RELATIONSHIP BETWEEN SOME SOMATIC INDICES AND INTESTINE LENGTH OF *Gymnarchus niloticus* FROM KATCHA RIVER, NIGER STATE, NIGERIA

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Abstract

A total of 96 samples were examined from January –June 2018 to estimate the relationship between intestine and total body length, and weight- length of *Gymnarchus niloticus*. Top loading balance, measuring tape were used for weighing and measuring the weight and length of the fish respectively. Micro soft excel 2016 was used to analyse the data. The ratios of intestine length to total body ranged from 1.1-1.3 and this showed the position of fish in a food web as predator. Linear regression analyses showed 0.96 and 0.99 R^2 in relationship between body weight to total length, and intestine to total length respectively. These showed that 96 % and 99 % of the variability of the response variables have been explained by the regression model. It also indicates the predictability of the response variables.

Key words: *Gymnarchus niloticus*,relationship, Katcha , river

Introduction

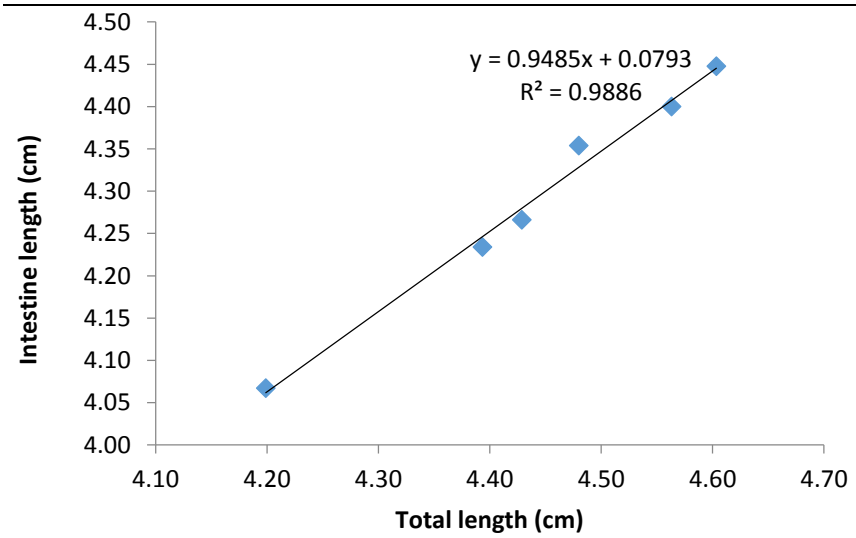
Gymnarchus niloticus, has several common names which include African knife fish, freshwater rat-tail, Aba aba and frankfish. It is a large and long fish which tapers toward the thin tail and can grow up to a length of about 167 cm and a weight of 18kg. The fish is dark bluish on the back and has silver to cream colour on ventral side . *G. niloticus* has undulating fin on the dorsal side running from end of head to beginning of tail with no pelvic, caudal and anal fins. The fin is used for locomotion. It has small scales on the body but the head has no scales. *G. niloticus*, is a freshwater fish and it can swim forward and backward.It hides under large twisted roots of plants during the day and is active at night. The fish thrives best in dim light.
G. niloticus, is an electric fish with electric organ that extends along almost the entire body and can generate electric field surrounding its body that when another organism enters into this field it becomes distorted and this makes its skin sense the presence of this organism. This electric field helps the fish to identify food and objects in water. It has a large brain that can interpret electric signals. The fish is less aggressive at early stages but become aggressive as it grows older (Animal-World, 2015).

G. niloticus is a carnivorous fish feeding on live fishes, insects, earthworms, snails, frogs. The fish is highly predatory, extremely aggressive and territorial. It has sharp and strong teeth for very powerful bite.

G. niloticus is an African fish found mostly in Nile, Niger, Volta, Chad, Senegal, and Gambia basins. It is also common fish in Nigeria. As food it has a sweet taste, is highly cherished and has important commercial value (Ayola and Abotti, 2010).

Table 1: The ratios of intestine length to total length of *G. niloticus* collected from Katcha River, Katcha, Niger State, Nigeria (January – June, 2018)

SAMPLE	JAN	FEB	MAR	APR	MAY	JUNE
A	1.3	1.3	1.3	1.1	1.2	1.2
B	1.2	1.3	1.3	1.1	1.3	1.2
C	1.1	1.1	1.1	1.1	1.2	1.1
D	1.1	1.2	1.2	1.1	1.2	1.2
E	1.2	1.2	1.2	1.1	1.1	1.1
F	1.2	1.2	1.1	1.1	1.1	1.1
G	1.2	1.2	1.1	1.1	1.1	1.1
H	1.1	1.2	1.1	1.2	1.1	1.1
I	1.3	1.1	1.2	1.7	1.1	1.2
J	1.3	1.1	1.2	1.2	1.1	1.2
K	1.2	1.1	1.1	1.1	1.1	1.1
L	1.2	1.1	1.2	1.2	1.1	1.1
M	1.1	1.1	1.2	1.1	1.1	1.1
N	1.1	1.1	1.1	1.1	1.1	1.1
O	1.1	1.1	1.1	1.1	1.2	1.1
P	1.1	1.2	1.1	1.1	1.2	1.2



1.Relationship between intestine length and total length of *G. niloticus* collected from Katcha River, Katcha, Niger State, Nigeria (January – June, 2018).

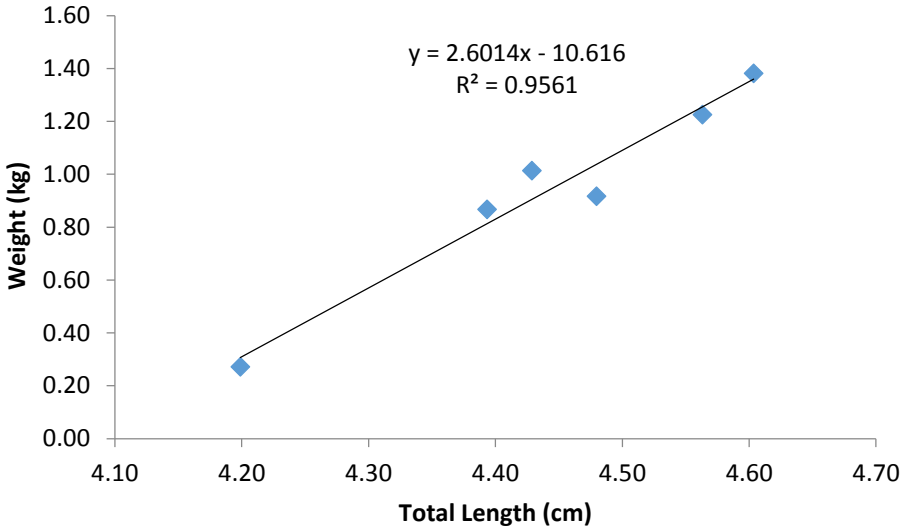


Figure 2.Relationship between body weight and total length of *G. niloticus* collected from Katcha River, Katcha, Niger State, Nigeria (January – June, 2018).

Results

Table 1 shows range of ratios between1.1-1.3 of intestine length to total body length. Figures 1 and 2 show the relationship between body weight with total, and intestine with total body length having R^2 of 0.96 and 0.99 respectively.

Discussion

The results of this research showed *G. niloticus* has ratios of intestine length to total body weight of between 1.1-1.3.This falls within the range reported by Kapoor *et al* (2010) that the relative intestine length was from 0.5-2.4, 0.8-5.0, and 2.0 -21.0 mm for carnivore, omnivore, herbivore respectively. The regression analyses showed a positive relationship between intestine length and body length, and body weight – length. This is an indication of predictability Motasim A. M. *et al* (2015) and C.I. Ayo-Olalusi , (2014).

Conclusion and Recommendations

The ratios of intestine to body length (1.1-1.3) revealed that *G. niloticus* was a highly predatory fish. Body weight –length relationship revealed the size of the fish and this is important for production planning. Further research should be conducted for more information about this fish because of its commercial importance and academic application.

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