AQUACULTURE PRACTICES IN THE PHILIPPINES

Lerma Method of Bangus Production

by

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FISHPOND LAYOUT

A highly productive and profitable fish farm is like a well designed subdivision. But instead of subdivision roads it has water canals; instead of subdivision lots, it has fishponds which vary in size depending on their use.

Consider a 100-hectare fish farm:

a) It should have 4 has. of nursery ponds, each 2,000 square meters in size and serviced by a water canal. See Fig. 1.

b) It should have 16 has. of transition ponds, each pond one hectare in size and serviced by a water canal. See Fig. 2.

c) The rest of the fish farm, after deducting space for canals and a service area, is laid out into growing pond modules. Each of these modules should have three ponds:

1) growing pond No. 1 - 1 ha.
2) growing pond No. 2 - 2 has.
3) growing pond No. 3 - 4 has.
   Total per module - 7 has.

A fish farm of 100 has. would therefore have 10 growing pond modules. See. Fig. 3.

PRODUCTION SCHEDULE

The beginning of the crop year starts at the time when bangus fry become available in quantity. In the Visayas, fry

season is generally from February-June. In Mindanao, it is almost the whole year round.

As early as possible during the fry season, all nursery ponds are stocked up with a density of 50 fry per sq. m. A well-managed fish farm has its nurseries stocked up at all times.

One crop year overlaps into the next. This assures uninterrupted production for the fish farm.

After two months in the nursery pond, the bangus are transferred to the transition ponds. At this stage the bangus are about 1" to 2" in size. Stocking density of the transition ponds will be 25,000 to a hectare. Here the bangus await transfer to the growing pond modules. TPs are stocked up the whole year round - one crop year overlapping into the next - to assure continuous availability of fingerling for the growing ponds.

Growing Pond No. 1 receives bangus fingerlings 2" to 4" in size from the transition ponds. Stocking rate is 8,000 per hectare. After two months, this stock of 8,000 fingerlings is transferred to Growing Pond No. 2. Note that here the density becomes 4,000 per hectare. Growing Pond No. 1 will then be empty and after a few days pond preparation will get a new stock of 8,000 fingerlings from the transition ponds.

After 2 months in Growing Pond No. 2, the bangus is transferred to Growing Pond No. 3. After two months here it is harvested for sale. The size will be about three to a kg.

Note again that the stocking density will drop to half that of the previous pond.

As soon as No. 2 becomes empty, it is immediately prepared to receive a new stock of bangus from No. 1.

Thus each module harvests 8,000 pieces of bangus (330 grams per pc.) every two months.

Once a year, in summer, all ponds are allowed to dry up and lie exposed to the sun for one month to cut short any disease cycle and to prevent parasite and predator build-up.

SOME FISHPOND PRACTICES

1. Some years ago, fish farming yield was limited by the amount of food that could be made available to the fish. Now stocking rates can be increased five times without a decrease in the rate of growth of the fish. With correct fertilization enough fish food can be grown economically provided there is enough oxygen in the water. This is why more and more fish farms in Japan, US, and Europe are adopting mechanical aeration to be able to increaze fish density and thereby dramatically increase production. Here, the factor becomes economic - the cost of mechanical or electric power needed for aeration as compared to the increase in income brought about by such aids.

2. Fish are given enough water space proportionate to their size. Thus, in a nursery pond where the fish is only 1" long, stocking rate can be 500,000 per hectare. But in

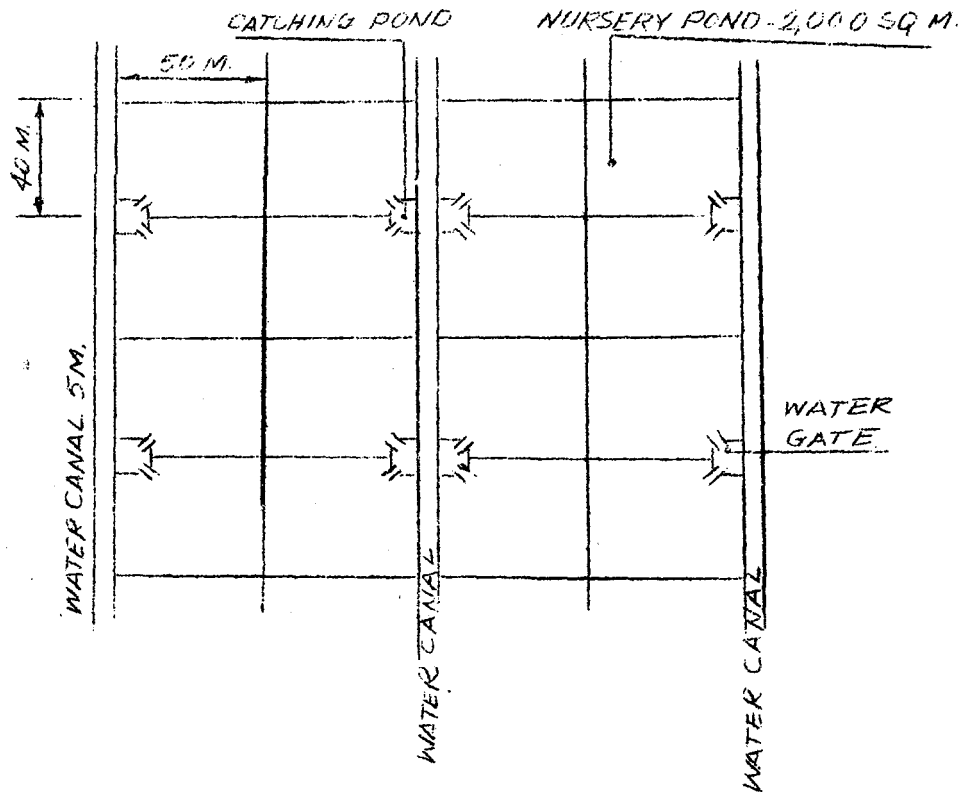
Growing Pond No. 3 where the fish is about 12" long density is only 2,000 per hectare. Too much space wastes good fish farm area but not enough space will kill the fish.

3. Very low rates of return on investment is realized in artificial or direct feeding of bangus. Better results are obtained by growing food in the pond through the application of 18-46-0 fertilizer.

4. Shrimps and crabs cannot stand heavy fertilization. They are more sensitive to oxygen deficiency than bangus, carp, tilapia, or hito.

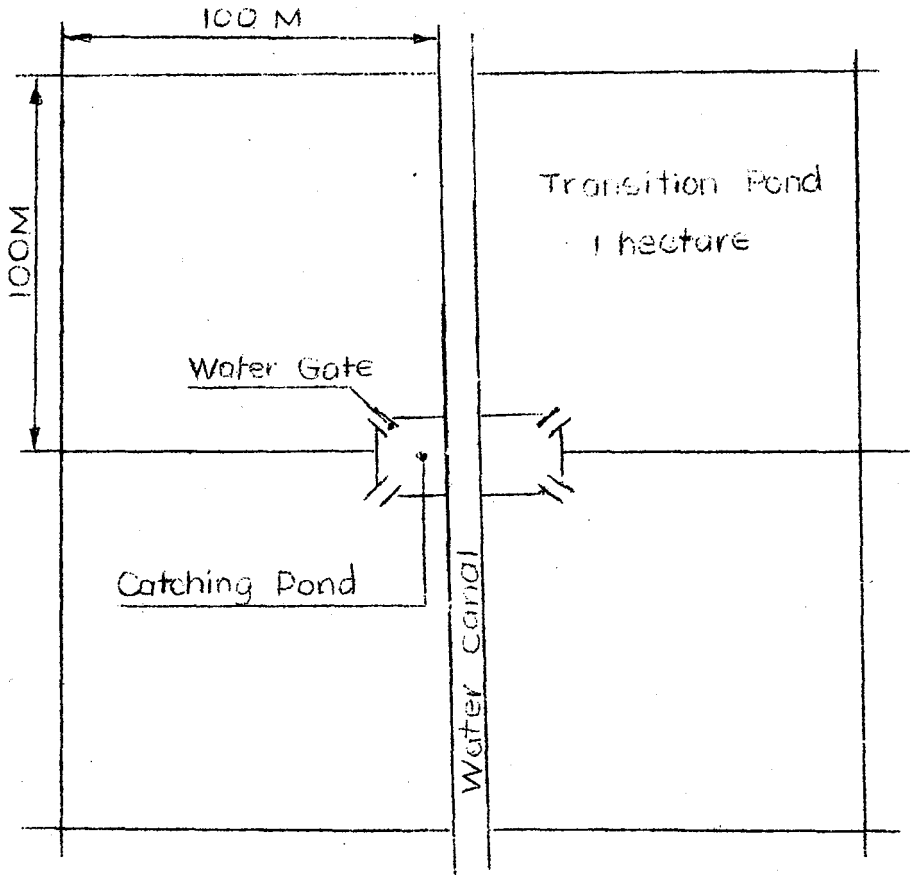
5. The trend in shrimp production in Japan, US, Europe, and Mindanao State University is to employ environmental control. The "poultry housing" method and feeding technique is used more and more in shrimp farming. Artificial feeding of formulated balanced feed, mechanical aeration, complete change of water every 24 hours, control of pH, salinity, and water turbidity. All these cost money but quality is very high, harvest is reliable and production can be scheduled.

FIG. 1 - NURSERY AREA



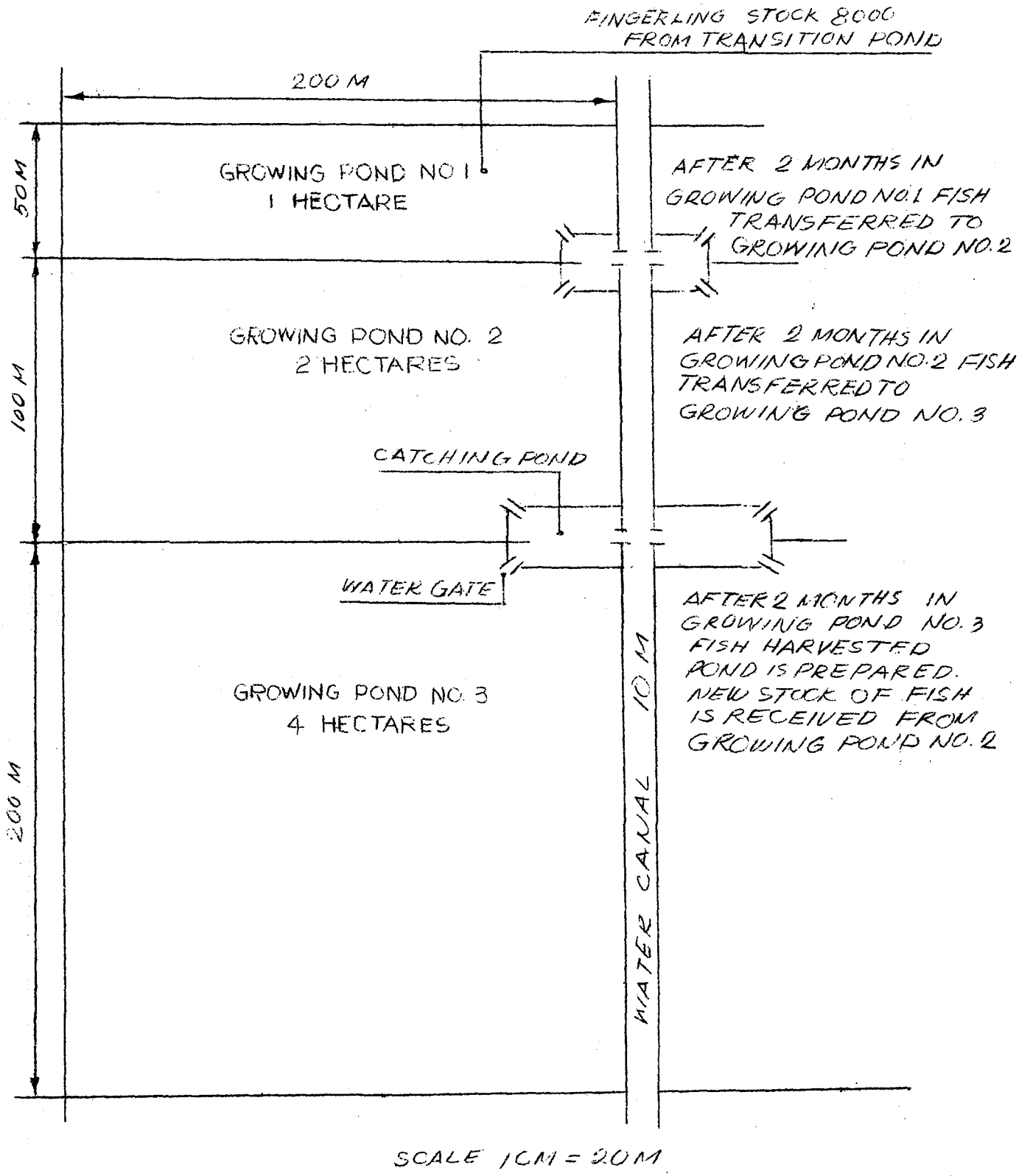
SCALE 1 CM = 25M

FIG. 2 - TRANSITION AREA



SCALE 1CM = 20M

FIG. 3 - GROWING POND MODULE



SCALE 1CM = 20M