fluctuations. Change pond water immediately after heavy rainfall. Use water pump when tide action is not possible.
5. Fertilization is stopped 20 days before the fish are removed from the pond.
6. Maintain a water depth of at least 0.8-1 meter all throughout the growing period.

Mitigating measures during stressful conditions

1. Do not feed when fish are under stress.
2. Reduce feed ration when temperature is low and when salinity is too high.
3. Unusual fish behavior may sometimes be experienced when the stocks are exposed to stress. This phenomena is characterized by the presence of fish at the water surface gasping or swimming in circles. These are indications of low dissolve oxygen (DO) concentration.
4. Replenish water at the first time stress associated behavior is observed in the fish. Water may be splashed on a piece of wood to increase oxygen concentration.
5. Anticipate adverse weather conditions. Sudden rain on or after a hot day may cause abrupt change in water temperature which can result to severe stress or fishkill.

Harvesting

The stocks can be harvested when they reach marketable size of 200g -250g in 4-5 months culture period. Yield is up to 2-2.5MT/ha/cropping with 2 cropping per year.

The most common and undisputed technique of harvesting is the ***"pasulang method".*** This technique relies on the instinctive habit of milkfish to swim against the current thereby leading them into the catching area. Fish are harvested by seining or scooping.

Partial Harvesting

This is done by seining by using bigger meshed nets so that small fishes could pass through the meshes of the net, trapping only the bigger and harvested stocks.

Total Harvesting

This is done by seining the whole stocks and collect the remaining fish by picking them manually from the pond bottom. Sort and pre-chill the harvested fish so as to maintain and prolong their freshness and quality.

For more information, please visit or contact us:

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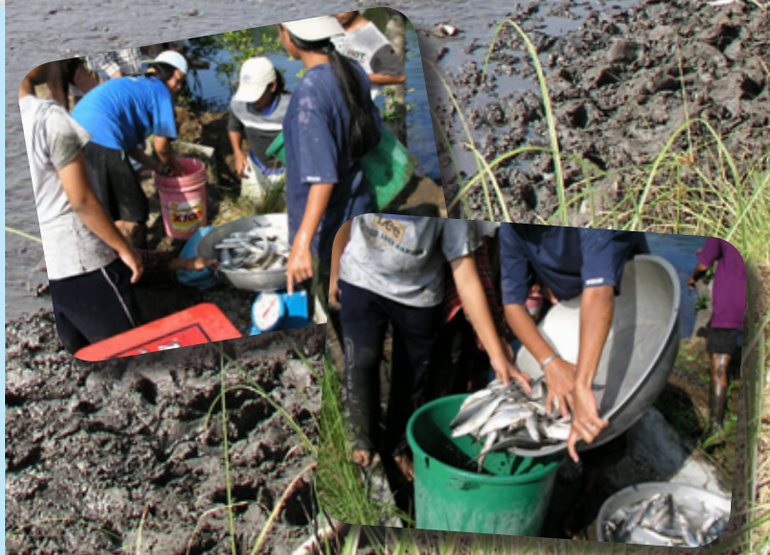
MILKFISH CULTURE IN BRACKISHWATER PONDS



Milkfish *(Chanos chanos)* locally known as "bangus" is the country's national fish. The demand for milkfish is increasing yearly as the consumer population increases. The popularity of milkfish as a food fish may be traced to its abundance in the local market as well as to its good and tasty white meat. However, with the growing environmental constraint over the country's dwindling mangrove resources, expansion of production areas is not anymore seen as an option. The direction of milkfish farming will inevitably be towards improvements on the existing production areas.

Semi-intensive Milkfish Culture

Existing brackishwater fishponds are modified to improve water management and stocks manipulation. Milkfish yield can be increased through increased stocking rate and giving supplemental feed when natural food becomes scarce.

Site Selection

The suitable site for milkfish culture are brackishwater fishponds with 0.8 - 1 m water depth. Ideal water salinity is between 10-30 ppt. provided it is stable during the duration of the culture period (no abrupt changes during rainy day). Ideal water temperature for growth is between 26-30˚C, pH is 7.5-8.5 and dissolved oxygen (DO) level is 3-5 ppm. Easy access to inputs (e.g. Fry and feeds) and market outlet is preferable. Pond bottom must be sandy clay or clay loam.

Pond Lay –out and Design

Grow-out operation must have a nursery pond, transition pond / formation pond and a rearing pond. All compartments must be provided with gate. This set up is used if the fish seed to be used are still at fry stage. If fingerling size are to be used, the nursery and transition pond should be disregarded.

If only one pond is available, it must be subdivided meantime using fine mesh nets, until such time that the fry will reach fingerling stage. A diagonal canal inside the pond must be leveled flat but inclined towards the gate for convenient water management and easy draining.

Pond Preparation and Food Growing

Prior to stocking, the ponds should be thoroughly prepared and growth with natural foods such as lab-lab or algae with the following methods:

1. Drain the pond completely and remove all roots, debris and hard objects (such as dead shells, rocks and wood) inside the pond.
2. The pond bottom soil should be leveled sloping towards the gate and sundry for at least 1-2 weeks to kill burrowing animals such as snails and predatory fishes. Predatory animals and pests can be further killed by applying ammonium sulfate fertilize (21-0-0) mixed with hydrated lime at a ratio of 1:3 evenly spread throughout the pond but preferably at the remaining water areas of the pond. If the pond is acidic (pH below 7),apply lime at a minimum rate of 500 kgs/ha. Wash pond bottom twice after molluscide use.
3. Dikes leaks and gate screens should be repaired to minimize water loss in the pond.
4. Apply basal fertilization at the rate of 1-2 tons/ha chicken manure. Admit water of about 5 cm deep or barely covering the pond bottom and broadcast 2 bags/ha urea (46-0-0) or ammonium phosphate (16-20-0) fertilizer. The rate and types of fertilizers may be adjusted based on the soil fertility analysis of the pond.
5. Increase water depth gradually over a period of time at 5 cm from time to time until it reach stocking depth of .8-1 meter and maintain depth. An abrupt increase in water depth will cause the lab-lab to detach and float. Soil seal gates and install fine mesh screens to prevent re-entry of unwanted species and possible escape of stocks.

Eradication of Snails

The most common snail pest are called *suso* and *bagungon*. These pest destroy lab-lab mat and compete lab-lab consumption with bangus. Use alternative molluscide to eradicate the snails like tobacco dust, applied at the rate of 300-400 kg./ha. The common practice to get rid of the snails is by collecting them by sweeping or hand picking and burn them.

Semi-Intensive Grow-out Operation (Direct Stocking)

Fish Stocking ,Rearing and Stock Management

Stocking is done early in the morning or any colder part of the day to avoid too much stress to the stocks which may result to high mortality. Proper care will be taken to acclimatize the newly procured fingerlings to the temperature and salinity of the stocking area by floating the bags in the ponds for at least 30 minutes before releasing the fingerlings into the water. Stock 5-10g fingerlings (if post-fingerling is not available) at the stocking rate of 8,000 pcs- 12,000 pcs/ha.

If the pond has sufficient natural food, supplementary feeding may be delayed.

1. If at anytime during the fish growing phase the natural food is depleted and cannot be replenished by fertilization or water management, provide supplemental feeding with commercial feeds at the rate 4% of the average body weight daily until harvest and rationed at 2% in the morning and afternoon. In a designated area, broadcast or use feeding tray to condition the fish to eat pellets.
2. Supplemental fertilizer application will enhance the growth of lab-lab or lumot. Use 16-20-0 fertilizer at a rate of 15 kg./ha. Application is done weekly but not closer than 3 days before pond water freshening or in stocking with fish.
3. The pond should not be freshened for at least 3 days after fertilization unless fish becomes stressed and freshening is needed to save the stocks.
4. Regularly changed water by least 25-30% specially when new spring tides occur. Admit new water even at night if there is the occurrence of tide during rainy months, drain the uppermost water (freshwater) to prevent salinity