



CULTURE OF (*Parachanna africana*) IN CONFINED ENVIRONMENT OF NIGER DELTA REGION

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ABSTRACT

This work was carried out to study the culture of *Parachanna africana* in earthen and leather tank, a total number of 1000 *Parachanna africana* were collected from Warri river in Warri South-west local government area of delta state. The fingerlings of *Parachanna africana* were stocked in earthen and leather ponds at stocking rate of 250 in each receptacle in duplicates, the water quality parameters were well monitored according to standard requirement close monitoring of their various survival and maturity rate and this lasted for twenty four weeks (6months), the various morphometric measurement were also taken to compare the relationship between the parameters, the result obtained from this measurement were analyzed using student t - test. The final length and weight from the culture media were 2.67cm to 30.96cm for earth pond 2.40cm to 23.19cm for leather tank at weight of 5.36g to 580g for earth pond and 5.04g to 430g for leather tank. From the results we can infer that the culture of *P.africana* is possible in confined waters This clearly shows that earthen pond is a better culture receptacle for culture of *P. africana* in confined water.

KEYWORDS; *P. africana*, fingerlings, morphometric, relationship, media and earthen pond..

INTRODUCTION

This research is set to study the culture of *Parachanna africana* in earthen and leather tanks, *Parachanna africana* is commonly known as the snake head (Ettrish 1989). Snake head fish has quality taste that makes the species very tasty and very popular food fish in Nigeria it is use to control the population of tilapia when cultured together the juveniles are attractive in aquarium and also believed to contain some recuperative and strength giving substances, it is usually given to elderly people and convalescents (Ling, 1977). In Nigeria less than 40% of the total protein requirement by people is met through fish which constitutes about 41% of their protein need. (Reed, 1967). *Parachanna africana* form a morphologically unique group of primarily freshwater fishes which greatly vary in size at maturity. Some species like *Channa aurantimaculate*, *Channa panaw* and *Channa siamensis* have distinctively small pelvic fins (Musikasinthorn and Taki, 2001) while a few others like *Channa nox* lack them completely. Generally *Parachanna africana* have an elongated cylindrical body flattened head long entirely soft rayed dorsal fin, a large mouth with well develop teeth on both upper and lower jaw, tube like anterior nostrils around caudal fin and cycloid body scales shield on the head an accessory air breathing apparatus. *Parachanna africana* inhabit demensal freshwater fish which hide in well fertilized large tank but mostly inhabit Swamps ponds, stagnant streams and lakes also parts of river where the water current is slow, *Parachanna africana* stays in water column (Midwater) it thrives well in temperature between 25-29°C PH 6-7.5 (Varma, 1979) snake head is recently available only from capture fisheries although

some attempts had been made to grow them in tanks and cages using trash fish (Wee, 1982).

STUDY AREA

Delta state presently covers a landmass of about 18,050km² of which more than 60% is land. The state lies approximately between longitude 5° and 6°,45 East and Latitude 5° North it is bounded in the north by Edo state and the East by Anambra state, south-East by Bayelsa state, on the southern flank is the Bight of Benin which covers about 160 kilometer of the states coastline. Delta state is generally low-lying without remarked hills the state has a wide coastal belt interface with rivulets and streams, which form part of the Niger-Delta. The study area is stretch of Warri River flowing North to South from Warri, Delta state, Nigeria. The river is located between latitude 5°28'n and longitude 5°28'E. the river takes if source from a point, 10km away from Utagba Uno and lies within 50.21-60.00'N, covering a surface area of above 255 km² within a length of 150km from its source the river flows south westerly to link the industrial part of Aladja and Warri.

Sample collection and preparation

A total of 1000 fingerlings of *Parachanna africana* were collected from Warri River, in Warri south-west local government area of Delta state Nigeria. The specie were caught with a scoop net and kept in 20 liters water bearing structure in which they were transported to Teaching and Research farms, of Delta state University Abraka Asaba campus.

The fingerling of *Parachanna africana* were stocked in two different respectable of earthen (length 3m by breath 2.5m) and leather (length 2.5m by breath 2.3m) tanks in duplicates at stocking densities of 250 each per receptacle

of 4000 liters capacity at Teaching and Research farm, between the months of August 2011 to February 2012 after carefully and good pond preparation steps in accordance with FAO, (2003) the fish specimen were allowed to acclimatized for 24 hours before they were feed with live earth worm, insect pupae, silk, moth, pupae, mosquito larvae and mosquito twice daily for three weeks; they were later feed with commercial feed (coppens) of

sizes 0.3 – 0.5mm for three weeks 0.8-1.2mm for two weeks 1.2-1.5mm for 3 weeks 2mm for 4 weeks and 4.5mm for 5 (five) weeks. Sampling was carried out on weekly basis; the weight (g) was measured with LP302a (LARK) sensitive electronic balance and the length (cm) with a measuring board. During this culture period good de-chlorinated water quality was maintained.

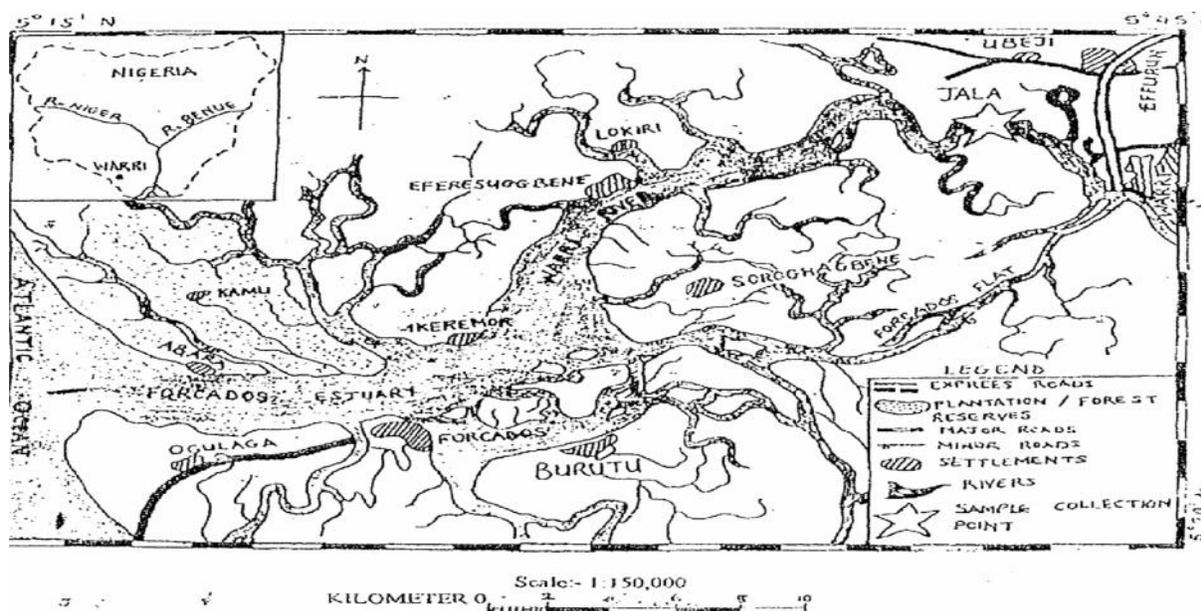


FIGURE 1: Map of Warri River and environ showing the site where the Fish were purchase from.

DATA ANALYSIS

The mean growth rate will be analyzed using student t-test to compare growth rate during the period of the culture

RESULTS AND DISCUSSION

A total number of 1000 fingerlings of *Parachanna africana* were collected from Warri River, in Warri South West local government area of Delta State Nigeria.

TABLE 1: Weekly mean – length (cm) of *Parachanna africana* in earthen and Leather ponds

Weekly	Earth Pond	Leather Pond
1	2.6733 ± 0.59948	2.4067 ± 0.54733
2	4.2710 ± 0.53013	4.1200 ± 0.58172
3	6.5667 ± 0.89972	5.4273 ± 0.84086
4	7.9753 ± 0.84261	6.9807 ± 0.84518
5	9.2733 ± 0.37787	8.2933 ± 0.43627
6	10.6733 ± 0.30852	9.4293 ± 0.43696
7	12.7200 ± 0.21848	10.6147 ± 0.43237
8	14.7800 ± 0.28017	11.3467 ± 0.42905
9	16.2133 ± 0.23621	11.7295 ± 0.42443
10	18.8220 ± 0.24798	12.8981 ± 0.55217
11	19.3933 ± 0.52476	12.9634 ± 0.58172
12	22.2833 ± 0.81143	13.1200 ± 0.59947
13	23.7600 ± 0.70107	14.7140 ± 1.04604
14	24.8300 ± 1.62454	15.8725 ± 1.14701
15	25.6067 ± 1.44052	15.9813 ± 0.84534
16	27.8606 ± 0.86020	16.4600 ± 0.47266
17	28.9717 ± 1.09413	17.1400 ± 0.43159
18	28.9973 ± 1.34744	17.5827 ± 0.51708
19	28.9892 ± 1.36688	18.4600 ± 0.47266
20	29.3827 ± 1.28500	18.9241 ± 1.71049
21	29.6680 ± 1.50805	20.1267 ± 1.13505
22	29.8100 ± 1.15684	20.6400 ± 1.77600
23	30.7000 ± 1.41371	21.2400 ± 0.99464
24	30.9638 ± 1.73402	23.1933 ± 1.10963

The fingerlings of *Parachanna africana* were stocked in two different receptacles (earthen and leather tank) in duplicates at stocking densities of 250 each per receptacle 4000 liters water bearing receptacle at Teaching and

Research Farm of Delta State University Asaba, Nigeria between the month of August 2011 to January 2012 after carefully and good pond preparation steps in accordance with FAO, (2003).

TABLE 2: Weekly mean – weight (g) of *Parachanna africana* in earthen leather ponds

Weekly	Earth Pond	Leather Pond
1	5.3620 ± 0.26685	5.0428 ± 0.85235
2	11.2313 ± 0.46656	9.0967 ± 0.33426
3	16.8687 ± 0.88394	14.2810 ± 0.41683
4	20.3447 ± 0.93206	17.7167 ± 0.84388
5	23.9667 ± 0.76906	19.2591 ± 0.16428
6	27.5600 ± 0.79382	25.27409 ± 0.06219
7	29.8427 ± 0.78797	27.33156 ± 0.55828
8	33.5733 ± 0.98467	30.39722 ± 0.90220
9	35.3400 ± 0.69122	32.4681 ± 0.64178
10	40.9660 ± 1.82231	38.3194 ± 1.22367
11	54.9200 ± 1.64587	45.6170 ± 1.26141
12	61.7960 ± 1.06571	58.7522 ± 1.66282
13	70.7925 ± 1.43762	66.7112 ± 1.58812
14	79.4467 ± 1.38027	79.1667 ± 1.21774
15	87.3667 ± 2.46906	85.4319 ± 2.11572
16	125.7412 ± 4.96014	92.6251 ± 2.41781
17	152.4467 ± 7.21091	120.8146 ± 4.91021
18	196.367 ± 30.86966	140.6215 ± 72106
19	249.5094 ± 19.72513	168.4729 ± 3.76114
20	390.391 ± 15.21705	209.8185 ± 17.91305
21	426.8137 ± 23.40621	258.6204 ± 7.77546
22	535.0333 ± 45.51048	325.6400 ± 16.39464
23	550.7200 ± 419.31432	371.9133 ± 20.52047
24	580.8200 ± 786.74237	430.5247 ± 31.68431

TABLE 3: Shows initial and final weight and length of *Parachanna africana* in earthen and leather ponds and also the survival and differences

Culture System	Initial Length	Final Length	Survival Rate	Differences/ growth rate
Length				
Earthen pond	2.6733	30.9638	146	28.3
Leather pond	2.4067	23.1933	129	20.8
Weight				
Earthen pond	5.3620	580.8200	146	575.5
Leather pond	5.0428	430.5247	129	425.5

DISCUSSION

The work show that earthen pond initial length and final length were 2.67cm to 30.96cm, leather pond recorded initial length 2.40cm and final length 23.19cm while the earthen pond initial and final weight recorded were from 5.36g to 580.82g length pond ,Leather pond initial weight and final weight recorded were 5.04g and 430.52g. *Parachanna africana* obtained this initial and final length, weight in both receptacles fed with live earth worm, insect pupae, silk moth pupae, mosquito larvae and mosquito twice daily for three weeks; they were later fed with commercial feed (coppen) of various sizes such as 0.3-05mm for 3 weeks 0.8-1.2mm for two weeks 1.2-1.5m for three weeks, 2mm for 4 weeks and 4.5m for 5 weeks. Nikolsy (1963) in his work; *Channa Punctatus* in controlled condition with initial means length of 3.55cm and final length of 17.05cm while the fish specimens has initial mean weight of 0.83gm and final mean weight of 70.42g; During the rearing period of *Channa Punctatus* they were fed with earth worm, insects pupae, silk moth pupae, silk moth pupae, mosquito larvae and mosquito also Vivekandan, (1976) in his work; reported on

investigation of surfacing and food utilization in *Channa striatus* for growth and the high food requirement that the fish usually eat at a particular time of the day but the time was not established since it depends on the fish itself.

Stickney (1979) opined that there is an increase in both length and weight of *Clarias gariepinus* juveniles reared for a period of 10 weeks. Hence as the culturing period increase the length and weight of the fish also increases because more feeds were utilized from Table 1 above. Malami, (2002) in his work shows that the size and frequency distribution of *Hyperopisus bebe* produces different size classes in the population of the biggest specimen examined weighted 448g with a total length of 39.1. The smallest specimen examined weighed 51g with a total length of 20.6 cm and reported that *Hyperopisus bebe* that they were fed with insects, grasses crustaceans, algae.

CONCLUSION

The findings of this project work shows that *Parachanna africana* can be cultured in confined water bodies, condition indicate a favorable response and success of the

fish ecological transition from the wild habitat to both the two receptacle during the period of culture.

RECOMMENDATION

Based on this study the major problem encountered was acclimatization to confinement for best productivity results, hatchery and breed, fingerlings of snakehead should be stock for culture since they would have been used to been confined. However, the survival result obtained shows from the culture of *Parachanna africana* in two receptacle earthen and leather ponds; it can be cultured in confined water bodies and had the ability accept both natural available feeds and supplementary feeds too.

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