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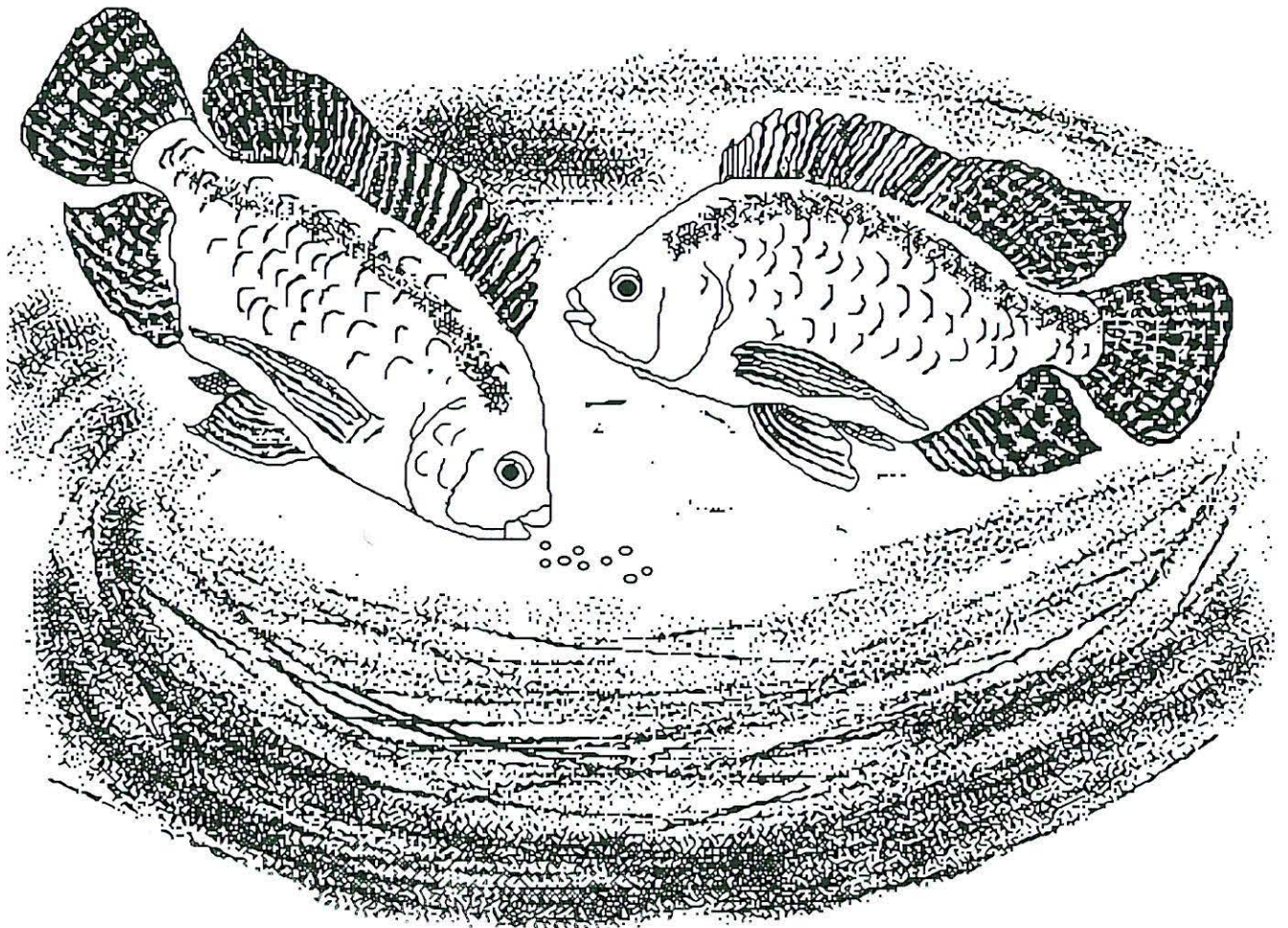
WATER HARVESTING AND AQUACULTURE  
FOR RURAL DEVELOPMENT

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REPRODUCTIVE BIOLOGY OF  
*OREOCHROMIS NILOTICUS*

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INTERNATIONAL CENTER FOR AQUACULTURE

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AND AQUATIC ENVIRONMENTS  
AUBURN UNIVERSITY

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**INTRODUCTION**

*Oreochromis niloticus* are native to most major Northern and Central African river systems and have been distributed widely throughout the tropical world. The number of dorsal fin rays and dorsal spines and the presence of distinct black bars on the tail are distinguishing features used to identify this species (Figure 1).

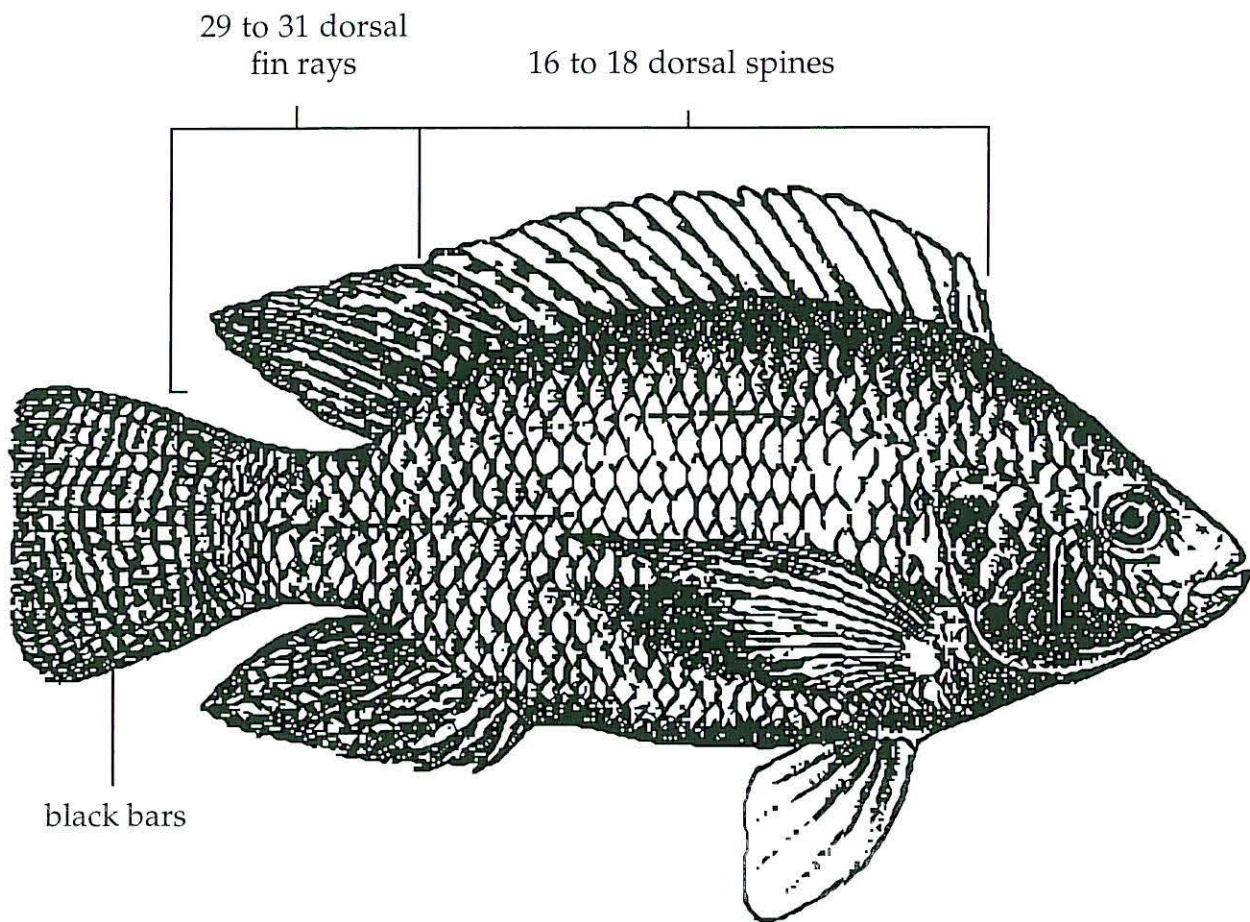


Figure 1: *Oreochromis niloticus*

## CHARACTERISTICS AT SEXUAL MATURITY

The following table summarizes important requirements and characteristics of sexually mature, pond-raised *Oreochromis niloticus*.

AGE 4 to 6 months

WEIGHT 50 to 100 g

LENGTH 10 to 12 cm

### SPAWNING TEMPERATURE

- OPTIMUM 25 to 30 degrees C

- MINIMUM 21 degrees C

### EGG PRODUCTION PER FEMALE

- RANGE 100 to 2000 eggs/ spawn

- AVERAGE 200 to 400 eggs/ spawn

- A 200 g FEMALE 250 to 500 fry/4 to 5 weeks

BEST SIZE FOR BROOD STOCK 100 to 200 g

### **SPAWNING SEQUENCE FOR OREOCHROMIS NILOTICUS :**

The following sequence characterizes the mating behavior of *Oreochromis niloticus* in captivity (Figures 2 through 7).

1. Brood stock become acclimated to their surroundings 3 to 4 days after stocking.
2. Males define and defend territories on the bottom, and form a nest by cleaning a circular area 20 to 30 cm wide. In ponds with soft bottoms the nest is excavated 5 to 8 cm deep by digging with the mouth.

3. The female is attracted to the nest where she is courted by the male.
4. The female lays her eggs in the nest after which they are fertilized by the male.
5. The female picks up the fertilized eggs in her mouth and leaves the nest. The male continues to guard the nest and attract other females for mating. Courtship and spawning require less than a day.
6. Eggs are incubated for 3 to 5 days in the female's mouth before they hatch. Young fry stay with their mother for an additional 5 to 7 days. They hide in her mouth when danger threatens. The female does not eat while incubating her eggs or caring for the new fry.
7. The female will be ready to mate again about one week after she stops caring for the fry.
8. Fry form schools after leaving their mother and can easily be harvested with small mesh nets at this time. Large schools of fry may be seen 13 to 18 days after brood stock have been introduced to their new surroundings.

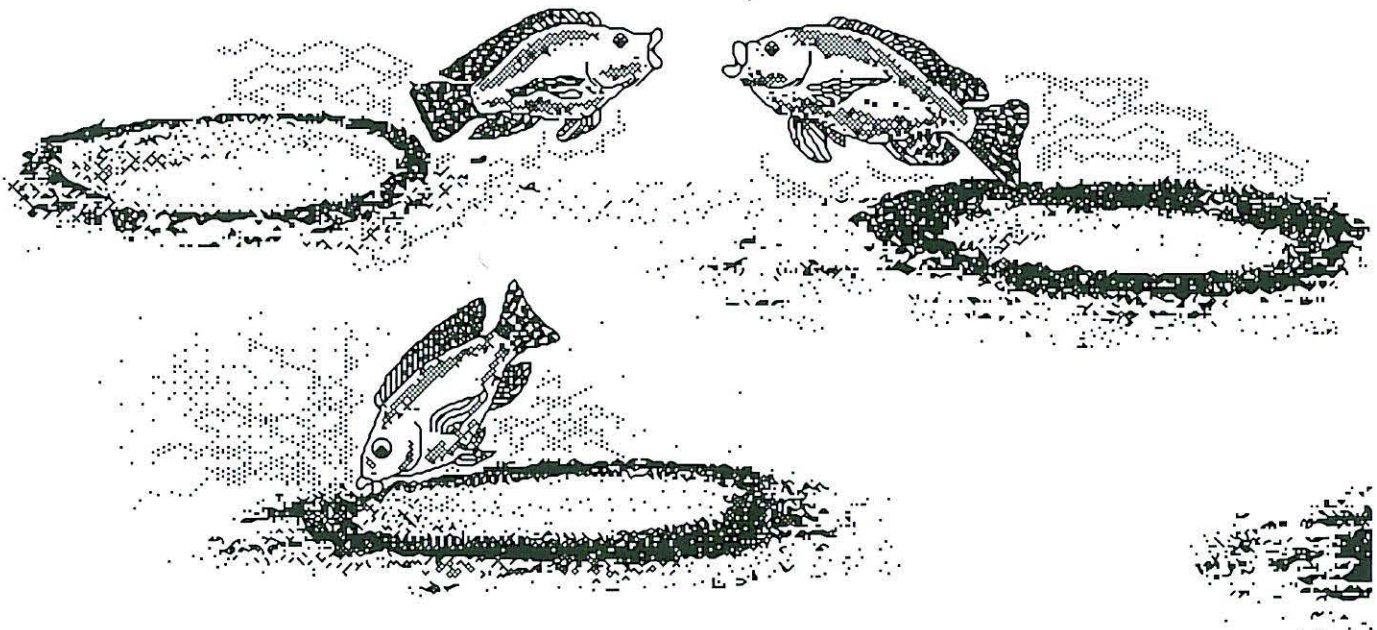


Figure 2: Rival males defend their nests above. A male cleans and builds a nest below.

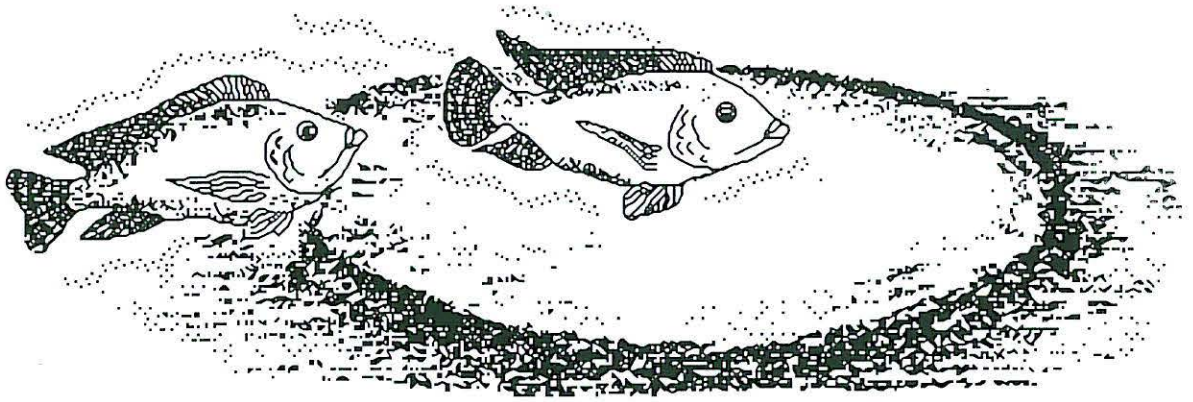


Figure 3: Male performing courtship display to attract a female into his nest for mating.

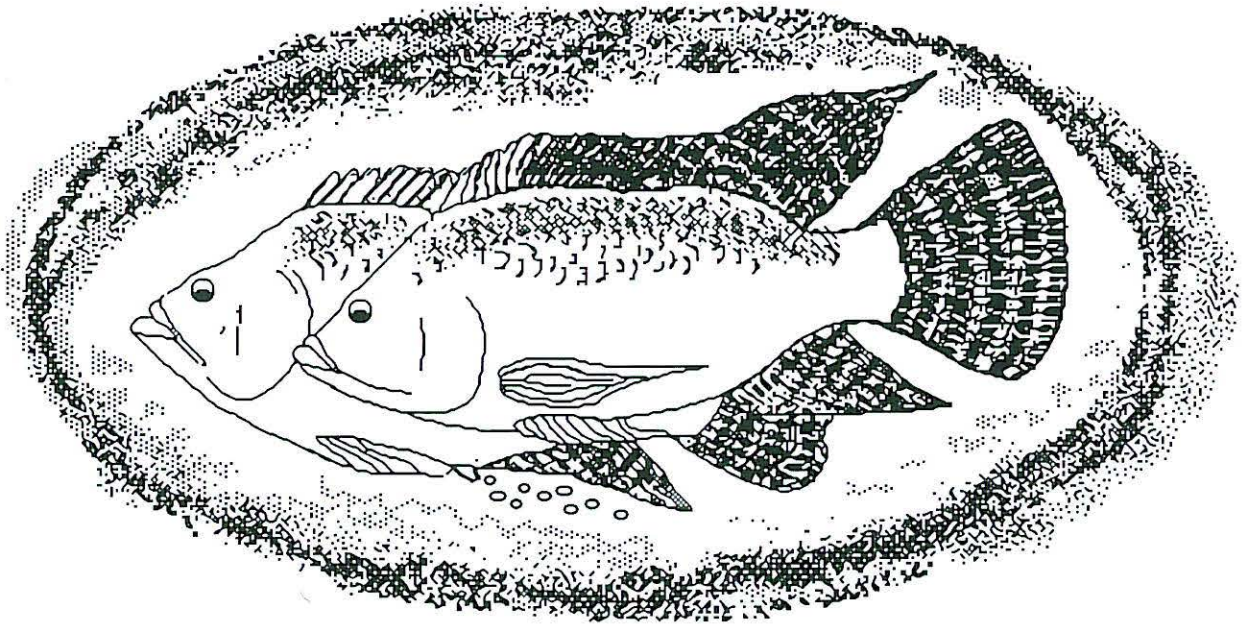


Figure 4: A mating pair of *Oreochromis niloticus*. The female lays her eggs while the male stands ready to fertilize them.

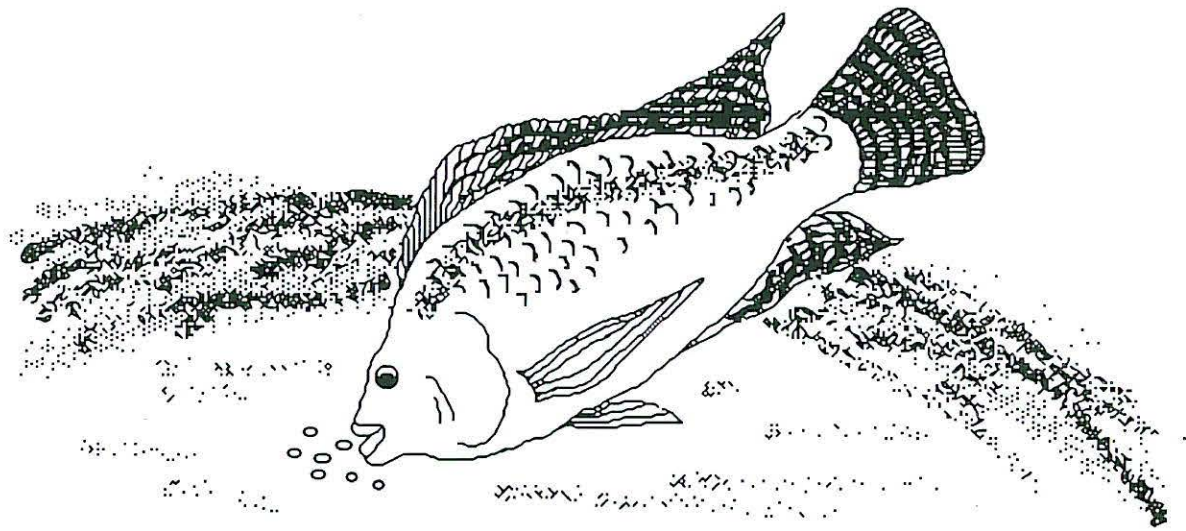


Figure 5: After the male fertilizes the eggs the female picks them up with her mouth for incubation.

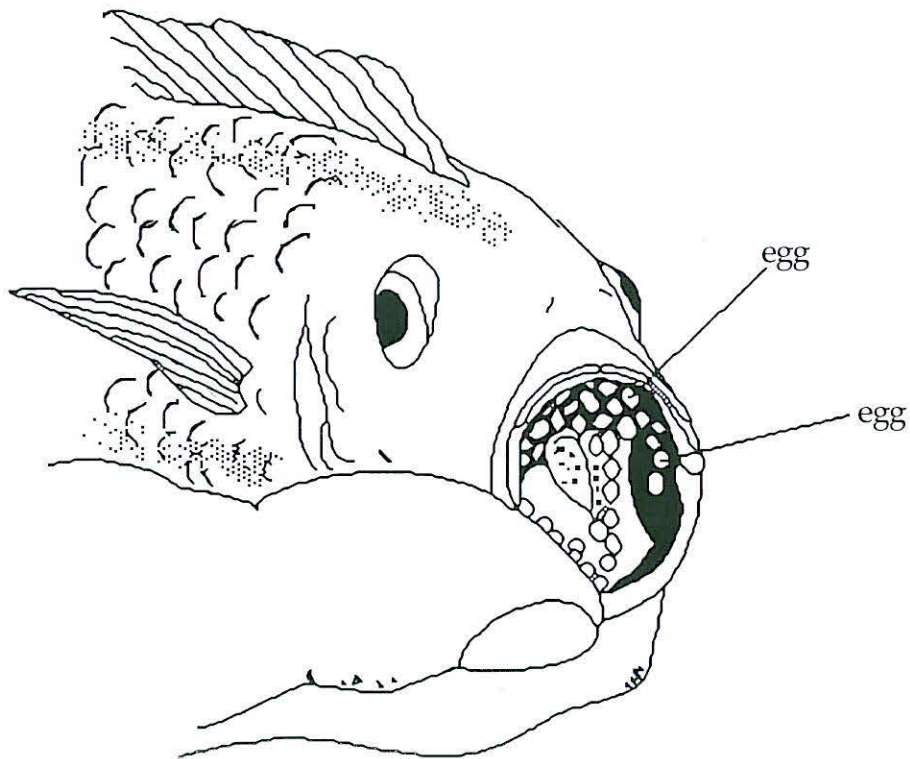


Figure 6: A female incubates eggs in her mouth. They will hatch in 3 to 5 days. Note the distended throat where the eggs are kept.

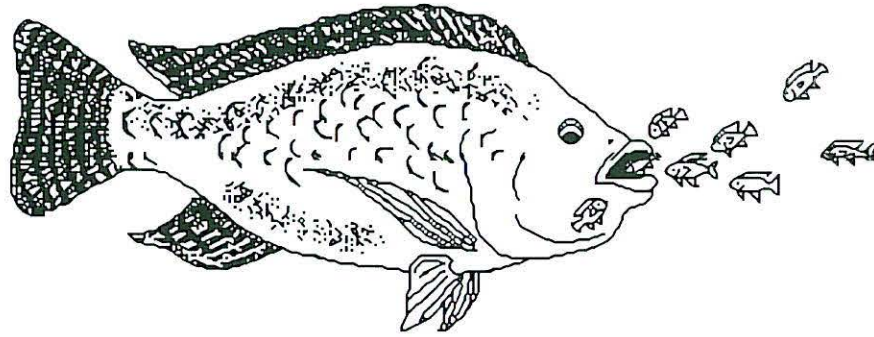


Figure 7: A female guards her young for 5 to 7 days. They hide in her mouth when danger threatens.

## GLOSSARY OF TERMS

brood stock - sexually mature animals selected for reproduction.

spawning - the act of depositing eggs and producing young.

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