

THE NORTHERNMOST RECORD OF THE THERMOPHILIC  
MEDITERRANEAN PARROTFISH *SPARISOMA CRETENSE* (LINNAEUS,  
1758) (PERCIFORMES, SCARIDAE) IN THE EASTERN MEDITERRANEAN SEA  
(NORTHWESTERN AEGEAN SEA)

*Thodoros E. KAMPOURIS & Ioannis E. BATJAKAS*

Marine Sciences Department, School of the Environment, University of the Aegean, University Hill, Mytilene,  
Lesvos Island, 81100, Greece  
E-mail: mard16012@marine.aegean.gr

ABSTRACT

*On July 2018 a specimen of the thermophilic fish Sparisoma cretense, commonly known as Mediterranean parrotfish, was captured in the Thermaic Gulf in the northwestern Aegean Sea, Greece, constituting the first such record in the region. The species mainly inhabits the southeastern shores of the Mediterranean, and its presence is in line with previous records of other thermophilic species in the northern Aegean which can be associated with the rise of sea temperatures as one of the signs of climate change. This record is the northernmost in the Eastern Mediterranean and the second northernmost record for the whole Mediterranean basin.*

**Key words:** *Sparisoma cretense*, thermophilic species, new records, biodiversity, climate change, Aegean Sea

RITROVAMENTO PIÙ A NORD DEL PESCE PAPPAGALLO MEDITERRANEO TERMOFILO  
*SPARISOMA CRETENSE* (LINNAEUS, 1758) (PERCIFORMES, SCARIDAE) NEL  
MEDITERRANEO ORIENTALE (MAR EGEO NORD-OCCIDENTALE)

SINTESI

*Nel luglio 2018 un esemplare del pesce termofilo Sparisoma cretense, comunemente noto come pesce pappagal-  
lo mediterraneo, è stato catturato nel Golfo Termaico nel mar Egeo nord-occidentale, in Grecia, costituendo il primo  
ritrovamento della specie nella regione. La specie vive principalmente lungo le coste sud-orientali del Mediterraneo  
e la sua presenza è in linea con le precedenti segnalazioni di altre specie termofile nell'Egeo settentrionale, che pos-  
sono venir associate all'innalzamento della temperatura del mare come uno dei segni del cambiamento climatico.  
Questo ritrovamento è il più settentrionale del Mediterraneo orientale e il secondo più settentrionale per l'intero  
bacino del Mediterraneo.*

**Parole chiave:** *Sparisoma cretense*, specie termofile, nuovi ritrovamenti, biodiversità, cambiamenti climatici,  
mar Egeo

## INTRODUCTION

The Mediterranean parrotfish, *Sparisoma cretense* (Linnaeus, 1758) is the only native parrotfish species of the Mediterranean Sea and can be added to the records of a few other temperate species within the Scaridae family (Froese & Pauly, 2018). So far, two alien Scaridae species have been reported within the Mediterranean, *Chlorurus rhakoura* Randall & Anderson, 1997 off the Italian coast (Insacco & Zava, 2017), and *Scarus ghobban* Forsskål, 1775 reported for the first time off the coasts of Israel in 2002 (Goren & Aronov, 2002).

The Mediterranean parrotfish occurs along the east coast of the Atlantic Ocean from Senegal to Portugal and within the Mediterranean Sea, mainly inhabiting the south and east coasts (Louisy, 2015). Similar to *Thalassoma pavo* (Linnaeus, 1758), the Mediterranean parrot fish is an ancient Mediterranean colonizer of Atlantic origin (Domingues *et al.*, 2008). It can be found at a maximum depth of 50 m (Petrakis & Papaconstantinou, 1990), but more usually between 5–15 m of depth (Guidetti & Boero, 2002). Mainly active during the day (Azzurro *et al.*, 2007; 2013), it is a herbivorous species feeding on algae and seagrasses, *e.g.* *Posidonia oceanica* (Linnaeus) Delile, 1813 (de Girolamo *et al.*, 1999) and *Cymodocea nodosa* (Ucria) Ascherson, 1870 (Del Río *et al.*, 2016). While the adult population prefers mixed habitats with seagrass meadows and reefs, juveniles display no such preferences (Espino *et al.*, 2015). The species commonly measures from 14 to 32 cm (total length) (Petrakis & Papaconstantinou, 1990), but might grow as big as 52 cm (total length) (Filiz & Sevingel, 2015).

The Mediterranean parrotfish has a moderate longevity and is a slow-growing fish that may reach up to 8 years of age (Petrakis & Papaconstantinou, 1990). It spawns from July to September (Petrakis & Papaconstantinou, 1990; Guidetti & Boero, 2002), displays sexual dichromatism (de Girolamo *et al.*, 1999) and a dual mating system, with either multi-male groups or one dominant male holding harems (Alfonso *et al.*, 2002). The species has low economic importance but is locally exploited in the Dodecanese (Petrakis & Papaconstanti-



**Fig. 1:** The male *S. cretense* specimen captured off the Thermaic Gulf.

**Sl. 1:** Samec morske papige ujet v zalivu Thermaikos.

nou, 1990). Recent records from the northern Mediterranean coast, off Italy (Azzurro *et al.*, 2011), from the Adriatic Sea, Croatia (Kruschel *et al.*, 2012), from the northwest Greek Ionian Sea (Perdikaris *et al.*, 2012), from Provence, France (Astruch *et al.*, 2016), and from the Genoa Gulf, Italy (Bianchi *et al.*, 2017), as well as observed expansions in the Aegean Sea, on both Greek and Turkish coasts (Papaconstantinou, 2014; Yapici *et al.*, 2016), also suggest a correlation with the sea temperature rise and climate change (Fogarty *et al.*, 2017).

## MATERIAL AND METHODS

A single adult male *S. cretense* (Fig. 1) was caught on 23 July 2018 in the Thermaic Gulf, at approximately 40° 04' 10.7" N and 23° 19' 59.3" E (Fig. 2), by trammel nets with a mesh size of 22 mm, on hard bottom mixed with *P. oceanica* meadows. The depth ranged from 30 to 35 m. Morphometric and meristic data were obtained. Lengths (Tab. 1) were measured with the use of digital callipers to the nearest 0.01 mm. Weight (Tab. 1) was measured with an electronic scale to the nearest gram. The specimen was deposited at the Ichthyology laboratory of the Department of Marine Sciences, University of the Aegean.

## RESULTS AND DISCUSSION

The identification was based on the criteria description by Golani *et al.* (2006) and Louisy (2015). Table 1 presents the related morphometric and meristic data. This study reports the northernmost record in the eastern Mediterranean Sea as acknowledged by F.A.O (2018), and the second northernmost record in the whole basin



**Fig. 2:** Map of the Thermaic Gulf, NW Aegean Sea, indicating sampling location (black dot).

**Sl. 2:** Zemljevid obravnavanega območja (zaliv Thermaikos, SZ Egejsko morje) z označeno lokaliteto ulova morske papige (črna pika).

(see Kruschel *et al.*, 2012 for details). The species was described by the fishermen as “never before seen,” which further supports the importance of this finding.

The Aegean Sea has a complex topography (Olson *et al.*, 2007). The area displays important physiochemical variations between north and south (Zervakis & Georgopoulos, 2002). The northern Aegean Sea is an area of high productivity compared to the eastern Mediterranean, due to its interconnection with the Black Sea (Petihakis *et al.*, 2014). Also, the northern Aegean Sea exhibits unique bottom topography features (the North Aegean Trough) that divide the area into three sub-basins: the Lemnos-Saros Islands Basin in the east, the Athos Basin in the centre, and the North Sporades Basin in the west (Zervakis & Georgopoulos, 2002, Olson *et al.*, 2007).

Recently some thermophilic fish species, native and alien, were reported off the northern Aegean Sea, with Kampouris *et al.* (2013) reporting the first record of oilfish, *Ruvettus pretiosus* Cocco, 1833, from the Chalkidiki Peninsula. Minos & Economidis (2015) report further occurrences of the tripletail *Lobotes surinamensis* (Bloch, 1790) from the Thermaic Gulf. The most striking is perhaps the record of the alien fish *Plectorhinchus gaterinus* (Forsskål, 1775) from the Thracian Sea, with no further records along the southeast Aegean and Levantine coasts (Corsini-Foka & Sarlis, 2016), which presents similarities with the first report of the African surgeonfish *Acanthurus monroviae* Steindachner, 1876 in Hellenic waters (Batjakas *et al.*, 2015).

### CONCLUSIONS

The in-depth knowledge and experience of fishers has been recognized as a valuable source of scientific information that should be further acknowledged and utilized. Wider collaboration should be established among scientists, practitioners and policy makers (Azzuro *et al.*, 2018). Moreover, the contribution of naturalists and citizen-scientists on biodiversity monitoring

**Tab. 1: Morphometric and meristic characters of the *S. cretense* specimen captured off the Thermaic Gulf.**

**Tab. 1: Morfometrija in meristični znaki pri morski papigi, ujeti v zalivu Thermaikos.**

Morphometric characters	Value
Total length	262.57 mm
Standard length	218.78 mm
Head length	65.36 mm
Snout length	24.27 mm
Eye diameter	11.76 mm
Body depth	71.14 mm
Depth of caudal peduncle	34.24 mm
Max body width	34.94 mm
Min body width	26.57 mm
Weight	317 g
Meristic counts	
Dorsal fin	XI+10
Anal fin	III+9
Pectoral fin	12
Pelvic fin	I+5

(e.g., Kampouris *et al.*, 2018a) and on the detection and expansion of invasive alien species is already highly acknowledged (e.g. Kondylatos *et al.*, 2017; Giovos *et al.*, 2018; Kampouris *et al.*, 2018b) and wider stakeholder synergies should be established.

### ACKNOWLEDGEMENTS

Both authors are grateful to professional fishermen Dimitrios and Kyriakos Ganigiannis, for providing the specimen in view and sharing further information.