

NOTE

Aluterus monoceros (ACANTHOPTERYGII, TETRAODONTIFORMES)
SOUTHWARDS DISTRIBUTION RANGE EXTENSION IN ARGENTINE WATERSANDRÉS C. MILESSI^{1,2}, IGNACIO BRUNO¹, EZEQUIEL COZZOLINO¹ and RODRIGO WIFF³¹Instituto Nacional de Investigación y Desarrollo Pesquero (INIDEP),
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ABSTRACT. The presence of *Aluterus monoceros* (Linnaeus, 1758) in Mar del Plata, Argentina (38° S) was registered over 40 years ago. This new report extends its southernmost distribution limit to 39° S (Necochea: ~ 120 km). The presence of the species could be associated to the warm subtropical water derived from the Brazilian continental shelf. The hypothesis was tested with satellite images of the sea surface temperature recorded during the cruise the specimen was caught.

Key words: Unicorn leatherjacket filefish, geographical distribution, Monacanthidae.

Unicorn leatherjacket filefish, *Aluterus monoceros* (Linnaeus, 1758) distributes in subtropical and warm temperate zones worldwide (Froese and Pauly, 2015). In the Atlantic Ocean it is usually reported from New England (USA) to Southern Brazil (32° S), including the Caribbean Sea (Carvalho-Filho 1999; Figueiredo and Menezes 2000). The species, that feeds mainly on crustaceans, sponges, algae and corals, of 750 mm maximum length reported, is associated to coral and rocky reefs found up to 150 m depth (Carvalho-Filho 1999; Bernardes et al. 2005; Froese and Pauly 2015). Its presence off Mar del Plata (38° S) Argentina, was registered only once, over 40 years ago (Cousseau and Bastida 1976). The objective of this note is to document *Aluterus monoceros* southwards geographical extension from the limit previously reported.

During a fishing operation carried out from 20th through 22nd January 2014, a unicorn leather-

jacket filefish specimen was caught on board of the “Angela” bottom trawler off Necochea coastal area (~ 39° 00’ S-58° 40’ W) at 20 m depth in a rocky-sandy sediment area. The specimen was photographed, weighted, measured and sexed at the laboratory, identified following Berry and Vogele (1961) and preserved in the ichthyologic collection of the Instituto Nacional de Investigación y Desarrollo Pesquero (INIDEP) under number INIDEP 852 (Figure 1). The sea surface temperature (SST) was determined processing Aqua-MODIS 4 km resolution satellite images from: <http://oceancolor.gsfc.nasa.gov> when the fish was caught (Figure 2).

The individual, a 1,212.2 g weight 511 mm total length (TL) mature male (maturity stage IV) presented one hard dorsal spine, 49 soft rays in second dorsal fin and 47 anal fin rays considered the species diagnostic characters (Berry and Vogele 1961) and rough, dark brown skin with tiny thorns

and dark spots. The SST indicated waters warmer than 22° C related to the advection of oceanic warm waters to the coast produced by a favourable wind pattern from the North. Its horizontal distribution showed the presence of warm waters all over the Argentine shelf during Summer 2014.

The characteristics mentioned agree with the descriptions of *A. monoceros* Brazilian specimens by Berry and Voegelé (1961), Carvalho-Filho (1999), and Figueiredo and Menezes (2000).

The first record of *A. monoceros* in Argentine waters published by Cousseau and Bastida (1976) was based on an individual (508 mm TL) caught on 27th April 1976 in Mar del Plata (38° S). The new report extends the species previously known range in ~ 120 km to the South. Neither the first record produced in 1976 nor the scarce information provided by INIDEP on different surveys reported further analyses about sex, maturity stage or weight. The SST result is compatible to the process that forms the Subtropical Shelf Water (STSW), a mix between the Plata Plume Water and Tropical Waters (Moller et al. 2008). Said oceanographic process is known as warm coastal drift (Balech 1986; Balech and Ehrlich 2008) and is common in Argentine waters during austral Summer and Autumn, when winds coming from the north and north-east become stronger (Guerrero et al. 1997; Martos and Piccolo, 1998). The

STSW flow allows the arrival of subtropical and tropical fishes to Mar del Plata, Argentina (Cousseau and Figueroa 1989; Figueroa et al. 1992, 2000; Izzo et al. 2009; Milessi et al. 2012, 2017).

A. monoceros new report constitutes another piece of information supporting the hypothesis that the warm coastal drift allows changes in tropical and subtropical fishes distribution that, due to an increase in water temperature, show a true southwards expansion (Ortega et al. 2016). During the last decade high abundance reports of commonly unusual species such as *Epinephelus marginatus* and *Hyporthodus niveatus* (Irigoyen et al. 2005; Trobbiani et al. 2014; Milessi et al. 2018) off Argentina and *Stellifer rastrifer* in Uruguay (Segura et al. 2008) suggest colonization and establishment of new distribution areas. To assess said hypothesis a time series analysis of new species records and changes in other environmental variables may help understand the causes for the reported distribution expansion. Data about displacement of subtropical and tropical species as a result of global warming may contribute new records (Scenna et al. 2006; Venerus et al. 2007) supporting the hypothesis that southwards expansion of said species off Mar del Plata is favoured by the increase of water temperature.



Figure 1. *Aluterus monoceros* (Linnaeus, 1758); INIDEP fish collection no. 852. Total length: 511 mm; weight: 1,212.2 g. Photo by Marcela Tobio.

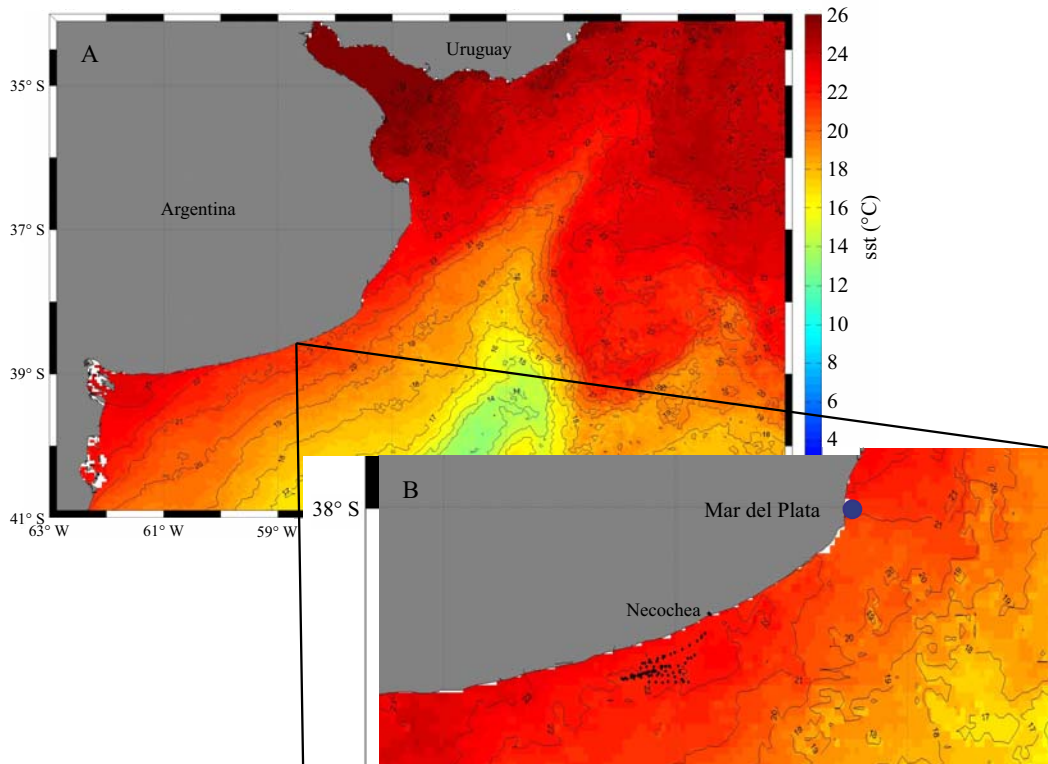


Figure 2. Sea surface temperature (°C) from the Argentine-Uruguayan Coastal Ecosystem, 34° S-41° S (Aqua MODIS, 4 km) (A) and the site where the specimen was caught near Necochea port (38° 32' S) (B). The black dots indicate the fishing trawls performed during the trip in which the specimen was caught (“Angela” FV). The blue point indicates the only previous record of *Aluterus monoceros* in Argentine waters (Mar del Plata port).

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