Observations on a Breeding Pair of Tilapia rendalli rendalli Boulenger 1896 in an Experimental Tank at Lake Kariba Fisheries Research Institute

by

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ABSTRACT

A pair of breeding Tilapia rendalli rendalli were installed in a tank at the Lake Kariba Fisheries Research Institute in order to determine the number of times they would breed in a year under Kariba climatic conditions. The pair bred almost monthly from January until May, when temperatures in the tank dropped below 20°C, the minimum temperature at which this species will breed. Breeding commenced again in September, when temperatures were above 20°C, and continued monthly to the end of the year. A total of eight breedings in the calendar year of 1971 were recorded.

It is concluded that T. rendalli rendalli could breed at least eight times a year in the Lake. This represents a considerable capacity for increase, and in view of the oft destructive weed-eating habits of T. rendalli rendalli efforts should be made to find a way to crop this species, which is not effectively caught by gill nets.

INTRODUCTION

Tilapia rendalli rendalli Boulenger, 1896 (formerly T. melanopleura Duméril), the Red-breasted Bream, is well-known for its weed-eating habits. In this respect it is often introduced to farm dams and other small impoundments in order to eradicate or reduce the aquatic weed mass. In Rhodesia, this weed-eating species has resulted in the denudation of aquatic weeds in several lowveld impoundments, with the subsequent detrimental effects to both the fish and bird fauna dependant on the weeds for food or nesting (JUNOR, 1969).

The possibility of this happening in Kariba has not been over-
looked. Donnelly (1969a) expressed the opinion that unless this species was cropped more efficiently in the lake an increase in numbers could lead to a collapse of the marginal vegetation. While the expanding weed-beds in Kariba would appear to belie this possibility, it was nevertheless decided that an investigation of the breeding potential of this species, under Kariba’s climatic conditions, would be important for evaluating its capacity for increase in the lake.

The number of spawnings per year depends on the water temperature. Crass (1964), maintains *T. rendalli* will breed every six weeks or so throughout the warm season, with spawning not taking place below about 70°F (21,1°C). De Bont (1960) found that *T. rendalli*, in parts of the Congo, bred throughout the wet season at seven week intervals, and only four times a year. The number of spawnings a year depended on the length of the rainy season and varied from year to year. Maar et al. (1966) say the fish will start spawning at 20°C (68°F) and will spawn every seven weeks if the temperature remains high enough.

In the lacustrine basins of Lake Kariba, surface temperatures do not drop below 20°C (Begg, 1970). It is possible, therefore, that breeding by *T. rendalli* takes place throughout the year. Donnelly (1969b) states that *Tilapia* breeding occurred to some extent throughout the year, with spawning peaks occurring from October to December.

However, while the presence of sexually active fish in gill-net catches throughout the year would indicate breeding throughout the year, it would not indicate how frequently a breeding individual or pair would breed in a year. It was possible for this to be determined experimentally. A breeding pair was installed in a tank at the Lake Kariba Fisheries Research Institute. The breeding activities of this pair, under Kariba’s temperature conditions, are described.

**Methods**

A breeding pair was obtained by placing several mature *T. rendalli* in a tank and waiting until a pair had bred twice. They were then removed and placed in a separate tank. The metal tank was 1,8 m long by 1,2 m wide at the top; 1,3 m by 1,2 m at the bottom; and was 1,10 m high. The sand-covered bottom area, where nest-making and egg-laying activities took place, was therefore 1,5 square metres. The tank contained 2 100 litres of water.

The pair were fed regularly on trout pellets. Maximum and minimum temperatures were taken at intervals, and the dates on which fry hatched were noted. The progeny were generally removed