

1993

# Culture of short-cycle species in seasonal ponds and ditches

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Southeast Asian Fisheries Development Center, Aquaculture Department (1993). Culture of short-cycle species in seasonal ponds and ditches. Aqua Farm News, 11(1), 4-5.

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## Culture of short-cycle species in seasonal ponds and ditches

Seasonal ponds, ditches and road-side canals that are formed from the excavation for house or road construction, and ponds dug for household uses or irrigation can be used for aquaculture of short-cycle species such as the silver barb (*Puntius gonionotus*) or Nile tilapia (*Oreochromis niloticus*). Even 80-100 m<sup>2</sup> ditches as shallow as 70-80 cm can be used for culture of these species, and so can ponds that retain water for only 3-4 months. On-farm agricultural wastes and by-products can be used as inputs. The culture practice is simple and requires very low labor input. Hence, it can be undertaken by women and children to produce fish for household consumption and for market. Landless farmers can also benefit from this technology -- they can culture fish in common property road-side ditches.

### Pond preparation

Trees on pond embankment are trimmed. Ponds should be cleared of submerged and floating weeds as they utilize nutrients and ob-

struct penetration of sunlight into the water, resulting in low production of fish food organisms. Apply lime (25 g/m<sup>2</sup>) to lower acidity if necessary.

### Fertilization

For good production of food organisms (plankton), the ponds have to be fertilized with organic manures or chemical fertilizers. Cattle dung (100 g/m<sup>2</sup>), chicken manure (50 g/m<sup>2</sup>), or urea (2 g/m<sup>2</sup>) and triple superphosphate (5 g/m<sup>2</sup>) is applied once every two weeks. Organic manure is heaped in the pond corners while chemical fertilizers are dissolved in water and spread in the pond.

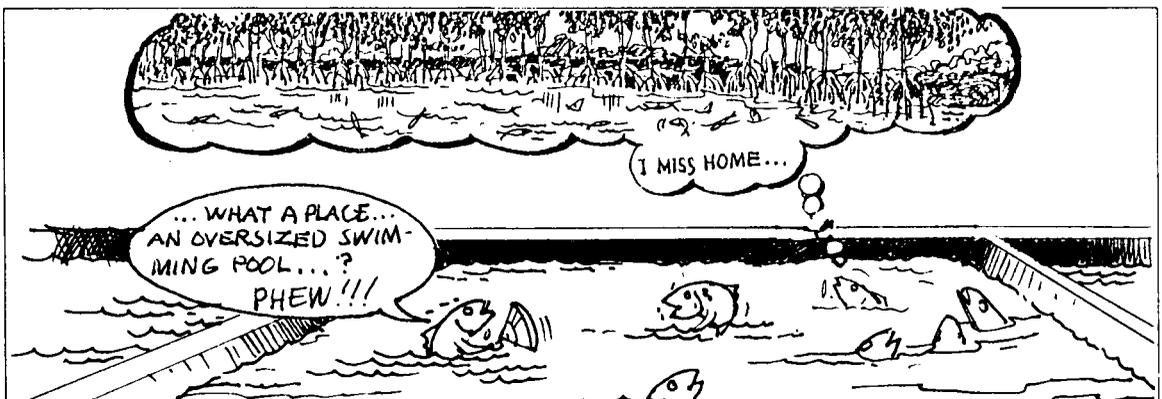
### Stocking

Depending on the farmer's choice, Nile tilapia (2 fingerlings/m<sup>2</sup>) or silver barb (3 fingerlings/2 m<sup>2</sup>) can be stocked in the pond. If the pond retains water for more than 6 months, several fish can be stocked in addition to silver barb -- 3 fingerlings/40 m<sup>2</sup> of catla or silver carp and 2 fingerlings/40 m<sup>2</sup> of common carp. This will increase total fish production.

Healthy fingerlings should be procured from a reliable hatchery or supplier. It is better to stock the 3-5 g size, as these would reach table size early -- an important consideration in ponds that retain water for only 3-4 months.

### Feeding

For good production, supplementary feeds should be given to the stock. Kitchen waste,



duck weeds, *kangkong*, sweet potato, tender terrestrial grasses, rice bran or wheat bran can be given. Feeding should be done once or twice a day, and the amount adjusted to the size of fish.

## Pond management

Green water indicates good production of plankton. Clear pond water indicates lack of fish food. To test this, dip an arm in the water halfway to the elbow. If the hand can be seen, the water is clear and it is necessary to increase fertilization. If the hand can not be seen, there is sufficient plankton. If the hand can not be seen when it is dipped just under the surface of deep-green pond water, there is a plankton bloom. Blooms deplete oxygen in pond water, especially at night and during cloudy days, and can result in mortality of stock. Stop feeding and fertilization until the water color becomes lighter.

Tilapia breeds in pond and the overpopulation results in poor growth due to competition for food. Tilapia fry that school along the banks of ponds can be removed with a scoop net and either sold or used as feed.

## Harvesting

Fish can be harvested as soon as they reach table size or when the water level in the pond goes below 40-50 cm. Harvesting can be done for family consumption a little at a time or for marketing at one time. A total of 75-100 kg fish can be harvested from a 500-m<sup>2</sup> pond in 5-6 months.

## Disease

When the temperature goes down to 20°C and below during November-January, silver barb becomes susceptible to ulcerative syndrome, a disease that starts as red spots on the fish and later become wounds. When infection is seen, apply lime to ponds at a rate of 25 g/m<sup>2</sup>.

Source: International Institute for Rural Reconstruction and International Center for Living Aquatic Resources Management. 1992. *Farmer-proven integrated agriculture-aquaculture: a technology information kit*.

## Miracle holes

Fishermen in the coastal areas of Taloto, Tagbilaran City practice a unique method of fish capture called "miracle hole." They select areas in the mangrove swamps where natural channels allow entry of seawater. Twigs or thickets are placed at the mouth of the channels. Fish fry can pass through, but once they are grown, the thickets or twigs block their exit. Thus, fishermen can easily harvest the fish. This practice has encouraged fishermen to conserve the mangroves.

The first "miracle hole" was built in 1955 by Nasario D. Arat, a fisherman who perfected the technique by studying his coastal zone. His legacy is an environmentally sound indigenous technology that is sustainable for many generations. Last July, during the 1992 National Science and Technology Month, Arat was given a special (posthumous) award by the Department of Science and Technology Region 7 in recognition of his pioneering efforts. His son, Eliseo, received the award.

Source: Release of the Department of Science and Technology - Region VII. Undated.

