

APPENDIX B

A NOTE ON THE BREEDING BIOLOGY OF
APLOCHEILICHTHYS PUMILUS (BOULENGER)

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Aplocheilichthys pumilus is a small cyprinodont commonly found in shallow swampy areas around Lake Victoria. In the lagoons the species was especially common in the shallow grass swamps and in the slightly deeper water among stands of *Typha* and *Cyperus* flanking the main lagoon.

Juveniles and adults were found at all times of year and the length frequency characteristics of the population remained unchanged over a period of 9 months. The adults (1.9 to 3.6 mode 2.9 cm standard length) were usually found in slightly deeper or less weed grown areas than the juveniles (from 1.0 cm standard length), which were caught in the shallow margins of the grass swamp.

Maturation began in some fish at 1.9 cm and 50 percent of the fish were mature at 2.1 cm standard length.

Due to the small size of the testis, it was difficult to determine the male sexual state. The females on the other hand had well defined gonads which contained a range of egg sizes. Counts carried out on batches of 10 females taken at different times (May, August, November 1963, January, March 1964) showed little difference in number or proportions of different sized eggs with time of year. A typical sample taken in November 1963 from Bugungu lagoon is shown in Table B1.

The Table shows that a certain proportion of the females taken in November 1963 may be regarded as ripe (eggs are shed when 1.5 to 2.0 mm in diameter) whilst others are at intermediate stages in the maturation process. This data may also be interpreted as representing a sequence in time where blocks of eggs are maturing from stocks' of smaller oocytes. When the figures for the whole sample are summed no sharp separation between ripe, ripening and '-stock' eggs is obtained. *Aplocheilichthys pumilus* therefore conforms to the continuous spawning pattern noted by Hickling and Rutenbert (1936). This pattern contrasts with that of the species with discrete spawning seasons, in which the whole mass of eggs ripen and are shed over a short period.

Spawned mature eggs were found on several occasions tangled in floating masses of filamentous green algae and in the roots of *Pistia stratiotes*. These were usually deposited individually, although one female was caught with a string of three eggs hanging from the genital aperture. The artificial spawning and embryological development of *A. pumilus* has been discussed by Wourms (1965).

REFERENCES

- HICKLING, C. F. & RUTENBERG, E. (1936). - The ovary as an indicator of the spawning period of fishes. *J. Mar. Biol. Ass. U.K.*, 21: 311-317.

WOURMS, I. P. (1965) - Comparative observations on the early embryology of *Nothobranchius taeniopygus* (Hilgendorf) and *Aplocheilichthys pumilus* (Boulenger) with special reference to the problems of naturally occurring diapause in teleost, fishes. *EAFPRO Ann. Rep.* 1964; 68-73.

TABLE B1. NUMBERS OF EGGS OF DIFFERENT STANDARD LENGTHS FOUND IN TEN *APLOCHEILICHTHYS PUMILUS*

Egg Diameter mm	Female standard length (em)									
	3.1	3.0	3.3	3.3	2.8	2.8	3.1	2.5	2.9	2.6
0.1	110	192	221	205	108	120	114	119	199	145
0.2	30	48	84	31	45	40	27	20	58	24
0.3	19	23	18	19	35	37	12	8	28	14
0.4	11	26	23	19	18	37	6	15	15	20
0.5	9	4	12	17	16	14	9	11	9	12
0.6	9	8	7	4	12	14	6	2	5	7
0.7	7	12	5	7	10	12	6	3	6	6
0.8	3	3	4	4	11	1	4	3	6	3
0.9	1	2	-	3	3	-	4	5	4	3
1.0	1	1	5	1	4	2	1	2	5	1
1.1	1	-	6	1	1	2	-	1	1	1
1.2	-	1	4	2	1	3	2	-	1	
1.3	1	1	2	1	3	3	3	-	3	
1.4	1	-	4	4	4	-	3	-	1	
1.5	-	-	-	3	4	7	4	1		
1.6	-	-	-	2	3	5	3	1	3	1
1.7	-	-	-	-	1	3	2	2	3	1
1.8	-	-	-	1	-	-	-	2	4	1
1.9	-	-	1	1	-	-	-	1	7	
2.0	-	-	1	-	-	-	-	-	2	