NOTE

NEW OCCURRENCE OF *Mendosoma lineatum* Guichenot, 1848 IN CENTRAL PATAGONIA, ARGENTINA, WITH COMMENTS ON THE ROCKY REEF COMMUNITY

Mauro Marcinkevicius
Instituto de Desarrollo Costero (IDC), Facultad de Ciencias Naturales,
Universidad Nacional de la Patagonia San Juan Bosco (UNPSJB),
Ciudad Universitaria km 4, 9005 - Comodoro Rivadavia, Argentina
e-mail: msmarcin@gmail.com

ABSTRACT. A new record of *Mendosoma lineatum* has been made in central Patagonian waters. This record is the second mention after one specimen was caught in the north of San Jorge Gulf in 2012. It was proposed that the specimen arrived from the Antarctic Circumpolar Current and this hypothesis is now reinforced with this new record. The number of species that make up the rocky reef community of central Patagonia is also extended here. At present, eight species have been recognized as part of this environment, and in this paper the number is extended to fifteen with seven new species identified.

Key words: Telescope fish, Latridae, Argentine Patagonia, rocky reef fishes.

The Subantarctic Zone (SAZ) is the region delimited by the Subtropical Front to the north and the Subantarctic Front to the south (SAF). Strongly influenced by the cold water coming from the southern oceans, SAZ has a circumpolar distribution in the Southern Hemisphere with its northern limits in the Atlantic Ocean. The Malvinas Current originates in the SAF in the Drake Passage and flows northward over the Argentine continental slope (Knox 2007; Herraiz-Borreguero and Rintoul 2011; Artana et al. 2018). Coastal reef fish fauna appears to have a similar composition along the circumpolar distribution of SAZ. One characteristic is the low number of species and abundance with nototheniids making up an essential part of the fish community and other groups making regional differences (Kingsford et al. 1989). For example, in the Auckland Islands three out of twelve species were nototheniids, in Navarino Island nine out of eighteen species were nototheniids, and in Beagle Chanel this proportion is seven out of eighteen. However, in the islands of Tristan da Cunha and Gough no nototheniids were registered (Moreno and Jara 1984; Kingsford et al. 1989; Andrew et al. 1995), but other species groups are common to these sites, such as the families Latridae, Bovichthidae, Moridae and Sebastidae.

In the northern part of Argentine Patagonia, the rocky reef fish community is dominated by warm-temperate fauna with twenty-one families recognized in Nuevo and San José gulfs on reefs up to 30 m depth, including most of those mentioned for SAZ. Toward the south, in the Beagle Chanel, the fish community associated with the kelp (*Macrocystis pyrifera*) forest up to 6 m depth is typical of subantarctic waters, with five families and only eleven species, of which the Nototheniidae family is one of the most important. However, scarce information for central

Patagonia coastal rocky reef is available (Galván et al. 2005, 2009; Irigoyen et al. 2005; Vanella et al. 2006; Venerus et al. 2008, 2014).

Waters of Argentine Patagonia are influenced by Malvinas Current, and from central Patagonia southwards, the rocky reef fish community seems to have a similar composition to that described above for subantarctic waters. Nototheniids are an important component of this community, but other groups are shared with southern South America, Southeast Atlantic islands and New Zealand islands. In this context, the telescope fish *Mendosoma lineatum* Guichenot, 1848 is a species that appears in the Southeast Pacific (Pequeño et al. 1980), Southeast Atlantic (Gon and Heemstra 1987) and New Zealand (Kingsford et al. 1989), but it has only one record in the Southwest Atlantic (Bovcon et al. 2017). The aim of this paper was therefore to add another record of *M. lineatum* and to extend the number of fish species observed in rocky reef of central Argentine Patagonian coast.

Two telescope fish (Figure 1) were caught between October 28th and November 1st 2019 at 'La Tranquera' beach, a coastal rocky reef off central Patagonia, Argentina (46° 02′ 36″ S, 67° 35′ 49″ W; Figure 2), between 3 and 10 m depth. Fish were caught by spearfishing. Gut and other organs were removed and then frozen by the fisherman. Once in the laboratory, specimens were fixed in 10% formaldehyde, identified, and morphometric measurements and meristic counts

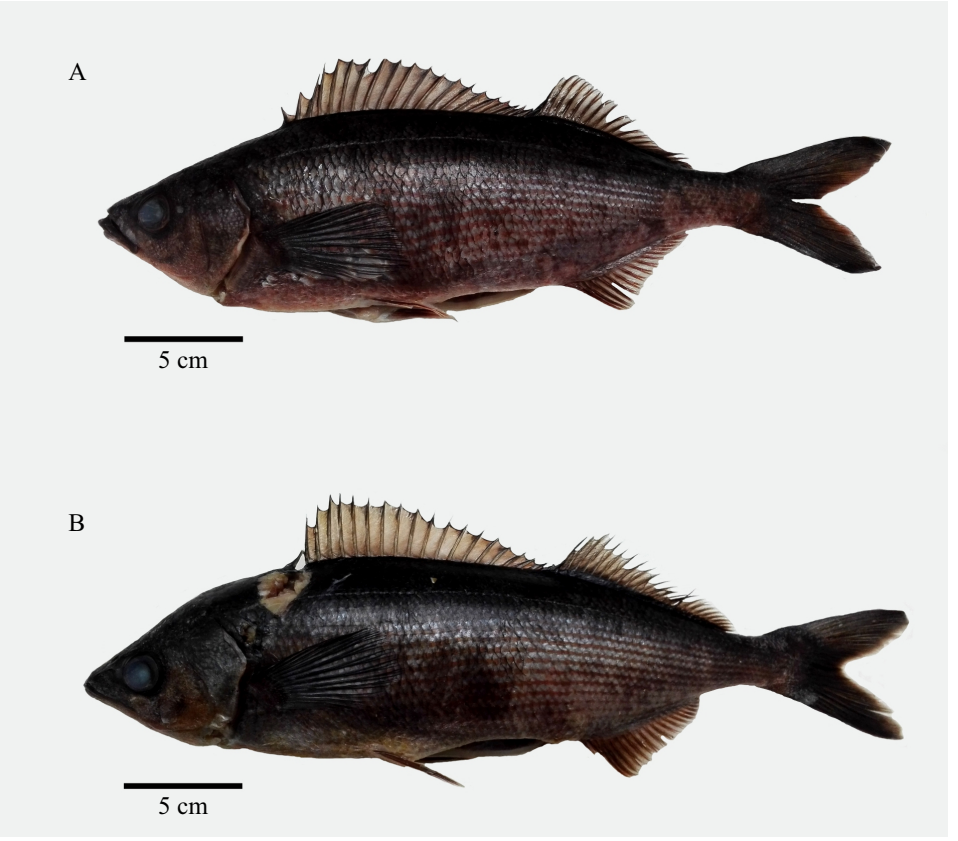

Figure 1. Specimens of *Mendosoma lineatum* Guichenot, 1848 caught in San Jorge Gulf, central Patagonia. A) Specimen 1. B) Specimen 2.

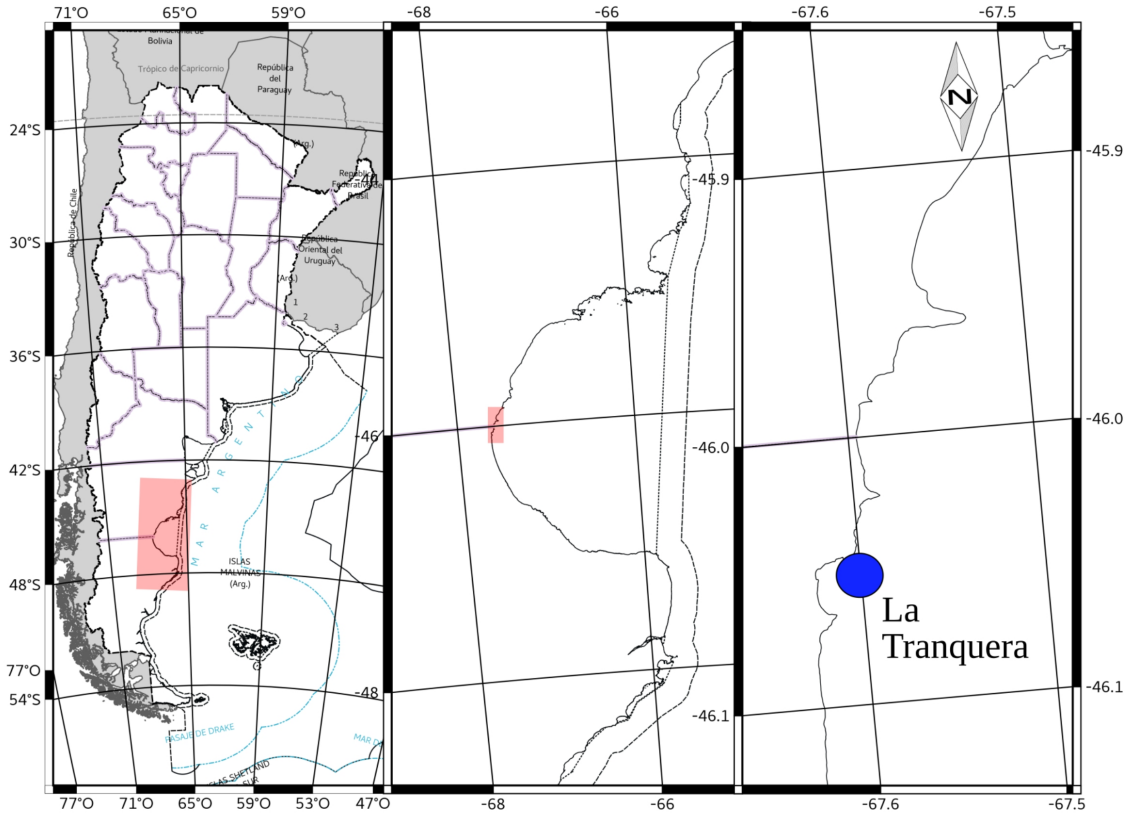

Figure 2. Collection site of *Mendosoma lineatum* Guichenot, 1848.

were made following Pequeño (1980) and Bovcon et al. (2017). *M. lineatum* specimens were deposited in the Ichthyological Collection of the Instituto de Diversidad y Evolución Austral (IDEAus-CENPAT-CONICET) under the following numbers: CNPICT 2019/32 and CNPICT 2019/33 for specimens 1 and 2, respectively. All measurements were made to the nearest millimeter. Exploratory surveys of rocky reef fish were performed by underwater observation conducted by the author and scuba divers over several years.

Morphometric measurements (Table 1) and meristic counts (Table 2) of *M. lineatum* were in accordance with those taken by Pequeño (1980) in Corral Bay (Chile), Gon and Heemstra (1987) in Gough Island (South Atlantic Ocean), and Bovcon et al. (2017) in the north of San Jorge Gulf (Argentine Patagonia). According to the fisherman, fish were in the rocky reef, swimming outside but near the shelter, along with several other fish that he recognized as the same species coming in and out from other shelters. Table 3 show the list of species observed in coastal rocky reef of San Jorge Gulf.

One specimen of *M. lineatum* was observed for the first time in Argentine waters in 2012 and it was proposed that it could have arrived from the northern branch of the Antarctic Circumpolar Current, the Malvinas Current (Bovcon et al. 2017). This paper records another occurrence of two specimens caught and several others observed in the study area, and it is possible that they arrived in the same way. As previously mentioned, the rocky reef fish community of subantarctic waters is characterized by having few, low abundance species, of which an important

Table 1. Morphometric measurements of the two specimens of *Mendosoma lineatum* Guichenot, 1848. Measured length and proportion with respect to the standard length or head length are shown.

	Specimen 1		Specimen 2	
Measures	Length (mm)	%SL	Length (mm)	%SL
Total length	314	-	321	-
Standard length (SL)	264	-	275	-
Head length (HL)	74	28.0	71	25.8
Pre-anal length	184	69.7	189	68.7
Predorsal length	76	28.8	87	31.6
Dorsal-fin base	163	61.7	175	63.6
Anal-fin base	47	17.9	50	18.2
Caudal peduncle maximum height	23	8.7	21	7.6
Pectoral-fin length	56	21.2	56	20.4
Pelvic-fin length	40	15.2	40	14.5
	Length (mm)	%HL	Length (mm)	%HL
Orbital diameter	16	21.6	15	21.1
Inter-orbital space	22	29.7	21	29.6
Preocular distance	22	29.7	23	32.4
Postocular distance	38	50.7	35	49.3
Maxilla + premaxilla length	26	35.1	27	38.0

number are nototheniids (Moreno and Jara 1984; Kingsford et al. 1989). Many sites in SAZ share species from the Latridae, Bovichthidae, Moridae, Sebastidae and Nototheniidae families (Moreno and Jara 1984; Kingsford et al. 1989; Andrew et al. 1995; Vanella et al. 2006). With the exception of Latridae, the other families have well-established populations in the waters of central Argentine Patagonia. Since both the oceanographic characteristics of SAZ are similar in all the oceans that it covers, and that many fish families are well adapted to this water mass, the establishment of a telescope fish population could be possible. However, with only two records so separated in time, a population analysis over time would be needed to test this hypothesis.

Nine species were mentioned for central Patagonia as part of the rocky reef community (Galván et al. 2009), and in this paper the number of species was extended to fifteen. Only one species mentioned above, *Pinguipes brasilianus* Cuvier, 1829, was not found, and a second record of *M. lineatum* was made. Compared with description of northern Patagonia made by these authors, most of the families are shared, except for Zoarcidae, Syngnathidae and Latridae (Galván et al. 2009). The Latridae Family is represented by *M. lineatum* and was seen on one occasion; the Syngnathidae Family is represented by the pipefish, well known in San Matías Gulf (Luzzato and Estalles 2019). It is a highly cryptic species and that is possibly why Galván et al. (2019) could not

Table 2. Meristic counts for the two specimens of *Mendosoma lineatum* Guichenot 1848.

	Specimen 1	Specimen 2
Dorsal-fin rays	XXIII-24	XXIII-26
Anal-fin rays	III-16	III-18
Pectoral-fin rays	16	16
Pelvic-fin rays	I-5	I-5
Lateral-line scales	71	78
Scales between the origin of the dorsal fin and lateral line	5	6
Scales between the origin of the anal fin and lateral line	15	16

Table 3. List of species observed in the rocky reef of San Jorge Gulf, including information on species recorded by Galván et al. (2009) in northern Patagonian gulfs (NPG).

Family	Species	NPG
Nototheniidae	*Patagonotothen brevicauda* (Lönnberg 1905)	*
	Patagonotothen cornucola (Richardson 1844)	
	Notothenia angustata Hutton 1875	*
Bovichtidae	*Bovichtus argentinus* MacDonagh 1931	*
	Cottoperca trigloides (Forster 1801)	
Eleginopsidae	*Eleginops maclovinus* (Cuvier 1830)	
Zoarcidae	*Austrolycus laticinctus* (Berg 1895)	
Moridae	*Salilota australis* (Günther 1878)	*
Sebastidae	*Sebastes oculatus* Valenciennes 1833	*
Pinguipedidae	*Pseudopercis semifasciata* (Cuvier 1829)	*
Cheilodactylidae	*Nemadactylus bergi* (Norman 1937)	*
Tripterygiidae	*Helcogrammoides cunninghami* (Smitt 1898)	
Congiopodidae	*Congiopodus peruvianus* (Cuvier 1829)	*
Syngnathidae	*Leptonotus* sp.	
Latridae	*Mendosoma lineatum* Guichenot 1848	

observe it. Perhaps the most important difference is made by Zoarcidae family, which is well represented in southern Patagonia (Gosztonyi 1977; Vanella et al. 2006). On the other hand, compared with the Beagle Channel, three of the five families found in the south are shared: Nototheniidae, Zoarcidae and Bovichtidae (Vanella et al. 2006).

This study was carried out in San Jorge Gulf, which is an intermediate zone with a mixed fish community, some shared with northern Patagon-

ian gulfs, and others with Beagle Channel. It has a moderate number of species, lower than north of Patagonia and higher than Beagle Channel, but corresponding to that seen in the subantarctic reef.

The author is grateful to Javier Núñez, who caught and provided the specimens for study, and to Dr A. Irigoyen for providing literature and helping with the identification.

REFERENCES

Andrew TG, Hecht T, Heemstra PC, Lutjehams JRE. 1995. Fishes of the Tristan da Cunha group and Gough Islands, South Atlantic Ocean. Ichthyol Bull. 63. 46 p.

Artana C, Lellouche J-M, Park Y-H, Garric G, Koenig Z, Sennechael N, Ferrari R, Piola AR, Saraceno M, Provost C. 2018. Fronts of the Malvinas Current System: surface and subsurface expressions revealed by satellite altimetry, argo floats, and mercator operational model outputs. J Geophys Res (C Oceans). 123: 5261-5285.

Bovcon ND, Cochia PD, Ruibal Núñez J, Vucica M, Figueroa DE. 2017. Presence of the telescope fish *Mendosoma lineatum* in Patagonian waters, a new species in the ichthyological fauna from the south-west Atlantic Ocean. J. Fish Biol. 91 (4): 1224-1227.

Galván DE, Venerus LA, Irigoyen AJ, Parma AM, Gosztonyi AE. 2005. Extension of the distributional range of the silver porgy, *Diplodus argenteus* (Valenciennes 1830), and the red porgy, *Pagrus pagrus* (Linneaus 1758) (Sparidae) in northern Patagonia, south-western Atlantic. J Appl Ichthyol. 21: 444-447.

Galván DE, Venerus LA, Irigoyen AJ. 2009. The reef-fish fauna of the northern Patagonian Gulfs, Argentina, South-western Atlantic. The Open Fish Science Journal. 2: 90-98.

Gon O, Heemstra PC. 1987. *Mendosoma lineatum* Guichenot 1848, first record in the Atlantic Ocean, with a re-evaluation of the taxonomic status of others species of the genus *Mendosoma* (Pisces, Latridae). Cybium. 11 (2): 183-193.

Gosztonyi AE. 1977. Results of the research cruises of FRV "Walter Herwing" to South America. XI.VIII. Revision of the South American Zoarcidae (Osteichthyes, Blennioidei) with the description of three new Genera and five new Species. Arch Fisch Wiss. 27 (3): 191-249.

Herraiz-Borreguero L, Rintoul SR. 2011. Subantartic mode water: distribution and circulation. Ocean Dyn. 61: 103-126.

Irigoyen AJ, Galvan DE, Venerus LA. 2005. Occurrence of dusky grouper *Epinephelus marginatus* (Lowe, 1834) in gulfs of northern Patagonia, Argentina. J Fish Biol. 67 (6): 1741-1745.

Kinsford MJ, Schiel DR, Battershill CN. 1989. Distribution and abundance of fish in a rocky reef environment at the subantarctic Auckand Islands, New Zealand. Pol Biol. 9: 179-186.

Knox GA. 2007. Biology of the Southern Oceans. 2nd ed. Boca Raton: Taylor & Francis. 531 p.

Luzzatto DC, Estalles ML. 2019. *Leptonotus vincentae*, a new pipefish species (Syngnathidae: Syngnathinae) from the southwest Atlantic Ocean near northern Patagonia. J Fish Biol. 95: 624-632.

Moreno CA, Jara HF. 1984. Ecological studies on fish fauna associated with *Macrocystis pyrifera* belts in the south of Fueguian Islands, Chile. Mar Ecol Prog Ser. 15: 99-107.

Pequeño GR. 1980. *Mendosoma lineata* Guichenot 1848: comentarios sobre su taxonomía y segundo registro en Chile (Teleostomi, Latridae). Not Mens Mus Nac Hist Nat (Chile). 24: 3-7.

Vanella FA, Fernández DA, Romero CM, Calvo J. 2006. Changes in the fish fauna associated with a sub-Antarctic *Macrocystis*

pyrifera kelp forest in response to canopy removal. Pol Biol. 30 (4): 449-457.

VENERUS LA, PARMA AM, GALVÁN DE. 2008. Annual occupation pattern of temperate rocky reefs by the Argentine sandperch *Pseudopercis semifasciata* in San José Gulf Marine Park, Argentina. Fish Manag Ecol. 15 (3): 217-229.

VENERUS LA, IRIGOYEN AJ, GALVÁN DE, PARMA AM. 2014. Spatial dynamics of the Argentine sandperch, *Pseudopercis semifasciata* (Pinguipedidae), in temperate rocky reefs from northern Patagonia, Argentina. Mar Freshwater Res. 65: 39-49.

Received: 8 January 2020
Accepted: 17 February 2020