

## Biology of *Acanthobrama mirabilis* Ladiges, 1960 in Lake Bafa (Turkey)

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*Acanthobrama mirabilis*, which is among economically important fish species of Lake Bafa, is one of the inland water fishes endemic in Lake Bafa and Büyük Menderes River. The present study deals with the age composition, growth equations for the length and weight, gonadosomatic indices, condition factors, fecundity of this species.

The present study was performed on 1812 specimens of *A. mirabilis* caught from different areas of Lake Bafa. The samplings took place each month during the period from September 1986 to August 1987, using different fishing nets of various mesh size (20, 25, 28, 32 mm). From each fish, data on total length, total weight and scale samples were collected. Length weight relationship was computed according to the cubic relation  $W=c.L^n$ . Length at age were computed from length distribution data (GULLAND, 1964). Condition factor and gonadosomatic indices were computed using the following equations:  $k=(W.100)/L^3$  and  $GSI=(Gonad\ weight.100)/Total\ weight$ .

Lake Bafa is an alluvial dam lake with an area of 65 km<sup>2</sup>, a maximum depth 19 m and salinity varies from 2.98‰ to 5.62‰ (YARAMAZ et al., 1988). The fish population of Lake Bafa is composed of 14 species (*Mugil cephalus*, *Liza ramada*, *Chelon labrosus*, *Dicentrarchus labrax*, *Anguilla anguilla*, *Atherina boyeri*, *Pomatoschistus marmoratus*, *Lipophrys pavo*, *Gambusia affinis*, *Cyprinus carpio*, *Silurus glanis*, *Acanthobrama mirabilis*, *Chondrostoma nasus*, *Barbus capito*) (BALIK and USTAĞLU, 1988).

Age determination from scale readings revealed the presence of six age groups (II-VII) of *A. mirabilis* in Lake Bafa. The length frequency data on the collected 1812 specimens is converted into a length composition table from which the following mean lengths at ages were deducted: 11.50; 15.94; 18.18; 18.93; 20.67 and 23.85 cm, respective to age groups II to VII. The values are little higher than those of *A. terraesanctae* in Lake Tiberias (STEINITZ, 1959).

The percentage occurrence of each group shows that among the six age groups represented in the catch, age group V constituted about 52.76%, followed by fishes of age group IV (24.45%) and age group VI (17.77%). The remaining age groups constituted 5.02% of the population.

Linear growth of *A. mirabilis* in Lake Bafa was found to be expressed mathematically by using the following equation  $L_t = 28.10 (1 - e^{-0.26(t+0.0245)})$

The relation between total length (in mm) and total weight (in g) for 1812 specimens of *A. mirabilis* was found to be curvilinear and was expressed mathematically by the formula  $\log W = 3.09 \log L - 5.09018$  ( $r=0.964$ ).

The theoretical equation expressing growth in weight could thus be written as:  $W_t = 289.53 (1 - e^{-0.26(t+0.0245)})^{3.09}$

In Lake Bafa, the spawning period of *A. mirabilis* is between April-May, and during this period water temperature changes between 15.5-21.8°C. The average numbers and diameters of the eggs during the spawning period are respectively in April and May: 20129-1179.95  $\mu$  and 20271-1217.19  $\mu$ .

Gonadosomatic indices (GSI) during the same months are for the females 9.664 - 6.440 and for the males 5.344-1.655 respectively.

Maximum condition factor values of both males and females are observed during May (1.408; 1.524 respectively). It is possible that, this situation has a correlation with gonadal development during the spawning period. In the higher age groups, there are significant increases in the condition factors.

As a result of these investigations data have been gathered as, these are schooling fishes, feeding as omnivorous, having pelagical or semipelagical habits, easily adapting themselves up to 15‰ salinity, become mature in 2-3 years, immigrate to the small streams as big groups during spawning in April-May, having yellowish colored eggs and 1-1.2 mm in diameter, mature females produce about 20000 eggs, living about 7-8 years old and in these ages grow to 27 cm in length and 180 g in weight and Lake Bafa has a suitable habitat for developing of this species.

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