ISSN: 0001-5113 AADRAY	ACTA ADRIAT., 61 (2): 223 - 230, 2020	SHORT COMMUNICATION

An additional record of the non-indigenous species (NIS) *Seriola fasciata* from the southern coast of Sicily (Central Mediterranean Sea)

Michele Luca GERACI[1,2], Fabio FALSONE[2], Danilo SCANNELLA[2] and Sergio VITALE[2]

[1]Department of Biological, Geological and Environmental Sciences (BiGeA) – Marine biology and fisheries laboratory of Fano (PU), University of Bologna (BO)

[2]Institute for Biological Resources and Marine Biotechnology (IRBIM), National Research Council – CNR, Mazara del Vallo (Tp), Italy

Corresponding author, e-mail: fabio.falsone@irbim.cnr.it

An additional record of the non-indigenous species (NIS) Seriola fasciata from the southern coast of Sicily (Central Mediterranean Sea) is here described in this note.

The catch record is the first in the area and confirms the key role of the area for NIS spreading. In addition, an updated map of its spatial distribution is provided as well as a discussion on the possible misidentification and competition with the native greater amberjack Seriola dumerili.

Key words: Herculean species, non-indigenous species, biodiversity, spatial distribution, Strait of Sicily

INTRODUCTION

The biodiversity of the Mediterranean Sea has changed considerably over the past two decades, mainly due to the increasing occurrence of non-indigenous species (NIS) introduced both naturally (i.e. via Suez Canal and the Strait of Gibraltar) and due to anthropic activities, such as marine shipping (ballast waters, fouling) and aquaculture (GALIL *et al.,* 2017). NIS are classified as lessepsian species, if migrate from the Red Sea to the eastern Mediterranean Sea across the Suez Canal, or herculean, if a species naturally via Strait of Gibraltar (GOULLETQUER *et al.,* 2014; LOCKWOOD *et al.,* 2013). Fishes are an important component of NIS and among them the majority are lessepsian species (DEIDUN *et al.,* 2015).

The most successful lessepsian fish species are *Fistularia commersonii* (Rüppell, 1838) (AZZURRO *et al.,* 2013; VITALE *et al.,* 2016); *Lagocephalus scleratus* (Linnaeus, 1758) (AZZURRO *et al.,* 2014; KARA *et al.,* 2015); *Pterois miles* (J. W. Bennett, 1828) (VAVASIS *et al.*, 2020); *Siganus luridus* (Rüppell, 1828) (AZZURRO & ANDALORO, 2004); *Stephanolepis diaspros* (Fraser-Brunner, 1940) (DEIDUN *et al.,* 2015) and *Upeneus pori* (Ben-Tuvia & Golani, 1989) (DEIDUN *et al.,* 2018; GERACI *et al.,* 2018). Although herculean species represent the minority of NIS their settlement effects on Mediterranean marine communities are not to be neglected, especially if they compete with other species particularly important to the local economies. The Lesser Amberjack *Seriola fasciata* (Bloch, 1973) is a herculean species, widespread across the Atlantic Ocean that may compete with the native greater amber-

jack *Seriola dumerili* (Risso, 1810). In the Mediterranean Sea, it was recorded for the first time in Balearic Island (MASSUTI & STEFANESCU, 1993) and then has spread rapidly eastward up to Israel, Lebanon, Syrian and waters (SONIN *et al.,* 2009; CROCETTA *et al.*, 2015; JAWAD *et al.,* 2015). The rapid natural expansion of the species via Strait of Gibraltar would be supported by an increase in water flux through the strait and hydroclimate modifications, such as temperature increase, which would favour the settlement of species of subtropical and tropical affinity (ANDALORO & RINALDI, 1998; QUIGNARD & TOMASINI, 2000). The present note concerns the first record of *S. fasciata* in the southern coast of Sicily and provides an update of its spatial distribution.

MATERIAL AND METHODS

In November 2016, off the southern coast of Sicily (Terrible Bank: approximate coordinates 37.15000° N, 12.88333° E), one specimen of *S. fasciata* was caught using trammel net at about 50 m depth. It was identified according to the morphological description and meristic given by FISCHER et al. (1981) and GOLANI et al. (2002). In addition, the meristic and morphometric characteristics of the specimen were compared with other Mediterranean records (ANDALORO *et al.*, 2005; JAWAD *et al.*, 2015; STAMOULI *et al.*, 2017; DOĞDU *et al.*, 2019). In particular, only for ANDALORO *et al.* (2005) the morphometric features of nine specimens were provided as mean values. All measurements were performed through ImageJ software (RUEDEN *et al.*, 2017) to the nearest 0.5 cm while sex was determined macroscopically. Then, maturity stage was determined through Medits (International bottom trawl in the Mediterranean) scale (Anon., 2017). Map of the *S. fasciata* first records in the Mediterranean was made by means Quantum GIS software in order to update its spatial distribution.

RESULTS AND DISCUSSION

Specimen was an immature male, measured 20.5 cm TL and weighted 128.8 g. The end of upper jaw relatively narrow, the typical irregular dark body bars and meristic count were in agreement with FISCHER *et al.* (1981) and GOLANI *et al.* (2002) (Fig.1). In addition, as shown in Table 1 by comparing the morphometric and meristic features it was emerged that all values were similar with the other Mediterranean studies which strengthen the correct identification of the species and therefore the presence of *S. fasciata* in Strait of Sicily. The occurrence of *S. fasciata* in the Sicilian waters is not totally unexpected indeed the Strait of Sicily may represents an ecological corridor for NIS from the Atlantic Ocean and the Indo-Pacific Ocean as well (SCANNELLA *et al.,* 2017; SERVELLO *et al.* 2019, GERACI *et al.*, 2019; FALSONE *et al.*, 2020). Around Sicily waters, the catch of juveniles of *S. fasciata* with trammel net represents an anomaly considering that it was caught mainly caught by purse seine fishing the common dolphinfish (*Coryphaena hippurus*) with fish aggregating devices (FADs) (ANDALORO *et al.,* 2005; TIRALONGO *et al.,* 2018) (Fig. 2).

Fig. 1. Specimen of Seriola fasciata *caught off the southern coast of Sicily*

Concerning spatial distribution, in the Strait of Sicily *S. fasciata* was never reported in the southern coast of Sicily. Previously it has been reported both in Lampedusa (ANDALORO *et al.,* 2005) and Malta islands (DEIDUN *et al.,* 2011) while the closest finding to the present record was in Egadi Islands (LIPEJ *et al.*, 2017) (Fig. 2). Despite GOLANI *et al.* (2002) stated that most of the Atlantic fish are irregular species and unable to create stable populations in their new habitats, *S. fasciata* represents a successful colonizer becoming a commercial species in central Mediterranean Sea (ANDALORO *et al.,* 2005). It is worth to highlight as to date in the Mediterranean, only

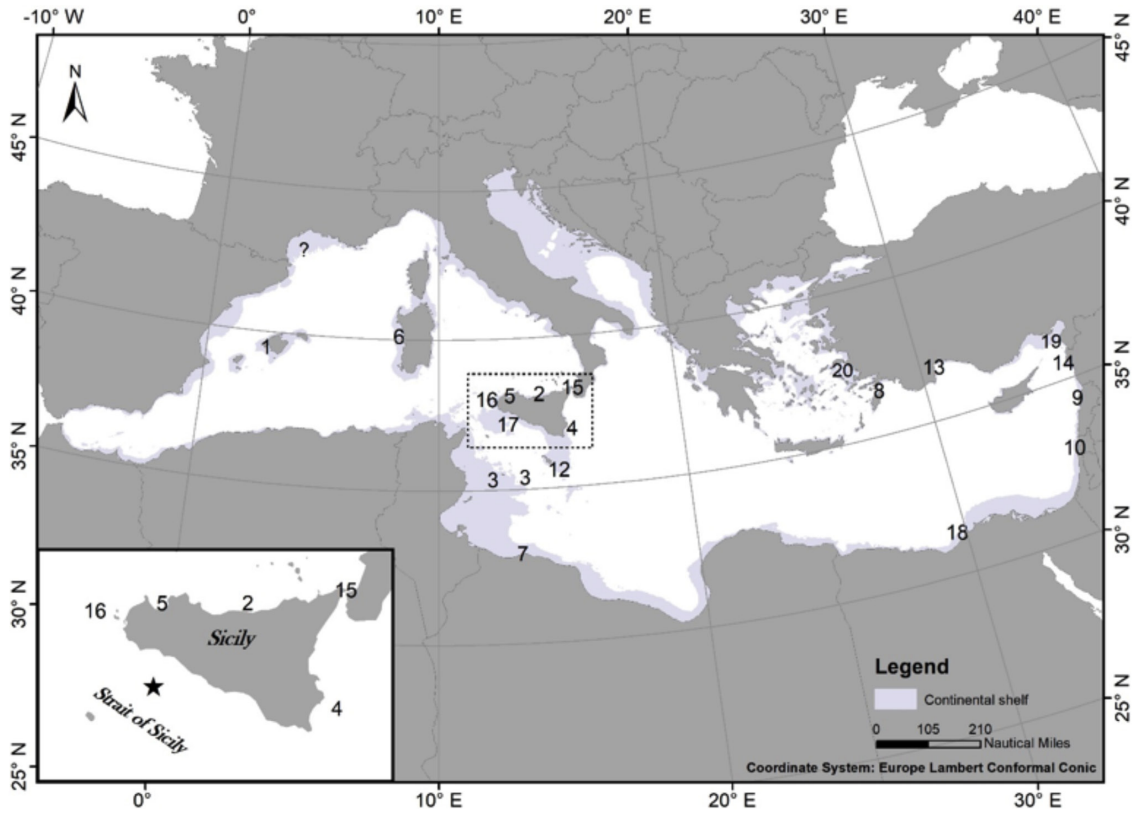

Fig. 2. Updated map showing location of Seriola fasciata *first records in the Mediterranean basin reported according to the catch date. 1: 1989 (Massuti & Stefanescu, 1993); 2, 3, 4, 5, 6: 1994-1995,1997-1998, 2002 (Andaloro et al., 2005); 7: 2003 (Shakman et al., 2017); 8: 2004 (Corsini et al., 2006); 9: 2005 (Crocetta & Bariche, 2015); 10: 2008 (Sonin et al., 2009); 11, 12: 2008-2009 (Deidun et al., 2011); 13: 2012 (*Özvarol *& Gökoğlu, 2014); 14: 2013 (Jawad et al., 2015); 15: 2014 (Castriota & Spinelli, 2016); 16: 2016 (Castriota & Falautano, 2017); 17 (black star): present study; 18: 2017 (Akel and Rizkalla, 2017);19: 2018 (Doğdu et al. 2019); 20: 2018 (Yapici & Filiz, 2020); ?: doubtful record (Quignard, 1996, no published data)*

a record above the 40th parallel, i.e. Gulf of Lion, was reported by QUIGNARD & TOMASINI, (2000) based on unpublished record (QUIGNARD, 1996, no published) (Fig. 2). This spatial pattern may be due to the subtropical and tropical affinity of the species that hampers its spreading toward the highest latitudes where the marine waters result generally colder.

Regarding morphological aspects, it should be noted that due to the similarity between the adults of *S. dumerili* and *S. fasciata,* fishers may confuse the two conspecific carangidae. As matter of fact, the only macroscopic difference of the above mentioned species is the supramaxilla, wide in *S. dumerili* narrow in *S. fasciata* (ISPRA, 2012). So, the presence and abundance of *S. fasciata* in the Mediterranean Sea might be underestimated (TIRALONGO *et al.,* 2018). Indeed, most of the records concern juveniles, which are more easily identifiable than adults. The possible adult misidentification with *S. dumerili* lead to define the *S. fasciata* as cryptogenic questioning if the specie is really a NIS (CROCETTA *et al.*, 2015). Indeed, the term cryptogenic refers to circumtropical species or species with a disjoint distribution, and whose native range is still unknown or its presence may be the result of past introductions not recorded in the literature (CARLTON, 1996). In the light of the above, further investigation will be needed to monitor this species expansion in the southern coast of the Mediterranean sea and better understand its possible competition with the greater amberjack *S. dumerili*.

Table 1. Seriola fasciata *morphometric and meristic characters of the present study (Strait of Sicily) compared with other Mediterranean Sea records*

Morphometric and meristic characters	ANDALORO *et al.*, 2005	JAWAD *et al.*, 2015	STAMOULI *et al.*, 2017	DOĞDU *et al.*, 2019	YAPICI & FILIZ, 2020	Present study
Weight (g)	NA	NA	49	106.2	587.5	128.8
Total length (cm)	27.4	16.9	16	18.3	34.9	20.5
			% Total Length			
Fork length	86.8%	87.6%	87.5%	87.4%	86.24%	88.9%
Standard length	82.8%	83.4%	77.5%	76.5%	75.64%	84.5%
Pre 1st dorsal fin length	26.4%	33.1%	33.1%	34.3%	27.42%	29.0%
1st dorsal fin length	7.7%	8.3%	10.6%	11.5%	8.49%	10.7%
2nd dorsal fin length	37.4%	36.7%	36.2%	37.7%	34.84%	37.8%
Pre second dorsal fin length	NA	42.0%	41.3%	40.7%	27.42%	40.8%
Height of 2nd dorsal fin lobe	13.5%	NA	10.0%	9.7%	NA	10.7%
Pre pectoral length	NA	NA	26.3%	24.3%	NA	24.0%
Pectoral length	12.8%	NA	10.6%	14.4%	NA	15.5%
Pre ventral fin length	NA	NA	26.9%	30.7%	NA	28.5%
Ventral fin length	19.5%	NA	13.8%	19.2%	NA	19.7%
Pre anal fin length	44.8%	NA	53.8%	52.4%	43.98%	55.6%
Anal fin length	21.4%	24.3%	21.9%	23.9%	19.42%	23.8%
Body depth	29.8%	34.3%	25.6%	30.9%	25.27%	32.8%
Body width	NA	NA	10.6%	24.3%	NA	NA
Caudal-peduncle length	8.7%	NA	13.8%	12.1%	NA	10.6%
Caudal peduncle depth	NA	NA	5.0%	3.7%	3.72%	5.6%
Height of anal fin lobe	NA	NA	8.8%	7.3%	NA	8.5%
Head length	24.3%	24.3%	23.8%	24.2%	23.38%	25.5%
			% Head Length			
Pre Orbital length	37.0%	24.4%	31.6%	31.0%	29.28%	28.2%
Post Orbital length	45.0%	48.8%	60.5%	60.5%		47.5%
Eye diameter	22.4%	26.2%	23.7%	23.4%	24.26%	27.2%
Inter Orbital length	NA	NA	22.1%	21.8%	27.94%	NA
1st dorsal fin rays	VIII	VIII	VIII	VIII	VIII	VIII
2nd dorsal fin rays	I, 29	I+28-33	I + 24	I+29	I+31	I+29
Pectoral fin rays	I, 19	I-19	I + 24	I+19	I+19	I + 19
Pelvic fin rays	I, 5	I-5	I + 5	I+5	I+5	I+5
Anal fin rays	II,I+19	II,I+17-20	II, I+19	II,I+19	II+I, 19	II, I+19

ACKNOWLEDGEMENTS

This finding was obtained thanks to the European Data Collection Framework (DCF) - module CampBiol - funded by European Union and the Italian Ministry for Agricultural, Food and Forestry Policies. We are also grateful to Dr. Fabio Fiorentino for many constructive comments and help, which greatly improved the manuscript.

REFERENCES

ANDALORO, F. & A RINALDI. 1998. Fish biodiversity change in Mediterranean Sea as tropicalisation phenomenon indicator. In: G. Enne, M. D'Angelo & C. Zanolla (Editors) Indicators for Assessing Desertification in the Mediterranean. ANPA & Osservatorio Nazionale sulla Desertificazione. pp. 201-206.

ANDALORO F., M. FALAUTANO, M. SINOPOLI, F.M. PASSARELLI, C. PIPITONE, P. ADDIS, A. CAU & L. CASTRIOTA. 2005. The lesser amberjack *Seriola fasciata* (Perciformes: Carangidae) in the Mediterranean: a recent colonist. Cybium, 29: 141-145.

ANONYMOUS. 2017. International bottom trawl survey in the Mediterranean. Instruction manual. Version 9. [MEDITS–handbook. Version n. 9.] MEDITS Working Group. 106 pp.

AZZURRO, E. & F. ANDALORO. 2004. A new settled population of the lessepsian migrant *Siganus luridus* (Pisces: Siganidae) in Linosa Island-Sicily Strait. J. Mar. Biol. Assoc. UK, 84: 819-821. DOI:10.1017/ s0025315404009993h.

AZZURRO, E., S. SOTO, G. GAROFALO & F. MAYNOU. 2013. *Fistularia commersonii* in the Mediterranean Sea: Invasion history and distribution modeling based on presence-only records. Biol. Invasions, 15: 977-990. DOI:10.1007/ s10530-012-0344-4.

AZZURRO, E., L. CASTRIOTA, M. FALAUTANO, F. GIARDINA & F. ANDALORO. 2014. The silver-cheeked toadfish Lagocephalus sceleratus (Gmelin, 1789) reaches Italian waters. J. Appl. Ichthyol., 30(5): 1050–1052. DOI: 10.1111/jai.12471

CORSINI, M., P. MARGIES, G. KONDILATOS & P.E. ECONOMIDIS. 2006. Three new exotic fish records from the SE Aegean Greek waters. Sci. Mar., 70: 319–323. DOI:10.3989/ scimar.2006.70n2319

CARLTON, J.T. 1996. Biological invasions and cryptogenic species. Ecology, 77(6): 1653-1655. DOI:10.2307%2F2265767

CROCETTA, F., D. AGIUS, P. BALISTRERI, M. BARICHE, Y. BAYHAN, M. ÇAKIR, S. CIRIACO, M. CORSINI-FOKA, A. DEIDUN, R. EL ZRELLI, D. ERGÜDEN, J. EVANS, M. GHELIA, M. GIAVASI, P. KLEITOU, G. KONDYLATOS, L. LIPEJ, C. MIFSUD, Y. ÖZVAROL, A. PAGANO, P. PORTELLI, D. POURSANIDIS, L. RABAOUI, P. SCHEMBRI, E. TAŞKIN, F. TIRALONGO & A. ZENETOS. 2015. New Mediterranean Biodiversity Records (October 2015). Med. Mar. Sci., 16(3): 682-702. DOI:10.12681/ mms.1477

DEIDUN, A., L. CASTRIOTA & S. ARRIGO. 2011. A tale of two Atlantic fish migrants: records of the lesser amberjack *Seriola fasciata* and the African hind *Cephalopholis taeniops* from the Maltese Islands. J. Black Sea/Medit. Environ., 17(3): 223-233.

DEIDUN, A., A. FENECH-FARRUGIA, L. CASTRIOTA, M. FALAUTANO, E. AZZURRO & F. ANDALORO. 2015. First record of the silvercheeked toadfish *Lagocephalus sceleratus* (Gmelin, 1789) from Malta. BioInvasions Rec., 4:139-142. DOI:10.3391/ bir.2015.4.2.11.

DEIDUN, A., B. ZAVA, G. INSACCO & M. CORSINI-FOKA. 2018. First record of the Por's goatfish *Upeneus pori* (Actinopterygii, Perciformes, Mullidae) from Italian waters (western Ionian Sea). Acta Ichthyol. et Pisc., 48(1): 93–97. DOI:10.3750/AIEP/02269

DOĞDU, S. A., U. SAKALLI, M. GÜRLEK & C. TURAN. 2019. The first record of the Lesser amberjack Seriola fasciata (Bloch, 1793) in the Çevlik coast of Turkey, Eastern Mediterranean Sea. Biharean Biologist, 13(1): 55-57.

FALSONE, F., D. SCANNELLA, M. L. GERACI, S. VITALE, G: SARDO F. & FIORENTINO. 2020. Further records of Callinectes sapidus (Rathbun, 1896) (Decapoda, Brachyura, Portunidae) in the Strait of Sicily. Marine Biodiversity Records, 13(1): 1-6, https://doi.org/10.1186/

s41200-020-00190-5

FISCHER, W., G. BIANCHI & W.B. SCOTT (Editors) 1981. FAO Species Identification Sheets for Fishery Purposes. Eastern Central Atlantic; Fishing Areas 34 and part of 47. Vol. 1 (in part). Canada Funds-in-Trust: Ottawa. pp. 326.

GALIL, B.S., A. MARCHINI, A. OCCHIPINTI-AMBROGI & H. OJAVEER. 2017. The enlargement of the Suez Canal: Erythraean introductions and management challenges. Manag. Biol. Invasion, 8(2):141-152. DOI:10.3391/mbi.2017.8.2.02

GERACI, M. L., M. DI LORENZO, F. FALSONE, D. SCANNELLA, F. DI MAIO, F. COLLOCA, S. VITALE & F. SERENA. 2019. The occurrence of Norwegian skate, Dipturus nidarosiensis (Elasmobranchii: Rajiformes: Rajidae), in the Strait of Sicily, central Mediterranean. Acta Ichthyol. Piscat. 49 (2): 203–208. DOI: 10.3750/AIEP/02566

GOLANI, D., L. ORSI-RELINI, E. MASSUTI & J.P. QUIGNARD. 2002. CIESM Atlas of exotic species in the Mediterranean. Vol. 1. Fishes. CIESM Publishers: Monaco. 256 pp.

GOULLETQUER, P., P. GROS, G. BOEUF & J. WEBER. 2014. Biodiversity in the marine environment. Springer Science & Business Media: Netherlands. 198 pp.

ISPRA. 2012. Identificazione e distribuzione nei mari italiani di specie non indigene URL: http://www.marinealien.sinanet.isprambiente.it/uploads/Seriola%20fasciata.pdf (accessed 6.1.20).

JAWAD, L., A. MTAWEJ, A. IBRAHIM & M. HASSAN. 2015. First record of the lesser amberjack *Seriola fasciata* (Teleostei: Carangidae) in Syrian coasts. Cah. Biol. Mar., 56(1): 81-84. DOI:10.21411/CBM.A.1337CE3E

KARA, M. H., E. BEN LAMINE, & P. FRANCOUR. 2015. Range expansion of an invasive pufferfish, Lagocephalus sceleratus (Actinopterygii: Tetraodontiformes: Tetraodontidae), to the south-western Mediterranean. Acta Ichthyologica et Piscatoria, 45(1): 103–108. DOI:10.3750/aip2015.45.1.13

KAPIRIS, K., C. APOSTOLIDIS, R. BALDACCONI, N. BAŞUSTA, M. BILECENOGLU, G. BITARBOBORI, D. BOYACI, Y. DIMITRIADIS, M. DJUROVIĆ, J. DULČIĆ, F. URUCAN, V. GEROVASILEIOU, M. GÖKOĞLU, D. KOUTSOUBAS, E. LEFKADITOU, L. LIPEJ, O. MARKOVIĆ, B. MAVRIČ, Y. ÖZVAROL, A. PESIC, V. PETRIKI, O. SIAPATIS, A. SINI, M. TIBULLO & F. TIRALONGO. 2014. New Mediterranean Biodiversity Records (April, 2014). Med. Mar. Sci., 15(1): 198-212. DOI:10.12681/mms.737

KARACHLE, P., A. ANGELIDIS, G. APOSTOLOPOULOS, D. AYAS, M. BALLESTEROS, C. BONNICI, M. BRODERSEN, L. CASTRIOTA, N. CHALARI, J. COTTALORDA, F. CROCETTA, A. DEIDUN, Ž. ĐOĐO, A. DOGRAMMATZI, J. DULČIĆ, F. FIORENTINO, O. GÖNÜLAL, J. HARMELIN, G. INSACCO, D. IZQUIERDO-GÓMEZ, A. IZQUIERDO-MUÑOZ, A. JOKSIMOVIĆ, S. KAVADAS, M. MALAQUIAS, E. MADRENAS, D. MASSI, P. MICARELLI, D. MINCHIN, U. ÖNAL, P. OVALIS, D. POURSANIDIS, A. SIAPATIS, E. SPERONE, A. SPINELLI, C. STAMOULI, F. TIRALONGO, S. TUNÇER, D. YAGLIOGLU, B. ZAVA & A. ZENETOS. 2016. New Mediterranean Biodiversity Records (March 2016). Med. Mar. Sci., 17(1): 230-252. DOI: 10.12681/mms.1684

LOCKWOOD, J.L., M.F. HOOPES, & M.P MARCHETTI. 2013. Invasion ecology: II edition. John Wiley & Sons: United States. 456 pp.

LIPEJ, L., I. ACEVEDO, E. AKEL, A. ANASTASOPOULOU, A. ANGELIDIS, E. AZZURRO, L. CASTRIOTA, M. ÇELIK, L. CILENTI, F. CROCETTA, A. DEIDUN, A. DOGRAMMATZI, M. FALAUTANO, F. FERNÁNDEZ-ÁLVAREZ, R. GENNAIO, G. INSACCO, S. KATSANEVAKIS, J. LANGENECK, B. LOMBARDO, G. MANCINELLI, C. MYTILINEOU, L. PAPA, V. PITACCO, M. PONTES, D. POURSANIDIS, E.PRATO, S. RIZKALLA, P. RODRÍGUEZFLORES, C. STAMOULI, J. TEMPESTI, F. TIRALONGO, S. TIRNETTA, K. TSIRINTANIS, C. TURAN, D. YAGLIOGLU, G. ZAMINOS & B. ZAVA. 2018. "New Mediterranean Biodiversity Records" (March 2017). Mediterranean Marine Science, 18(1), 179-201. DOI: 10.12681/mms.2068

MASSUTI, E. & STEFANESCU C. 1993. First record of *Seriola fasciata* (Bloch, 1793) (Osteichthyes: Carangidae) in the Mediterranean. J. Fish Biol., 42(1): 143-144.

DOI:10.1111/j.1095-8649.1993.tb00312.x

QUIGNARD, J.P. & J.A. TOMASINI. 2000. Mediterranean fish biodiversity. Biol. Mar. Mediterr., 7(3): 1-66.

RUEDEN, C. T., SCHINDELIN, J., HINER, M. C., DEZONIA, B. E., WALTER, A. E., ARENA, E. T., & ELICEIRI, K. W. 2017. ImageJ2: ImageJ for the next generation of scientific image data. BMC Bioinformatics, 18(1). doi:10.1186/s12859-017-1934-z

SCANNELLA, D., F. FALSONE, M.L. GERACI, C. FROGLIA, F. FIORENTINO, G.B. GIUSTO, B. ZAVA, G. INSACCO & F. COLLOCA. 2017. Westward expansion of the Northern brown shrimp *Penaeus aztecus* Ives, 1891 (Crustacea, Penaeidae) in the Mediterranean Sea: First records in the Strait of Sicily. BioInvasion Rec. 6(1): 67-72. DOI:10.3391/bir.2017.6.1.11

SERVELLO, G., F. ANDALORO, E. AZZURRO, L. CASTRIOTA, M. CATRA, A. CHIARORE, F. CROCETTA, M. D'ALESSANDRO, F. DENITTO, C. FROGLIA, C. GRAVILI, M. LANGER, S. LO BRUTTO, F. MASTROTOTARO, A. PETROCELLI, C. PIPITONE, S. PIRAINO, G. RELINI, D. SERIO, N. XENTIDIS & A. ZENETOS. 2019. Marine alien species in Italy: A contribution to the implementation of descriptor D2 of the marine strategy framework directive. Mediterr. Mar. Sci., 0: 1-48. DOI:10.12681/mms.18711

SHAKMAN, E.A., A.B. ABDALHA, F. THALA, A. ALFATURI & M. BARICHE. 2017. First records of seven marine organisms of different origins from Libya (Mediterranean Sea). BioInvasions Rec., 6(4): 377-382. DOI: 10.3391/bir.2017.6.4.13

SONIN, O., P. SALAMEH & D. GOLANI. 2009. First record of the lesser amberjack, *Seriola fasciata* (Actinopterygii: Perciformes: Carangidae), in the Levant. Acta Ichthyol. et Pisc., 39(1): 71-73. DOI:10.3750/aip2009.39.1.15

STAMOULI, C., E.K. AKEL, E. AZZURRO, R. BAKIU, A.A BAS, G. BITAR, Y.Ö. BOYACI, M. CAKALLI, M. CORSINI-FOKA, F. CROCETTA, B. DRAGIČEVIĆ, J. DULČIĆ, F. DURUCAN, R. EL ZRELLI, D. ERGUDEN, H. FILIZ, F. GIARDINA, I. GIOVOS, O. GÖNÜLAL, F. HEMIDA, A KASSAR, G. KONDYLATOS, A. MACALI, E. MANCINI, P. OVALIS, F. PALADINI DE MENDOZ, M. PAVIČIĆ, L. RABAOUI, S.I. RIZKALLA, F. TIRALONGO, C. TURAN, D. VRDOLJAK, S. YAPICI & A. ZENETOS. 2017. New Mediterranean Biodiversity Records. Med. Mar. Sci., 18(3): 534-556. DOI: 10.12681/mms.15823

TIRALONGO, F., D. TIBULLO, G. MESSINA & B.M. LOMBARDO. 2018. New records of two carangid species from the south-east coast of Sicily (Ionian Sea) and considerations about their presence and abundance. Acta Adriat., 59(2): 225-230. DOI:10.32582/aa.59.2.8.

VAVASIS, C., G. SIMOTAS, E. SPINOS, E.KONSTANTINIDIS, S. MINOUDI, A. TRIANTAFYLLIDIS & C. PERDIKARIS. 2019. Occurrence of Pterois miles in the Island of Kefalonia (Greece): the Northernmost Dispersal Record in the Mediterranean Sea. Thalassas: An International Journal of Marine Sciences, 36(1): 171-175. DOI:10.1007/s41208-019-00175-x

VITALE, S., M. ARCULEO, A. VAZ, G.B. GIUSTO, S. GANCITANO & S. RAGONESE. 2016. Otolith-based age and growth of the Lessepsian species *Fistularia commersonii* (Osteichtyes: Fistulariidae) in South of Sicily (Central Mediterranean Sea). It. J. Zool., 83: 490-496. DOI:10.1080/11250003.2016.1223759.

YAPICI, S. & H. FILIZ. 2020. First occurrence of a lesser amberjack *Seriola fasciata* (Bloch, 1793) in the Aegean coasts of Turkey with morphological and molecular identification. Reg. Stud. Mar. Sci. DOI: 10.1016/j.rsma.2020.101494.

Received: 26 August 2019
Accepted:16 October 2020

Dodatni nalaz rasprostranjenosti *Seriola fasciata* (Carangidae) u Sredozemnom moru

Michele Luca GERACI, Fabio FALSONE*, Danilo SCANNELLA i Sergio VITALE

**Kontakt, e-pošta: fabio.falsone@irbim.cnr.it*

SAŽETAK

U ovoj je bilješci opisan dodatni nalaz o vrsti *Seriola fasciata* s južne obale Sicilije (Sredozemno more). Ovaj nalaz je prvi na tom području i potvrđuje ključnu ulogu područja za širenje stranih vrsta (NIS).

Osim toga, prikazana je ažurirana karta prostorne raspodjele vrste *Seriola fasciata*, kao i rasprava o mogućoj pogrešnoj identifikaciji i kompeticiji s vrstom *Seriola dumerili.*

Ključne riječi: Herkulske vrste, *Seriola fasciata*, biološka raznolikost, prostorna rasprostranjenost, Sicilijski tjesnac