Economic value of the milkfish industry

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Fish, fishing, and fish farming are very important to the diet, culture, and economy of the people of the Philippines. The milkfish *Chanos chanos* (Forsskål) is so much a part of the way of life that it is the official national fish, as every school child is taught. Milkfish farming started about four centuries ago in the Philippines, the technology apparently having spread from Indonesia. Today, milkfish aquaculture in the Philippines is at a crossroad. Milkfish production has fluctuated sharply between 150 and 250 thousand metric tons, but on average has relatively stagnated over the past decade, partly due to the shrimp boom and the low price of milkfish. But now there is pressure to return to and intensify milkfish farming. Many shrimp farmers want to recoup losses by going back to milkfish and growing it for the export market. But more significant is the rapidly expanding domestic market. The population of the Philippines is already 70 million in 1996, up from 37 million in 1970, and now requires about 3.1 million metric tons of fish. Some 2.74 million metric tons were produced in 1995, but of these, more than half a million metric tons were seaweeds (not eaten), oysters and mussels (mostly shell weight), and snails fit only for duck food. There is now a large deficit in the fish supply and a concerted effort must be made to reduce the shortfall. Milkfish has been and will continue to be an important part of the fish supply in the Philippines.

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The Philippines ranks among the top twelve largest fish producers in the world. The total fish production grew about 1.5% each year during the last five years and reached 2,740,032 mt valued at P83.9 billion in 1995. Aquaculture made up 30% of the volume of the 1995 production and accounted for nearly 40% of the total value. Over the past 20 years, the relative importance of milkfish has declined with the expansion of the farming of tilapia, tiger shrimp, and seaweeds (Fig. 1). In 1975, some 141,461 mt of milkfish, the whole of aquaculture, made up 10.6% of total fish production. In 1995, the total milkfish harvest of 150,858 mt made up only 5.5% of the total fish production and just 18% of the aquaculture production, one-third as much as seaweeds, and twice as much as tilapia. Production from brackishwater ponds used to be all milkfish in the early 1970s, but the share of milkfish came down to 78% in 1985 and only 58% in 1995.

The total milkfish production increased at an average rate of 22% a year in 1977-1981 (Fig. 2). The Fishery Industry Development Council optimistically projected a continued increase at the same rate to a total supply of 419,095 mt from ponds and pens in 1990. The Council also projected a Filipino population of only 58 million in 1990, a total milkfish demand of only 147,000 mt, and thus a large milkfish surplus every year. These projections turned out wrong as production fluctuated sharply between 150 and 250 thousand metric tons over the past 15 years (Fig. 2). The annual per capita supply of milkfish increased from 2.6 kg in 1970 to 4.8 kg in

FIGURE 1

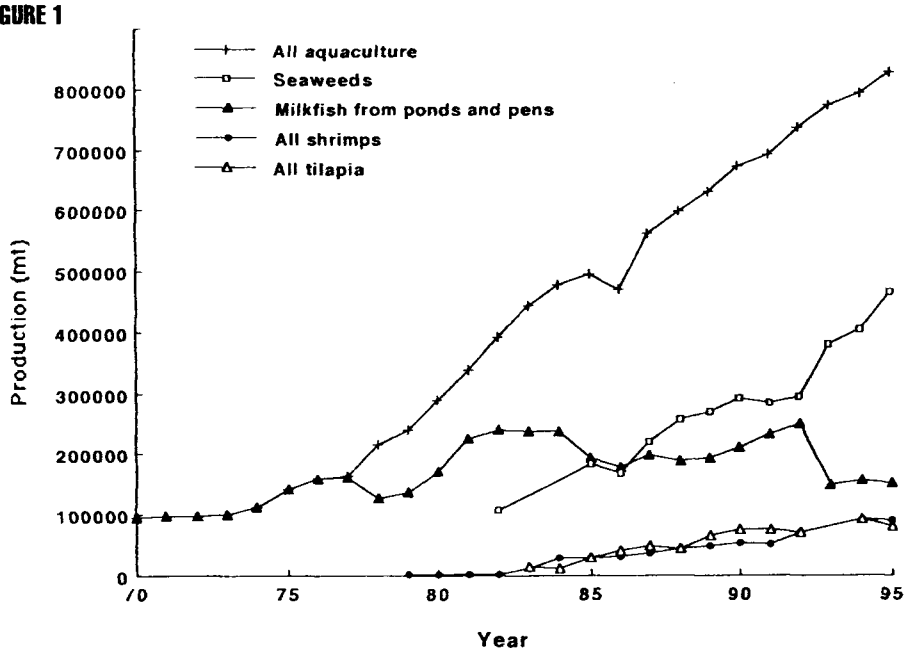
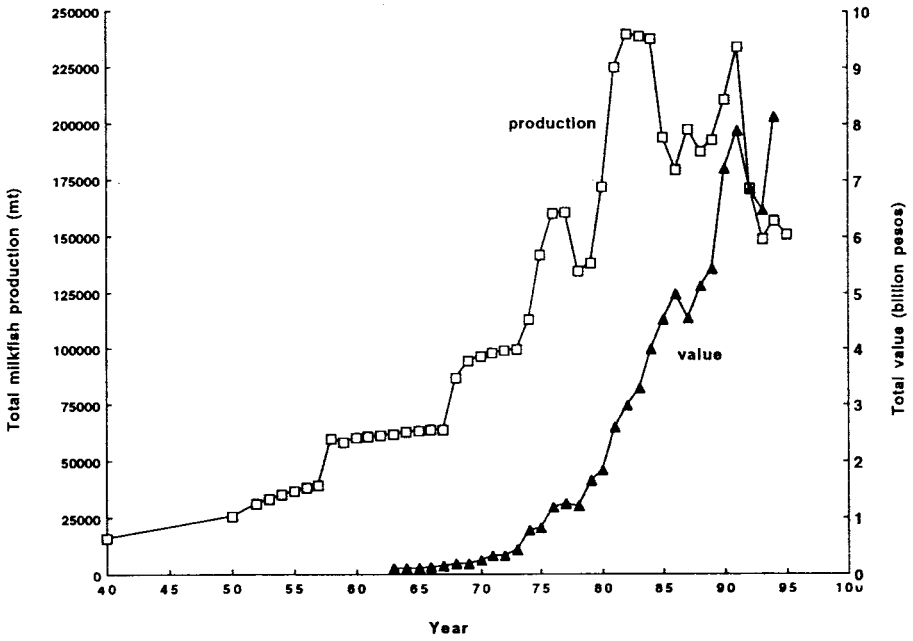


FIGURE 2



1982, but has since decreased to 3.4 kg in 1990 and 2.2 kg in 1995.

The milkfish production of 99,600 mt in 1973 was worth P434 million. Over the years, the value increased more than 18-fold to P7.88 billion in 1991, although the volume increased only 2.5-fold (Fig. 2). As production fell in 1992-93, the industry made only P6.5-6.8 billion a year. Fortunately, milkfish prices increased and the low production in 1994 was valued at more than P8 billion.

Milkfish 200-300 g are harvested and marketed mostly fresh or chilled, whole or deboned, but some are canned or smoked. The domestic markets, especially in Metro Manila, absorb most of the production. Milkfish are a first-class fish, less affordable to the lower income consumers, but important to all Filipinos on festive occasions. A single 200-250 gram milkfish used to cost P2-3 when the minimum wage was only P14-18 a day. Wholesale prices increased from P10/kg in 1981 to P56/kg in 1994, whereas retail prices rose from P12/kg to P67/kg during the same period. At present, milkfish sell at P60-120/kg retail, depending on the fish size and the market location. Local demand has also increased for deboned milkfish, even as these cost about 50% higher.

Milkfish is also exported in different product forms: frozen, dried, canned, smoked, or marinated. The milkfish export rose from 38 mt of frozen fish valued at P106,000 in 1969 to a peak in 1986 but declined to 869 mt worth P65.5 million in 1990. Frozen fish made up about 95% of the total exports; and 84% of the exports went to the USA. In 1995, milkfish exports amounted to 1,068 mt valued at P188 million. An export market for quick-frozen deboned milkfish fillets has begun to develop and fish processing companies are responding fast. Indeed, for intensive milkfish farming to be both profitable and sustainable, more value-added milkfish products must be developed and marketed.

The milkfish farming industry has important linkages with the various sectors that supply the inputs, and those that transport, store, market, or process the harvest. The industries that manufacture and supply fertilizers, lime, other chemical inputs, as well as milkfish feeds have not been studied nor valued in the context of milkfish aquaculture. Only the seed supply in terms of the fishery for milkfish 'fry' has been valued at P 57 million in 1976, but current assessments are lacking.

Philippine fisheries statistics yearbooks always give the employment figure for aquaculture as about a quarter-million people, from the assumption that one person is hired for each of the quarter-million hectares of ponds. But employment in the milkfish industry is not only in grow-out operations, but also in the many allied sectors: fry gathering and trade, hatcheries, nursery ponds, fertilizer and chemical supply, supply of construction materials and feed ingredients, feed manufacture, transport and storage, post-harvest processing, marketing and trade, as well as in financing, research and development, and training and extension.

Literature citations are given in full in the original paper entitled *Historical and recent trends in milkfish farming in the Philippines*. In press. IN: SS de Silva (ed) Tropical Mariculture. Academic Press, London.

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