

DISTRIBUTION AND POPULATION STRUCTURE OF GURNARD SPECIES (TRIGLIDAE) IN SAROS BAY (NORTH AEGEAN SEA, TURKEY)

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Abstract

Gurnard species are medium-size marine bottom fishes that live in tropical and temperate seas. Four genera (*Aspitrigla*, *Chelidonichthys*, *Lepidotrigla*, *Trigla*) and five species are found in the Saros Bay. Samples were collected by a commercial bottom trawler from depths ranging between 0 and 500 m, during June 2005 to July 2008 in the Saros Bay, North Aegean Sea. This study reported the CPUE, CUA, catch rate and length-weight relationships for five gurnard species: *T. lyra*, *L. cavillone*, *C. lucerna*, *E. gurnardus*, and *T. lastoviza*. *T. lyra* has highest CPUE (3.13 kg/h) and CUA (55.74 kg/km²) values and *T. lastoviza* has lowest CPUE (0.12 kg/h) and CUA (14.35 kg/km²) values. The CPUE values varied with depth and season. *T. lyra* and *T. lastoviza* have the highest CPUE values in the 50-100 and 100-200m depth.

Keywords: Saros Bay, Aegean Sea, Population Dynamics, Biomass

Gurnards are bottom living fish found in tropical and temperate seas. Gurnard species inhabit the continental and insular shelves of tropical and temperate seas to depths of 500 m. They are found on sandy or muddy bottoms [1]. Some study describe the length weight relationship about Triglidae family members [2,3,4] and catch rate and biomass of Triglidae species [5] in the Aegean Sea. Despite the abundance and commercial importance of gurnards there is lack of knowledge on the exploited status of the stocks in the Mediterranean Sea [6].

This study describes some aspects of the biology of gurnard species in the Saros Bay, North Aegean Sea. In particular population structure, spatial distribution, length weight relationships are considered. Samples were collected by a commercial bottom trawl net with a cod end stretched mesh size of 22 mm, at monthly sampling intervals from June 2005 to July 2008 at the range of 0-500 m depths, and there were 184 sampling station in the Saros Bay, North Aegean Sea. The CPUE (kg/h, catch per unit effort) was calculated for 1 hour, CUA (kg/km², catch per unit area) was estimated using the swept area method [7]. Length-weight relationships were determined according to the allometric equation [8]: $W = a \cdot L^b$, where W is the total weight, L is the TL and a and b are the parameters of the equation. And length and weight parameters were calculated for each species. 5 of the Gurnard species were sampled: *Trigla lyra*, *Chelidonichthys lucerna*, *Lepidotrigla cavillone*, *Eutrigla gurnardus* and *Trigloporus lastoviza*.

In the sampling period the total catch was 18248 kg and 647.6 kg gurnard species obtained that were 3.4% of the total catch. The catch rate, CPUE and CUA values were calculated as *T. lastoviza* 0.11%, 0.12 kg/h, 2.24 kg/km², *C. lucerna* 0.40%, 0.76 kg/h, 14.35 kg/km², *T. lyra* 1.93%, 3.13 kg/h, 55.74 kg/km², *L. cavillone* 0.85%, 1.21 kg/h, 23.04 kg/km², *E. gurnardus* 0.13%, 0.17 kg/h, 3.34 kg/km², respectively. *T. lyra* has highest CPUE (3.13 kg/h) and CUA (55.74 kg/km²) values and *T. lastoviza* has lowest CPUE (0.12 kg/h) and CUA (14.35 kg/km²) values. The CPUE values were high in the summer and low in the winter periods. The CPUE values by depths showed that most of the species have highly CPUE value in the 50-100 and 100-200m depth contour (Fig. 1).

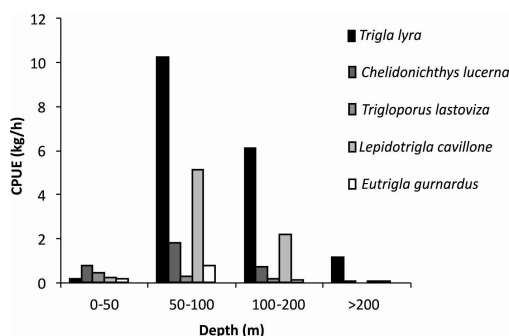


Fig. 1. Values of CPUE by depth in Saros Bay.

T. lyra and *T. lastoviza* have the highest CPUE values in the 50-100 and 100-200m depth. Most of the species occurred in 0-50, 50-100, 100-200 and >200 m depth contour only *T. lastoviza* has not been >200 m.

The estimated parameters of the length-weight relationship along with sample descriptive statistics (n, maximum, minimum and mean TL, standard error of mean TL, maximum, minimum and mean WT, parameters of the relationship (a , b , SE_b)) are given in Table 1. A few study described length weight relationships about Triglidae family members in the Aegean Sea [2, 3, 4]. Our results showed that the other studies indicate less than in terms of the number of specimens. Also ecological and biological factors and regional differences may be responsible for the variations of the length-weight relationship parameters of the other studies.

Tab. 1. Descriptive statistics and estimated parameters of length-weight relationship ($W = a \cdot L^b$)

Species	N	Length Characteristics (cm)		Weight Characteristics (g)		a	b	SE (b)
		Min-Max	Mean	Min-Max	Mean			
<i>Trigla lyra</i>	935	9.5-51.4	28.46±0.27	4.41-1052.38	209.40±5.58	0.011	2.87	0.140
<i>Lepidotrigla cavillone</i>	3154	6.2-17.5	10.91±0.02	2.60-37.95	16.57±0.09	0.016	2.89	0.019
<i>Chelidonichthys lucerna</i>	332	9.0-78.5	23.47±0.60	3.80-4110.00	218.0±28.5	0.008	3.01	0.036
<i>Eutrigla gurnardus</i>	327	8.9-30.3	16.41±0.16	5.11-209.49	40.39±1.53	0.006	3.09	0.035
<i>Trigloporus lastoviza</i>	284	9.4-26.8	16.16±0.15	11.34-230.90	49.34±1.48	0.024	2.71	0.068

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