

First record of *Porichthys porosissimus* Cuvier, 1829 (Actinopterygii: Batrachoidiformes) and *Macrodon atricauda* Günther, 1880 (Actinopterygii: Perciformes) in Mar Chiquita coastal lagoon, Buenos Aires, Argentina

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ABSTRACT: We report the first record of *Porichthys porosissimus* and *Macrodon atricauda* in the Mar Chiquita coastal lagoon, Argentina. Morphometric and meristic data of collected specimens are also presented in order to validate its taxonomic identification.

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Mar Chiquita coastal lagoon is a World Reserve of Biosphere by the Coordination Council of the Man and Biosphere Program (MaB) of UNESCO (Iribarne 2001). It is located in Buenos Aires province (37°32'00"–37°45'00" S, 57°19'00"–57°26'00" W) (Figure 1), oriented parallel to the coast and separated from the ocean by a barrier of sediment and connected with the open sea by one or more channels (Isla 1995). The salinity has a horizontal gradient and fluctuates between 0 to 36, depending on tide and wind (González Castro *et al.* 2009). The lagoon receives fresh water from small streams, artificial channels and subterranean water. The fish composition of Mar Chiquita coastal lagoon has been studied during the last decade and several fish species have been reported to make extensive use of the lagoon, in a permanent, seasonal or occasional way (Díaz de Astarloa *et al.* 2000; Cousseau *et al.* 2001; González Castro *et al.* 2006; González Castro *et al.* 2009; González Castro *et al.* 2013).

The family Sciaenidae (Actinopterygii, Order Perciformes) is well represented in Argentina, being the genera *Cynoscion*, *Micropogonias*, *Pogonias*, *Umbrina* and *Macrodon* those with the higher number of species (Cousseau *et al.* 2010). The king weakfish, *Macrodon atricauda* (Günther, 1880) occurs from Venezuela to approximately 41°00'00" S in Argentina. It is a euryhaline fish, which tolerates salinities between 5.5 and 32.90 ppt (Cousseau and Perrotta 2004).

The family Batrachoididae, subfamily Porichthyinae (Actinopterygii, Order Batrachoidiformes), is represented in Argentina by the toadfish, *Porichthys porosissimus* (Cuvier, 1829), which has a distribution from Rio de Janeiro, Brazil, to Golfo de San Matías, Argentina (41°23'00" S, 65°03'00" W) (Menni and Miquelarena 1976).

Two specimens of *M. atricauda* (Figure 2A and B) and one individual of *P. porosissimus* (Figure 2C) were recorded for the first time in the inlet channel (approximately 1200 m from the mouth) of Mar Chiquita coastal lagoon, Argentina (37°43'54" S, 57°25'49" W) on 11 May 2012 and 16 October 2012, respectively.



FIGURE 1. Map of Mar Chiquita Coastal lagoon (Argentina), indicating collection site of *Macrodon atricauda* and *Porichthys porosissimus*.



FIGURE 2. A, B: *Macrodon atricauda* UNMDP 2113 and UNMDP 2114, respectively. C: *Porichthys porosissimus*. Scale bar: 5 cm.

These specimens were collected with a 25 m long and 2 m height monofilament-gill net with 5.1 cm (*M. atricauda*) and 6.8 cm (*P. porosissimus*) mesh size. The nets were set up for approximately 14 h at a depth of 0.85 m. At the moment of capture the water temperature was 13.59°C and 15.25°C, whereas the salinity was 31.3 ppt and 29.4 ppt, respectively. Water temperature, depth and salinity were measured with a multi-parameter device (HORIBA).

The collected specimens were identified, dissected, sexed and measured with an ichthyometer and digital caliper. Meristic and morphometric characters were measured on the left side of each specimen (Table I).

The individuals of *M. atricauda* are deposited in the fish collection of the Universidad Nacional de Mar del Plata under the code UNMDP 2113 and UNMDP 2114, and *P. porosissimus* under the code UNMDP 2354 (Figure 2).

The king weakfish is known as euryhaline but usually occurs in marine waters (Cousseau and Perrotta 2000). However, the toadfish is strictly a non-euryhaline fish. *P. porosissimus* reaches the shore of Mar Chiquita in spring, presumably for reproductive purposes (González Castro, personal communication). This fact is in accordance with the reproductive stage of the captured specimen, which was a spawning capable male, according to Brown-

TABLE 1. Morphometric and meristic data of two *M. atricauda* and one *P. porosissimus* captured in Mar Chiquita coastal lagoon, Argentina.

SPECIES	MACRODON ATRICAUDA	MACRODON ATRICAUDA	PORICHTHYS POROISSIMUS
Morphometrics (mm)			
Total length	314	323	268
Standard length	273	275	241
Head length	74	77	68.6
Snout length	15.99	17	18.95
Eye diameter	14.62	15.17	8.36
Pectoral-fin length	56.51	62.76	45.2
Pre-pectoral distance	75.84	77.37	70.7
Pre-dorsal 1 distance	88.09	92.67	82.6
Pre-dorsal 2 distance	142	141.9	-
Pre-ventral distance	80.53	83.82	42.5
Pre-anal distance	215	212.5	102.5
Meristics			
Lateral series	55	56	-
First dorsal-fin rays	10	10	35
Second dorsal-fin rays	29	28	-

Peterson *et al.* (2011). In both cases the appearance of this species in estuarine waters can also be explained by the environmental condition at the moment of capture.

The occasional occurrence of fish in Mar Chiquita lagoon is well documented (Díaz de Astarloa *et al.* 2000; González Castro *et al.* 2006; Bruno *et al.* 2011; González Castro *et al.* 2013). Salinity range in Mar Chiquita coastal lagoon shows a variable pattern depending on wave tide, speed and direction of wind and fresh water volume belonging from streams. Winds from oceanic

region allow marine water to enter several kilometers in the inner channel, increasing salinity levels (Reta *et al.* 2001). Adverse environmental conditions were observed in the days before the capture, with strong winds from SE direction (the wind speed during the capture of the weakfish was 20.6 km/h, and at the day of the entry of the toadfish was 26.9 km/h). Those environmental conditions could explain the reason of entrance of these specimens on the lagoon, but we have not enough information to corroborate it.

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