

Short scientific article  
Received: 2014-09-24

UDK 597.556.33:574.91(262.3)

## ADDITIONAL RECORD OF A LESSEPSIAN MIGRANT - THE DUSKY SPINEFOOT, *SIGANUS LURIDUS* (RÜPPELL, 1829) IN THE EASTERN ADRIATIC (MONTENEGRIN COAST)

Mirko ĐUROVIĆ, Ana PEŠIĆ & Aleksandar JOKSIMOVIĆ  
Institute for Marine Biology, University of Montenegro, POB 69, ME-85330 Kotor, Montenegro  
E-mail: acojo@ac.me

Jakov DULČIĆ  
Institute of Oceanography and Fisheries, POB 500, HR-21000 Split, Croatia

### ABSTRACT

*A specimen of Siganus luridus was caught with trammel net on 7 September 2014 in Bigova (cape Trašte) (southern Adriatic Sea, Montenegrin coast). This is the first record of this species for Montenegrin coast, and fourth for the Adriatic Sea.*

**Key words:** *Siganus luridus*, additional record, Lessepsian migrant, Montenegrin coast, Adriatic Sea

## SEGNALAZIONI AGGIUNTIVE DI UN MIGRANTE LESSEPSIANO – IL PESCE CONIGLIO, *SIGANUS LURIDUS* (RÜPPELL, 1829), NELL'ADRIATICO ORIENTALE (COSTA MONTENEGRINA)

### SINTESI

*Un esemplare di pesce coniglio, Siganus luridus, è stato catturato con tramaglio il 7 settembre 2014 a Bigova (punta Trašte) (Adriatico meridionale, costa montenegrina). Si tratta del primo avvistamento di questa specie per la costa montenegrina ed il quarto per il mare Adriatico.*

**Parole chiave:** *Siganus luridus*, segnalazioni aggiuntive, migrante lessepsiano, costa montenegrina, mare Adriatico

## INTRODUCTION

Thirteen species of Lessepsian fish migrants have been recently reported from the Adriatic Sea (Dulčić & Dragičević, 2011). Among them, the dusky spinefoot *Siganus luridus* (Rüppell, 1829) was recorded in at least three occasions (Poloniato et al., 2010; Dulčić et al., 2011, 2013). Its first record in the Mediterranean dates back to 1955 from the coast of Israel (Ben-Tuvia, 1964) and shortly after its discovery it became very common in most coastal areas of the Mediterranean (see Dulčić et al., 2011).

The aim of this paper is to present additional record of dusky spinefoot *S. luridus* in the eastern Adriatic, which is at the same time the first record in waters off Montenegro.

## MATERIAL AND METHODS

A male specimen of *S. luridus* was caught with trammel net on 7 September 2014 in Bigova (cape Trašte) (southern Adriatic Sea, Montenegrin coast) at a depth of approximately 4 m, on a rocky bottom (Fig. 1). Main distinguishing characters of the specimen are: body deep, ellipsoid, compressed; dorsal fin origin above pectoral fin base; dorsal ray portion margin round; caudal fin truncated; anal fin origin beneath 810 dorsal spines, its margin round; pelvic fin origin behind pectoral fin base, its inner spine connected by a membrane to the abdomen; head slightly concave with blunt snout; mouth small with distinct lips; maxilla not reaching vertical of eye.

The morphology of the observed specimen agrees with taxonomic description in Dulčić & Dragičević (2011). The specimen was carefully measured with a calliper and weighed. The specimen is preserved and



**Fig. 1:** A specimen of *Siganus luridus* caught in Bigova (cape Trašte) (southern Adriatic Sea, Montenegrin coast). (Photo: Z. Ikica)

**Sl. 1:** Primerek morskega kunca *Siganus luridus*, ujet v Bigovi (rt Trašte) (južni Jadran, črnogorska obala). (Foto: Z. Ikica)

deposited in the Ichthyological collection of the Institute for Marine Biology in Kotor (IBMKotor-179SL).

## RESULTS AND DISCUSSION

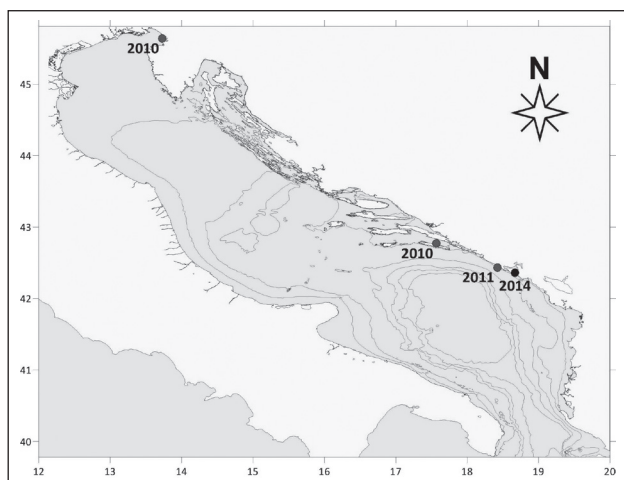
Basic morphometric data are given in Table 1 for comparative purposes with other studies. Meristic data are as follows: dorsal fin rays XIV+10, anal fin rays VII+9, pectoral fin rays 16, pelvic fin rays I+3+I, caudal fin rays 19. Morphometric measurements are in agreement with those presented by Dulčić et al. (2013).

The first record of the dusky spinefoot in the northern Adriatic Sea is from 2010 from the Gulf of Trieste (Poloniato et al., 2010) (Fig. 2). A second record occurred in the southern Adriatic (Mljet channel) the very same year in the month of November (Dulčić et al., 2011). Juveniles were for the first time observed in Molunat Bay (southern Adriatic, Croatian coast) on 15 December 2011 (Dulčić et al., 2013). All these records, including the record from this study, could indicate self-sustaining populations, especially in the southern Adriatic. Records of juvenile stages support such statement and indicate possible local reproductive activities of species. Golani et al. (2011) noted that it is universally accepted that the immediate publication of the first record of an invasive species is essential, but it is no less important to publish second and

**Tab. 1:** Basic morphometric measurements for *S. luridus* from Montenegrin waters.

**Tab. 1:** Osnovne morfometrične meritve morskega kunca, ujetega v črnogorskih vodah

Morphometric measurement	cm	% TL
Total length (TL)	17.4	100
Fork length (FL)	16.8	96.6
Standard length (SL)	14.6	83.9
Pre-ocular length (POC)	1.4	
Eye diameter (O)	1.2	
Post-ocular length (ZOC)	1.1	
Head length (LC)	3.2	18.4
Abdominal length (LTR)	2.3	
Pre-anal length (PA)	6.1	35.1
Tail length (LCA)	10.4	59.8
Tail fin length (C)	2.6	
Caudal peduncle length (PC)	1.6	
Minimum body height (h)	0.5	
Maximum body height (H)	5.7	
Pectoral fin length (LP)	2.8	
Anal fin base length (BA)	6	34.5
Dorsal fin base length (BD)	10	57.5



**Fig. 2: Map indicating locations of records of *S. luridus* in the eastern Adriatic.**

**Northern Adriatic: Gulf of Trieste, 2010 (Poloniato et al., 2010); southern Adriatic: Island of Mljet, 2010 (Dulčić et al., 2011), Molunat Bay, 2011 (Dulčić et al., 2013), present study, 2014.**

**Sl. 2: Zemljevid z lokalitetami ujetih morskih kunccev v vzhodnem Jadranu.**

**Severni Jadran: Tržaški zaliv, 2010 (Poloniato et al., 2010); južni Jadran: otok Mljet, 2010 (Dulčić et al., 2011), zaliv Molunat, 2011 (Dulčić et al., 2013), pričujoče delo, 2014**

subsequent records of the invasive species in order to verify the establishment and distribution extension in its new habitat. Subsequent records indicate that previous records of some species in new geographic region were not accidental sightings of fish but represent a possibility that this region is included in the zoogeographic range of these fish species (Golani & Levy, 2005).

It should be also noted that all of these records occurred exclusively along the eastern coast of the Adriatic Sea and can be associated with the effects of the Adriatic ingressions and BiOS (Bimodal Oscillating System) (Civitarese et al., 2010; Dulčić et al., 2011).

Ben Ras Lasram et al. (2008) reported that dusky spinefoot has a strong dispersal potential and its success should be attributed to its large eco-physiological plasticity. *S. luridus* seems to take competitive advantage over native herbivorous fish species such as salema *Sarpa salpa* and wrasses (family Labridae) in its new environment (Bariche et al., 2004), and has already altered the community structure and the native food web along the Levantine rocky infralittoral zone. Due to the increasing occurrence of this species in the eastern Adriatic Sea similar effects may be also expected in the near future in the Adriatic environment and as such its impact certainly deserves full attention.

#### ACKNOWLEDGMENTS

We are thankful to Mr Nikola Lazarević (Dado) for providing us the specimen of dusky spinefoot. We are also thankful to Mr Zdravko Ikica for a photo of the specimen.

NOV ZAPIS O POJAVLJANJU LESEPSKEGA SELIVCA MORSKEGA KUNCA *SIGANUS LURIDUS* (RÜPPELL, 1829) V VZHODNEM JADRANU (ČRNOGORSKA OBALA)

Mirko ĐUROVIĆ, Ana PEŠIĆ & Aleksandar JOKSIMOVIĆ  
 Institute for Marine Biology, University of Montenegro, POB 69, ME-85330 Kotor, Montenegro  
 E-mail: acojo@ac.me

Jakov DULČIĆ  
 Institute of Oceanography and Fisheries, POB 500, HR-21000 Split, Croatia

## POVZETEK

Primerek morskega kunca *Siganus luridus* je bil 7. septembra 2014 ujet s povlečno mrežo v Bigovi (rt Trašte, južni Jadran, Črna gora). To je prvi zapis o pojavljanju te vrste ob črnogorski obali in četrti za Jadransko morje.

**Ključne besede:** *Siganus luridus*, novi zapis, lesepska selivka, črnogorska obala, Jadransko morje

## REFERENCES

**Bariche, M., Y. Letourneur & M. Harmelin-Vivien (2004):** Temporal fluctuations and settlement pattern of native and Lessepsian herbivorous fishes on the Lebanese coast (eastern Mediterranean). *Environ. Biol. Fishes*, 70, 81-90.

**Ben Ras Lasram, F., J. A. Tomasini, F. Guilhaumon, M. S. Rondhame, T. Do Chi & D. Moulliot (2008):** Ecological correlates of dispersal success in Lessepsian fishes. *Mar. Ecol. Prog. Ser.*, 363, 273-286.

**Ben-Tuvia, A. (1964):** Two siganid fishes of red Sea origin in the eastern Mediterranean. *Bull. Sea Fish. Res. Stn.*, 37, 1-9.

**Civitaresse, G., M. Gačić, M. Lipizer & G. I. Eusebi Borzelli (2010):** On the impact of the Bimodal Oscillating System (BiOS) on the biogeochemistry and biology of the Adriatic and Ionian Seas (Eastern Mediterranean). *Biogeosciences*, 7, 3987-3997.

**Dulčić, J. & B. Dragičević. (2011):** Nove ribe Jadranskog i Sredozemnog mora. Institut za oceanografiju i ribarstvo, Split, Državni zavod za zaštitu prirode, Zagreb, 160 pp.

**Dulčić, J., B. Dragičević, R. Grgičević & L. Lipej (2011):** First substantiated record of a Lessepsian migrant – the dusky spinefoot, *Siganus luridus* (Actinopterygii: Perciformes: Siganidae), in the Adriatic Sea. *Acta Ichthyol. Piscat.*, 41, 141-143.

**Dulčić, J., N. Antolović, V. Kožul, B. Dragičević & L. Lipej (2013):** First records of juveniles of two Lessepsian migrants, *Fistularia commersonii* Rüppell, 1838 and *Siganus luridus* (Rüppell, 1829), in the Adriatic Sea. *J. Appl. Ichthyol.*, 29, 661-662.

**Golani, D. & Y. Levy (2005):** New records and rare occurrences of fish species from the Mediterranean coast of Israel. *Zool. Middle East*, 36, 27-32.

**Golani, D., O. Sonin & D. Edelist (2011):** Second records of the Lessepsian fish migrants *Priacanthus sagittarius* and *Platax teira* and distribution extension of *Tylerius spinosissimus* in the Mediterranean. *Aquatic Invasions*, 6 (Suppl. 1), 7-11.

**Poloniato, D., S. Ciriaco, R. Odorico, J. Dulčić & L. Lipej (2010):** First record of the dusky spinefoot *Siganus luridus* (Rüppell, 1829) in the Adriatic Sea. *Annales, Ser. Hist. Nat.*, 20 (2), 161-166.