

**CONFIRMATION OF THE OCCURRENCE
OF THE GOLDEN GREY MULLET, *LIZA AURATA* (RISSO, 1810)
(PISCES, MUGILIDAE), IN THE AZORES
(EASTERN ATLANTIC OCEAN)**

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With 3 figures and 1 table

ABSTRACT. The occurrence of *Liza aurata* (Risso, 1810) is confirmed for the Azores. The specimen was collected in 1971 at 20 m depth, during the BIAÇORES cruise and is an 8+ year old male with a total length of 531 mm. The additional observation of juvenile specimens collected in 1990 in Santa Maria Island has not only reconfirmed the presence of this species in this archipelago, but also indicated successful reproduction in those waters.

KEY WORDS: *Liza aurata*, Azores, new record, distribution, Atlantic Ocean.

RESUMO. A ocorrência de *Liza aurata* (Risso, 1810) nos Açores é confirmada. O espécime estudado era um macho com 8+ anos e foi colhido em 1971 a 20 m de profundidade durante a missão BIAÇORES. A observação adicional de espécimes juvenis provenientes da ilha de Santa Maria re-confirmou a presença da espécie no arquipélago e a sua reprodução.

PALAVRAS-CHAVE: *Liza aurata*, Açores, novo assinalamento, distribuição, Oceano Atlântico.

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INTRODUCTION

The family Mugilidae comprises fourteen genera, four of which have been recorded from the FNAM area (North-Eastern Atlantic and Mediterranean) (BEN-TUVIA, 1986). Of the nine species of mugilids recorded from that area to date, only *Chelon labrosus* (Risso, 1826) was accepted as occurring in the archipelago of the Azores by SANTOS *et al.* (1997), and has even been used in ecotoxicology and ecology studies (*e. g.* ANDERSEN & DEPLEDGE, 1997; HARMELIN-VIVIEN *et al.*, 2001). FOWLER (1936: 1273) refers to the presence of *Liza aurata* (Risso, 1810) in the Azores, based on two specimens from the island of Terceira, but this record was not accepted by TREWAVAS (1973: 571). The discovery of the specimen studied herein and the reference to the presence of this species in the Azores in FishBase, based only on unverified specimens deposited in South Africa, raised the need to confirm the presence of this species in this archipelago.

MATERIAL AND METHODS

A single specimen preserved in alcohol, collected in November 1971 during the BIAÇORES cruise at the Azores archipelago (Fig. 1) and deposited in the Muséum national d'Histoire naturelle (MNHN), was studied. Standard length (SL), total length (TL), fork length (FL) and total weight (TW) were registered and sex was determined using gonad histology. Scales were analysed for age determination. Pectoral fin morphology was observed and pyloric caeca counted. Four additional specimens deposited in the South African Institute for Aquatic Biodiversity (SAIAB) were also examined (Table 1).

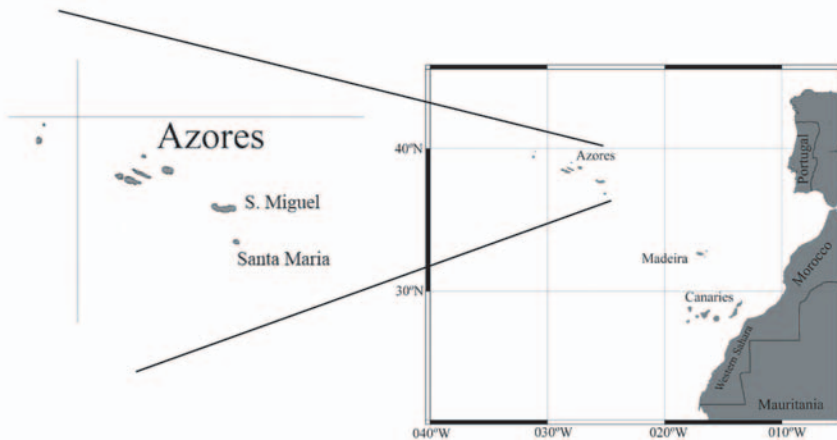


Fig. 1 - Location of the islands of São Miguel and Santa Maria, Azores, where specimens of *Liza aurata* were collected.

TABLE 1 - Size (in mm), age and sex of the specimens of *Liza aurata* studied.

Specimen's ID	SL	TL	FL	Age	Sex
MNHN 2009-478	416	531	478	8+	Male
SAIAB #36096 (1)	-	26	-	0+	-
SAIAB #36096 (2)	60	78	72	1+	-
SAIAB #36096 (3)	61	79	74	1+	-
SAIAB #36096 (4)	81	105	97	2+	-

***Liza aurata* (Risso, 1810)**

Material examined: MNHN 2009-478, SL 416 mm, TL 531 mm, TW 1211, 5 g, age 8+, male, Biaçores 1971 cruise (R/V Jean Charcot), station 182, São Miguel, 37° 36' N, 25° 42' W, depth 20 m, 3-4 November 1971, trammel net (Figs. 2-3); SAIAB #36096 (4 specimens), TL 26-105 mm, Baía dos Anjos, Santa Maria, 37° 00' 18" N, 25° 09' 23" W, 14 June 1990, "Santa Maria and Formigas 1990" expedition, from tide pools.



Fig. 2 - *Liza aurata* (MNHN 2009-478) from São Miguel, Azores (scale bar: 50 mm).



Fig. 3 - Detail of snout of *Liza aurata* (MNHN 2009-478) showing the characteristic scaleless area in front.

Meristic and morphological characters – In all specimens except SAIAB #36096 (1) (damaged), meristic characters were as follows: D1: IV, D2: I + 8, P: 16, V: I + 5, A: III + 9, C: 18. All characters agree with BEN-TUVIA (1975) and FARRUGIO (1977), *e. g.* the ornamented scales on head and pyloric caeca of increasing size from ventral to dorsal side. The typical pectoral fin morphology described by ALMEIDA (1989) was also confirmed on the 8+ years specimen (MNHN 2009-478).

Distribution – *Liza aurata* has been recorded in the eastern Atlantic Ocean, from southern Norway, Sweden and southern England to Morocco, including Madeira and from the Mediterranean, Adriatic, Aegean, Black, Caspian and Azov seas (TREWAVAS, 1973; DULČIĆ & KRALJEVIĆ, 1996; ROGERS *et al.*, 1998; LAFAILLE *et al.*, 2000; CABRAL *et al.*, 2001; USERO *et al.*, 2003; TURAN *et al.*, 2005; CARDONA, 2006; ILKYAZ *et al.*, 2006; FAZLI *et al.*, 2008; WIRTZ *et al.*, 2008). It is here recorded, for the first time, from the Azores (São Miguel and Santa Maria islands).

Remarks – According to TREWAVAS (1973), the occurrence of *Liza aurata* in the Azores reported by FOWLER (1936: 1273) was based on a misidentification. Nonetheless, Fowler's record was subsequently quoted by other authors to support the occurrence of this species in the Azores (*e. g.* COLLINS, 1954; ALBUQUERQUE, 1954-56; BEN-TUVIA, 1986; ARRUDA, 1997). SANTOS *et al.* (1997) not only agree with TREWAVAS (1973), but state that, based on their personal experience, "it is highly probable that this is the only species [*C. labrosus*] occurring in the Archipelago". Following the discovery of the BIAÇORES specimen, and while searching for data in FishBase (FROESE & PAULY, 2009), four specimens identified as *L. aurata* were found in the SAIAB collections. These were collected during an expedition

to Santa Maria and Formigas (ARRUDA *et al.*, 1992), but have not been accounted for by these authors, as well as in Arruda's checklist of the marine fishes of the Azores (1997), who maintain the presence of *L. aurata* in the Azores based primarily on Fowler's (1936) record. The careful examination of these specimens confirmed their identity, not only re-confirming the presence of *L. aurata* in the Azores, but also adding a new island to its habitat. The size range of the specimens studied, including a juvenile (SAIAB #36096 (1), Table 1), clearly indicates successful reproduction in these waters.

It is worthwhile pointing out that the presence of *L. aurata* in the Azores has only been confirmed in the eastern islands of S. Miguel and Santa Maria, the latter being the oldest (SALGUEIRO, 1991) and the nearest to other places of occurrence. Although its presence in other western islands cannot be ruled out, the fact that the ichthyologists from the University of Azores' Department of Oceanography and Fisheries at Horta, who have a large experience and knowledge on the fish fauna of the archipelago, never came across with it, suggests that this species may be, as yet, restricted to São Miguel and Santa Maria islands.

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