

BIO-ECOLOGICAL CHARACTERISTICS and CULTURE of the BLACK SEA TROUT (*Salmo trutta labrax*)

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The ecological characteristics of the Black Sea Trout in five streams (Solaklı, İyidere, Fırtına, Çağlayan, Kapistre) in northeastern Turkey and along the Black Sea coast was studied between June 1998 and July 2001.

The mitochondrial DNA (mt-DNA) sequence and restriction fragment length polymorphism (RFLP) indicated that two ecotypes of this species live in freshwater streams (fario ecotype) and in seawater (marine ecotype).

The fario ecotype had a mean length of 15.4 ± 0.01 (range 6-39.4 cm; n=1 489) whereas the marine ecotype had mean length of 32.2 ± 1.1 cm (range 11.7-99 cm; n=374). There are significant differences in length and weight between the fario and marine ecotypes. The sex ratio is 4 males: 5 females for the fario ecotype and 1 male: 2 females for the marine ecotype. The age distribution of the fario ecotype was 0-4+ and for the marine ecotype 0-8+.



The fario ecotype lives the entire life in streams, but the marine ecotype migrates to the sea after smolting between 15 March and 15 June. The average length of spring smolts was 18.4 cm (range 12.4- 36.1 cm) and that of autumn smolts was 24.3 cm (range 11.7 – 36.3 cm). Smoltification in autumn was 1/5 that in the spring.

Sea trout that have been at sea for 1-3 years were seen at the estuary in March and entered the streams to spawn in late May and early June.

Data on gonadosomatic index and egg diameters datum indicated that spawning season was in September-December for fario ecotype, and in September for marine ecotype. Length at first maturation was 13.7 cm for males and 15.5 cm for females of the fario ecotype, and 44.8 cm for both sexes of the marine ecotype.



Wild females caught during the 1999 and 2000 spawning seasons were sampled for fecundity. Absolute fecundity or the mean number of eggs per female was $3\ 226 \pm 320$ eggs (range 1 772 - 6 210) for the marine ecotype and 341 ± 104 eggs (range 174 – 848) for the fario. Relative fecundity or the number of eggs per unit weight of female was $1\ 747 \pm 70$ eggs/kg (range 1 162 – 2 494 egg/kg) for the marine ecotype and $1\ 654 \pm 354$ eggs/kg (range 678 -2865) for the fario.

Newly hatched alevins were 2.5 ± 0.02 cm long and 0.1 ± 0.003 g in weight. Fish kept in fresh water (9-17°C) until smolting grew to 11.6 ± 0.34 cm and 17.1 ± 1.6 g. They grew faster after they were transferred to sea water at the end of February and reached 20.1 ± 0.6 cm (range 10.9 - 29.8 cm) and 101.8 ± 9.0 g in weight (range 11.6 - 303.2 g).