

## First record of agujon needlefish, *Tylosurus acus imperialis* (Rafinesque, 1810) (Osteichthyes: Belonidae) in the Croatian part of the Adriatic Sea

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Commercial purse seiner collected one specimen of the agujon needlefish, *Tylosurus acus imperialis* (Rafinesque, 1810), during its fishing activity on 17 July 2015 in the open sea area out off Mljet island (42° 41.9' N; 17 ° 18.1' E, depth 120 m). Total length and weight of collected female specimen was 111.4 cm and 2048.11 g, respectively. Although this species was previously recorded exclusively entering the area of southern Adriatic Sea (Montenegro-Budva and Italy- Bari), this was its first appearance in the upper Adriatic and within Croatian fishing grounds.

**Key words:** Belonidae, *Tylosurus*, Adriatic Sea

### INTRODUCTION

Within Belonidae family, which includes 32 species, 3 species of the genus *Tylosurus* - *Tylosurus acus imperialis* (Rafinesque, 1810) and the two very rare lessepsian immigrants, *Tylosurus choram* (Rüppell, 1837) and *Tylosurus crocodilus* (Péron & Lesueur, 1821) (COLLETTE & PARIN, 1986; FROESE & PAULY, 2014) are native in the Mediterranean Sea. Namely, agujon needlefish (Fig. 1) is marine epipelagic fish

species, which is generally found in subtropical offshore areas of Eastern Atlantic – from Cape Verde Islands to Morocco and Mediterranean Sea. In the Adriatic Sea, precisely in its southern part - Bari (Italy) (BELLO, 1995) and Budva (Montenegro) (DULČIĆ *et al.* 2014), occurrence of this species was recorded earlier, but this is its first appearance within Croatian fishing grounds. Hence, this capture represents the northernmost record of this species in the Adriatic Sea.



Fig. 1. Photo of agujon needlefish, *T. acus imperialis* caught in 2015 in offshore area of Mljet Island

## MATERIALS AND METHODS

Agujon needlefish specimen was collected as by-catch of purse seine net at dawn on July 17, 2015 in the open sea area out off Mljet island (42° 41.9' N; 17 ° 18.1' E, depth 120 m). Captured specimen was immediately frozen and transported to the laboratory for detailed analysis. Fourteen morphometric variables were measured in the laboratory: total length (TL), standard length (SL), fork length (FL), preanal (PA) distance, head length (LH), preocular head length (POC), eye diameter (O), postocular head length (ZOC), maximum (H) and minimum (h) body height, length of dorsal fin (LD) and anal fin basis (LA), length of pectoral fin (LP), length of ventral fin (LV). Four meristic characters were measured as well: number of rays in dorsal fin (D), in pectoral fin (P), in ventral fin (V) and in anal fin (A) according to JARDAS (1996). Each body length ( $\pm 0.1$  mm) and total body weight (W) ( $\pm 0.01$  g) was measured. Sex and gonad maturity stage were assessed macroscopically.

## RESULTS AND DISCUSSION

All biometric measurements of agujon needlefish specimen are given in Table 1. Analyzed specimen was a female with ripe gonads whose weight was 130.00 g, while its total body weight was 2048.11 g.

Macroscopically, studied specimen might be easily confused with much more common species *Belone belone gracilis* in the Adriatic Sea but, based on obtained phenotypic characteristics of analyzed specimen; we confirmed that caught specimen was *T. acus imperialis*. Obtained morphological and meristic values were in line with findings of BELLO (1995) for the area of the southern Adriatic, and with findings of AKYOL & KARA (2011) and TÜRKER & ZENGİN (2013) in the northern Aegean Sea for the same species. Nevertheless, biometrical and biological features of this uncommon fish species were also in accordance with determination keys of COLLETE & PARIN (1986) and GOLANI *et al.* (2006).

Over the last decades in the eastern Adriatic Sea, changes in marine ecosystems and

Table 1. Morphometric measurements (cm) and meristic characters of *T. acus imperialis* caught in offshore area of Mljet island on 17 July 2015

Morphometric measurements (cm)	
Total length (TL)	111.4
Standard length (SL)	105.0
Fork length (FL)	107.4
Preanal distance (PA)	78.7
Head length (LH)	28.5
Preocular head length (POC)	17.8
Eye diameter (O)	3.0
Postocular head length (ZOC)	7.2
Maximum body height (H)	7.1
Minimum body height (h)	2.0
Length of dorsal fin base (LD)	17.7
Length of anal fin basis (LA)	15.0
Length of pectoral fin (LP)	8.0
Length of ventral fin (LV)	5.5
Meristic characters	
Number of rays in dorsal fin (D)	24
Number of rays in pectoral fin (P)	13
Number of rays in ventral fin (V)	7
Number of rays in anal fin (A)	22

biodiversity had noted e.g. introduction of new species that increased over the years (DULČIĆ & GRBEC, 2000). Observed changes were primarily governed by the climate change. Hence, awareness of the role of this species and all the other new species within an ecosystem and their effect on local population should be monitored and well documented.

## ACKNOWLEDGEMENTS

This study was supported by the Ministry of Agriculture of the Republic of Croatia, as a part of the research project "Data Collection Framework (DCF)". A special mention should be made to Captain D. Škrobica and the crew from the Sardina I commercial purse seine vessel for their curiosity and effort in fieldwork that led to this paper. Thanks to the anonymous reviewers for their useful comments on the manuscript.

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Received: 4 September 2015

Accepted: 15 January 2016

**Prvi nalaz iglice veličanstvene, *Tylosurus acus imperialis*  
(Rafinesque, 1810) (Osteichthyes: Belonidae)  
na području hrvatskog ribolovnog mora**

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**SAŽETAK**

Dana 17. srpnja 2015. godine tijekom ribolovne aktivnosti na području otvorenog mora van otoka Mljeta (42° 41.9' N; 17° 18.1' E, na dubini od 120 m) plivarica za sitnu plavu ribu je zabilježila ulov iglice veličanstvene, *Tylosurus acus imperialis* (Rafinesque, 1810). Ukupna dužina tijela jedinke iznosila je 111,4 cm, dok je masa tijela iste iznosila 2048,11 g. Iako je pojava ove vrste bila zabilježena na području južnog dijela Jadranskog mora (Crna Gora-Budva, Italija-Bari), ovo je prvi nalaz iglice veličanstvene kako u hrvatskom tako i u sjevernom dijelu Jadrana općenito.

**Ključne riječi:** Belonidae, *Tylosurus acus imperialis*, Jadransko more