

ERADICATION AND CONTROL OF PREDATORS
AND COMPETITORS IN FISHPONDS

by

Jaime Dominisad

INTRODUCTION

To be certain of a profitable harvest a fish farmer should always consider among others that his fishpond is free from predators, pests and competitors before stocking it with prawn fry or any other cultivable fish fry.

Meager harvest in fishpond has often been ascribed to predation. This is indicated by the presence of bigger predatory fish caught with cultured stocks during harvest. An observant fish farmer, however, will observe that predators are not limited to those animals which share in common the culture media with the stocks. Snakes and even birds, too, especially in unkempt ponds, may contribute to the losses of a fish farmer.

Not properly treated fishponds may become fertile breeding place of mosquitoes, which may possibly compete with the stocks in the need of food and oxygen, or may promote the growth of competitors as snails and parasitic worms which may be harmful to the stocks and its primary consumers, humans themselves. Presence of unchecked numbers of burrowing crustaceans, such as crabs and crayfish, may inflict damages to the physical structure of the ponds. This would mean additional expense to the fish farmer.

Maintaining a predator-free, pest-free, competitor-free fishpond is however a big problem. In the first place, we can not entirely determine all these organisms present in our ponds unless we do intensive research on this matter, which, to small fishpond operators, may not appear practical.

The purpose of this lecture then is to share and exchange with you knowledge on proper cultivation of sugpo through control and elimination of pests, predators and competitors. And with this, as the first step, we may be at least certain of better production.

PESTS

Pests are those that do not prey on cultivated species but adversely affect production through various indirect ways:

1. Those that compete for food and space like tilapia and top minnow. Tilapia was introduced in 1950 in the Philippines, and up to now is considered as the worst pest in our ponds, because they compete for food and destroy pond bottom by their burrowing habit especially during breeding. They can be exterminated by draining then drying or direct poisoning of the pond. Top minnow locally called "paitan" is also a competitor that was introduced in the Philippines as a mosquito control. The same method can be used to exterminate this species. Recently, however, there have been reports that Tilapia is also a predatory fish.

2. Those that disturb pond bottom and affect algal growth like mollusks and polychaet worms. In mollusks, we have for example "tapok-tapok", "egui", or "suso". These snails breed on ponds and hinder growth of lablab. And worst, they may be active carriers of diseases and parasites. They can be eradicated by liming, poisoning, manual labor, or draining and drying. Polychaet worms are large ballon-like mucilaginous egg masses that cause death of fry by entanglement. To eliminate them, gather the cocoons and throw them on top of dikes to dry. Or, apply phenol or nicotine.

3. Those that settle and grow on sluice mechanisms hindering the free interchange of water like acorn barnacles and oysters. Acorn barnacles stick on wooden slabs and cause clog on the screens or expose wooden slabs to dry. Also scrape the barnacles off. Oysters like "talaba" grow on wooden and concrete gates promoting growth of other undesirable species. The same method can be used to get rid of them. In the case of their growth on concrete gates, scrape them before they become too thick.

4. Those that bore on wooden structures like wood boring mullusk (Teredo sp.) and wood boring crustaceans (Limnoria sp.) These are minute organisms causing minute holes in the inner portion of the wood rendering it unusable in few weeks, if not properly eliminated. To do so, apply thick coatings of tar or use copper compound solution.

5. Those that do considerable damage in the dikes by their burrowing habits like crabs and crayfish. Crabs (Fam. Portunidae and Fam. Grapsidae) that commonly caught are alimango, talangka and alicomo. If not exterminated may render ponds unproductive forever. Crayfish like "kolokoy" (Thalassina scorpioinoides) is also a menace to ponds. To eliminate these pests, nets and traps are commonly used. Examples of these gears are bintol, sakag, panukot and a bamboo trap for crayfish.

PREDATORS

These are the carnivorous species of fish, aquatic snakes, birds and mammals, that prey on cultivated species of fish and crustaceans.

1. Among the predatory fish are bugaong (Therapan jarbua), bulan-bulan (Megalops cyprinoides), bidbid (Elps hawaiienses), apahap or bulgan (lates calcarifer), bia or goby (Fam. Gobidae), kasili or eels, baracuda (Fam. Sphyraenidae), etc. To control is simply by draining and subsequent drying of pond.

2. For the predatory reptiles, the most commonly encountered is the water snake (Cerberus rhynchops). Roestami and Pillai reported on one snake observed with 24 fish (5 cm total length) in the stomach. To control this predator, encourage people to kill them with weapons, baited traps, poisoned bait, etc.

3. Predatory birds includes herons, kingfishers, cormorants, fish eagles, etc. They can be minimized by scaring them away with the use of the scarecrows, raise scares, such as empty cans or bamboo rattles and bells across the surface of the water.

4. In predatory mammals, otters are listed. But since they are not common in the Philippines, what is left as the most probable predator is man.

GENERAL PRACTICES IN ERADICATION OF PESTS AND PREDATORS

1. Draining and drying of ponds. This usually requires 1 to 3 weeks of preparation. After draining the pond is dried to crack. If mudfish or dalag or eels are present, it is suggested to allow water and dry again. This will remove the burrowing fish. The decomposing bodies will act as fertilizer.

2. Use of insecticides and poisons. This is especially used to unlevelled ponds that which some portions can not be drained. The following are used:

- a) Derris root (powder) or "tubli". Use it at the rate of $4 \text{ gm/m}^3 \text{ H}_2\text{O}$ or in the case of solution, 0.5 ppm.
- b) Endrin) 0.1 to 0.6 ppm will be
Dieldrin) ----- considered effective
Aldrin) eliminate all kinds of
Toxaphane) predators and competitors.

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|-------------------|--|
| Brestan | - 1 ppm |
| Aquatin | - 2 ml/m ³ H ₂ O |
| Buter WP Extra | - 0.5 ppm |
| c) DDT | - 8 to 10 cc/5% solution of DDT is kerosene |
| d) Sodium cyanide | - commercially called Cyanegg is effective at the rate of 1 ppm. |

Of course, the use of these pesticides in the elimination of predators has recently been questioned because of its residual or cumulative effects in the pond, to the stock itself and possibly to its primary consumer. Ecologists also complain on its deleterious effects in the natural eco-system, as in creeks, rivers, lakes and the coastal waters.

3. Use of pesticides which act subsequently as fertilizer. This method is widely accepted because of its double effect: to control predators and at the same time, fertilize the ponds. The following are suggested:

- a) Tobacco dust - broadcasted at 12-15 kg/ha
- b) Tea seed cake (Saponin) - is used in varying concentrations: 15-18 kg/ha - will kill fish and snails
180 kg/ha - will kill snails and crabs
- c) Rice bran - 400-600 gm/m² at 5 cm H₂O depth.
- d) Quicklime - liming is the simplest fish toxine obtained by dissolving quicklime in water to make thick solution. It is applied in pools and damp areas where fish are likely to survive. It is used at 1,000 kg per hectare.