

ANNALES

Anali za istrske in mediteranske študije
Annali di Studi istriani e mediterranee
Annals for Istrian and Mediterranean Studies
Series Historia Naturalis, 33, 2023, 1





ANNALES

Anali za istrske in mediteranske študije
Annali di Studi istriani e mediterranee
Annals for Istrian and Mediterranean Studies

Series Historia Naturalis, 33, 2023, 1

ISSN 1408-533X
e-ISSN 2591-1783

UDK 5

Letnik 33, leto 2023, številka 1

**UREDNIŠKI ODBOR/
COMITATO DI REDAZIONE/
BOARD OF EDITORS:**

Alessandro Acquavita (IT), Nicola Bettoso (IT), Christian Capapé (FR), Darko Darovec, Dušan Devetak, Jakov Dulčić (HR), Serena Fonda Umani (IT), Andrej Gogala, Daniel Golani (IL), Danijel Ivajnskič, Mitja Kaligarič, Marcelo Kovačič (HR), Andrej Kranjc, Lovrenc Lipej, Vesna Mačić (ME), Alenka Malej, Patricija Mozetič, Martina Orlando-Bonaca, Michael Stachowitsch (AT), Tom Turk, Al Vrezec

**Glavni urednik/Redattore capo/
Editor in chief:**

Darko Darovec

**Odgovorni urednik naravoslovja/
Redattore responsabile per le scienze
naturali/Natural Science Editor:**

Lovrenc Lipej

Urednica/Redattrice/Editor:

Martina Orlando-Bonaca

Prevajalci/Traduttori/Translators:

Martina Orlando-Bonaca (sl./it.)

**Oblikovalec/Progetto grafico/
Graphic design:**

Dušan Podgornik, Lovrenc Lipej

Tisk/Stampa/Print:

Založništvo PADRE d.o.o.

Izdajatelj/Editori/Published by:

Zgodovinsko društvo za južno Primorsko - Koper / Società storica del Litorale - Capodistria®

Inštitut IRRIS za raziskave, razvoj in strategije družbe, kulture in okolja / Institute IRRIS for Research, Development and Strategies of Society, Culture and Environment / Istituto IRRIS di ricerca, sviluppo e strategie della società, cultura e ambiente®

**Sedež uredništva/Sede della redazione/
Address of Editorial Board:**Nacionalni inštitut za biologijo, Morska biološka postaja Piran / Istituto nazionale di biologia, Stazione di biologia marina di Pirano / National Institute of Biology, Marine Biology Station Piran
SI-6330 Piran / Pirano, Fornace/Fornace 41, tel.: +386 5 671 2900, fax +386 5 671 2901;
e-mail: annales@mbss.org, **internet:** www.zdjp.si

Redakcija te številke je bila zaključena 23. 06. 2023.

**Sofinancirajo/Supporto finanziario/
Financially supported by:**

Javna agencija za raziskovalno dejavnost Republike Slovenije (ARRS) in Mestna občina Koper

Annales - Series Historia Naturalis izhaja dvakrat letno.

Naklada/Tiratura/Circulation:

300 izvodov/copie/copies

Revija Annales, Series Historia Naturalis je vključena v naslednje podatkovne baze / La rivista Annales, series Historia Naturalis è inserita nei seguenti data base / Articles appearing in this journal are abstracted and indexed in: BIOSIS-Zoological Record (UK); Aquatic Sciences and Fisheries Abstracts (ASFA); Elsevier B.V.: SCOPUS (NL); Directory of Open Access Journals (DOAJ).

To delo je objavljeno pod licenco / Quest'opera è distribuita con Licenza / This work is licensed under a Creative Commons BY-NC 4.0.



Navodila avtorjem in vse znanstvene revije in članki so brezplačno dostopni na spletni strani <https://zdjp.si/en/p/annalesshn/>
The submission guidelines and all scientific journals and articles are available free of charge on the website <https://zdjp.si/en/p/annalesshn/>
Le norme redazionali e tutti le riviste scientifiche e gli articoli sono disponibili gratuitamente sul sito <https://zdjp.si/en/p/annalesshn/>



VSEBINA / INDICE GENERALE / CONTENTS 2023(1)

BIOTSKA GLOBALIZACIJA
GLOBALIZZAZIONE BIOTICA
BIOTIC GLOBALIZATION**Andrea LOMBARDO**

A New Mediterranean Record of the
Sacoglossan *Thuridilla mazda* (Mollusca,
Gastropoda) with a Review of its
Distribution, Biology and Ecology 1
Nov sredozemski zapis o pojavljanju
polža zaškrgarja vrste Thuridilla mazda
(Mollusca, Gastropoda) s pregledom
njene razširjenosti, biologije in ekologije

Deniz ERGUDEN, Sibel ALAGOZ ERGUDEN

& Deniz AYAS On the Occurrence of *Lutjanus*
argentimaculatus (Forsskal, 1775) in the
South-Eastern Mediterranean, Turkey 7
O pojavljanju mangrovskega rdečega hlstača
Lutjanus argentimaculatus (Forsskal, 1775) v
jugovzhodnem Sredozemskem morju (Turčija)

Adib SAAD, Lana KHREMA, Amina

ALNESSER, Issa BARAKAT &
Christian CAPAPÉ The First Substantiated
Record of Areolate Grouper *Epinephelus*
areolatus (Serranidae) and Additional
Records of Pilotfish *Naucrates ductor*
(Carangidae) from the Syrian Coast
(Eastern Mediterranean Sea) 13
Prvi potrjen zapis o pojavljanju rdečepikaste
kirnje, Epinephelus areolatus (Serranidae), in
dodatni zapis o pojavljanju pilota, Naucrates
ductor (Carangidae), iz sirske obale (vzhodno
Sredozemsko morje)

Okan AKYOL & Vahdet UNAL

Additional Record of *Sillago suezensis*
(Sillaginidae) from the Aegean Sea, Turkey 19
Nov zapis o pojavljanju rdečemorskega
mola Sillago suezensis (Sillaginidae)
v turškem Egejskem morju

SREDOZEMSKI MORSKI PSI

SQUALI MEDITERRANEI
MEDITERRANEAN SHARKS**Hakan KABASAKAL, Uğur UZER &**
F. Saadet KARAKULAK

Occurrence of Deep-Sea Squaliform
Sharks, *Echinorhinus brucus*
(Echinorhinidae) and *Centrophorus*
uyato (Centrophoridae),
in Marmara Shelf Waters 27
Pojavljanje dveh globokomorskih
morskih psov Echinorhinus brucus
(Echinorhinidae) in Centrophorus
uyato (Centrophoridae),
v vodah Marmarskega šelfa

Khadija OUNIFI-BEN AMOR,
Mohamed Mourad BEN AMOR,
Marouène BDIOUI &
Christian CAPAPÉ

Additional Captures of Smoothback
Angel Shark *Squatina oculata* (
Squatinidae) from the Tunisian Coast 37
(Central Mediterranean Sea)
Nova ulova pegastega sklata
Squatina oculata (Squatinidae)
iz tunizijske obale (osrednje
Sredozemsko morje)

Alessandro DE MADDALENA,
Marco Giovanni BONOMO,
Andrea CALASCIBETTA &
Lorenzo GORDIGIANI

On a Large Shortfin Mako
Shark *Isurus oxyrinchus* (Lamnidae)
Observed at Pantelleria
(Central Mediterranean Sea) 43
O velikem primerku atlantskega
maka, Isurus oxyrinchus (Lamnidae),
opaženega blizu Pantellerie
(osrednje Sredozemsko morje)

IHTIOFAVNA
ITTIOFAUNA
ICHTHYOFAUNA

FAVNA
FAUNA
FAUNA

Christian CAPAPÉ, Christian REYNAUD & Farid HEMIDA The First Well-Documented Record of Maltese Skate *Leucoraja melitensis* (Rajidae) From the Algerian Coast (Southwestern Mediterranean Sea) 51
Prvi potrjeni primer o pojavljanju skata vrste Leucoraja melitensis (Rajidae) iz alžirske obale (jugozahodno Sredozemsko morje)

Alessandro NOTA, Sara IGNOTO, Sandro BERTOLINO & Francesco TIRALONGO First Record of *Caranx crysos* (Mitchill, 1815) in the Ligurian Sea (Northwestern Mediterranean Sea) Suggests Northward Expansion of the Species 55
Prvi zapis o pojavljanju modrega trnoboka Caranx crysos (Mitchill, 1815) v Ligurskem morju (severozahodno Sredozemsko morje) dokazuje širjenje vrste proti severu

Alen SOLDÓ The First Marine Record of Northern Pike *Esox lucius* Linnaeus, 1758 in the Mediterranean Sea 61
Prvi morski zapis o pojavljanju ščuke Esox lucius Linnaeus, 1758 v Sredozemskem morju

Mourad CHÉRIF, Rimel BENMESSAOUD, Sihem RAFRAFI-NOUIRA & Christian CAPAPÉ Diet and Feeding Habits of the Greater Weever *Trachinus draco* (Trachinidae) from the Gulf of Tunis (Central Mediterranean Sea) 67
Prehranjevalne navade morskega zmaja Trachinus draco (Trachinidae) iz Tuniškega zaliva (osrednje Sredozemsko morje)

Laith A. JAWAD & Okan AKYOL Skeletal Abnormalities in a *Sphyræna sphyræna* (Linnaeus, 1758) and a *Trachinus radiatus* Cuvier, 1829 Collected from the North-Eastern Aegean Sea, Izmir, Turkey 75
Skeletne anomalije na primerkih vrst Sphyræna sphyræna (Linnaeus, 1758) in Trachinus radiatus Cuvier, 1829, ujetih v severovzhodnem Egejskem morju (Izmir, Turčija)

Deniz ERGUDEN, Sibel ALAGOZ ERGUDEN & Deniz AYAS A Rare Occurrence and Confirmed Record of Scalloped Ribbonfish *Zu cristatus* (Osteichthyes: Trachipteridae) in the Gulf of Antalya (Eastern Mediterranean), Turkey 89
O redkem pojavljanju in potrjeni najdbi čopaste kosice Zu cristatus (Osteichthyes: Trachipteridae) v Antalijskem zalivu (vzhodno Sredozemsko morje), Turčija

Nicola BETTOSO, Lisa FARESI, Ida Floriana ALEFFI & Valentina PITACCO Epibenthic Macrofauna on an Artificial Reef of the Northern Adriatic Sea: a Five-Years Photographic Monitoring 99
Epibentoška makrofavna na umetnem podvodnem grebenu v severnem Jadranu: pet letni fotografski monitoring

Roland R. MELZER, Martin PFANNKUCHEN, Sandro DUJMOVIČ, Borut MAVRIČ & Martin HEß First Record of the Golden Coral Shrimp, *Stenopus spinosus* Risso, 1827, in the Gulf of Venice 113
Prvi zapis o pojavljanju koralne kozice, Stenopus spinosus Risso, 1827, v Beneškem zalivu

Abdelkarim DERBALI, Nour BEN MOHAMED & Ines HAOUAS-GHARSALLAH Age, Growth and Mortality of Surf Clam *Macra stultorum* in the Gulf of Gabes, Tunisia 119
Starost, rast in smrtnost koritnice Macra stultorum v Gabeškem zalivu (Tunizija)

Cemal TURAN, Servet Ahmet DOĞDU & İrfan UYSAL Mapping Stranded Whales in Turkish Marine Waters 127
Popisovanje nasedlih kitov v turških morskih vodah

OBLETNICE
ANNIVERSARI
ANNIVERSARIES

Martina ORLANDO-BONACA & Patricija MOZETIČ Šestdeset let morskega biologa Lovrenca Lipeja 139

Kazalo k slikam na ovitku 141
Index to images on the cover 141

received: 2022-11-02

DOI 10.19233/ASHN.2023.03

THE FIRST SUBSTANTIATED RECORD OF AREOLATE GROUPER *EPINEPHELUS AREOLATUS* (SERRANIDAE) AND ADDITIONAL RECORDS OF PILOTFISH *NAUCRATES DUCTOR* (CARANGIDAE) FROM THE SYRIAN COAST (EASTERN MEDITERRANEAN SEA)

Adib SAAD

Al Andalus University, Kadmus, Tartus, Syria (au.edu.sy)

Lana KHREMA & Amina ALNESSER

Tishreen University, Department of Basic Sciences, Faculty of Agriculture, Latakia, Syria

Issa BARAKAT

Tishreen University, Department of Floristries and Ecology, Faculty of Agriculture, Latakia, Syria

*Christian CAPAPÉ*Laboratoire d'Ichtyologie, case 104, Université de Montpellier, 34 095 Montpellier cedex 5, France
e-mail: christian.capape@umontpellier.fr

ABSTRACT

A specimen of the non-indigenous species areolate grouper Epinephelus areolatus (Forsskål, 1775) and two specimens of pilotfish Naucrates ductor (Linnaeus 1758) were fished from the coastal waters off Latakia, Syria. The finding of E. areolatus constitutes the first substantiated record of this species for Syrian marine waters and the third for the entire Mediterranean Sea. The areolate grouper is a Lessepsian migrant from the Red Sea which entered the Mediterranean through the Suez Canal. N. ductor, on the other hand, has been known to inhabit the Mediterranean Sea together with several other fish species. However, the semi-obligate commensal relationship that it develops with large sharks and rays could explain the species' occurrence in both the Mediterranean and Syrian marine waters. The capture of N. ductor reported herein is the second record for the Syrian coast.

Key words: Levant Basin, Lessepsian migration, commensalisme, large sharks and rays, population

PRIMO RITROVAMENTO DOCUMENTATO DI *EPINEPHELUS AREOLATUS* (SERRANIDAE) E ULTERIORI SEGNALAZIONI DI *NAUCRATES DUCTOR* (CARANGIDAE) PER LA COSTA SIRIANA (MEDITERRANEO ORIENTALE)

SINTESI

Un esemplare della specie non indigena Epinephelus areolatus (Forsskål, 1775) e due esemplari di pesce pilota Naucrates ductor (Linnaeus 1758) sono stati pescati nelle acque costiere al largo di Latakia, in Siria. Il ritrovamento di E. areolatus costituisce il primo record documentato di questa specie per le acque marine siriane e il terzo per l'intero Mediterraneo. Si tratta di un migrante lessepsiano proveniente dal Mar Rosso ed entrato nel Mediterraneo attraverso il Canale di Suez. N. ductor, invece, è noto per il Mediterraneo, dove convive assieme a diverse altre specie ittiche. Tuttavia, la relazione di commensalità semi-obbligatoria che sviluppa con grandi squali e razze potrebbe spiegare la presenza della specie sia nelle acque marine del Mediterraneo che in quelle siriane. La cattura di N. ductor qui riportata è il secondo record per la costa siriana.

Parole chiave: Bacino del Levante, migrazione lessepsiana, commensalismi, grandi squali e razze, popolazione

INTRODUCTION

It has been known from Gruvel (1931) as well as more recent literature (Saad, 2005, 2010; Ali, 2018) that fisheries play an important economic role in Syria. Consequently, the local marine waters have been regularly and continuously investigated by researchers assessing the quality and quantities of fish species present in the region (Foulquié & Dupuy de la Grandrive, 2003; Saad et al., 2005; Saad & Alkusaury, 2022). Ali (2018), for example, pointed out the occurrence of non-indigenous species migrating from other areas: from the Red Sea through the Suez Canal or from the eastern tropical Atlantic through the Strait of Gibraltar.

Tab. 1: Morphometric measurements in mm with percentages of total length (%TL), meristic counts and total body weight recorded in the specimen of *Epinephelus areolatus* (MSL 11/2022) caught off the Syrian coast.

Tab. 1: Morfometrične meritve v mm in izražene kot delež celotne dolžine (%TL), meristična štetja in totalna telesna masa primerka vrste *Epinephelus areolatus* (MSL 11/2022), ujetega ob sirske obali.

References	MSL 11/2022	
Morphometric measurements	mm	%TL
Total length	297	100
Standard length	242	81.4
Body depth	73	24.5
Head length	86	28.9
Eye diameter	14	4.7
Snout length	25	8.4
Length of dorsal fin base	133	44.7
Length of anal fin base	39	13.1
Pre-dorsal length	80	26.9
Pre-pectoral length	82	27.6
Pre-pelvic length	84	28.2
Pre-anal length	155	52.1
Meristic counts		
Dorsal fin spines	XI	
Dorsal fin soft rays	17	
Pectoral fin spines	-	
Pectoral fin soft rays	16	
Ventral fin spines	I	
Ventral fin soft rays	5	
Anal fin spines	III	
Anal fin soft rays	9	
Total body weight (gram)	285	

Surveys recently conducted in the area with assistance of local fishermen have allowed the collection of a specimen of areolate grouper *Epinephelus areolatus* Forsskal, 1775, and two specimens of pilotfish *Naucrates ductor* (Linnaeus, 1758). The aim of the present study is to report these captures and comment the distribution of both species in the region and the Mediterranean Sea.

MATERIAL AND METHODS

On 30 July 2022, a specimen of *Epinephelus areolatus* was caught by fish trap at a depth of 30 m, off the Ibn Hani region (Fig. 1), close to the city of Latakia (35°35'37.3"N, 35°45'05.6"E). On 3 October 2022, two specimens of *Naucrates ductor* were caught using a trawling net at a depth of 30 m, south of the city of Latakia (35°27'05.9"N, 35°43'11.3"E). Some morphometric measurements were recorded to the nearest millimetre and expressed as percentages of total length (TL), together with meristic counts and total body weight (TBW) in gram (Tables 1 and 2). The three specimens were preserved in 10% buffered formalin and deposited in the collection of the Marine Sciences Laboratory, Tishreen University, and assigned reference numbers MSL 11/2022 for *E. areolatus*, and MSL 15/2022 and MSL 16/2022 for *N. ductor*.

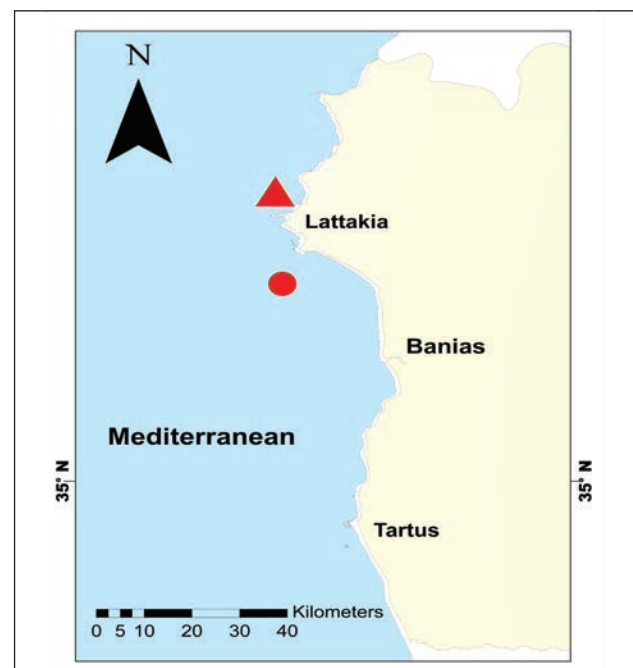


Fig. 1: Map of the Syrian coast indicating the captures sites of *Epinephelus areolatus* (red triangle) and *Naucrates ductor* (red circle).

Sl. 1: Zemljevid sirske obale z označenimi lokalitetami ulova vrst *Epinephelus areolatus* (rdeči trikotnik) in *Naucrates ductor* (rdeči krogec).

RESULTS AND DISCUSSION

Epinephelus areolatus (Forsskål, 1775)

The specimen of *E. areolatus* (MSL 11/2022) measured 297 mm total length (TL) and weighed 285 g (Fig. 2). It was identified based on the following: body depth less than head length and 3.3 times in standard length (SL), head length 2.8 times in SL; gill rakers of first gill arch 9 on the upper limb and 16 on lower limb; preopercle with 5 enlarged serrations at the angle; caudal fin truncate or slightly emarginated; head, body, and fins pale, all covered with numerous brownish yellow spots, posterior edge of caudal fin with a distinct white margin. *E. areolatus* can be confused with another alien serranid species recently occurring in the Mediterranean Sea, namely, the spotted grouper *E. geoffroyi* Klunzinger, 1870. This latter species does not exhibit a whitish margin on the posterior edge of caudal fin, conversely, it displays more numerous and smaller dark brown spots covering the entire body.

The morphology, morphometric measurements, meristic counts and colour recorded in the present specimen of *E. areolatus* are in agreement with previous descriptions of this species by Heemstra & Randall (1993), Rothman et al. (2016) and Bariche & Edde (2020). Al Mabruk et al. (2021) reported the first occurrence of *E. areolatus* in Syrian marine waters based on a photograph of a specimen that was discovered on social media but was unavailable for confirmation in an ichthyological collection. The present specimen, on the other hand, was thoroughly described following Bello et al. (2014) and deposited in the Ichthyological Collection of the Marine Sciences Laboratory, Tishreen University, with reference number MSL 11/2022. It therefore constitutes the first substantiated record of *E. areolatus* from the Syrian coast.

E. areolatus is widely distributed in the Pacific Ocean region bounded by Fiji in the east, Japan in the north, and the Arafura Sea and northern Australia in the south. It is also widespread in the Indian Ocean, from southern Africa and KwaZulu-Natal to the Arabo-Persian Gulf

Tab. 2. Morphometric measurements in mm with percentages of total length (%TL), meristic counts and total body weight recorded in the two specimens of *Naucrates ductor* (MSL 15/2022 and MSL 16/2022) caught off the Syrian coast.

Tab. 2: Morfometrične meritve v mm in izražene kot delež celotne dolžine (%TL), meristična štetja in totalna telesna masa primerkov vrste *Naucrates ductor* (MSL 15/2022 in MSL 16/2022), ujetih ob sirski obali.

References	MSL 15/2022		MSL 16/2022	
Morphometric measurements	mm	%TL	mm	%TL
Total length (TL)	357	100	351	100
Standard length (SL)	290	81.23	290	82.6
Fork length (FL)	315	88.23	310	88.3
Body depth (BD)	63.2	17.7	77.7	22.13
Head length (HL)	73	20.4	75	21.3
Eye diameter	11	3.11	11	3.25
Pre-orbital length	23	6.4	22	6.26
Post-orbital length	37	10.3	37	10.5
Pre-dorsal length	103	28.8	107	30.4
Dorsal fin base	151	42.2	155	44.15
Pre-pelvic length	83	23.2	84	23.9
Pre-pectoral length	70	19.6	70	19.9
Pectoral fin base	14	3.92	14	3.9
Pre-pelvic length	83	23.2	84	23.9
Pre-anal length	184	51.5	180	51.2
Anal fin base	72	20.1	76	21.6
Peduncle depth	18	5.0	17	4.87
Caudal peduncle length	40	11.2	40	11.3
Meristic counts				
Dorsal fin	III+I+27		IV+I+27	
Anal fin	II+I+16		II+I+16	
Pelvic fin	I+5		I+5	
Total weight (gram)	580 g		540 g	



Fig. 2: Specimen of *Epinephelus areolatus* (MSL 11/2022) caught off the Syrian coast, scale bar = 50 mm.

Sl. 2: Primerek vrste *Epinephelus areolatus* (MSL 11/2022), ujet ob sirski obali, merilo = 50 mm.



Fig. 3: Specimen of *Naucrates ductor* (MSL 16/2022) caught off the Syrian coast, scale bar = 100 mm.

Sl. 3: Primerek vrste *Naucrates ductor* (MSL 16/2022), ujet ob sirski obali, merilo = 100 mm.

and the Red Sea *E. areolatus* could be considered a Lessepsian migrant (*sensu* Por, 1978) coming into the Mediterranean Sea through the Suez Canal. The present record and other previous findings in the Levant Basin suggest that a viable population is probably being established in this area.

***Naucrates ductor* (Linnaeus, 1758)**

The two specimens of *N. ductor* herein presented measured 357 mm and 351 mm TL, and weighed 580 g and 540 g, respectively. They were identified based on the following: body elongate, shallow, and barely compressed with nearly equal upper and lower profiles; head profile tapering sharply above anterior half of upper jaw producing a nearly blunt snout; upper jaw very narrow posteriorly and extending to about the anterior margin of eye; teeth in upper and lower jaws minute, arranged in a band; gill rakers on first arch 6 upper, 14 lower for a first specimen, and 8 upper, 15 lower for the second; dorsal fin with 4 spines (last spine in first specimen possibly reduced and skin-covered due to fork length over 20 cm), followed by 1 spine and 25 to 29 soft rays, anal fin with 2 spines separated from the rest of fin followed by 1 spine and 16 soft rays, second dorsal fin lobe short, 2.4 times the fork length; anal fin base short, 1.7 and 1.8 times the second dorsal fin base length, respectively; caudal peduncle with a well-developed lateral, fleshy keel on each side and dorsal and ventral peduncle grooves; body displaying 5 or 6 broad black bands, caudal fin banded with prominent white tips. This description is in total accordance with Smith-Vaniz (1986), Bauchot (1987) and Carpenter & De Angelis (2016). The present specimen (Fig. 3) thus constitutes the third occurrence of the species in Syrian marine waters, where a viable population appears to be fully established (Ali-Basha et al., 2021).

N. ductor is a circumtropical marine fish. In the eastern Atlantic, the species is known from the Strait

of Gibraltar to southern Angola, including the Azores, Madeira, the Canaries, and the Cape Verde, Ascension and St Helena Islands (Bauchot, 1987). Conversely, it is considered a rare vagrant off the British Isles (Smith-Vaniz, 1986). The species is also found in the Mediterranean Sea and has been reported from the Adriatic Sea (Kovačić et al., 2020), Egypt (El Sayed et al., 2017), Libya (Elbaraasi et al., 2019), Turkey (Akyol, 2019) and the Levant Basin (Ben Tuvia, 1971, Ali-Basha et al., 2021). Quignard & Tomasini (2000) count *N. ductor* among the inhabitants of the Mediterranean Sea together with several other fish species. However, Smith-Vaniz (1986) note that *N. ductor* displays a semi-obligate commensal relationship with large sharks and rays, which could explain its occurrence in the Mediterranean and in Syrian marine waters, where these elasmobranch species are captured in relative abundance (Saad & Alkusaairy, 2022). Similar patterns could also explain the occurrence of sea lamprey, *Petromyzon marinus* (Linnaeus, 1758) in the same area (Saad et al., 2021).

N. ductor is unknown in the Red Sea, and the Suez Canal does not offer sufficient space for migration of large fishes. Hence, entering through the Strait of Gibraltar would seem to be a more likely hypothesis, however, *N. ductor* cannot be considered a Herculean migrant (*sensu* Quignard & Tomasini, 2000). The successful establishment of *E. areolatus* and *N. ductor* in Syrian marine waters speaks to the fact that Syrian marine waters is an environment suitable for the development and production of local fisheries. Such favourable conditions have been confirmed by several papers published over the past decades which show that the number of species comprised in the Syrian ichthyofauna has been regularly increasing (Saad, 2005; Ali, 2018). The number of records of both *E. areolatus* and *N. ductor* to date is sufficient to regard these fish as resident species in Syrian marine waters.

PRVI POTRZEN ZAPIS O POJAVLJANJU RDEČEPIKASTE KIRNJE, *EPINEPHELUS AREOLATUS* (SERRANIDAE), IN DODATNI ZAPIS O POJAVLJANJU PILOTA, *NAUCRATES DUCTOR* (CARANGIDAE), IZ SIRSKE OBALE (VZHODNO SREDOZEMSKO MORJE)

Adib SAAD

Al Andalus University, Kadmus, Tartus, Syria (au.edu.sy)

Lana KHREMA & Amina ALNESSER

Tishreen University, Department of Basic Sciences, Faculty of Agriculture, Lattakia, Syria

Issa BARAKAT

Tishreen University, Department of Floristries and Ecology, Faculty of Agriculture, Lattakia, Syria

Christian CAPAPÉ

Laboratoire d'Ichtyologie, case 104, Université de Montpellier, 34 095 Montpellier cedex 5, France
e-mail: christian.capape@umontpellier.fr

POVZETEK

V obalnih vodah Latakije (Sirija) so bili ujeti primerek rdečepikaste kirnje *Epinephelus areolatus* (Forsskål, 1775) in dva primerka pilota *Naucrates ductor* (Linnaeus 1758). Najdba vrste *E. areolatus* predstavlja prvi potrjen zapis o pojavljanju te vrste v sirskih morskih vodah in tretji za celotno Sredozemsko morje. Rdečepikasta kirnja je lesepska selivka, ki je prišla skozi sueški prekop iz Rdečega morja. *N. ductor* pa je domorodna vrsta, ki prebiva v Sredozemskem morju skupaj z drugimi vrstami. Kljub vsemu pa povezujemo pojavljanje te vrste v Sredozemskem morju in sirskih vodah s semiobligatnim odnosom z velikimi morskimi psi in skati. Ulov pilota *N. ductor*, o katerem avtorji poročajo, je drugi primer pojavljanja te vrste v sirskih vodah.

Ključne besede: levantski bazen, lesepska selitev, komenzalizem, veliki morski psi in skati, populacija

REFERENCES

- Akyol, O. (2019):** Occurrence of pilotfish *Naucrates ductor* (Carangidae) in Izmir Bay (Aegean Sea). *Turk. J. Marit. Mar. Sci.*, 5(1), 17-20.
- Ali, M. (2018):** An updated checklist of the marine fishes from Syria with emphasis on alien species. *Medit. Mar. Sci.*, 19(2), 388-393.
- Ali-Basha, N., A. Saad, A., N. Hamwi & A. Tufahha (2021):** First record of pilotfish *Naucrates ductor* (Linnaeus 1758), Carangidae, in the Syrian marine waters (Levantine Basin). *Mar. Biodiv. Rec.*, 14. 10.1186/s41200-021-00202-y.
- Al Mabruk, S., I. Giovos & F. Tiralongo (2021):** New record of *Epinephelus areolatus* in the Mediterranean Sea: first record from Syria. *Annales, Ser. Hist. Nat.*, 31(1), 23-31.
- Bariche, M. & D. Edde (2020):** First records of exotic marine fish species (*Morone saxatilis*, *Himantura leoparda*, *Epinephelus areolatus*, *Diodon hystrix*) from Lebanon.. *Medit. Mar. Sci.*, 21(1), 129-145.
- Bauchot, M.L. (1987):** Poissons osseux, in Fiches FAO d'Identification pour les Besoins de la Pêche (Rev. 1). Méditerranée et Mer Noire, Zone de Pêche 37 (Fischer, W., et al., Eds.), Rome: Comm. Communauté Européenne, FAO, vol. 2, pp. 891-1421.
- Bello G., R. Causse., L. Lipej & J. Dulčić (2014):** A proposal best practice approach to overcome unverified and unverifiable «first records» in ichthyology. *Cybium*, 38(1), 9-14.
- Ben-Tuvia, A. (1971):** Revised list of the Mediterranean fishes of Israel. *Isr. J. Zool.*, 20, 1-39.
- Carpenter, K.E. & N. De Angelis (2016):** The living marine resources of the Eastern Central Atlantic. Volume 4: Bony fishes, part 2 (Perciformes to Tetradontiformes) and sea turtles. FAO Species Identification Guide for Fishery Purposes, Rome, FAO. pp. 2343-3124.
- Elbaraasi, H., B. Elabar, S. Elaabidi, A. Bashir, O. Elsilini, E. Shakman & E. Azzurro (2019):** Updated checklist of bony fishes along the Libyan coast (southern Mediterranean Sea). *Medit. Mar. Sci.*, 20(1), 90-105.
- El Sayed, H., K. Akel. & P.K. Karachle (2017):** The marine ichthyofauna of Egypt. *Egyptian J. Aquat. Biol. Fish.*, 21(3), 81-116.
- Foulquié, M. & R. Dupuy de la Grandrive (2003):** First assignment concerning the development of marine protected area on the Syrian coast, 8-15 November 2002, RAC/SPA, 33 pp.
- Gruvel, A. (1931):** Les états de Syrie, richesses marines et fluviales. Exploitation actuelle. Avenir. Société d'Éditions géographiques, maritimes et coloniales, Source gallica.bnf.fr / Bibliothèque nationale de France, 542 pp.
- Heemstra, P.C. & J.E. Randall (1993):** FAO Species Catalogue. Vol. 16. Groupers of the world (family Serranidae, subfamily Epinephelinae). An annotated and illustrated catalogue of the grouper, rockcod, hind, coral grouper and lyretail species known to date. Rome: FAO. FAO Fish. Synopsis, 125, 382 pp.
- Kovačić, M., L. Lipej & J. Dulčić (2020):** Evidence approach to checklists: critical revision of the checklist of the Adriatic Sea fishes. *Zootaxa*, 4767(1), 1-55.
- Por, F.D. (1978):** Lessepsian migration. Ecological studies 23. Springer-Verlag: Berlin, New-York. 228 pp.
- Quignard, J.-P. & J. -A. Tomasini (2000):** Mediterranean fish biodiversity. *Biol. Mar. Medit*, 7, 1-66.
- Rothman, S.B., N. Stern & M. Goren (2016):** First record of the Indo-Pacific areolate grouper *Epinephelus areolatus* (Forsskal, 1775) (Perciformes: Epinephelidae) in the Mediterranean Sea. *Zootaxa*, 4067, 479-483.
- Saad, A. (2005):** Check-list of bony fish collected from the coast of Syria. *Turk. J. Fish. Aquat. Sci.*, 5(2), 99-106.
- Saad, A. (2010):** Fisheries resources in Syria: its reality and prospects for its development. In: Syrian Economy Bulletin-Agricultural Section-Edition Economic Committee. Chapitre 5, pp. 113-136. Presidency of the Council of Ministers. [In Arabic]
- Saad, A., I. Barakat, M. Masri, W. Sabour & C. Capapé (2021):** First substantiated record of sea lamprey *Petromyzon marinus* from the Syrian coast (Eastern Mediterranean Sea). *Fish Taxa*, 21, 21-24.
- Saad, A. & H. Alkusaairy (2022):** Atlas of Sharks and Rays in the Syrian marine waters. Tishreen University and Syrian Society for Aquatic and Environment Protection (SSAEP), 94 pp. https://www.researchgate.net/publication/362858123_Atlas_of_Sharks_and_Rays_in_the_Syrian_marine_waters
- Smith-Vaniz, R.L. (1986):** Carangidae. In: P.J.P. Whitehead, M.L. Bauchot, J.C. Hureau., J. Nielsen J. & E. Tortonese. (Eds.), pp. 815-844. Fishes of the North-eastern Atlantic and the Mediterranean, Vol II, UNESCO, Paris.