

**FIRST RECORD OF A STRANDED SPECIMEN OF THE SHARPTAIL MOLA,
MASTURUS LANCEOLATUS (ACTINOPTERYGII: TETRAODONTIFORMES: MOLIDAE),
 FROM THE CENTRAL COAST OF PERU**

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Abstract. The Molidae are a widely distributed family, but they are rarely encountered and their distribution and abundance have poorly been documented. A stranded specimen of the sharptail mola, *Masturus lanceolatus* (Liénard, 1840), has recently been recorded on a Pacific beach in Peru. We examined, measured and photographed the specimen. It is very likely that the presently reported sharptail mola was originally captured by a Peruvian purse seiner or longliner and later discarded as a useless bycatch.

Keywords: Peru, new record, sunfish, morphology, marine biodiversity

INTRODUCTION

The molas (family Molidae), also known as ocean sunfishes, are widely distributed in tropical and temperate seas. They are large-sized bony fishes, attaining over 2 m in length and approximately 2000 kg in mass (Froese and Pauly 2019), characterized by a highly compressed body, absence of a caudal fin, and a presence of large dorsal and anal fins (Johnson and Britz 2005). The caudal fin is replaced by a broad rudder-like lobe called the clavus.

Despite their strange appearance and unique shape, which stimulated scientific interest since the 16th century (Rondelet 1554), little attention has been paid to ocean sunfishes and their abundance among fisheries. Recently, a growing interest in their taxonomy led to the reinstatement of a senior synonym of *Mola ramsayi* (Giglioli, 1883) (see Sawai et al. 2017) and the description of a new species of *Mola* (see Nyegaard et al. 2017). In parallel, reports of the extent of ocean sunfish bycatch have been given by Nyegaard et al. (2017).

Currently, the Molidae includes five extant species in three genera (Nyegaard et al. 2017): *Masturus* Gill, 1884 (1 species); *Mola* Koelreuter, 1766 (3); and *Ranzania* Nardo, 1840 (1). For a long time, only two of them, *Mola mola* (Linnaeus, 1758) and *Ranzania laevis* (Pennant, 1776) had been recorded from Peru (Chirichigno and

Cornejo 2001), but the third species *Masturus lanceolatus* (Liénard, 1840) has been recently added to the Peruvian ichthyofauna (Mangel et al. 2019). This species was considered almost absent from the eastern Pacific, the only records being from Mexico (Balart et al. 2000), Galápagos Islands (McCosker and Rosenblatt 2010), and northern Chile (Pequeño 1997). Here we present the record of a stranded specimen of this rarely encountered species on the north-central coast of Peru.

MATERIAL AND METHODS

On 5 December 2018, a fisherman from Puerto Morín informed one of us (AMM) that a strange fish had been washed ashore close to Cerro Negro (08°25'56.09"S, 078°55'19.59"W), near Puerto Morín, La Libertad, Peru (Fig. 1).

The stranded individual was photographed and measured on the beach, but due to its large size, isolated location, and the poor state of preservation, the specimen could not be transported and deposited into an ichthyological collection. Measurements of the individual were taken following Nyegaard et al. (2017).

RESULTS

The unique shape of the sharptail mola, *Masturus lanceolatus*, especially the long projection on its clavus,

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allowed recognizing quite easily the species. The images are given in Fig. 2 and the main body measurements in Table 1.

DISCUSSION

Masturus lanceolatus is globally distributed in tropical to subtropical waters (Froese and Pauly 2019), and occur

widely in the western Pacific Ocean (Nyegaard et al. 2018). However, its presence in the north-eastern Pacific has been ignored until recently (Balart et al. 2000), and the fish has only been known from a single specimen caught in the south-eastern Pacific, off Iquique (Chile) on 9 March 1985 (W. Sielfeld, personal communication). It is

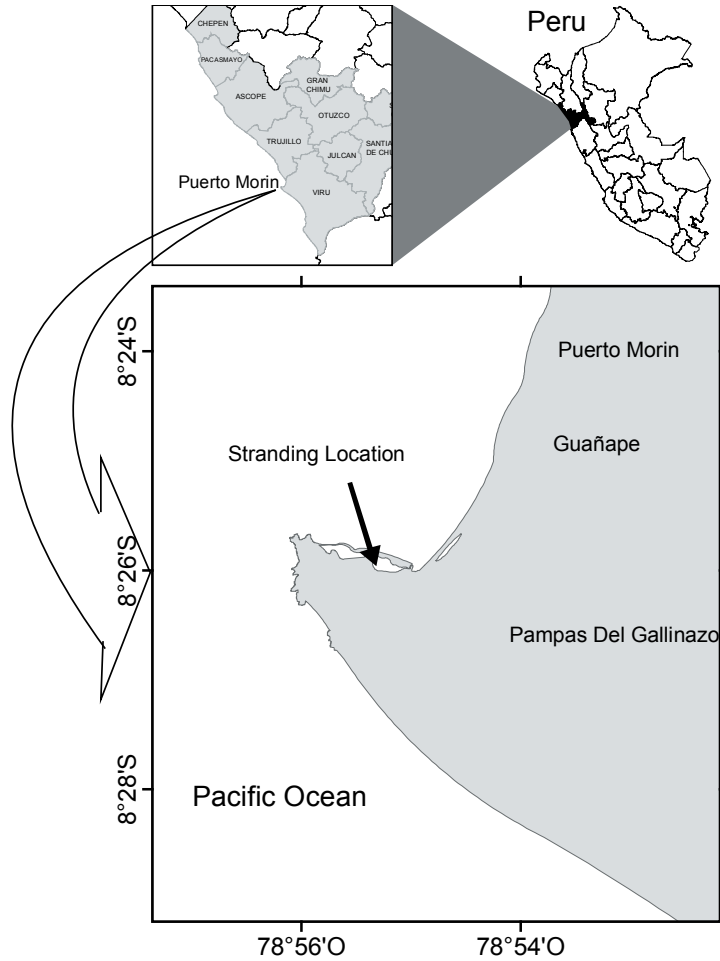


Fig. 1. Location of the stranding of a sharptail mola, *Masturus lanceolatus*, at Cerro Negro, La Libertad, Peru

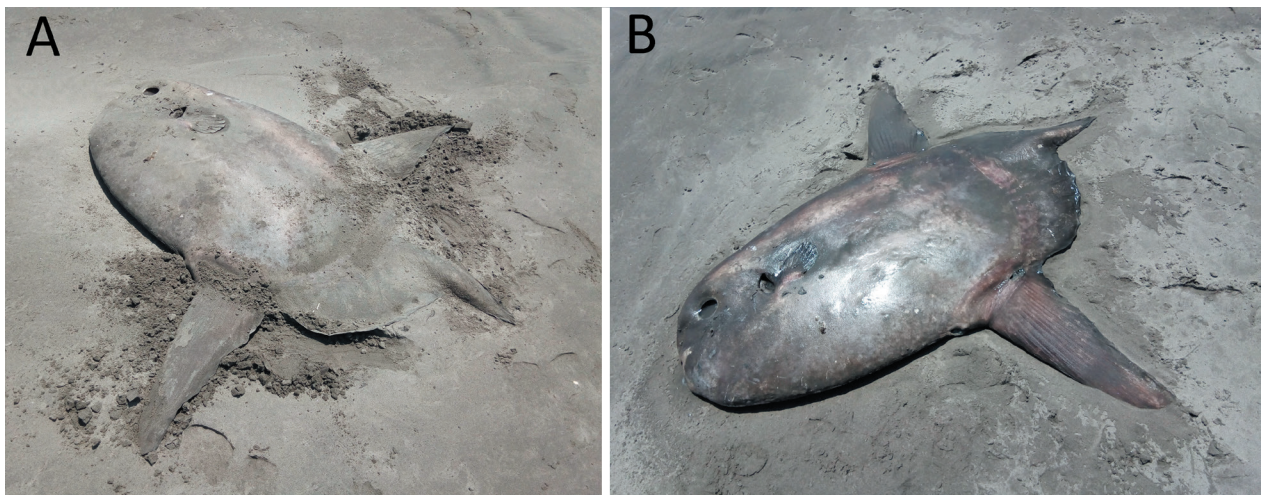


Fig. 2. A sharptail mola, *Masturus lanceolatus*, stranded on the beach at Cerro Negro, La Libertad, Peru; before (A) and after (B) cleaning

Table 1
Morphometric data of a sharptail mola, *Masturus lanceolatus*, individual stranded at Cerro Negro, La Libertad, Peru

Measurement	Value [cm]	Abbreviation
Total length	202	TL
Head depth	46	HD
Snout length	20	SnL
Head length	24	HL
Preanal fin length	114	PAFL
Prepectoral fin depth	74	PPFD
Body depth	86	BD
Total body depth	207	TBD
Pre-clavus band length	144	PCBL

quite surprising that this species has been reported in Peru very only recently.

Accidental entanglement in fishing gear is one of the main threats to molid populations, as species from the family are often reported as bycatch in longlines (e.g., Joung et al. 2005, Nyegaard et al. 2018) and surface gillnet fisheries (Mangel et al. 2019). In Peru, *Mola mola* and *Masturus lanceolatus* have been reported as bycatch in both types of fisheries, which essentially target dolphinfish, *Coryphaena hippurus* Linnaeus, 1758, and different sharks (Alfaro-Shigueto et al. 2010).

Recent data confirm that *M. lanceolatus* might be more common than previously assumed (Nyegaard et al. 2018). Mangel et al. (2019) found *M. lanceolatus* as the second most common ocean sunfish, next to *Mola* spp., in the surveys on Peruvian small-scale pelagic gillnet fishery. They mention that most of the ocean sunfishes are discarded, alive or dead, so the specimen observed at Cerro Negro could well be a result of a discarded bycatch.

Stranding of *M. lanceolatus* has already been observed in Mexico by Balart et al. (2000) on 25 May 1999, soon after the 1997–1998 very strong El Niño event. The specimen from Iquique was caught by an anchovy purse seiner on 9 March 1985, not very long after the 1982–1983 very strong El Niño. The presently reported specimen was found stranded on 5 December 2018, during the weak 2018–2019 El Niño. Hence, the abundance of *M. lanceolatus* in the eastern Pacific could be linked with anomalous oceanographic conditions as the ENSO events. Changes in the distribution of fishes during ENSO events, including *Mola mola*, are well documented (e.g., Sielfeld et al. 2010). It is likely that ENSO has an impact on the molas distribution in Peruvian waters.

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REFERENCES

- Alfaro-Shigueto J., Mangel J.C., Pajuelo M., Dutton P.H., Seminoff J.A., Godley B.J.** 2010. Where small can have a large impact: Structure and characterization of small-scale fisheries in Peru. *Fisheries Research* **106** (1): 8–17. DOI: [10.1016/j.fishres.2010.06.004](https://doi.org/10.1016/j.fishres.2010.06.004)
- Balart E.F., Castro-Aguirre J.L., Amador-Silva E.** 2000. The first eastern Pacific report of the sharptail mola, *Mola lanceolata* (Tetraodontiformes: Molidae). *California Fish and Game* **86** (2): 156–158.
- Chirichigno N., Cornejo R.M.** 2001. Catálogo comentado de los peces marinos del Perú. Instituto del Mar del Perú, Callao, Peru.
- Froese R., Pauly D.** (eds.) 2019. FishBase. [Version 04/2019] www.fishbase.org
- Johnson G.D., Britz R.** 2005. Leis' conundrum: Homology of the clavus of the ocean sunfishes. 2. Ontogeny of the median fins and axial skeleton of *Ranzania laevis* (Teleostei, Tetraodontiformes, Molidae). *Journal of Morphology* **266** (1): 11–21. DOI: [10.1002/jmor.10242](https://doi.org/10.1002/jmor.10242)
- Joung S.-J., Liu K.-M., Liao Y.-Y., Hsu H.-H.** 2005. Observed by-catch of Taiwanese tuna longline fishery in the South Atlantic Ocean. *Journal of the Fisheries Society of Taiwan* **32** (1): 69–77.
- Mangel J.C., Pajuelo M., Pasara-Polack A., Vela G., Segura-Cobeña E., Alfaro-Shigueto J.** 2019. The effect of Peruvian small-scale fisheries on sunfishes (Molidae). *Journal of Fish Biology* **94** (1): 77–85. DOI: [10.1111/jfb.13862](https://doi.org/10.1111/jfb.13862)
- McCosker J.E., Rosenblatt R.H.** 2010. The fishes of the Galápagos Archipelago: An update. Pp. 165–193, figs. 1–16, Appendix. *In*: Ghiselin M.T., Leviton A.E. (eds.) Darwin and the Galápagos. Proceedings of the California Academy of Sciences Ser. 4, 61 (11, Suppl. 2)
- Nyegaard M., Loneragan N., Hall S., Andrew J., Sawai E., Nyegaard M.** 2018. Giant jelly eaters on the line: Species distribution and bycatch of three dominant sunfishes in the southwest Pacific. *Estuarine, Coastal and Shelf Science* **207**: 1–15. DOI: [10.1016/j.ecss.2018.03.017](https://doi.org/10.1016/j.ecss.2018.03.017)
- Nyegaard M., Sawai E., Gemmell N., Gillum J., Loneragan N.R., Yamanoue Y., Stewart A.L.** 2017. Hiding in broad daylight: Molecular and morphological data reveal a new ocean sunfish species (Tetraodontiformes: Molidae) that has eluded recognition. *Zoological Journal of the Linnean Society* **182** (3): 631–658. DOI: [10.1093/zoolin/zlx040](https://doi.org/10.1093/zoolin/zlx040)
- Pequeño G.** 1997. Peces de Chile. Lista sistemática revisada y comentada: addendum. *Revista de Biología Marina y Oceanografía* **32** (2): 77–94.
- Rondelet G.** 1554. Libri de piscibus marinis, in quibus veræ piscium effigies expressæ sunt. M. Bonhomme, Lugdunum (Lyon), France. [In Latin.] DOI: [10.5962/bhl.title.64229](https://doi.org/10.5962/bhl.title.64229)

- Sawai E., Yamanoue Y., Nyegaard M., Sakai Y. 2017. Redescription of the bump-head sunfish *Mola alexandrini* (Ranzani 1839), senior synonym of *Mola ramsayi* (Giglioli 1883), with designation of a neotype for *Mola mola* (Linnaeus 1758) (Tetraodontiformes: Molidae). *Ichthyological Research* **65** (1): 142–160. DOI: [10.1007/s10228-017-0603-6](https://doi.org/10.1007/s10228-017-0603-6)
- Sielfeld W., Laudien J., Vargas M., Villegas M. 2010. El Niño induced changes of the coastal fish fauna off northern Chile and implications for ichthyogeography. *Revista de Biología Marina y Oceanografía* **45** (Suppl. 1): 705–722. DOI: [10.4067/S0718-19572010000400014](https://doi.org/10.4067/S0718-19572010000400014)

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