

ABSTRACT

STUDIES OF THE BIOLOGY OF THE MOUNTAIN MULLET
AGONOSTOMUS MONTICOLA (BANCROFT).

Dawn Phillip

In order to obtain biological information for the assessment of the suitability of Agonostomus monticola (Bancroft) for aquaculture, samples of this fish were collected monthly from four rivers along the northern and northeastern coasts of Trinidad from December 1986 to May 1988 and again in August and September 1988. For each fish, length-weight data and fat and liver weights were recorded. Stomach contents were analyzed and feeding chronology noted. Histological slides of the gonads were used to sex the fish and to assign the ovaries to one of several maturity stages. Fecundity was estimated. Ageing was done from hard parts and growth rates were calculated.

A. monticola was found to be a generalist feeder utilizing the lowest steps of the algal-based and detrital-based food chains, but with a preference for animal food (51% of the diet by volume).

The reproductive season began in July and ended with rapid spawning in October, during peak rainfall. The young mature in their second year at sizes over 137 mm fork length (FL). Fecundity (F) was found to be size-related; $F = 9996.6(S)^{0.87}$, where S = somatic weight. It ranged as high as 1,414,800 in 70 g of gonad weight. Apparently all ripe eggs are shed on spawning.

Opercular bones were used for ageing. Two rings were apparently produced annually, in April and November. The first one or two rings near the kernel were usually missing. L_{∞} , the maximum size which the fish would reach if it continued to live indefinitely, was found to be 459.2 mm. The von Bertalanffy growth equation was described; $L_t = 459.2(1 - e^{-0.15(t+0.73)})$. The length-weight relationship for female A. monticola from Tompire River was described; $T = 0.04 FL^{2.65}$, where T = total weight.

Based on economic considerations it was concluded that it was better to culture A. monticola with the aim of developing it as a sport-fish since no market exists for it as a food fish.