

ANNALES

Anali za istrske in mediteranske študije
Annali di Studi istriani e mediterranee
Annals for Istrian and Mediterranean Studies
Series Historia Naturalis, 34, 2024, 1





ANNALES

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

Series Historia Naturalis, 34, 2024, 1

ISSN 1408-533X
e-ISSN 2591-1783

UDK 5

Letnik 34, leto 2024, 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, Fornače/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. 2024.

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

Javna agencija za znanstveno-raziskovalno in inovacijsko dejavnost Republike Slovenije (ARIS)

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

SREDOZEMSKJE HRUSTANČNICE
SQUALI E RAZZE MEDITERRANEE
MEDITERRANEAN SHARKS AND RAYS

Hakan KABASAKAL & Murat BİLECENOĞLU

A Review of Occurrences of Hammerhead Shark
(*Carcharhiniformes: Sphyrnidae*) on Turkish Seas
over the Past Five Decades 1
Pregled pojavljanja kladvenic (Carcharhiniformes:
Sphyrnidae) v turških morjih v zadnjih
petih desetletjih

Alen SOLDI & Rigers BAKIU

Additional Historical Records of the Great
White Shark, *Carcharodon carcharias*
(*Lamniformes: Lamnidae*) in the Eastern
Adriatic: Updating Regional Occurrence
of a Critically Endangered Shark 11
Dodatni historični zapisi o pojavljanju belega
morskega volka, Carcharodon carcharias
(Lamniformes: Lamnidae) v vzhodnem
Jadranskem morju: aktualno regionalno
pojavljanje kritično ogrožene vrste

**Farid HEMIDA, Christian REYNAUD &
Christian CAPAPÉ**

First Records of Sawback Angelsharks *Squatina*
Aculeata (*Squatinidae*) from the Algerian
Coast (Southwestern Mediterranean Sea) 21
Prvi zapisi o pojavljanju trnastega sklata
Squatina aculeata (Squatinidae) iz alžirskih
voda (jugozahodno Sredozemsko morje)

**Cemal TURAN, Mevlüt GÜRLEK, Servet Ahmet
DOĞDU, Deniz ERGÜDEN, Ali UYAN, Ayşegül
ERGENLER, Nuri BAŞUSTA & Alen SOLDI**

Phylogenetic Relationships and
Conservation Implications of Shark
Species from Turkish Waters 27
Filogenetski odnosi in posledice ohranjanja
vrst morskih psov v turških vodah

**Farid HEMIDA, Christian REYNAUD &
Christian CAPAPÉ**

On the Occurrence of Undulate Ray, *Raja*
undulata (*Rajidae*), from the Algerian Coast
(Southwestern Mediterranean Sea) 37
O pojavljanju valovito progaste raže, Raja
undulata (Rajidae), iz alžirske obale
(jugozahodno Sredozemsko morje)

**Sara A.A. ALMABRUK, Abdulghani ABDULGHANI
& Francesco TIRALONGO**

First Record of *Himantura* Müller & Henle, 1837
in Libyan Waters: a Comprehensive Discussion
of Misidentification Issues and Ecological
Implications in the Mediterranean Sea 45
Prvi zapis o pojavljanju rodu Himantura Müller &
Henle, 1837 v libijskih vodah: celostna razprava
o problemu napačne identifikacije in ekoloških
posledicah v Sredozemskem morju

**Hakan KABASAKAL, Ayşe ORUÇ, Ebrucan
KALECİK, Efe SEVİM, Nilüfer ARAÇ &
Cansu İLKILINÇ**

Recent Occurrences of *Rhinoptera marginata*
and *Mobula mobular* in Turkish Aegean and
Mediterranean Waters 51
Recentno pojavljanje vrst Rhinoptera
marginata in Mobula mobular v turških
egejskih in sredozemskih vodah

IHTIOFAUNA

ITTIOFAUNA

ICHTHYOFAUNA

**Deniz ERGUDEN, Servet AHMET DOĞDU &
Cemal TURAN**

On the Occurrence of the Greater Pipefish
Syngnathus acus Linnaeus, 1758 in the
South-Eastern Mediterranean, Turkey 63
O pojavljanju velikega morskega šila Syngnathus
acus Linnaeus, 1758 v jugovzhodnem
sredozemskem morju, Turčija

**Deniz ERGUDEN, Servet AHMET DOĞDU &
Cemal TURAN**

First Record of Roche's Snake Blenny *Ophidion*
rochei Müller, 1845 (*Osteichthyes: Ophidiiformes*)
in the North-Eastern Mediterranean 69
Prvi zapis o pojavljanju huja vrste Ophidion
rochei Müller, 1845 (Osteichthyes: Ophidiiformes)
v severovzhodnem Sredozemskem morju

Osama A. ELSALINI & Laith A. JAWAD

Fluctuating Asymmetry in *Chelon auratus*
from the Libyan Mediterranean Coast
and the Ain Ziana Lagoon 75
Nihajoča asimetrija pri zlatem ciplju
iz libijske sredozemske obale in
lagune Ain Ziana

Francesco TIRALONGO & Enrico RICCHITELLI

Salaria basilisca (Actinopterygii: Blenniidae) in Mediterranean Waters: New Biological and Ecological Data Emerging from the Collaboration between Citizen Scientists and Researchers 87

Salaria basilisca (Actinopterygii: Blenniidae) v sredozemskih vodah: novi biološki in ekološki podatki na podlagi sodelovanja med ljubiteljskimi raziskovalci in raziskovalci

BIOTSKA GLOBALIZACIJA
GLOBALIZZAZIONE BIOTICA
BIOTIC GLOBALIZATION

Jakov DULČIĆ, Robert GRGIČEVIĆ & Branko DRAGIČEVIĆ

Additional Record of *Pterois miles* (Scorpaenidae) in Croatian Waters (Eastern Adriatic Sea) 95

Dodatni zapis o pojavljanju navadne plamenke *Pterois miles* (Scorpaenidae) v hrvaških vodah (vzhodno Jadransko morje)

Okan AKYOL & Zafer TOSUNOĞLU

On the Occurrence of the Indo-Pacific Nakedband Gaper *Champsodon nudivittis* (Champsodontidae) in the Sea of Marmara, Turkey 101

O pojavljanju zobate krokodilke *Champsodon nudivittis* (Champsodontidae) v Marmarskem morju, Turčija

Deniz AYAS, Sibel ALAGOZ ERGUDEN & Deniz ERGUDEN

Range Expansion of *Priacanthus hamrur* (Fabricius, 1775) in the Northeastern Mediterranean (Mersin Bay, Turkey) 107

Širjenje areala lunastorepega veleokega ostriža *Priacanthus hamrur* (Fabricius, 1775) v severovzhodnem Sredozemskem morju (zaliv Mersin, Turčija)

Malek ALI, Aola FANDI, Amina ALNESSER & Christian CAPAPÉ

Confirmed Occurrence of *Jaydia smithi* (Apogonidae) and *Seriola fasciata* (Carangidae) on the Syrian Coast (Eastern Mediterranean Sea) 113

Potrjeno pojavljanje *smithovega morskega kraljička* *Jaydia smithi* (Apogonidae) in *malega gofa* *Seriola fasciata* (Carangidae) na sirski obali (vzhodno Sredozemsko morje)

Deniz ERGUDEN, Deniz AYAS & Sibel ALAGOZ ERGUDEN

Range Expansion of *Synodus randalli* Cressey, 1981 in the Northeastern Mediterranean 119

Širjenje areala *Randalljevega morskega kuščarja* *Synodus randalli* Cressey, 1981 v severovzhodno Sredozemsko morje

Abdel Fattah N. ABD RABOU, Jehad Y. SALAH, Mohammed A. ABUTAIR, Sara A.A. AL MABRUK, Bruno ZAVA & Maria CORSINI-FOKA

Occurrence of *Cheilinus lunulatus* (Labridae), *Triacanthus cf. biaculeatus* (Triacanthidae) and Other Four Non-Indigenous Fish Species New to the Gaza Strip Waters, Palestine 125

Prvo pojavljanje vrst *Cheilinus lunulatus* (Labridae), *Triacanthus cf. biaculeatus* (Triacanthidae) in še štirih tujerodnih vrst v vodah ob Gazi, Palestina

FAVNA
FAUNA
FAUNA

Nour BEN MOHAMED & Abdelkarim DERBALI

Status of the Exploited Clam *Ruditapes decussatus* in the Littoral Zone of Sfax, Tunisia 137

Stanje komercialno izkoriščene brazdaste vongole *Ruditapes decussatus* v litoralnem območju Sfax, Tunizija

Izdihar Ali AMMAR

A Preliminary Checklist of Marine Heterobranchs (Mollusca: Gastropoda: Heterobranchia) of Syria 145

Preliminarni seznam morskih polžev zaškrjarjev (Mollusca: Gastropoda: Heterobranchia) Sirije

FLORA
FLORA
FLORA

Martina ORLANDO-BONACA, Diego BONACA, Romina BONACA, Erik LIPEJ & Domen TRKOV

Five-Year Monitoring of the Ecological Status of the *Cymodocea nodosa* Meadow near the Port of Koper 159

Petletno spremljanje ekološkega stanja travnika kolenčaste *cimodoceje* (*Cymodocea nodosa*) v bližini koprškega pristanišča

IN MEMORIAM**Alenka MALEJ**

Thomas Charlton Malone (7. september 1943 – 24. februar 2024) 171

Kazalo k slikam na ovitku 173

Index to images on the cover 173

received: 2023-12-15

DOI 10.19233/ASHN.2024.08

ON THE OCCURRENCE OF THE GREATER PIPEFISH *SYNGNATHUS ACUS* LINNAEUS, 1758 IN THE SOUTH-EASTERN MEDITERRANEAN, TURKEY

Deniz ERGUDEN

Marine Science Department, Faculty of Marine Science and Technology, Iskenderun Technical University, 31200 Iskenderun, Hatay, Türkiye
e-mail: deniz.erguden@iste.edu.tr; derguden@gmail.com

SERVET AHMET DOGDU

Vocational School of Higher Maritime, Underwater Technology, University of Iskenderun Technical, 31200 Iskenderun, Hatay, Türkiye

Cemal TURAN

Marine Science Department, Faculty of Marine Science and Technology, Iskenderun Technical University, 31200 Iskenderun, Hatay, Türkiye

ABSTRACT

*On 28 October 2022, one specimen of the greater pipefish *Syngnathus acus* Linnaeus, 1758 was captured in Cevlik, Bay of Iskenderun (south-eastern Mediterranean Sea, Turkey) by a commercial trawler at a depth of 18 m. This paper reports the first occurrence of *S. acus* in the Bay of Iskenderun, confirming the presence of the species in the area, and represents one of the rare occurrences of *S. acus* on the eastern Mediterranean coast of Turkey, in general. All measurements, counts, and color descriptions of the *S. acus* specimen agree with previous descriptions of the species.*

Key words: Sygnathidae, pipefish, conservation, Iskenderun Bay, Mediterranean Sea

PRESENZA DEL PESCE AGO *SYNGNATHUS ACUS* LINNAEUS, 1758 NEL MEDITERRANEO SUD-ORIENTALE, TURCHIA

SINTESI

*Il 28 ottobre 2022, un esemplare di pesce ago *Syngnathus acus* Linnaeus, 1758 è stato catturato a Cevlik, nella baia di Iskenderun (Mediterraneo sud-orientale, Turchia) da un peschereccio a strascico commerciale, a una profondità di 18 m. Il presente lavoro riporta la prima segnalazione di *S. acus* nella baia di Iskenderun, confermando la presenza della specie nell'area, e rappresenta una delle rare presenze di *S. acus* lungo la costa mediterranea orientale della Turchia. Tutte le misure, i conteggi e le descrizioni dei colori dell'esemplare di *S. acus* concordano con le precedenti descrizioni della specie.*

Parole chiave: Sygnathidae, pesce ago, conservazione, baia di Iskenderun, Mediterraneo

INTRODUCTION

Pipefishes (*Syngnathus*) are a genus group in the diverse family of the Syngnathidae, consisting of 34 species with a worldwide geographical range (Dawson, 1986; Kuitert, 2001; Froese & Pauly, 2023).

The greater pipefish *Syngnathus acus* Linnaeus, 1758 is one of the nine species of the *Syngnathus* genus found in the Mediterranean (Dawson, 1986; IUCN, 2023). It feeds on small invertebrates and fish larvae, including harpacticoid copepods, amphipods, cypris larvae, and decapod crustaceans (Taşkavak *et al.*, 2010).

The distribution range of *Syngnathus acus* includes the eastern Atlantic Ocean, as well as the Mediterranean, Aegean, and Black Seas (Eschmeyer, 2023; Froese & Pauly, 2023). It is considered a rare occurrence in the Mediterranean waters of Turkey and has been categorized as near-threatened in the Turkish seas (Fricke *et al.*, 2007).

In Turkey, *S. acus* was first recorded in the Black Sea (Bennet, 1835), followed by the Sea of Marmara

(Devedjian, 1915). Later, it was also reported from the Aegean and Mediterranean Seas by Slasterenko (1955–1956) and Erazı (1942).

Although the Turkish checklists (Bilecenoglu *et al.*, 2002) already mentioned *S. acus* in Turkish marine waters, the present is the first record of the species from the Bay of Iskenderun (south-eastern Mediterranean coast of Turkey).

MATERIAL AND METHODS

A single specimen of *S. acus* was caught by a commercial trawler at a depth of 18 m in Cevlik, Bay of Iskenderun (36°07' N, 35°54' E) on 28 October 2022 (Fig. 1). The specimen was brought to the laboratory, where it was identified, photographed, and measured. The length measurements were taken using a digital caliper and recorded to the nearest 0.01 mm, the total body mass was measured using an analytical balance and recorded to the nearest 0.1 g (Fig. 2). All morphometric measurements and counts

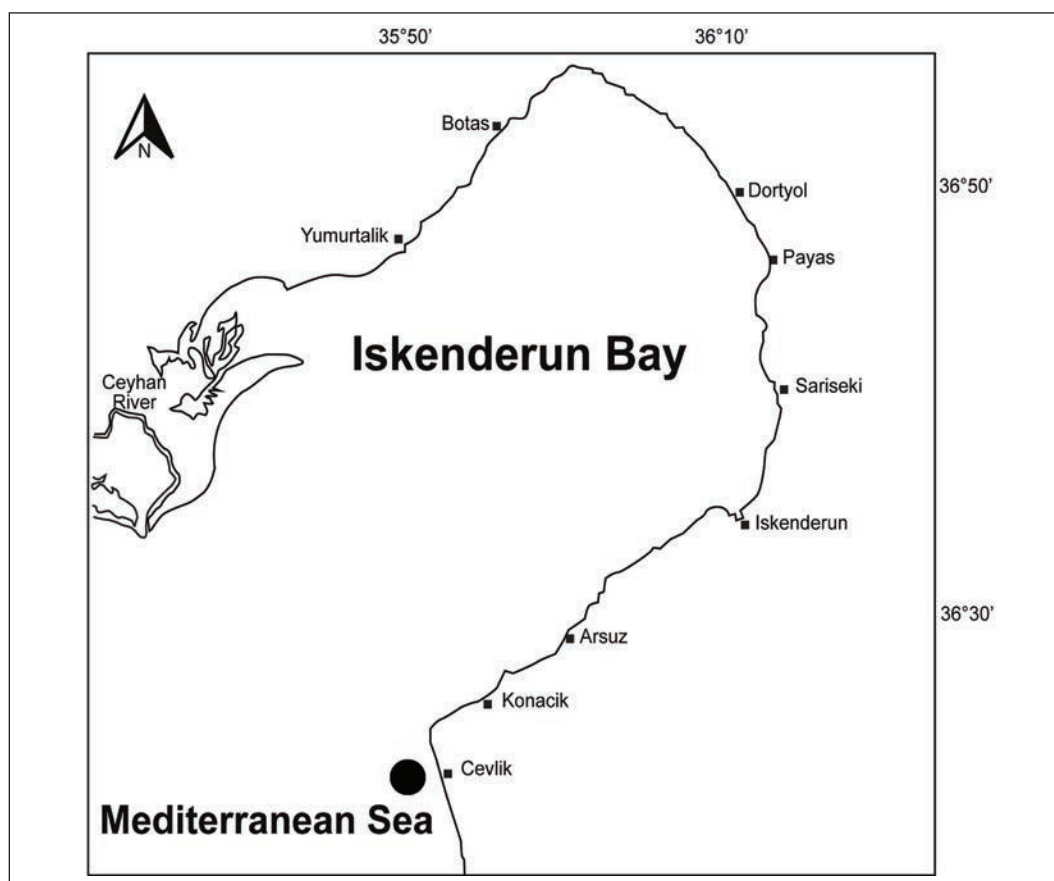


Fig. 1: Map showing the capture site (•) of the greater pipefish *Syngnathus acus* Linnaeus, 1758 in the Bay of Iskenderun (south-eastern Mediterranean).

Sl. 1: Zemljevid obravnavanega območja z označeno lokaliteto (•) ulova velikega morskega šila *Syngnathus acus* Linnaeus, 1758 v zalivu Iskenderun (jugovzhodno Sredozemsko morje).



Fig. 2: The specimen of greater pipefish *Syngnathus acus* from the Bay of Iskenderun (Cevlik), south-eastern Mediterranean, Turkey.

Sl. 2: Primerek velikega morskega šila *Syngnathus acus* Linnaeus, 1758 v zalivu Iskenderun (Cevlik) (jugovzhodno Sredozemsko morje).



Fig. 3: General view of the head and snout of *Syngnathus acus*.

Sl. 3: Posnetek glave in gobca vrste *Syngnathus acus*.

as well as the morphological description and color agree with the descriptions provided by Dawson (1986). The specimen was deposited in the Museum of the Faculty of Marine Sciences and Technology, Iskenderun Technical University, with catalog number MSM-PIS/2022-2 (Fig. 2).

RESULTS AND DISCUSSION

The captured *S. acus* specimen measured 14.5 cm in total length. The body was slender and elongate, the snout cylindrical and longer than half of head length, and of equal or inferior diameter compared to the eye (Fig. 3). An elongated lump was found on top of the

head behind the eye (Muus & Nielsen, 1999; Kottelat & Freyhof, 2007). Some morphometric measurements of the *S. acus* specimen (in centimeters) are provided in Table 1.

S. acus differs from other Mediterranean species of its genus in the following combination of characters: distal margins of the body rings: 18–19; dorsal fin rays: 36–45; pectoral fin rays: 17–21. Color: body light greenish to dark brown, with variable dark dots and vertical, maroon and beige vertical stripes. The dorsal fins are dark spotted.

S. acus is a demersal species, commonly inhabiting estuary areas (Dawson, 1986) with rocky and sandy substrates, but also associated with algal, seagrass

Tab. 1: Morphometric measurements and meristic counts recorded of the greater pipefish *Syngnathus acus* caught in the south-eastern Mediterranean, Turkey.**Tab. 1: Morfometrične meritve in meristična štetja primerka velikega morskega šila *Syngnathus acus*, ujetega v zalivu Iskenderun, jugovzhodno Sredozemsko morje, Turčija.**

Morphometric measurements	Value	
	cm	%
Metric		
Total length, TL	14.5	-
Body height, BH	0.40	2.75 %TL
Body width, BW	0.27	1.86 %TL
Oxipital height of the head, OHH	1.66	11.44 %TL
Head length, HL	1.93	13.31 %TL
Mouth height, MH	0.20	10.36 %HL
Mouth width, MW	0.12	6.22 %HL
Eye diameter, ED	0.28	14.50 %HL
Dorsal fin length DFL	1.43	9.86 %TL
Meristic		
Dorsal fin ray number, DfRN	33	
Pectoral fin ray number, PfRN	12	
Preal anal ring number, Pr.RN	41	
Postanal ring number, Po.RN	17	
Caudal fin ray number, CfRN	9	

meadows, and other vegetated habitats (Malavasi *et al.*, 2004; Franco *et al.*, 2006; Matić-Skoko *et al.*, 2007). While its minimum and maximum depth range is 0–110 m, it commonly occurs at depths of 3–15 m (Froese & Pauly, 2023). The male specimen carries the eggs in a brood pouch under the tail (Vincent *et al.*, 1995). The recorded maximum total length for this pipefish species is 50 cm (Muus & Nielsen, 1999).

Although *S. acus* has been known in the Turkish sea (Bilecenoglu *et al.*, 2002; Bilecenoglu *et al.*, 2014), no specimens have previously been reported from the southeastern Mediterranean waters of Turkey. This species has no commercial importance in fisheries, it is caught as incidental catch.

Currently, in the Mediterranean, greater pipefishes are affected by habitat loss and degradation from coastal development and tourism activities, as well as by fishing gear such as trawls and dredges (IUCN, 2016; Vincent *et al.*, 2011; Caldwell & Vincent, 2012). Despite the occurrence of this species in the Mediterranean, its population structure and potential threats have yet to be established in more detail.

Since 2013, *S. acus* has been classified as a “least concern (LC)” species by the International Union for Conservation of Nature (IUCN) (Smith-Vaniz, 2015; IUCN, 2023). In the eastern Mediterranean Sea coast of Turkey, it can be considered exceptionally rare. Consequently, no specific conservation measures are in place for this species in the Mediterranean Sea and in the Turkish Mediterranean waters (IUCN, 2023). The data presented herein are therefore essential in terms of determining the species’ status.

CONCLUSIONS

S. acus is not targeted by fisheries in the region. The studied *S. acus* specimen was an incidentally captured bycatch from the Iskenderun coast. This paper is the first report on the occurrence of this species from the southeastern Mediterranean (Bay of Iskenderun). Further research should be conducted to determine the population size and threat status of the Syngnathid species in the region. Hence, the current study will be useful in the field of fisheries science and, at the same time, contribute to fisheries management.

O POJAVLJANJU VELIKEGA MORSKEGA ŠILA *SYNGNATHUS ACUS* LINNAEUS, 1758 V JUGOVZHODNEM SREDOZEMSKEM MORJU, TURČIJA

Deniz ERGUDEN

Marine Science Department, Faculty of Marine Science and Technology, Iskenderun Technical University, 31200 Iskenderun, Hatay, Türkiye
e-mail: deniz.erguden@iste.edu.tr; derguden@gmail.com

SERVET AHMET DOGDU

Vocational School of Higher Maritime, Underwater Technology, University of Iskenderun Technical, TR-31200 Iskenderun, Hatay, Türkiye

Cemal TURAN

Marine Science Department, Faculty of Marine Science and Technology, Iskenderun Technical University, 31200 Iskenderun, Hatay, Türkiye

POVZETEK

28. oktobra 2022 so v Cevliku v zalivu Iskenderun (jugovzhodno Sredozemsko morje, Turčija) s komercialno vlečno mrežo na globini 18 m ujeli primerek velikega morskega šila *Syngnathus acus* Linnaeus, 1758. Avtorji poročajo o prvem zapisu o pojavljanju te vrste na obravnavanem območju in enega od redkih opazovanj *S. acus* na vzhodni sredozemski obali Turčije nasploh. Vse meritve, štetja in barvni vzorec sovpadajo s predhodnimi podatki o pojavljanju te vrste.

Ključne besede: Sygnathidae, morsko šilo, ohranjanje narave, zaliv Iskenderun, Sredozemsko morje

REFERENCES

- Bennett, E.T. (1835):** Characters of several previously undescribed fishes from Trebizond. Proc Zool Soc Lond., 3, 91-92.
- Bilecenoglu, M., E. Taskavak, S. Mater & M. Kaya (2002):** Checklist of the marine fishes of Turkey. Zootaxa, 113, 1-194.
- Bilecenoglu, M., M. Kaya, B. Cihangir & E. Çiçek (2014):** An updated checklist of the marine fishes of Turkey. Tr J. Zool, 38, 901-929.
- Caldwell, I.R. & A.C.J. Vincent (2012):** Revisiting two sympatric European seahorse species: Apparent decline in the absence of exploitation. Aquatic Conservation: Mar. Freshw. Ecosyst., 22(4), 427-435.
- Dawson, C.E. (1986):** Syngnathidae. In: P.J.P. Whitehead, M.L. Bauchot, J.C. Hureau, J. Nielsen & E. Tortonese (eds.): Fishes of the North-eastern Atlantic and the Mediterranean. Vol. 2. Unesco, Paris, pp. 628-639.
- Devedjian, K. (1915):** Balık ve Balıkçılık. İstanbul: Düyun-u Umumiye-i Osmaniye Varidat-ı Mahsusa İdare-i Merkeziyesi Matbaası, 1331, 440+60 p. (in Ottoman)
- Erazi, R.A.R. (1942):** Marine fishes found in the Sea of Marmara and in the Bosphorus. Rev Fac Sci Univ İstanbul, 7, 103-114.
- Eschmeyer, W.N. (Ed.) (2023):** Catalogue of Fishes. Electronic Version. <http://research.calacademy.org/ichthyology/catalog/fishcatmain.asp> (Last accession: 5 March 2023).
- Franco, A., P. Franzoi, S. Malavasi, F. Riccato, P. Torricelli & D. Mainardi (2006):** Use of shallow water habitats by fish assemblages in a Mediterranean coastal lagoon. Estuar. Coast. Shelf Sci., 66, 67-83.
- Fricke, R., M. Bilecenoglu, & S.M. Sarı (2007):** Annotated checklist of fish and lamprey species (Gnathostomata and Petromyzontomorphi) of Turkey, including a Red List of threatened and declining species. Stuttgarter Beitr. Naturk. Ser. A (Biol.), 706, 1-169.
- Froese, R. & D. Pauly (Eds.) (2023):** Fishbase. World Wide Web Electronic Publication. www.fishbase.org. version (08/2022) (accessed: 05 March 2023).
- IUCN (2016):** The IUCN Red List of Seahorses and Pipefishes in the Mediterranean Sea. The IUCN Red List of Threatened Species-Mediterranean Assessment. www.iucn-red-list-of-seahorses-and-pipefishes-in-the-mediterranean-sea_2017.pdf (accessed: 05 March 2023).
- IUCN (2023):** The IUCN Red List of Threatened Species. Version 2022-2. www.iucnredlist.org. (accessed: 05 March 2023).
- Kottelat, M. & J. Freyhof (2007):** Handbook of European freshwater fishes. Publications Kottelat, Cornol and Freyhof, Berlin, 646 pp.
- Kuiter, R.H. (2001):** Revision of the Australian seahorses of the genus *Hippocampus* (Syngnathiformes: Syngnathidae) with descriptions of nine new species. Rec. Austral. Mus., 53, 293-340.
- Malavasi, S., R. Fiorin, A. Franco, P. Franzoi, A. Granzotto, F. Riccato & D. Mainardi (2004):** Fish assemblage of Venice Lagoon shallow waters: an analysis based on species, families and functional guilds. J. Mar. Syst., 51, 19-31.
- Matić-Skoko, S., M. Peharda, A. Pallaoro, M. Cukrov & B. Baždari (2007):** Infralittoral fish assemblages in the Zrmanja estuary, Adriatic Sea. Acta Adriat., 48, 45-55.
- Muus, B.J. & J.G. Nielsen (1999):** Sea fish. Scandinavian Fishing Year Book. Hedeusene, Denmark, 340 pp.
- Slastenenko, E. (1955-1956):** Karadeniz havzası balıkları. İstanbul: Et ve Balık Kurumu Yayınları, İstanbul, 711 pp. (in Turkish).
- Smith-Vaniz, W.F. (2015):** *Syngnathus acus*. The IUCN Red List of Threatened Species 2015: e.T198765A44933898. <https://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T198765A44933898.en>. (accessed: 27 March 2023).
- Taşkavak, E., S. Gürkan, T.M. Sever, S. Akalin, & O. Ozaydin (2010):** Gut contents and feeding habits of the great pipefish, *Syngnathus acus* Linnaeus 1758, in İzmir Bay (Aegean Sea, Turkey). Zool. Middle East, 50(1), 75-82.
- Vincent, A.C.J., A. Berglund & I. Ahnesjö (1995):** Reproductive ecology of five pipefish species in one eelgrass meadow. Environ. Biol. Fishes, 44(4), 347-361.
- Vincent, A.C.J., S.J. Foster & H.J. Koldewey (2011):** Conservation and management of seahorses and other Syngnathidae. J. Fish Biol., 78, 1681-1724.