

Fishery-biology studies in the Bay Tarska Vala (Istrian Peninsula - Adriatic Sea)

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The bay Tarska Vala is situated on the Western coast of the Istrian Peninsula. As to the productivity, it is particularly rich habitat of many marine fishes. Traditionally, the bay has been fished twice a year, in spring and autumn, for more than 900 years (Fig.1).

Preliminary fishery-biology studies of Tarska Vala started in 1989. A total of 13 fish species and 2 cephalopod species were recorded (Table 1). Average catch was around 25,000 kg for the 1981-1991 period, ranging from 4,000 kg (1987) to 80,000 kg (1990).

Numerically best represented species in analyzed catches were: *Liza aurata* - 43.4%, *Lithognathus mormyrus* - 16.4%, *Dicentrarchus labrax* - 10.3% and *Liza ramada* - 9.4%.

Weight of the catches showed the dominance of the following species: *Dicentrarchus labrax* - 26.1%, *Liza aurata* - 25.4%, *Liza ramada* - 13.0% and *Lithognathus mormyrus* - 10.5%.

Liza aurata (Fig. 2) were best represented in this and all the earlier catches; analyzed individuals of 22.3-36.6 cm length range and mean length XLt = 29.13 cm belonged to the third, fourth and older age groups and for the most part (more than 85%) exceeded minimum length at first maturity (up to 26 cm) (MOROVIC, 1962). A comparison of the mean lengths of analyzed specimens of all the catches realized by now (Nov., 1989 - XLt = 27.85; Dec., 1990 - XLt = 29.05; May, 1991 - XLt = 29.81; Dec., 1991 - XLt = 29.13) showed very small departures and a slight increase trend confirming that this population is, for the time being, normally regenerated and recruited. Fish from autumn catches were already spawned which is in agreement with their rare records from the Mediterranean (HELDT, 1948).

Dicentrarchus labrax (Fig. 3) is a permanently present species in the catches with rather considerable variations in quantity; 68 analyzed specimens of 30.5-88.0 cm length range and mean total length XLt = 41.17 cm belonged to the third to eleventh age groups. Minimum total lengths of males at first maturity range from 23 to 32 cm. Therefore, only a small proportion (4.5%) of specimens (taking upper length values as relevant) was below permissible limit. However, sexual maturity was established in the smallest specimens by milt stripping. So it may be stated that almost exclusively mature individuals were caught. A comparison of mean total lengths of specimens of all the catches realized by now (Nov., 1989 - XLt = 35.25; Dec., 1990 - XLt = 47.58; May, 1991 - XLt = 33.55; Dec., 1991 - XLt = 41.17) showed that they were rather low, particularly in some of the catches, but still within permissible limits.

Lithognathus mormyrus. Analyzed specimens of 15.7 to 32.7 cm length range and mean total length XLt = 25.89 cm belonged to the 2+ age group and older. Sexual maturity in this protandric hermaphrodite species occurs at 20 cm length in males and at 25 cm in females. Analyzed sample, sex excluded, contained about 18% immature individuals. However, a comparison of mean lengths of the fish in the catches realized by now (Nov., 1989 - XLt = 24.52; Dec., 1990 - XLt = 26.17; May, 1991 - XLt = 27.56; Dec., 1991 - XLt = 25.89) showed their irregular oscillations within narrow limits, with no defined trend. This points to the fact that length frequency distribution of this species was more or less identical, with slight departures, throughout the period of our study.

Liza ramada occurred in larger numbers only from time to time; of 62 analyzed specimens of 29.0 to 62.0 cm length range and mean total length XLt = 37.70 cm, 5% specimens were immature (after available data for the Adriatic they attain first maturity at 30 cm length).

There is no need to limit the fishing in Tarska Bay.

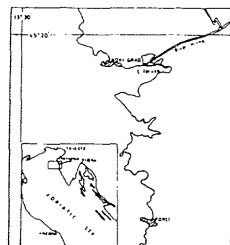


Fig. 1. Investigated area

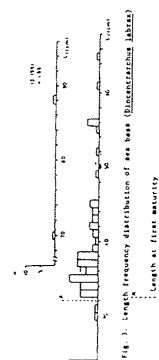


Fig. 3. Length frequency distribution of sea bass (*Dicentrarchus labrax*)

Species	Date	L		S		M		n
		min	max	min	max	min	max	
<i>Liza aurata</i>	11.1989	27.85	31.0-36.0	13.29	18.0-23.0	187.25	40.0-130.0	100720
	12.1990	29.05	26.0-42.0	22.93*	11.0-22.0	183.90	50.0-161.0	1397100
<i>Lithognathus mormyrus</i>	11.1989	24.32	18.3-31.3	15.98	13.0-20.0	190.84	70.0-283.0	67
	12.1990	26.17	18.0-35.0	16.31	11.0-20.0	216.74	49.0-143.0	67
<i>Sparus aurata</i>	11.1989	19.95	17.0-23.5	-	-	109.00	70.0-190.0	10
	12.1990	30.88	17.0-29.0	14.42	12.0-19.0	125.40	44.0-204.0	13
<i>Dicentrarchus labrax</i>	11.1989	33.22	29.0-39.0	19.23	16.0-22.0	442.36	240.0-640.0	4
	12.1990	47.58	31.0-60.0	23.70	17.0-44.0	1276.53	294.0-3068.0	21
<i>Liza ramada</i>	11.1989	38.30	32.0-45.0	18.30	15.0-20.0	321.00	200.0-370.0	5
	12.1990	38.30	36.0-43.0	17.45	12.0-17.0	485.00	420.0-550.0	2
<i>Mullus cephalus</i>	11.1989	31.08	25.0-43.0	18.72	13.0-22.0	311.11	130.0-605.0	9
	12.1990	32.8	25.0-42.0	17.2	12.0-18.0	475.49	243.0-373.0	4
<i>Liza nilotica</i>	11.1989	37.19	32.0-41.0	17.84	14.0-18.0	475.49	243.0-373.0	4
	12.1990	32.8	25.0-42.0	17.2	12.0-18.0	475.49	243.0-373.0	4
<i>Lichte uela</i>	11.1989	31.5	-	21.0	-	190.0	-	1
	12.1990	35.48	33.0-40.0	23.01	21.0-24.0	455.62	393.0-503.0	4
<i>Trachurus mediterraneus</i>	11.1989	37.08	34.0-38.0	-	-	143.00	120.0-170.0	2
	12.1990	35.03	29.0-40.0	17.04	13.0-20.0	348.00	193.0-376.0	3
<i>Alepis fallax</i>	11.1989	45.93	34.0-43.0	-	-	1110.04	314.0-2130.0	4
	12.1990	45.93	34.0-43.0	-	-	1110.04	314.0-2130.0	4

Tab. 1. Catch structure from Tarska cove (1989, 1990).

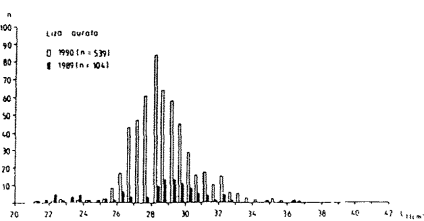


Fig. 2. Length frequency distribution of golden grey mullet (*Liza aurata*).

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