

## A NEW MAXIMUM LENGTH FOR THE PARROTFISH, *Sparisoma cretense* (Linnaeus, 1758) IN THE MEDITERRANEAN SEA

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### **Abstract:**

A female specimen of the *Sparisoma cretense* (Linnaeus, 1758), with 52.0 cm total length and 2200.0 g total weight, was caught on the 26th July 2013 at Karaburun (Izmir Bay, Aegean Sea). Its total length and weight were the maximum observed values for the species in Mediterranean Sea.

**Keywords:** Mediterranean, Maximum length and weight, Parrotfish

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## Introduction

The parrotfish, *Sparisoma cretense* (Linnaeus, 1758) (Actinopterygii, Perciformes, Scaridae), is an Atlanto-Mediterranean species that inhabits rocky and sandy areas usually covered with algae (Golani et al., 2006). Its habitat extends from the 20 m depth down to 50 m (Froese & Pauly, 2013).

Parrotfish is distributed along the Turkish coasts of Aegean (Öğretmen et al., 2005; Fricke et al., 2007; Akyol et al., 2011) and Mediterranean Sea (Fricke et al., 2007). It's also recorded from Köycegiz Lagoon/Dalyan River system by Akin et al. (2005). Nevertheless, parrotfishes were observed only rarely in the past, mostly in the Aegean Sea (Akyol et al., 2011).

Very little is known about the species biology and ecology. Due to being a target species in various fisheries, habitat loss and pollution, the parrotfish population has been evaluated as Endangered (EN) in Turkey (Fricke et al., 2007), Least Concern (LC) in Mediterranean (Abdul Malak et al., 2011), and proposed for Annexes II and V for the EU Habitats Directive (Fricke et al., 2007). Any biological data that can be generated, like maximum length and weight, could be of high value and importance.

## Materials and Methods

On the 26th July 2013, one female specimen of *S. cretense* (52.0 cm TL and 2200.0 g in weight) was captured by spearfishing in a marine cave at 19 m depth at Karaburun (Izmir Bay, Aegean Sea). The sea temperature was 21.5 C°. The specimen's (Figure 1) total length was measured to the nearest centimetre and weighed to the nearest gram. The scientific name of the species was also checked against FishBase (Froese & Pauly, 2013).

## Results and Discussion

Our specimen from the Aegean Sea is close to the maximum length ever recorded (52.2 cm TL;

Afonso et al., 2008) (Table 1). The maximum length reported in Froese & Pauly (2013) is 50.0 cm TL and there are various studies providing information about maximum lengths in Mediterranean (Table 1). Our specimen proves that this species can grow above the previous maximum data found. Most of the published observations of *S. cretense* were made in fisheries areas and fisheries pressure can lead to smaller maximum lengths. It is a well known phenomenon, that individuals from populations exposed to high fisheries mortality/pressure will respond by reproducing at reduced average sizes and ages (Helfman et al., 2009) and thus, with continued overfishing, maximum lengths may continue to decrease. In Turkey, the parrotfish has commercial value and is one of the target species of the small-scale fishery. So, contrary to the phenomenon termed "bigger-deeper" by Polloni et al. (1979), our relatively shallow specimen may have reached the maximum length and weight observed because it occupied an area not under intensive fisheries zone. An alternative explanation could be the absence of predation by suitably large predators at this shallow depth. Other factors that are known to influence growth rates and maximum reached size are: temperature, food availability, nutrient availability, light regime, oxygen, salinity, pollutants, current speed, predator density, intra-specific social interactions and genetics (Helfman et al., 2009). These factors, often working in combination, create large variations in size of fishes of the same and different ages (Helfman et al., 2009) however, they are unknown in the present case.

Maximum length is an important theoretical parameter in fisheries science. Directly and indirectly, this measurement enters into most of the models used in stock assessments. The maximum observed length is a tool used for a rapid evaluation of growth rates in the absence of basic data. Therefore, updating information about the maximum size of a species which is commercially or recreationally exploited is important (Filiz, 2011).

**Table 1.** Comparison of the maximum total lengths.

References	n	Max Length (cm)	Locality
Petrakis & Papaconstantinou (1990)	-	32.0	Dodecanese (Greece)
Başusta & Erdem (2000)	2	22.8	Iskenderun Bay (esatern Mediterranean)
Stergiou & Moutopoulos (2001)	372	32.5	Aegean Sea (Greece)
Moutopoulos & Stergiou (2002)	22	35.0	Aegean Sea (Greece)
Öğretmen et al. (2005)	2	14.3	Gokova Bay (southern Aegean Sea)
Afonso et al. (2008)	645	52.2*	Azores Island (Atlantic)
La Mesa et al. (2012)	6	29.8	Lampedusa, Italy (western Mediterranean)
Froese & Pauly (2013)	-	50.0	--

\*indicates valid maximum length (Atlantic)



**Figure 1.** General view of *Sparisoma cretense*, 52.0 cm TL and 2200.0 g, captured at Karaburun (Izmir Bay, Aegean Sea).

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