

**BIOLOGICAL PARAMETERS OF *TRACHYRHYNCHUS TRACHYRHYNCHUS* (RISSO, 1810)
(OSTEICHTHYES, MACROURIDAE) IN THE NORTH AEGEAN SEA: PRELIMINARY RESULTS**

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Abstract

Aspects of the biology of *Trachyrhynchus trachyrhynchus* (Risso, 1810) were studied in the North Aegean Sea. The male:female (M:F) ratio was 1:1.44. Age determination based on otolith reading showed that the population has a maximum age of 14 years. The species exhibits a positive allometric growth ($b=3,37$). The von Bertalanffy growth parameters for all individuals are $L_{inf} = 460.4$ mm, $k = 0.2406$ year⁻¹, and to = -1,07 year. Gonad examination revealed that during the sampling period, the species was mainly immature.

Keywords : Aegean Sea, Deep Waters, Fishes.

The Roughsnout grenadier *Trachyrhynchus trachyrhynchus* (Risso, 1810) [1], is a benthopelagic species for which very few studies exist. Its presence has been recorded annually since 1996 at depths between 400-700 m especially in the North Aegean Trench in Lemnos basin. The purpose of this study is to present data on various aspects of its biology.

The samples were collected during the MEDITS expedition (which is conducted during the June and July every year) in the North Aegean Sea from 1996 to 2006. Total length (TL) in mm, and total weight (TW) in gr were measured on board, otoliths were extracted and sex was determined by macroscopic examination of the gonads. A number of otoliths and gonads were processed and examined in the laboratory under stereoscopic and microscopic examination respectively. Counts of opaque zones in otoliths were converted in number of years as an absolute age.

A total of 847 individuals were caught of which 750 were measured. Total length of the individuals ranged from 125 to 507 mm. The length class with most individuals was the 365-374 mm (9.2%).

Otoliths (left sagittae) from 54 individuals were used for age determination (Fig. 1).

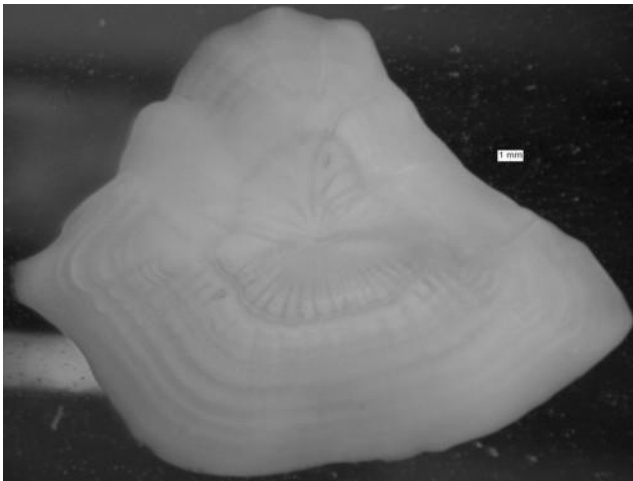


Fig. 1. Photomicrograph of otolith from a 437 mm fish.

Due to their thickness, otoliths were polished with sandpaper until the nucleus was reached, immersed in ethanol and read under transmitted light. The otolith reading revealed up to 14 annual increments indicating a maximum age of 14 years. The von Bertalanffy growth parameters were computed by mean of non linear regression analysis applied to the age-at-length data. The results are (all individuals): $L_{inf} = 460.4$ mm, $k = 0.2406$ year⁻¹, and to = -1.07 years.

Overall, 360 fish (42,5%) were sexed: 135 were males, 195 females and 30 unsexed with the sex ratio M:F being 1:1.44. Deviations from 1:1 null hypothesis were statistically tested using X^2 - test and revealed no significant difference ($P > 0,05$) between male and female percentages.

The parameters of the length - weight relationship for males (TL 202-433 mm, TW 20.42-301.30 gr) and females (TL 306-456 mm, TW 114.5-324.66 gr) were for males: $\ln a = -15.85$, $b = 3.57$, $SEb = 0.16$, $R^2 = 0.95$; for females: $\ln a = -10.05$, $b = 2.59$, $SEb = 0.25$, $R^2 = 0.76$; and for sexes combined: $\ln a = -14.71$, $b = 3.37$, $SEb = 0.13$, $R^2 = 0.91$.

Gonads from 60 individuals were histologically processed and examined microscopically (Fig 2).

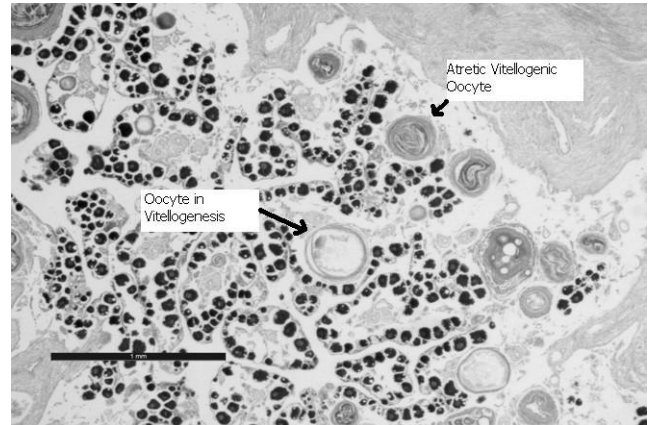


Fig. 2. Histological section of ovary.

The majority of gonads of both male and female were immature. However, ovaries of some females contained few oocytes in vitellogenesis, coupled with atretic vitellogenic oocytes.

The sex ratio indicates that sexes were equally distributed. Males and females had positive and a negative allometric growth respectively, but the species had a positive allometric growth overall. Gonad examination revealed that the species, during the sampling period, was mainly immature. However, the presence of some isolated oocyte in vitellogenesis associated with the presence of vitellogenic oocytes in atretic phase might indicate that spawning occurred recently.

Reference

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