

## NEW RECORD OF BLUE RUNNER, *Caranx crysos* (Mitchill, 1815), IN THE ADRIATIC SEA

Mišo Pavičić<sup>1\*</sup>, Jasna Šiljić<sup>1</sup>, Perica Dugandžić<sup>2</sup>, Boško Skaramuca<sup>3</sup>

<sup>1</sup> Institute of Oceanography and Fisheries, Split, Croatia, [pavicic@izor.hr](mailto:pavicic@izor.hr)

<sup>2</sup> Lučica 26, Rogotin

<sup>3</sup> University of Dubrovnik, Aquaculture Departement, Dubrovnik, Croatia, [bosko.skaramuca@unidu.hr](mailto:bosko.skaramuca@unidu.hr)

\* Corresponding Author, E-mail: [pavicic@izor.hr](mailto:pavicic@izor.hr)

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### ABSTRACT

A specimen of blue runner (*Caranx crysos*) was caught in a gillnet by a fisherman in the waters of the Neretva River estuary, near Ploče. Main morphometric and meristic counts were taken. The total length (LT) of *C. crysos* was 18.5 cm and it weighed 91.47 g. This is the second record of *C. crysos* in the Adriatic Sea.

### Keywords:

*Caranx crysos*

Blue runner

Adriatic Sea

### INTRODUCTION

Blue runner, *Caranx crysos* (Mitchill, 1815), is distributed across the Atlantic Ocean, from Brazil to Canada (McKenney et al., 1958), including the Gulf of Mexico (Berry, 1959) and the Caribbean in the western Atlantic, and from Angola to Great Britain, in the east Atlantic, including the Mediterranean. Fisher et al. (1981) reported that *C. crysos* is present in the entire Mediterranean, except in the Adriatic Sea and the coasts of Turkey. Blue runner is a coastal pelagic species, with depths ranging between 0 and 100 m (Smith-Vaniz, 1986). However, it is also known to live on reefs at depths greater than 100 m (Fischer et al., 1981). This species lives solitary (mostly larger individuals) or in the mid-large schools, generally not far from the coast. Juveniles are pelagic and often found in association with floating *Sargassum* (Cervigón et al., 1992). They spawn offshore from January to August (Smith, 1997) and eggs are pelagic as well (Smith-Vaniz, 1986).

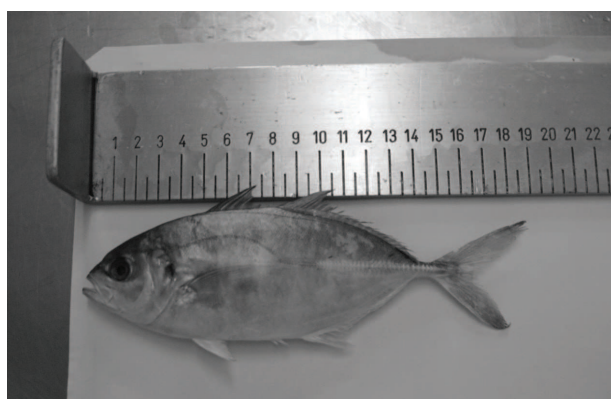
Blue runner is known to reach a maximum length of 70 cm TL but is much more common under 40 cm TL (Cervigón et al., 1992). Munro (1974) noted 5,400 g as the maximum weight of this species. Berry (1959) estimated that the length-at-maturity occurs at 225–250 mm SL. Maximum reported age is 11 years (Goodwin and Johnson, 1986). Its lateral line has a pronounced but short anterior arch, with the curved section intersecting the straight section below

the spine of the second dorsal fin. There is a total of 86 to 98 scales and scutes over the entire lateral line (Berry, 1960).

Adult blue runners feed on fishes, shrimps and other invertebrates (Smith-Vaniz, 1986). Zooplankton is found in a diet composition of adults and juveniles (Gómez-Canchong et al., 2004). Studies have found that blue runners feed with equal intensity during both day and night. Larger prey such as fish is taken preferentially at night, while smaller crustaceans are taken during the day (Keenan and Benfield, 2003).

### MATERIAL AND METHODS

One specimen of blue runner, *Caranx crysos* (Fig 1.), was caught in a gill net (mesh size 32) by a fisherman in the waters of the Neretva River estuary, near Ploče (43°1'7.35"N; 13°26'30.61"E) (Fig 2.) at approximately 10 m of depth on 4 January 2014. This is the second record of blue runner in the Adriatic Sea so far. Determination was done according to the species specifications found in Smith-Vaniz et al. (1990) and Dulčić et al. (2009). Morphometric data were measured using a caliper with an accuracy of 0.1 mm, and an ichthyometer with an accuracy of 0.1 cm. Main morphometric and meristic data are shown in Table 1. The specimen is currently deposited in the Ichthyological collection of the Institute of Oceanography and Fisheries.



**Fig 1.** Specimen of *Caranx crysos* caught in the Eastern Adriatic Sea



**Fig 2.** New record (x) of *Caranx crysos* in the waters of the Neretva River estuary

**Table 1.** Measurements and meristic counts of the *Caranx crysos* specimen

Morphometric measures	Measure (cm) or count	%Lt
Total length (Lt)	18,5	100
Standard length (Ls)	14,4	77,8
Fork length (Lf)	16,3	88,1
Head length	4,1	22,2
Eye diameter	1,0	5,4
Preorbital length	1,1	5,9
Postorbital length	1,7	9,2
Predorsal length	5,2	28,1
Pectoral fin length	4,0	21,6
Maximum depth	4,9	26,5
Minimum depth	0,6	3,2
<i>Meristic counts</i>		
First dorsal fin	VIII	
Second dorsal fin	I+25	
Anal fin	II+I+25	
Pectoral fin	I+21	
Ventral fin	I+5	
Lateral line scales	93	
Spiny scales on lateral line	48	

## RESULTS AND DISCUSSION

The first record in the Adriatic Sea and the northernmost record of this species in the Mediterranean Sea was previously reported by Dulčić et al. (2009). The first record of this species was observed on 27 August 2008 in the shallow waters of Čivran (Červar Porat), between Poreč and Novigrad (northern Adriatic). Thus, it has been almost five years since the first finding.

The blue runner specimen from the Adriatic had upper jaw with irregular series of moderate canines flanked by an inner band; the teeth in the lower jaw were in a single row. The cleithrum margin was smooth without papillae, and the height of the spinous dorsal fin was distinctly shorter than the length of the soft dorsal fin lobe. Similar specimen to *Caranx crysos* is *Pseudocaranx dentex* (Bloch and Schneider, 1801), which is also present in this area but this is not a case of misidentification. *C. crysos* maxilla ends below the middle of the eye, whereas the upper jaw ending in *P. dentex* is positioned before the anterior margin of the eye (Dulčić et al., 2009). The same is concluded for the specimen reported in this article.

The specimen described here is a juvenile fish obviously found as a single individual. According to the total length of the specimen presented here (18.5 cm) and the non-existence of any visible sexual characteristics, this is an

immature individual. According to the back-calculated fork lengths-at-age data reported by Goodwin and Johnson (1986), this specimen is probably in the first year of age. The dorsal fin of the specimen is in two parts, consisting of a total of 9 spines followed by 25 soft rays, and the anal fin consisting of 2 anteriorly detached spines followed by 1 spine and 25 soft rays. Meristic counts agree with Smith (1997). The stomach of the specimen reported here was empty, probably because it was caught during intensive food searching. Also, it was caught in the winter period when the metabolic activity is lower.

Blue runner obviously migrated from the Mediterranean to the Adriatic Sea, as it is the case with other new fish species during the past years. Bilecenoglu et al. (2002) reported that possibly this species extended its distribution from the established populations in the Ionian or Aegean seas. The presence of *C. crysos* and the new fish species in the Adriatic is probably related to the phenomenon of "Adriatic ingressions". "Adriatic ingressions" present a periodic inflow of more saline, nutrient-rich and warmer Mediterranean waters, particularly Ionian waters (Dulčić and Grbec, 2000). However, this record still does not confirm whether this species managed to establish a viable population in the Adriatic. It is also possible that this species is more numerous in the Adriatic but we still have no evidence for it.

## Sažetak

### Novi nalaz plavog trkača, *Caranx crysos* (Mitchill, 1815), u Jadranskom moru

Primjerak plavog trkača (*Caranx crysos*) je ulovljen mrežom prosticom na području ušća rijeke Neretve u blizini grada Ploče. Izmjerene su glavne morfometrijske i merističke mjere. Ukupna dužina (Lt) primjerka *C. crysos* iznosi 18,5 cm, a masa 91,47 g. Ovo je drugi nalaz vrste *C. crysos* u Jadranskom moru.

**Ključne riječi:** *Caranx crysos*, plavi trkač, Jadransko more

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