in 2 to 4 months depending on the size of stocking and density. Production of 25-40 kilograms per cage every two months are attainable (Guerrero, 1978b).

### Economic Analysis of Cage Culture System

The two systems of cage culture for tilapia described here appear to be highly profitable. A net income of ₱25,000 (US\$3,378) per cage in six months in Lake Bunot with *T. mossambica* has been reported. Cage culture of *T. nilotica* in the experimental cages is also economically viable with an estimated net income of ₱50-80 (US\$6.75-10.80) per cage per month.

## Prospects and Problems

With the cage culture of tilapia proving to be a lucrative enterprise in the Philippines, rapid expansion of the industry is expected. In fact, in Lake Bunot alone the number of cages has increased to more than 70 within 3 years. Cage culture of tilapia is also now being applied in Lake Laguna, Lake Paoay and Pantabangan Reservoir.

The main problem faced by the tilapia cage culture industry in the Philippines is the shortage of fingerling supply. There are only a few commercial hatcheries in the country that can supply sufficient quantities of quality fish seeds. Poaching and marketing have been reported to be problems in some areas.

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