



## Promising Potential Fecundity of Lung fish (*Protopterus annectens*) – Key to poverty eradication in Africa

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### ABSTRACT

The experiments were carried out to investigate and provide information on fecundity to serve as guide for management of the fish. The fish samples were weighed with digital weighing balance to the nearest 0.01g and both total length and standard were measured by meter ruler to the nearest 0.01cm. Ten gravid females examined gave a range of 0.4-1.3kg weight of fish samples, 4.0-18.7g weight of ovary, 45-68cm total length, 43-65cm standard length, number of eggs ranged from 50-72, and 2.8 -5.4mm diameter of eggs. Fecundity correlates significantly with body length weight ( $P<0.05$ ). *Protopterus annectens* has low fecundity.

**Keywords:** *Protopterus annectens*, Fecundity, spawning, reproductive.

### INTRODUCTION

Fecundity refers to the number of eggs a fish can produce per spawning cycle. Gomez Marquez (2003) in Hossain *et al*, (2012) defined fecundity as an important biological parameter that plays a significant role in evaluating the commercial potential of fish stocks. Fecundity can vary from species to species and even within the same species due to certain factors and conditions. The fecundity of an individual female also varies according to many factors including age, size, types of species, food availability, and season (Nandikeswari *et al* 2014)

Fecundity reveals the reproductive potential of a fish. It enables the fish farmer to have adequate plan for the species to be cultured. The demand for particular species has to be satisfied by corresponding supply. In commercial fish production the species that are required by a community is supplied either by transportation from other places or produced through breeding. *Protopterus annectens* is a hardy fish and juveniles and broodstocks are readily available katcha river. It is one of popular species of fish you being sold in Katcha but yet to be among cultured fishes. African lungfish (*Protopterus annectens*) is an airbreathing fish and can survive prolonged droughts or stressful water conditions, it is potentially more productive in aquaculture systems (Greenwood, 1998).

There are no enough research work done yet on culture of *protopterus annectens*. Several research work are required on this fish so that we do not rely on assumptions. Snoeks, *et al*, (2007), reported that *protopterus annectens* is of minor importance to commercial fisheries. A large amount of scientific research has been carried out on the species. It is assumed that some specimens are bred in captivity for research purpose, however the proportion of research/food utilization is not known therefore a 50/50 ratio is assumed.

It will add to knowledge if *protopterus annectens* could be brought to culture environment as well increase protein production for ever growing population.

### METHODOLOGY

#### Study Area

The experiment was carried out in Animal Production Department Laboratory, Ibrahim Badamasi Babangida University Lapai, Niger State, Nigeria in year 2017. Lapai lies at longitude 9.0<sup>1</sup> N and latitude 6.343<sup>1</sup> E of the Equator. The area is located in the vegetative

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zone of the guinea savanna, middle belt of Nigeria. Lapai has an average temperature of 23°C to 34°C and a minimum rainfall of 107.33mm (Anonymous, 2010).

### Experimental Samples

Ten specimens of African lungfish (*Protopterus annectens*) were used the experiment, the distilled water was used to wash the specimens and blotting paper was used to clean the specimens to give accurate weight. The fish specimens were weighed with digital weighing balance to the nearest 0.01g and both total length and standard were measured by meter ruler to the nearest 0.01cm. The fish specimens were dissected with dissecting knife to remove ovaries which were weighed. The numbers of eggs were counted by direct enumeration and the mean diameters of the eggs were measured with micrometer gauge from randomly selected fifty (50) eggs.

Collected samples were taken to laboratory where only the raw muscles were removed, homogenized by mortar and crushed with a pistol and kept in a desiccators for proximate analysis. The proximate composition analyzed were moisture, protein, fats, ash, fibre and NFE. The proximate analyses were done according to the procedures of AOAC (1990).

Data collected were processed and analyzed using one way Analysis of Variance (ANOVA) according to the procedures of Steel and Torrie (1980). Significant means were compared using Duncan Multiple Range Test at probability level of 5%.

### RESULTS

Results are presented in table 1 below.

Table 1 Showing weight of the fish, total length of the fish, standard length of the fish, weight of ovary, numbers of egg, diameter of the egg.

No.	SAMPLES:	A	B	C	D	E	F	G	H	I	J
1	TW(g)	1,100	1,300	800	600	800	800	600	900	400	400
2	TL(mm)	620	680	510	470	570	520	440	580	470	405
3	SL(mm)	600	650	490	460	530	440	410	460	430	430
4	WTO(g)	14.0	18.7	10.9	6.9	12.1	11.9	6.9	13.5	4.0	4.8
5	NOE	67	72	62	54	62	64	50	64	52	50
6	DOE(mm)	5.4	4.3	4.2	4.2	2.8	4.8	4.3	4.3	4.8	4.8

Note:TW= total weight, TL= total length, SL= standard length, WTO= weight of the ovary, NOE= numbers of egg, DOE= diameter of the egg

### DISCUSSION

There was significant relationship between the fecundity and body weight and length ( $p < 0.05$ ). The fecundity increases with increase in body weight and length. This agrees with finding of Fagade and Adebisi (1979) that both body weight and total length are quite reliable indicators of the fish's potential egg production. Okafor (2010) reported that knowledge of fecundity is useful for planning fish production programs. The fish farmer will have the idea about the breeding and production facilities required from the finding.

### Conclusion

The study revealed low fecundity the fish investigated.

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