Planktonic rotifers as indicators of pollution in Mediterranean coastal lagoons of Egypt

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Rotifers are known to be excellent indicators of organic pollution as they thrive better in organically rich environments. Comparative investigation of Egyptian lagoons showed that cleaner environments are the lowest in standing crop as well as in species richness, whereas eutrophic areas sustain the greatest number of both individuals and species.

The coastal lagoons investigated are Menzalah, Edku and Maryut (Fig. 1). All are shallow and low brackish receiving their waters mainly from agricultural drains. L. Menzalah and L. Edku are connected to the sea, but L. Maryut has no free connection.

L. Maryut receives also mixed industrial and domestic waste waters, and is heavily polluted (SAAD, 1980). Observations covering 16 months on the 2 drains feeding L. Maryut (relatively clean water, before mixing with lake water) showed that monthly average zooplankton standing crops of respectively 7 and 2.4 org.l^{-1} with about equal proportions of Rotifera, Cladocera and Copepoda. Rotifers were represented by 6 to 11 species belonging to 6 genera. After mixing with lake water, the drains standing crops increase sharply to 90 org.l^{-1}. Rotifers contributed by an average of more than 65 % of the total. The number of species also increased to 20 belonging to 9 genera. At the seaward outlet of Umum drain, where dilution with sea water occurs, the zooplankton standing crop dropped to about 55 org.l^{-1}. Rotifers were still leading, but the number of species decreased to 13. In all cases (within the outlet and in the other parts of the lake) Brachionus calyciflorus was the dominant followed by B. plicatilis and Synchaeta spp. (GUERGUESS, 1988).

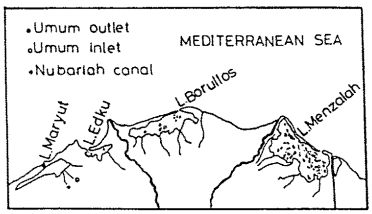

Figure 1. Map of the coastal lagoons

L. Menzalah is highly eutrophic as it receives agricultural runoff mixed with domestic waste waters. Observations troughout 17 months on an area downstream from the effluent showed monthly average standig crops of 93 org.l^{-1}. Rotifers contributed by an average of more than 56 % to the total and were represented by 14 species belonging to 7 genera. *B. calyciflorus* (49 %) was leading, followed by *B. urceolaris* (2 %) and *Keratella quadrata* (1%). In another area remote from the effluent, the average standing crops dropped to 26 org.l^{-1}. Rotifers contributed by an average of only 3.2 % to the total. They were represented by 6 species (GUERGUESS, 1979).

L. Edku waters are relatively clean. Rotifers contribute by an average of less than 10% (3.4 org.l^{-1}, 21 months of observations). 16 species of Rotifers belonging to 7 genera were recorded. *B. calyciflorus* (3 %), *B. urceolaris* (3 %) were the more important followed by *K. quadrata* (1%) and *B. angularis* (0.4 %).

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Lenght-weight relationships in Gilthead Seabream (*Sparus aurata* L., 1758), catched from Homa Lagoon (Izmir, Turkiye)

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There are many bays and gulfs at the shore of Aegean Sea. These areas are suitable for natural fish production. There are 26 active lagoons of about 35000 ha which yield a productivity of 5 - 6 kg/da at Türkiye (ALPBAZ, 1987). Gilthead Seabream (*Sparus aurata*) are very frequent in the lagoon areas of our country since is an important commercial fish for all mediterranean countries. Studies have been done about their body lenght-weight relationships in the lagoons.

The studies have been performed in Homa Lagoon located north west of Izmir Bay (fig. 1). The total area of lagoon is 18000 da., and its average depth is 0,75 m. Around 15000 da. of this area are suitable for fishery. The lagoon is connected to the sea bay six canals. The total fish production in 1989, the period of the present investigation, was 65 ton/year, 15 percent of this was Gilthead Seabream (KORKUT, 1989).

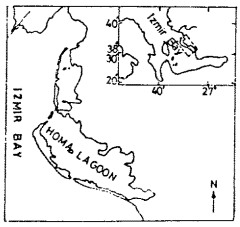

Fig. 1. Homa Lagoon

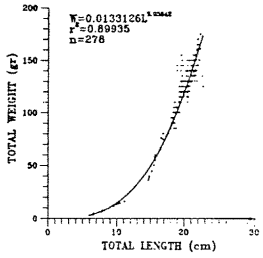

Fig. 2. Length-weigth relationship in *S. aurata*

Gilthead Seabream were cathched by gillnets, fyke nets and traps. Lenght and weight measurements have done to observe growth. The parmeters of the length(L)/weight(W) regression curves were calculated using the equation: $W=aL^b$ (fig. 2). For statistical analysis these curves were the transformed into straight line equations. The proportions of individuals of each length class are given at figure 3.

According to our observations Gilthead Seabream reach, in six months, about 170 g in weight and 18.46 cm in length.

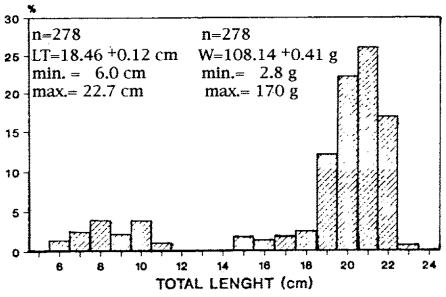

Fig. 3. Proportion of different lenght classes in Gilthead Seabream (*Sparus aurata* L., 1758).

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