

GODIŠNJI IZVJEŠTAJ MENTORA O NAPREDOVANJU DOKTORANDA

Akademska godina za koju se podnosi izvještaj		2021/2022	
OPŠTI PODACI O DOKTORANDU			
Titula, ime, ime roditelja, prezime	MSc Ilija (Ivo) Četković		
Fakultet	Prirodno-matematički fakultet		
Studijski program	Biologija		
Broj indeksa	2/20		
MENTOR/MENTORI			
Prvi mentor	Prof. dr Dragana Milošević Malidžan	UCG - Prirodno-matematički fakultet, Crna Gora	Ihitiologija, Konzervaciona biologija
Drugi mentor	(Titula, ime i prezime)	(Ustanova i država)	(Naučna oblast)
EVALUACIJA DOKTORANDA*			
Koliko ste zadovoljni kvalitetom održanih susreta sa doktorandom?	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☒ 5		
(Ako je prethodni odgovor „1“ ili „2“ dati obrazloženje i prijedloge za poboljšanje)			
Da li je definisan plan rada sa doktorandom?	☐ DA ☒ NE		
Da li je doktorand ostvario napredak prema predviđenom planu rada?	☐ DA ☒ NE		
(Ako je prethodni odgovor „ne“ dati obrazloženje i prijedloge za poboljšanje)			
Kvalitet napretka doktorandovog istraživačkog rada u periodu između dva izvještaja je:	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☒ 5		
(Ako je prethodni odgovor „1“ ili „2“ dati obrazloženje i prijedloge za poboljšanje)			
Dati ocjenu doktorandove spremnosti za konsultacije.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☒ 5		
Dati ocjenu planiranja i izvršavanja godišnjih istraživačkih aktivnosti i stručnog usavršavanja doktoranda.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☒ 5		
Dati ocjenu napretka u savladavanju metodologije naučno-istraživačkog rada.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☒ 5		
Dati ocjenu o aktivnostima sprovedenim na pisanju i objavljivanju naučnih radova.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☒ 5		
Dati ocjenu doktorandovog generalnog odnosa prema studijama.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☒ 5		
Dati ocjenu ukupnog kvaliteta doktorandovog rada.	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☒ 5		
(Ako je prethodni odgovor „1“ ili „2“ dati obrazloženje i prijedloge za poboljšanje)			

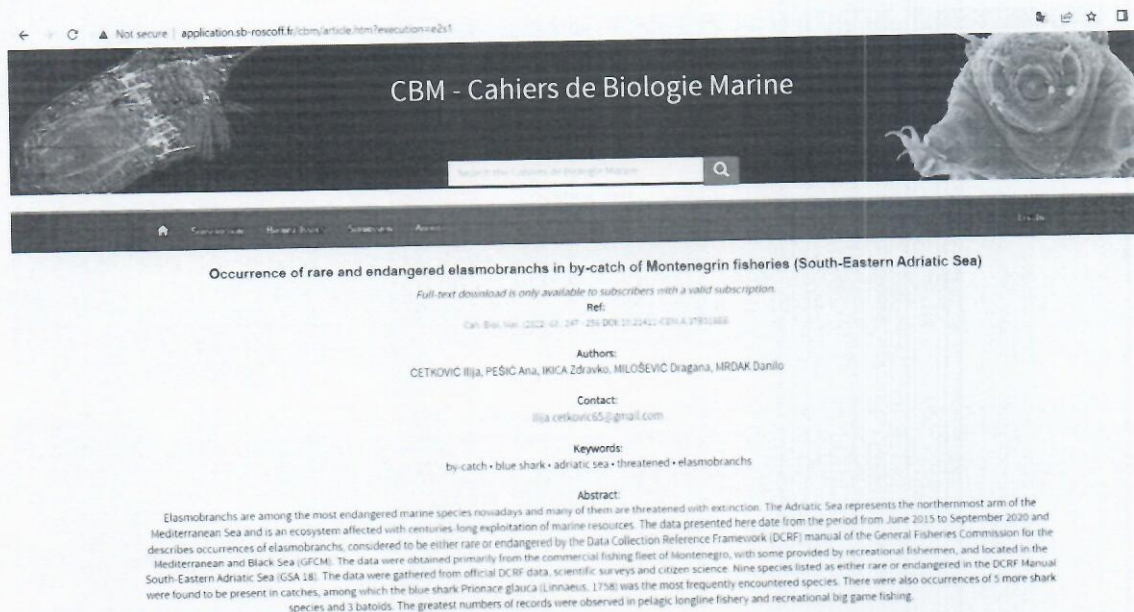
*Ocjene su: 1 – nedovoljan, 2 – dovoljan, 3 – dobar, 4 – vrlo dobar, 5 – odličan

SAGLASNOST ZA NASTAVAK STUDIJA	
Može li doktorand nastaviti studije?	☐ Da ☐ Da, uz određene uslove ☐ Ne
(Ako je prethodno dat odgovor pod „b)“ ili „c)“ dati obrazloženje i prijedloge za poboljšanje)	
Napomene	
IZJAVA MENTORA	
Doktorand je u drugom semestru 2021/2022 akademske godine objavio tri naučna rada koji sadrže dio rezultata teze. Kod dva je prvopotpisani autor, dok je kod trećeg koautor. Časopisi se nalaze na <i>Science Citation Index Expanded</i> (SCIE) listi: 1) Četković, I., Pešić, A., Ikica, Z., Milošević, D. & Mrdak, D. (2022). Occurrences of rare and endangered elasmobranchs in by-catch of Montenegrin fisheries (South-Eastern Adriatic Sea). <i>Cahiers de Biologie Marine</i>, 63(3), 247-256. DOI: 10.21411/CBM.A.37B316BB http://application.sb-roscoff.fr/cbm/article.htm?execution=e3s1 2) Četković, I., Jambura, P. L., Pešić, A., Ikica, Z., & Joksimović, A. (2022). Observations of juvenile sandbar sharks <i>Carcharhinus plumbeus</i> (Nardo, 1827) around the Bojana River delta (Southern Adriatic Sea). <i>Mediterranean Marine Science</i>, 23(4), 748-753. DOI: https://doi.org/10.12681/mms.30166 https://ejournals.epublishing.ekt.gr/index.php/hcmr-med-mar-sc/article/view/30166 3) Kousteni, V., Anastasiadis, A., Bariche, M., Battaglia, P., Bonifazi, A., Četković, I., et al. (2022). New records of rare species in the Mediterranean Sea (May 2022). <i>Mediterranean Marine Science</i>, 23(3), 417-446. DOI: https://doi.org/10.12681/mms.28372 https://ejournals.epublishing.ekt.gr/index.php/hcmr-med-mar-sc/article/view/28372 Za sve radove dati su linkovi sa web stranicama časopisa. Rad pod rednim brojem jedan još uvijek nije dostupan u <i>open access</i> formatu, dok preostala dva jesu i mogu se preuzeti putem gore datih linkova. Prilog izvještaja sadrži i dokaze o publikovanju sva tri rada.	
U Podgorici, 05.09.2022. godine Ime i prezime prvog mentora Prof. dr Dragana Milošević Malidžan <i>Dragana Milošević Malidžan</i> Ime i prezime drugog mentora	

Prilog dokumenta sadrži:

- Gantogram aktivnosti (za prvi izvještaj mentora)
- Objavljeni rezultati rada na izradi doktorske disertacije (za drugi izvještaj mentora)

PRILOG



Slika 1. Snimak ekrana sa web stranice rada pod rednim brojem 1. na sajtu casopisa *Cahiers de Biologie Marine*.

Observations of juvenile sandbar sharks *Carcharhinus plumbeus* (Nardo, 1827) around the Bojana River delta (Southern Adriatic Sea)

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Contributing Editor: Branko DRAGICEVIC

Received: 07 April 2022; 12 June 2022; Published online: 02 September 2022

Abstract

The sandbar shark (*Carcharhinus plumbeus*) is considered rare in the Adriatic Sea and the majority of records originate from the northern Adriatic, where a nursery area for this species close to the Po delta system has been repeatedly proposed. This study provides 5 new records and analyses the previously published records of sandbar sharks recorded around the delta of the River Bojana (in Montenegro, in the south-eastern Adriatic). The River Bojana located on the border between Montenegro and Albania, is the second largest river flowing into the Adriatic Sea, where it forms a highly productive ecosystem already known as a local hotspot for smooth-hound sharks (*Mustelus* spp.). New records of sandbar sharks have emerged as a result of citizen science (a social media survey) and direct reports from fishermen. The total length of *C. plumbeus* juveniles ranged from approximately 800 mm to 1100 mm, and most (n=5) were caught by set gillnets. The data presented here show that juveniles are consistently present around the estuary and indicate the importance of this fragile estuarine ecosystem for sandbar sharks. Additionally, this study also provides morphometric data collected from a single individual.

Keywords: elasmobranchs; shark nursery area; estuary; Adriatic Sea; Montenegro.

Introduction

The sandbar shark (*Carcharhinus plumbeus* (Nardo, 1827)) is present across the entire Mediterranean basin but is considered rare in all its sub-regions, including the Adriatic Sea (Serena *et al.*, 2020). This large coastal shark species can grow up to 300 cm, but commonly to 240 cm in total length (Serena, 2005) and, due to its slow growth, late maturation and low fecundity (1-14 pups every second year) it is highly vulnerable to overfishing (Dulvy *et al.*, 2016). According to the IUCN Red List, the sandbar shark is currently declared endangered (EN) in the Mediterranean Sea (Ferretti *et al.*, 2016). Although generally considered rare, temporal aggregations of this species occur in the Mediterranean Sea and have recently been considered a potential tourism attraction (Zemah Shamir *et al.*, 2019; Cattano *et al.*, 2021).

The sandbar shark is the only species of the genus *Carcharhinus* that is known to inhabit the Adriatic Sea (Kovačić *et al.*, 2020). Most of the records of this species in this area were reported from its northern region,

especially around the delta of the River Po (Lipej *et al.*, 2008; Jambura *et al.*, 2021), while it has also been recorded in the middle Adriatic Sea (Dragičević *et al.*, 2010). The high number of neonates and juveniles in this area lead several authors to propose that the Northern Adriatic basin might serve as a nursery area for this species (Costantini & Affronte, 2003; Lipej *et al.*, 2008; Jambura *et al.*, 2021). The presence of this species in the Southern Adriatic Sea has been indicated before, but on the basis of only a few specimens (Jambura *et al.*, 2021). Here, we report additional records of the sandbar shark from the delta of the River Bojana and discuss its potential role as an important habitat for this rare shark species.

Materials and Methods

The River Bojana represents the second largest inflow into the Adriatic Sea (Petković & Sekulić, 2019), which has a great influence on the wider area, supplying it with fine sediment and nutrients. The nearby Velika plaža rep-

Slika 2. Prva stranica rada Četković, I., Jambura, P. L., Pešić, A., Ikica, Z., & Joksimović, A. (2022). Observations of juvenile sandbar sharks *Carcharhinus plumbeus* (Nardo, 1827) around the Bojana River delta (Southern Adriatic Sea). *Mediterranean Marine Science*, 23(4), 748-753.

New records of rare species in the Mediterranean Sea (May 2022)

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 Costas CONSTANTINOU¹¹, Maria CORSINI-FOKA¹², Cem DALYAN¹³, Aikaterini DOGRAMMATZI¹⁴,
 Filippo DOMENICHETTI¹⁵, Radhouan EL ZRELLI¹⁶, Alfredo FERNÁNDEZ-ALLAS¹⁷,
 Thodoros E. KAMPOURIS¹⁸, Nur Bikem KESICI¹⁹, Frithjof C. KÜPPER^{19,20}, Lovrenc LIPEJ²¹,
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Published online: 02 May 2022

Slika 3. Prva stranica rada Kousteni, V., Anastasiadis, A., Bariche, M., Battaglia, P., Bonifazi, A., Četković, I., *et al.* (2022). New records of rare species in the Mediterranean Sea (May 2022). *Mediterranean Marine Science*, 23(3), 417-446.