

# SOME BIOLOGICAL INFORMATION OF THE PARROTFISH, *SPARISOMA CRETENSE* (LINNAEUS, 1758) FROM THE EASTERN ADRIATIC

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## Abstract

This paper deals with the horizontal distribution and range spreading of the parrotfish in the Eastern Adriatic during the period 2000 – 2003. According to obtained data of 51 collected and measured specimens (27 females and 24 males) the length frequency distribution, length - weight relationship, age and growth parameters are given.

**Key words:** Parrotfish, distribution, population parameters, Adriatic

## Introduction

The parrotfish, *Sparisoma cretense* (Linnaeus, 1758) is subtropical, reef-associated marine fish, found on photophile macroalgae covered rocky substrates, sometimes in sea-grass (*Posidonia oceanica*) meadows, at depths ranging from 20 to 50 m. It occurs in Eastern Atlantic (from Portugal to the Canary Island and Senegal) and in the Mediterranean (common in the Eastern, rather rare in Western Basin) (1). The aim of this study is to present first data on some biological parameters of parrotfish from the eastern Adriatic.

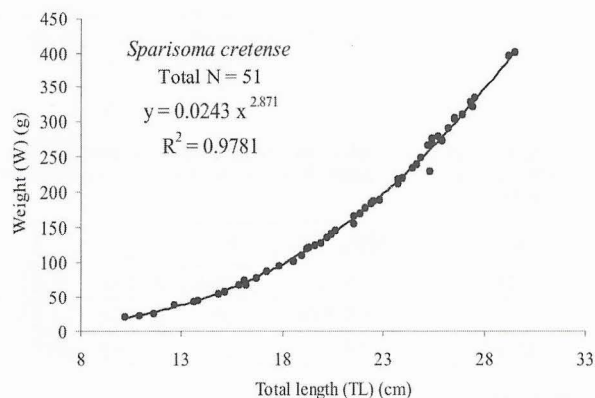
## Material and methods

Total of 51 measured specimens, 24 males (47.1%) and 27 females (52.9%) were caught on 8 stations in southern and middle Adriatic, using the trammel bottom nets, fish trap and underwater speargun.

## Results and discussion

The total body length (TL) (cm) of males ranged from 11.6 to 29.5 cm ( $\bar{x} \pm SD = 22.2 \pm 4.98$ ) and females from 10.2 to 27.4 cm ( $\bar{x} \pm SD = 20.2 \pm 4.99$ ). Overall mean TL of males did not differ significantly (t-test = 1.458;  $t_{crit} = 2.021$ ;  $p > 0.05$ ) from that of females.

The commonly used length - weight relationship was applied:  $W = a L^b$ . Weight of total collected fish ranged from 20.7 to 404.2 g. Since the mean length did not differ significantly with sex, length - weight relationship was calculated for sexes combined:  $a = 0.0243$ ;  $b = 2.871$ ;  $r^2 = 0.9781$  (Fig. 1). The slope ( $b$  value) was significantly ( $t = 7.21$ ,  $t_{crit} = 2.704$ ) ( $P > 0.05$ ) different from 3.0 indicating negative allometry.



**Fig. 1.** *Sparisoma cretense*. Length - weight relationship, sexes combined.

After reading scales for individuals the mean observed lengths at age were estimated and used for fitting the von Bertalanffy growth model. The growth parameters for sexes combined were:  $L_t = 35.14 (1 - e^{-0.298(t + 0.597)})$ ;  $r^2 = 0.9689$ . The theoretical maximum length, 35.1 cm of parrotfish in our investigation is not unrealistic since the largest specimens can reach 50.0 cm  $L_t$  in Mediterranean (1) and slightly less in the Adriatic (2). The oldest collected specimens were 6 years old.

Slightly different values of these biological parameters were obtained for Greek waters (3).

As a result of scarce number of records up to 2000, parrotfish belonged to the rare species in the Eastern Adriatic (4). Periodically it was found mainly in the middle and southern part (one specimen - Dubrovnik, 1900; Biševo Island, 1962; Šćedro Island, 1965; two specimens - Hvar Island, 1904; Vis Island, 1925) but one unconfirmed specimen was caught also in Venice, 1924 in north Adriatic (5). Probably as a result of a warming up of the Mediterranean waters (6) and changes in oceanographical conditions of the Adriatic Sea, population density of *Sparisoma cretense* suddenly increased in very warm 2000. From that year findings and captures of this thermophilous species occurred more and more frequently, moving northwards to the northern part of the middle Adriatic (Table. 1).

**Table 1.** *Sparisoma cretense*. The successive northward spreading during 2000-2003.

2000.	2001.	2002.	2003.
Palagruža Island (42°26'Nx16°13'E)	SW Lastovo Island	Svetac Island (43°01'Nx15°46'E)	SW Kornat Island (43°44.5'Nx15°28'E)
NW Mljet Island (42°47'Nx17°20'E)	(42°42'Nx16°50'E)	SW Žirje Island (43°38'Nx15°39'E)	Dugi otok Island (44°08'Nx14°52'E)
	SE Vis Island (43°02'Nx16°15'E)		

## References

- 1 - Randall J.E., 1990. Scaridae. Pp. 883-887. In: Quero J.C., Hureau J.C., Karrer C., Post A. and Saldanha L., (eds) Check-list of the fishes of the eastern tropical Atlantic (CLOFETA). UNESCO, Paris, 2.
- 2 - Jardas I., 1996. Adriatic ichthyofauna. Školska knjiga Publ., Zagreb, 533 (in Croatian).
- 3 - Petrakis G. and Papaconstantinou C., 1990. Biology of *Sparisoma cretense* in the Dodecanese (Greece). *J. Appl. Ichthyol.*, 6:14-23.
- 4 - Pallaoro A. and Jardas I., 1996. Ichthyological collection of the Institute of Oceanography and Fisheries in Split (Croatia). *Nat. Croat.*, 3: 177-219.
- 5 - Dulčić J. and Pallaoro A., 2001. Some new data on *Xyrichtys novacula* (Linnaeus, 1758) and *Sparisoma (Euscarus) cretense* (Linnaeus, 1758) from the Eastern Adriatic. *Annales. Ser. Hist. Nat.*, 11: 35-40.
- 6 - Francour P., Boudouresque C.F., Harmelin J.G., Harmelin-Vivien M.L. and Quignard J.P., 1994. Are the Mediterranean Waters becoming Warmer? Information from Biological Indicators. *Mar. Poll. Bull.*, 28 (9): 523-526.