FISH FARMING IN LAGOS STATE, NIGERIA: PROSPECTS AND PROBLEMS

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ABSTRACT

The performance of the catfish, Clarias gariepinus (Burchell) cultured in earthen ponds at Alakotomeji, Lagos State is discussed with particular reference to growth, fingerling sizes for stocking, feeds and mortality records. Catfish of between 1.0 kg to 1.5 kg were obtained in a six-month growth period. Major problem facing the farm was poaching which completely reduced the yield. Except a solution is found to the poaching problem, the future of aquaculture in Nigeria is very bleak.

INTRODUCTION

According to the Federal Department Fisheries Statistics (1996), the total fish production in Nigeria for the ten-year period (1985-1994) ranged between 242, 525 and 362, 752 metric tonnes. Production from aquaculture during this period ranged between 14,881 and 25,607 metric tonnes. Aquaculture therefore accounted for only 3.5% to 4.9% of the total local fish production.

The aquaculture figures may however not include production from some major producers like CHI Ltd in Lagos State and Ella fish farms in Rivers State.

Lagos State has enormous potential for aquaculture. The status of culture fisheries in the State is given in Table 1. According to Ajayi et al (1989), the available area of swamps for fish farming is 147, 877 ha. The area presently converted to fish farming is 26 ha with only 14 ha actually in production. The size range of the 35 fish farms in the State is 0.1 to 11.0 ha. The main fish species cultured are Clarias gariepinus, Heterobranchus bidorsalis, Orechromis niloticus and Heterotis niloticus. The major constraints facing aquaculture include insufficient production of fingerlings, lack of sufficient and least cost effective fish feeds, and high cost of earth moving equipment for pond construction. This paper examines the production of Clarias gariepinus cultured at the Lagos State Fisheries, Alakotomeji fish farm near Badagry.

TABLE 1: STATUS OF CULTURE FISHERIES IN LAGOS STATE NIGERIA.

1. Available area of swamps	147,877 ha
2. Area converted to fish farming	26 ha
3. Area actually in production	14 ha
4. Number of fish farms	35
5. Size range of farms	0.1-11.0 ha

Source: Ajayi *et al* (1989)

MATERIALS AND METHODS

The ponds were excavated with a hired earth-moving tractor. There was pre-stocking preparation of the pond using fertilizer (NPK) and lime. The ponds were stocked with fingerlings of the mud catfish, Clarias gariepinus purchased from CHI Ltd in Lagos. The fingerlings from CHI Ltd had been raised from the delicate fry stage in their hatchery for a period of 4-5 weeks, weighed about 10g and measured averagely 7.5cm in total length.

The stocking rate was 10,000 fingerlings per hectare: The fingerlings were fed with artificial feeds obtained from Nigerian Institute for Oceanography and Marine Research (NIOMR Feeds), Pfizer and later with pellets compounded in the farm from wheat offal, corn offal, soya beans cake, fish meal, blood meal, oyster shells with addition of vitamin C.

The composition and proximate composition of NIOMR fish feed are as given by Igbinosu and Talabi (1982).

The feeding regime was twice daily, morning and evening at the rate of 5% fish body weight for small fish and 3% body weight for large fish. Physico-chemical parameters, namely pH, oxygen and salinity were monitored regularly in the ponds. Water was pumped into the ponds from the adjacent Badagry Creek when necessary using long rubber hose during the six months duration of the grow-out period.

RESULTS

The yield of Clarias gariepinus from the ponds is given in Table 2. The fish were cropped for five days during the months of April and June, 2000 using seine nets (Figure 1). The performance of the catfish in the six months is shown in Table 3. Of the 10,000 fingerlings stocked, only 4,341 or 43.4% were harvested.

TABLE 2: YIELD OF *CLARIAS GARIEPINUS* IN 6 MONTHS OF CULTURE.

Date	# Clarias	Weight (kg)
12/4/2000	1.147	1182.2
19/4/2000	1,298	1400.8
"	17	20.0
26/4/2000	1,127	1140.5
17/6/2000	466	498.0
24/6/2000	251	220.0
"	35	40.5
TOTAL	4,341	4,500.7

Fig .1. Cropping of *Clarias gariepinus* at Alakotomeji Fish farm, April, 2000.

TABLE 3: PERFORMANCE OF *CLARIAS GARIEPINUS* IN 6 MONTHS

Total number of fingerlings stocked	10,000
Total number of fish harvested	4,341
% Harvested	42.4
Total weight harvested	4500.7kg
Average weight obtained	1.04kg
Yield per ha	4.5 tons

No mortality was recorded in the pond during the six months grow-out period. The total weight of Clarias gariepinus harvested was 4500.7kg. The catfish ranged in weight from 1.0kg to 1.5kg. The average weight of fish obtained was 1.04kg. The yield per hectare was 4.50 metric tonnes. Poachers were caught carting away fish from the ponds using cast net especially at odd hours between 1am and 3am.

Physico-chemical parameters.

The pH in the ponds ranged from 7.0 to 8.4, oxygen 4.5 to 7.5mg/l, temperature 26.0 to 31.5oC and salinity 0.2 to 1.5‰ during the six months grow-out period.

DISCUSSION

The loss of 5,659 fish or 56.6% of the Clarias gariepinus stocked was a serious setback for the operation of the farm. Unlike in the previous year, when mortality was experienced through cannibalism when fish fry 5-6g in weight were stocked, this time around the size of fingerlings stocked ensured that no cannibalism took place since the fish were uniformly grown to appreciable size for 4-5 weeks at CHI Ltd hatchery before they were purchased for stocking. The main fish loss at the farm was through poaching and this was a serious setback.

The issue of security was another problem. It was discovered that the security men at the farm colluded with the poachers to cart away fish from the ponds. The yield of 4.50 metric tonnes per hectare seemed appreciable for a fish farmer, but not for a commercial fish farm for which we had invested heavily on pond preparation, purchase of fingerlings and fish feeds. The issue of poachers must be regarded as a major setback for aquaculture in Lagos state and other parts of Nigeria.

The physico-chemical parameters recorded in the ponds were within the normal range for aquaculture and aquatic life as reported by Lagler (1978), Glaude (1978) and Odum (1980).

REFERENCES

Ajayi, T.O., Ayinla, A.O., Udolisa, R.E.K., Bolade, E.O. and Omotoyo, N.O. (1989). Diagnostic surveys of small scale capture and culture fisheries in Lagos state, Nigeria. NIOMR Technical Paper No. 56.

Glude, J.B. (1978). Water quality for Aquaculture. The Commercial Fish Farmer and Aquaculture News. 4 (4): 12-22.

Federal Department of Fisheries (1996). Fisheries Statistics of Nigeria, 3rd Edition, 1985 1994, Abuja, Nigeria.

Igbinosu, J.E. and Talabi, S.O. (1982). Studies on the nutrition of brackish water catfish, Chrysichthys nigrodigitatus Proceedings of 2nd Annual Conference of Fisheries Society of Nigeria (FISON), Calabar, Nigeria, pp 135-141.

Lagler, K.F. (1978), Freshwater Fishery Biology, 3rd Edition, Won C. Brown coy. Ltd, New York

Odum, E.P. (1980). Fundamentals of Ecology. Press of W.B. Saunders Coy. Philadelphia and London.