COMU J Mar Sci Fish 2025 8(1): 121-126
https://doi.org/10.46384/jmsf.1623071

e-ISSN: 2651-5326

COMU Journal of Marine Sciences and Fisheries

Journal Home-Page: http://jmsf.dergi.comu.edu.tr Online Submission: http://dergipark.org.tr/jmsf

SHORT COMMUNICATION

Occurrence of the Rare Fish *Lobotes surinamensis* (Bloch, 1790) in the Capo Peloro Lagoon (Central Mediterranean Sea): Some Implications

Mauro Cavallaro*, Sergio De Matteo, Salvatore Giacobbe

University of Messina, Italy https://orcid.org//0000-0001-6054-0867
University of Messina, Italy https://orcid.org//0009-0005-7924-954X
University of Messina, Italy https://orcid.org//0000-0002-4619-4862

Received: 29.01.2025 /Accepted: 07.03.2025 / Published online: 14.07.2025

Keywords:

Warm water fishes
Spreading
First record
Brackish waters

Abstract: As part of fish fauna monitoring within the "Capo Peloro Lagoon" Natural Reserve, a juvenile specimen of the rare warm-water fish *Lobotes surinamensis* (Bloch, 1790) was detected through a collaborative citizen science effort. This represents the first recorded occurrence of the species in the Strait of Messina area. The finding is particularly noteworthy, as the Strait functions as a climatic cold barrier between the warmer Tyrrhenian and Ionian basins, playing a crucial role in regulating the northward spread of thermophilic species. Furthermore, this record reinforces the importance of the Capo Peloro Lagoon as both a nursery and refuge area, as well as a potential steppingstone in the dispersal of both exotic and native thermophilic species.

Anahtar kelimeler:

Sıcak su balıkları
Yayılım
İlk kayıt
Acısu

Capo Peloro Lagünü'nde (Orta Akdeniz) Nadir Balık *Lobotes surinamensis* (Bloch, 1790)'in Görünüşü: Bazı Önermeler

Öz: "Capo Peloro Lagünü" Doğal Rezervi'nde yürütülen balık faunası izleme çalışmaları kapsamında, nadir görülen bir sıcak su balığı türü olan *Lobotes surinamensis*'in (Bloch, 1790) juvenil bir bireyi, vatandaş bilimi iş birliğine dayalı gözlemler sayesinde tespit edilmiştir. Bu, Messina Boğazı bölgesinden bildirilen ilk kayıttır. Bu bulgu oldukça önemlidir, çünkü boğaz, daha sıcak olan Tiren ve İyon denizleri arasında iklimsel bir soğuk bariyer görevi görmekte ve termofilik türlerin kuzeye doğru yayılımını düzenlemede kilit bir rol oynamaktadır. Ayrıca, bu kayıt Capo Peloro Lagünü'nün bir kuluçka ve sığınma alanı olarak önemini vurgularken, aynı zamanda hem egzotik hem de yerli termofilik türlerin yayılımında potansiyel bir sıçrama noktası işlevi gördüğünü ortaya koymaktadır.

Introduction

Among marine thermophilic fish species, the Atlantic tripletail, *Lobotes surinamensis* (Bloch, 1790), is one of the most widely distributed species, occurring in tropical and subtropical waters worldwide (Riede, 2004). As a euryhaline species, it occurs both in estuarine and marine environments, including open sea, but preferentially in shallow waters (Myers, 1999; Kuiter e Tonozuka, 2001). Despite its broad distribution and wide habitat range, records of *L. surinamensis* are infrequent, and therefore it is considered a rare species in some countries, and "first records" are often highlighted (Wirtz et al., 2013; Parmar et al., 2023). Moreover, due to the low number of catches, its ecology is poorly known, including its native range (Ushakow et al., 2024). In the eastern Atlantic, the south-west coast of the Iberian Peninsula is considered the northerly limit of this thermophilic species, but rare records have been reported from higher latitudes, such as in the Bay of Biscay (Iglésias et al., 2020) and Bristol Channel (Ellis et al., 2024. Such occurrences, which are consistent with the known periodic northern shift of warm-water pelagic assemblages (Beaugrand, 2009) as well as with trans-Atlantic "rafting" of Caribbean organisms (Holmes et al., 2015; Garzia et al., 2022), have probably increased their frequency as a result of global warming. The areal expansion driven by climatic factors has been particularly evident in the Mediterranean Sea, (Bilge et al., 2017), where *L. surinamensis* was first reported in Palermo, by Doderlein (1875), who considered this species indigenous to the Western Atlantic, This contrasts with the recent opinion of Guidetti (2020) who considers the Mediterranean as "part of the native range of the tripletail". Another earlier report from the Mediterranean Sea was from the Island of Rhodes (Tortonese, 1946), providing evidence for the long-standing occurrence of

*Corresponding author: mcavallaro@unime.it

How to cite this article: Cavallaro, M., De Matteo, S., & Giacobbe, S. (2025). Occurrence of the rare fish *Lobotes surinamensis* (Bloch, 1790) in the Capo Peloro Lagoon (Central Mediterranean Sea): some implications. COMU J. Mar. Sci. Fish, 8 (1): 121-126. doi:10.46384/jmsf.1623071

this thermophilic species in the Eastern basin. The northward spreading of this species in Mediterranean was particularly evident in the Adriatic (Dulčić & Dragičević, 2011; Dulčić et al., 2014a, 2014b) where it reached the maximum possible limit range in the Gulf of Trieste (Bettoso et al., 2016), before descending down along the Italian coasts (Tiralongo, 2018; Licchelli & Denitto, 2020). Such trend, which agrees with recently proposed models of non-indigenous fish species (Perzia et al., 2022), has been related to the Adriatic ingressions phenomenon (Pallaoro, 1988), and more recently to the Adriatic-Ionian Bimodal Oscillating System (BiOS) (Civitarese et al., 2010), with a possible role of anticyclonic circulation of North Ionian gyre in determine the spreading of *L. surinamensis* in all Adriatic Sea (Dulčić et al., 2014a). Similarly, the presence of an adult specimen from France (Guidetti, 2020) represented the northernmost possible record in the North-western Mediterranean Sea. Ergüden et al. (2020), reporting the record of five specimens, four of which were juveniles, agree with Bilge et al. (2017) in considering *L. surinamensis* as common in Eastern and Southern Mediterranean, although based on sporadic reports, as the above cited Tortonese (1946) or, more recently, (Akyol & Kara, 2012; Artüz & Fricke, 2019). We rather agree with Minasidis et al. (2020) which suggested an increasing occurrence of this species in the region. In our opinion, both areal expansion and increasing frequency need to be considered, as early suggested by Deidun et al. (2010) for Maltes coastal waters and proved by some evidence of stable populations of *L. surinamensis* in south Tyrrhenian and, maybe, in Ionian waters (Tiralongo et al., 2018), with the occasional report of a single specimen from the Strait of Messina (Montesanto et al., 2022). In such a contest, the Strait of Messina is not a simple connection between such two basins, as representing a peculiar "micro-sector" (marine biogeographical Sector 4 for the Italian Fauna) with a proper complex ecology (Bianchi et al., 2012; Giacobbe & Oliverio, 2024).

Due to above described reasons, the record of a young *L. surinamensis* specimen in the Strait of Messina, namely in the Capo Peloro Lagoon, described here, is a remarkable update on the current spreading of this rare species in the Mediterranean Sea.

Material and Methods

In the framework of a national program aimed to implicate a Driving Forces-Pressure-State-Impact-Response (DPSIR) model to Sicily transitional areas, the monitoring of local ichthyofauna has been carried out in the Capo Peloro Lagoon since March 2022 (Gatì et al., 2024). Standard visual census techniques were employed, coupled with a citizen science approach.

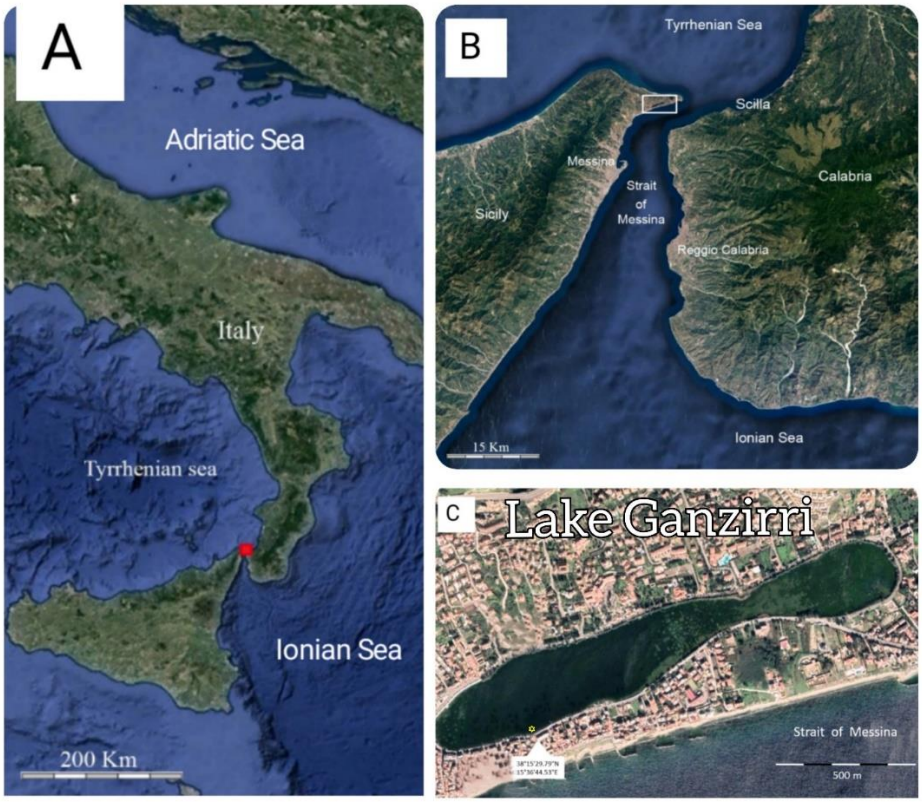

Figure 1. Locations of the occurrences of juvenile specimens of *Lobotes surinamensis* in Ganzirri Lake. The yellow asterisk indicates the point of observation.

The lagoon, belonging to the Strait of Messina ecosystem (Fig. 1), is subject to various protection regimes, in the framework of the Natura 2000 network (cod. ITA 030008). It includes two connected but differently featured basins, i.e., Lake Faro, known for its notable depth and a peculiar meromictic regime (Leonardi et al., 2009), and the markedly brackish Lake Ganzirri (Azzaro et al., 2005). On September 22th, 2024, in the morning, during an excursion along Lake Ganzirri, Mrs. Lucrezia Pietramala had the opportunity to observe a sepecimen of *L. surinamensis* in a clam farming area (38°15'29" N; 15°36'38"E).

Results and Discussion

L. surinamensis is a fish characterized by a bright yellowish color, and unusual behavior. The specimen floating on its side, near a piling, made short dives along the artefact, re-emerging at regular intervals and resuming its position lying on a body side. During the observations, some photos taken with a smartphone were subsequently brought to our attention. The photos, despite the distance of the subject from the lake shore and the turbidity of the lake water, clearly showed a juvenile specimen of *L. surinamensis*, being in accordance with the main morphological features and chromatic pattern described in Heemstra et al. (1986) and Tortonese (1990). The specimen, whose length was estimated to be almost 20 cm, was not captured due to the restrictions imposed by the protection regime of the Capo Peloro Natural Reserve and was no longer observable in the afternoon hours (Fig. 2).

The increasing northward records of *L. surinamensis* throughout the Mediterranean Sea, together with reportedly stable populations in both the Tyrrhenian and Ionian waters of Sicily (Tiralongo et al., 2018, might misleadingly suggest that the presence of this species in the Strait of Messina is a foregone conclusion.

Although since the 20th century the northern shift of the main biogeographic divide, defined by the 15 °C sea-surface February isotherm- has shifted from the north Ionian Sea to the south Tyrrhenian (Bianchi et. al., 2012), the upwelling-related cold waters of the Messina Strait maintain their role as a thermal barrier between the two basins (Azzaro et al., 2004). This means that warm water species can reach this stretch of the sea throughout the Mediterranean surface circulation, but their settlement and northward area expansion are significantly hampered. In this respect, the exceptionally high surface water temperatures recorded in the years 2023 and 2024 in the Strait of Messina (https://arpa.sicilia.it) may have a facilitating role. The record of a specimen in September, further supports previous findings of De Pirro et al. (1997) and Zava et al. (2007) who indicated that all reported captures of *L. surinamensis* in Italian waters have occured in Autumn.

The curious habit of *L. surinamensis*, characterizd by staying on the sea surface, lying on one side, often near floating objects, suggests a preferential association with rafting communities (Thiel & Gutow, 2005), where sessile organisms provide a food resource (Franks et al., 2003) and offer opportunities for ambushing fast swimming prey such as Carangidae (Massuti & Renones, 1996; Zava et al., 2007; Tiralongo et al., 2018). Such behavior, although also observed in bentho-pelagic adults, is peculiar to the epipelagic juveniles, , mimicking a floating leaf that acts as a camouflage against predators (Franks et al., 2003). Moreover, while *L. surinamensis* larvae exclusively occur offshore in the Atlantic , adults and juveniles inhabit estuaries, where they combine wind-driven passive movements with active selection of polyhaline habitats (Ushakow et al., 2024): Such a pattern adequately explains the modality of adult and juvenile records in the Mediterranean, and their prevalent occurrence in transitional environments (Bettoso et al., 2016).All these considerations give to the occurrence of *L. surinamensis* in Lake Ganzirri a precise meaning.

Figure 2. The juvenile *Lobotes surinamensis* specimen recorded.

This record, in fact, increases the number of juveniles found in the Mediterranean, strengthening the hypothesis of effective reproduction in and suggesting that larvae might occur in areas close to Tyrrhenian and Ionian seas, where stable populations have been identified (Tiralongo et al., 2018). From such breeding areas (most probably from the Ionian Sea), juveniles can enter the Peloro Lagoon, both passively and actively, as reported for other non-native pelagic fishes (Karachle et al., 2016). The lagoon, being the only brackish habitat within some hundred kilometers of the coast, might represent an available nursery area for this species and a refuge

considering the proximity of colder marine waters. Moreover, a resident population in the lagoon, being interposed between the north-western and south-eastern Mediterranean basins, could favor genetic fluxes between the respective *L. surinamensis* stocks.

Lastly, according to the opinion of Minasidis et al. (2020 and all references within), that the increasing occurrences of *L. surinamensis* in the Mediterranean may have been influenced by the increasing number of citizen science projects and the use of social media. In this context we emphasize that the present record resulted from the report of a collaborative citizen.

The present report of a juvenile *L. surinamensis* in the Capo Peloro Lagoon not only covers a Mediterranean biogeographic sector, i.e., the Strait of Messina, that is not yet reported for the occurrence of this species, but also involves some important implications. The Strait of Messina, in fact, directly connects the western and eastern Mediterranean basins, as acts as a climatic barrier, playing a key role in regulating the northward spreading of thermophilic species. In this context, the Capo Peloro brackish system plays a significant role as both a nursery and refuge area. This is particularly important for euryhaline species, especially those whose life cycles span both marine and brackish environments. In this regard, the potential confirmation of *L. surinamensis* settling in the lagoon could serve as a valuable case study, highlighting the need to monitor the Capo Peloro system as a possible steppingstone in the spread of both exotic and native thermophilic species.

Acknowledgments

The authors are grateful to Mrs. Lucrezia Pietramala, whose observations make possible the present report. A special acknowledgement is due to dr. Maria Molino (director of the oriented reserve of Cape Peloro, Metropolitan city of Messina) for permission and facilities during the DPSIR project.

Conflict of Interest

There is no conflict of interest in this study.

Author Contributions

The authors contributed equally to the drafting of this paper.

Ethics Approval

No ethics committee approval is required for this study.

References

Akyol, O., & Kara, A. (2012). Record of the Atlantic tripletail, *Lobotes surinamensis* (Bloch, 1790) in the Bay of Izmir, northern Aegean Sea. *Journal of Applied Ichthyology*, *28*, 645-646.

Artüz, M. L., & Fricke, R. (2019). The marine teleost fishes of the Sea of Marmara; an updated and annotated checklist. *Zootaxa*, *4565*(4), 545-565.

Azzaro, F., Decembrini, F., & Raffa, F. (2004). Hydrobiologic observations in syzygy in a latitudinal section in the Messina Straits. *Rapports CIESM, 37*, 483.

Azzaro, F., Azzaro, M., Bergamasco, A., & Giacobbe, S. (2005). Coastal System of Sicily and Sardinia. In *Nutrient fluxes in transitional zones of the Italian coast* (pp. 80-84). LOICZ.

Beaugrand, G. (2009). Decadal changes in climate and ecosystems in the North Atlantic Ocean and adjacent seas. *Deep Sea Research Part II: Topical Studies in Oceanography*, *56*(8-10), 656-673.

Bettoso, N., Comisso, G., & Kruzic, P. (2016). First record of the tripletail *Lobotes surinamensis* (pisces: lobotidae) in the Lagoon of Marano and Grado (Gulf of Trieste, northern Adriatic Sea) *Annales: Series Historia Naturalis*, *26*, 209.

Bianchi, C. N., Morri, C., Chiantore, M., Montefalcone, M., Parravicini, V. & Rovere, A. (2012). Mediterranean Sea biodiversity between the legacy from the past and a future of change. In N. Stambler, (Eds.) *Life in the Mediterranean Sea: a look at habitat changes* (pp. 1-55).

Bilge, G., Filiz, H., & Gülsahin, A. (2017). Occurrence of *Lobotes surinamensis* (Osteichthyes: Lobotidae) in the Mediterranean: historical and recent data. *Zoology in the Middle East*, *63*, 43–47.

Civitarese, G., Gačić, M., Lipizer, M., & Eusebi Borzelli, G. L. (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*(12), 3987-3997.

Deidun, A., Vella, P. J., Sciberras, A., & Sammut, R. (2010). New records of *Lobotes surinamensis* (Bloch, 1790) in Maltese coastal waters. *Aquatic Invasions*, *5*(1), 113-116. doi: 10.3391/ai.2010.5.S1.023

De Pirro, M., Tosi, G., Vanni, S. (1997). Terza cattura nei mari italiani di *Lobotes surinamensis* (Bloch, 1790) (Actinopterygii, Perciformes, Lobotidae). *Atti della Società Toscana di Scienze Naturali, Memorie, Serie B, 103*(1996), 113-114.

Doderlein, P. (1875). Descrizione di una species del genere esotico *Lobotes* preso nell acque dei Contorno Palermo. *Atti della Accademia di Scienze di Palermo*, *5*, 1-12.

Dulčić, J., & Dragičević, B. (2011). First record of the Atlantic tripletail, *Lobotes surinamensis* (Bloch, 1790), in the Adriatic Sea. *Journal of Applied Ichthyology, 27*(6), 1385 – 1386.

Dulčić, J., Dragičević, B., Antolović, N., Sulić-Šprem, J., Kolĺul, V., & Grgičević, R. (2014a). Additional

records of *Lobotes surinamensis*, *Caranx crysos*, *Enchelycore anatina*, and *Lagocephalus sceleratus* (Actinopterygii) in the Adriatic Sea. *Acta Ichthyologica et Piscatoria, 44*, 71-74.

Dulčić, J., Dragičević, B., Lipej, L., & Štifanić, M. (2014b). Range extension of tripletail *Lobotes surinamensi*s (Lobotidae) in the Adriatic Sea. A northernmost record in the Mediterranean. *Cybium, 38*(2), 153-154.

Ellis, J. R., Rumney, P., & Cogan, S. (2024). Occurrence of tripletail *Lobotes surinamensis* (Bloch, 1790) in the inner Bristol Channel, UK. *Journal of Fish Biology, 104*(4), 1251-1254.

Ergüden, D., Ayas, D., Ergüden, S. A. (2020). Visual records of *Lobotes surinamensis* (Bloch, 1790) in the North-eastern Mediterranean, Turkey. *Journal of Marine Sciences and Fisheries, 3*(2), 140 – 145.

Franks, J. S., VanderKooy, K. E., & Garber, N. M. (2003). Diet of Tripletail, *Lobotes surinamensis*, from Mississippi coastal waters. *Gulf and Caribbean Research, 15*(1), 27-32.

Garzia, M., Furfaro, G., Renda, W., Rosati, A. M., Mariottini, P., Giacobbe, S. (2022). Mediterranean spreading of the bicolor purse oyster, *Isognomon bicolor*, and the chicken trigger, *Malleus* sp., vs. the Lessepsian prejudice. *Mediterranean Marine Science, 23*(4), 777-788.

Gatì, I., D'Alessandro, M., Giacobbe, S., Esposito, V. (2024). DPSIR (Driving forces-pressures-State-Impact_Response) model applied to two Sicilian transitional areas to a better management. *Biologia Marina Mediterranea, 28*(1), 152-155.

Giacobbe, S., Oliverio, M. (2024). The conventional limits of the marine biogeographical Sector 4, for the new Checklist of the Italian Fauna. *Biogeographia–The Journal of Integrative Biogeography*, *39*(2).

Guidetti, P. (2020). First record of the tripletail, *Lobotes surinamensis* (Bloch, 1790) along the French Mediterranean coast. In: V. Gerovasileiou, O. Akyol, Z. Al-Hosne, R. A. Rasheed, E. Atac, G. Bello, & B. Zava. *New records of rare species in the Mediterranean Sea (May 2020). Mediterranean Marine Science* (pp. 340-359).

Heemstra, P.C. (1986). Lobotidae. In M. M. Smith, & P. C. Heemstra (Eds.), Smiths' Sea Fishes *Springer-Verlag, Berlin* (pp. 621-622)

Holmes, A. M., Oliver, P. G., Trewhella, S., Hill, R., Quigley, D. T. G. (2015). Trans-Atlantic rafting of inshore mollusca on macro-litter: American molluscs on British and Irish shores, new records. *Journal of Conchology, 42* (1), 1-11.

Iglésias, S. P., Bergot, P., Breton, P., Brunelle, S., Camusat, M., Causse, R., & Thomas, W. (2020). French ichthyological records for 2018. *Cybium*, *44*(4), 285-307.

Karachle, P. K., Angelidis, A., Apostolopoulos, G., Ayas, D., Ballesteros, M., Bonnici, C., & Zenetos, A. (2016). *New Mediterranean biodiversity records (march 2016). Mediterranean Marine Science* (pp 230-252).

Kuiter, R.H. & Tonozuka,T. (2001). Pictorial Guide to Indonesian Reef Fishes. *Part 1 Eels-Snappers, Muraenidae-Lutjanidae. Zoonetics, Australia*

Leonardi, M., Azzaro, F., Azzaro, M., Caruso, G., Mancuso, M., Monticelli, L. S., Maimone, G., La Ferla, R., Raffa, F., Zaccone, R. (2009). A multidisciplinary study of the Cape Peloro brackish area (Messina, Italy): characterisation of trophic conditions, microbial abundances and activities. *Marine Ecology 30*(S1).

Licchelli, C, & Denitto, F. (2020) On a new occurrence of *Lagocephalus sceleratus* (Gmelin, 1789) in Northern Ionian waters (Apulia Region, Italy). *Mediterranean Marine Science, 21*(3).

Myers, R. F. (1999). Micronesian reef fishes: a comprehensive guide to the coral reef fishes of Micronesia. *3rd revised and, expanded edn. Coral Graphics, Barrigada, Guam*. (p 330).

Massuti, E., & Renones, O. (1996). Observations on the pelagic fish community around floating objects in the open sea off Mallorca. *Oceanographic Literature Review, 8*(43), 829.

Minasidis, V., Doumpas, N., Kleitou, P., Spryridopoulou, R. N. A., Papadamakis, P., & Giovos, I. (2020). Additional records of tripletail *Lobotes surinamensis* (Bloch, 1790), from the Eastern Mediterranean. *Thalassas: An International Journal of Marine Sciences, 36*(2), 557-563.

Montesanto, F., Albano, M., Ayas, D., Betti, F., Capillo, G., Çinar, M. E., Corsini-Foka, M., Crocetta, F., Dağli, E., D'iglio, C., Digenis, M., Dragičević, B., Famulari, S., Ergüden, D., Giova, A., Giussani, V., Hoffman, R., Isajlović, I., Lipej, L., López-Esclapez, R., Mastrototaro, F., Moreni, A., Orenes-Salazar, V., Panayotis Ovalis, P. O., Plaiti, W., Pujol, J. A., Rabaoui, L., Rallis, I., Rogelja, M., Savoca, S., Skouradakis, G., Tiralongo, F., Toma, M., Trkov, D., Ubero-Pascal, N., Yacoubi, L., Yalgin, F., Yapici, S., & Zamuda, L. L. (2022). New records of rare species in the Mediterranean Sea (December 2022). *Mediterranean Marine Science*, *23*(4), 968–994. https://doi.org/10.12681/mms.32369.

Pallaoro, A. (1988). About occurrences of some rare fishes and Adriatic ingression in 1986/87 in the middle Adriatic. *Morsko ribarstvo, 3*, 82-87.

Parmar, J., Borichangar, R., Kardani, H., & Vyas, U. (2023). First record of a rare species atlantic triple tail, *Lobotes surinamensis* (Bloch, 1790) from the northwest coast of India. *Biological Forum – An International Journal*, *16*(3), 237-242.

Perzia, P., Spinelli, A., Interdonato, F., & Castriota, L. (2022). Ecological indicators from spatial statistics to

describe the Atlantic fangtooth moray distribution in the Mediterranean Sea. *Transactions in GIS*, *26*(7), 2802-2817.

Riede, K. (2004). Global register of migratory species - from global to regional scales. *Final Report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany*, 329.

Thiel, M., & Gutow, L. (2005). The ecology of rafting in the marine environment. II. The rafting organisms and community. *Oceanography and Marine Biology*, *43*, 279-418.

Tiralongo, F., Messina, G., Coco, S., & Lombardo, B. M. (2018). On the presence of a well-established population of *Lobotes surinamensis* (Bloch, 1790) in the central Mediterranean Sea. *Annales: Series Historia Naturalis*, *28*(1), 31-36.

Tortonese, E. (1948). Ricerche zoologiche nell'isola di Rodi (Mar Egeo). Pesci. *Bollettino di Pesca, Piscicoltura e Idrobiologia*, *23*, 143–192.

Tortonese, E. (1990). Lobotidae. In J. C. Quero, J. C. Hureau, C. Karrer, A. Post & L. Saldanha (Eds.), *Check-list of the fishes of the eastern tropical Atlantic (CLOFETA). JNICT, Lisbon; SEI, Paris; and UNESCO, Paris* (pp. 780).

Ushakow, D., Briell, E., Olsen, Z., Anderson, J., & Hartman, L. (2024). Estuarine residency and habitat preferences of Atlantic Tripletail in the northwestern Gulf of Mexico. *Marine and Coastal Fisheries*, 16(3), 10298.

Wirtz, P., Brito, A., Falcon, J. M., Freitas, R., Fricke, R., Monteiro, V., & Tariche, O. (2013). The coastal fishes of the Cape Verde Islands–new records and an annotated check-list. *Spixiana, 36*(1), 113-142.

Zava, B., Gianguzza, P., & Riggio, S. (2007). Nuova cattura di *Lobotes surinamensis* (Bloch, 1790) in Tirreno Meridionale (Osteichthyes: Lobotidae). *Biologia Marina. Mediterranea, 14*(2), 370-371.