Short scientific article
Received: 2009-11-09

UDC 597.5(262.3-15)

THE MEAGRE *ARGYROSOMUS REGIUS* (ASSO, 1801), IN CROATIAN WATERS (NERETVA CHANNEL, SOUTHERN ADRIATIC): RECOVERY OF THE POPULATION OR AN ESCAPE FROM MARICULTURE?

Jakov DULČIĆ
Institute of Oceanography and Fisheries, HR-21000 Split, P.O. Box 500, Croatia
E-mail: dulcic@izor.hr

Vlasta BRATULOVIĆ & Branko GLAMUZINA
University of Dubrovnik, Department for Aquaculture, HR-20000 Dubrovnik, Ćira Carića 4, Croatia

ABSTRACT

The meagre specimen (total length TL = 57.4 cm, weight W = 1493.8 g, ♀) was caught by gill-net on 9th August 2008 near the village Blaca (the southern Adriatic, Croatian coast) at the depth of 10 m on rocky-muddy bottom. It seems that we are dealing with the case of an escape from mariculture, especially if we take into account the general look and condition of the caught specimen.

Key words: *Argyrosomus regius*, occurrence, status, Croatian waters, Adriatic Sea

BOCCA D'ORO *ARGYROSOMUS REGIUS* (ASSO, 1801) IN ACQUE CROATE (CANALE DI NERETVA, ADRIATICO MERIDIONALE): RICUPERO DI UNA POPOLAZIONE O FUGA DA MARICOLTURA?

SINTESI

Un esemplare di Bocca d'oro (lunghezza totale TL = 57,4 cm, peso W = 1493,8 g, ♀) è stato catturato con un tramaglio il 9 agosto 2008 vicino al villaggio di Blaca (Adriatico meridionale, costa croata), ad una profondità di 10 metri, su substrato roccioso-melmoso. Sembra che si tratti di un esemplare scappato da maricoltura, specialmente se viene considerata l'apparenza generale e le condizioni del pesce catturato.

Parole chiave: *Argyrosomus regius*, ritrovamento, stato, acque croate, mare Adriatico

INTRODUCTION

The meagre, *Argyrosomus regius* (Asso, 1801) is distributed in the Eastern Atlantic, from Norway to Gibraltar and Congo, including the Mediterranean and the Black Sea. It migrated to the Red Sea via the Suez Canal (Chao & Trewavas, 1990). It inhabits inshore and shelf waters, moves close to the bottom as well as in surface and mid-waters, pursuing shoals of clupeids and mugilids and congregates inshore to spawn during spring and summer. Juveniles and sub-adults enter estuaries and coastal lagoons (Chao & Trewavas, 1990). Both adults and juveniles are migratory, moving along shore or offshore-onshore in response to temperature change (Griffiths & Heemstra, 1995). It feeds on fish and swimming crustaceans.

There are no data (biology, ecology) available on this species in Croatian waters (the eastern Adriatic). The aim of this paper is to present data regarding the record of the meagre specimen in Croatian waters and its morphometric and meristic characters.

MATERIAL AND METHODS

The meagre specimen (total length TL = 57.4 cm, weight W = 1493,8 g, ♀) was caught by gill-net ("baracuda" net) on 9th August 2008 near the settlement Blaca (the River Neretva and Mala Neretva estuaries, the southern Adriatic, Croatian coast) at the depth of 10 m on rocky-muddy bottom (Fig. 1). The specimen was identified according to Jardas (1996). It was subsequently measured to the nearest 0.1 cm and weighed to the nearest 0.1 g. The meristic characters considered were dorsal, anal and pectoral fins. The condition factor (CF) was calculated as $CF = W \times 100/L^3$.

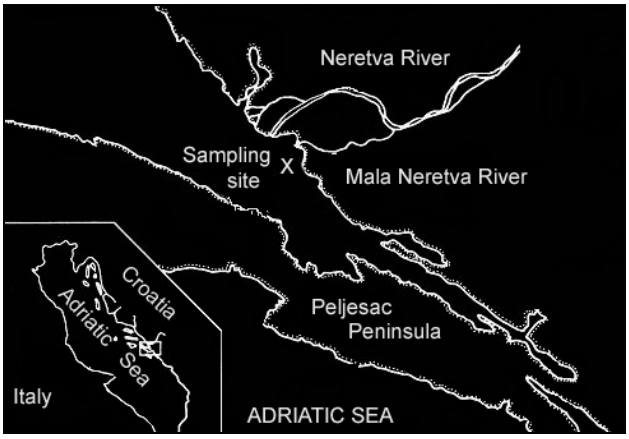

Fig. 1: Sampling site where the meagre specimen was caught (Neretva channel, the southern Adriatic)
Sl. 1: Vzorčno mesto, kjer je bil ujet primerek grbe (Neretvanski kanal, južno Jadransko morje).

The specimen is deposited in the Collection of the Department for Aquaculture, University of Dubrovnik, Croatia (Fig. 2).

RESULTS AND DISCUSSION

In Table 1, the main morphometric and meristic data are given (first data for the meagre for Croatian waters). The meristic characteristics are in agreement with data by Jardas (1996), *i.e.* D1: IX-X, D2: I+26-29, A: II+7-8, P: 16-17, V: I+5.

Description of the Adriatic specimen

The body is elongate, nearly fusiform; the mouth large, oblique and terminal: the teeth in upper jaw villiform in narrow bands, the outer row is slightly enlarged; the lower jaw teeth in 3 irregular rows. Three small upper pores and five marginal ones on snout. The caudal fin truncate to S-shaped. Scales are ctenoid, some cycloid scales on chest, snout and below eyes. Body colour is silvery, a little bit darker on the back, with bronze reflections on sides. The fins are greyish, while the inside of the mouth is yellowish-orange.

Tab. 1: Morphometric (in cm) and meristic data of the meagre specimen (♀) in the southern Adriatic.
Tab. 1: Morfometrični (v cm) in meristični podatki o primerku grbe (♀) v južnem Jadranskem morju.

Weight (W, g)	1493.8
Morphometric characters (cm)	
Total length (TL)	57.4
Standard length (SL)	47.8
Pre-anal length (Lpa)	32.2
Pre-dorsal length (Lpd)	15.1
Pre-pelvic length (Lpl)	15.5
Pre-pectoral (Lpp)	14.5
Body depth	12.5
Head length (HL)	14.1
Eye diameter (O)	2.5
Pre-orbital length (Po)	3.8
Meristic characters	
Dorsal fin (D1)	X
Dorsal fin (D2)	I+27
Pectoral fin (P)	16
Ventral fin (V)	I+5
Anal fin (A)	II+7
Scales in *linea lateralis*	53

Several authors (Šoljan, 1975; Jardas, 1985, 1996) treated this species as rare or very rare in the Adriatic Sea. According to fishermen reports and some publications (Jardas, 1996), this species almost disappeared from its habitats, sandy and muddy shallows with turbid

waters, near river mouths, or even in freshwater (the River Cetina and the River Neretva, in Croatian waters). According to some indicies, the region of Ulcinj (Montenegro) by the mouth of the River Bojana is probably the last location in the Adriatic Sea where it can be observed by several specimens per year (Joksimović, 2007). Jardas *et al.* (2008) list this species as regionally extinct species in the Red Book of Sea Fishes of Croatia. As already mentioned, the record of the meagre specimen was surprising, emphasizing the question whether the finding of the specimen means a renewal of the population of this species or is this quite another matter; it is possible that the statement of Jardas *et al.* (2008) is incorrect or we can be dealing with a possible escape from mariculture.

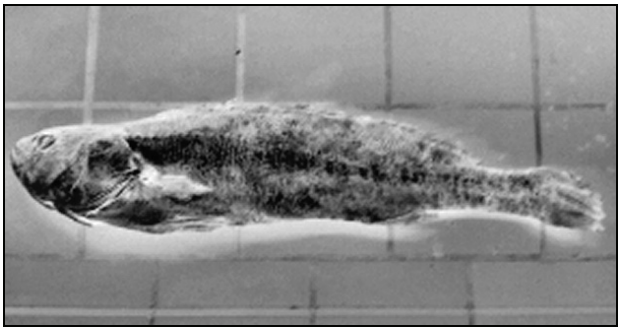

Fig. 2: The meagre specimen (TL = 57.4 cm).
Sl. 2: Primerek grbe (TL = 57,4 cm).

The condition factor of the caught meagre specimen was low (CF = 0.790), pointing to the fact that the feeding activity was probably limited (stomach of specimen was empty). Siginificant number of specimens of similar characteristics were caught and sold by local fishermen, but these specimens were unavailable to us, hence not verified on the scientific base. We interviewed the owners of fish farms in adjacent Mali Ston Bay and the owner of "Karaka" Ltd. Company from Neum (Bosnia and Herzegovina) and they confirmed the escape of around 400 specimens of meagre from their cages. The origin of meagre juveniles is a hatchery in France.

The record of the caught meagre seems to be the case of an escape from mariculture, especially if we take into account the general look and condition of the specimen. Some similar cases have been reported for *Dicentrarchus labrax, Sparus aurata* and *Pagrus major* on several locations in the eastern Adriatic (Dulčić & Kraljević, 2007; Glamuzina & Dulčić, 2008). In the last ten years gilthead sea bream, *S. aurata* established strong population in this area, similarly based on escapes from fish farms (Glamuzina & Dulčić, 2008). If this scenario happens with meagre, we may expect recovery of the population and establishment of a wild population based on aquaculture activities. Therefore, the status of meagre in Croatian waters needs to be evaluated on a continuous basis.

GRBA *ARGYROSOMUS REGIUS* (ASSO, 1801) V HRVAŠKIH VODAH (NERETVANSKI KANAL, JUŽNO JADRANSKO MORJE): OBNOVA POPULACIJE ALI POBEG IZ MARIKULTURE?

Jakov DULČIĆ
Institute of Oceanography and Fisheries, HR-21000 Split, P.O. Box 500, Croatia
E-mail: dulcic@izor.hr

Vlasta BRATULOVIĆ & Branko GLAMUZINA
University of Dubrovnik, Department for Aquaculture, HR-20000 Dubrovnik, Ćira Carića 4, Croatia

POVZETEK

Primerek grbe (celotna dolžina TL = 57,4 cm, teža W = 1493,8 g, ♀) je bil ujet z zabodno mrežo 9. avgusta 2009 blizu vasi Blaca (južni Jadran, hrvaška obala) v globini 10m na skalnato blatnem dnu. Zdi se, da gre za primer pobega iz marikulture, še posebej če upoštevamo splošni izgled in stanje ujetega primerka.

Ključne besede: *Argyrosomus regius,* pojav, status, hrvaške vode, Jadransko morje

REFERENCES

Chao, L. N. & E. Trewavas (1990): Sciaenidae. In: Quero, J. C., J. C. Hureau, C. Karrer, A. Post & L. Saldanha (eds.): Check-list of the fishes the eastern tropical Atlantic (CLOFETA). Vol. 2. JNICT, Lisbon; SEI, Paris; and UNESCO, Paris, pp. 813–826.

Dulčić, J. & M. Kraljević (2007): On the record of red seabream, *Pagrus major* (Temminck and Schlegel, 1843) (Osteichthyes : Sparidae) in the Adriatic Sea. Sci. Mar., 71, 15–17.

Glamuzina, B. & J. Dulčić (2008): The Fishing and Mariculture Industries. In: Landau, S., S. Legro & S. Vlašić (eds.): A Climate for Change. Human Development Report, UNDP Croatia, pp. 149–164.

Griffiths, M. H. & P. C. Heemstra (1995): A contribution to the taxonomy of the marine fish genus *Argyrosomus* (Perciformes: Sciaenidae), with descriptions of two new species from southern Africa. Ichthyol. Bull. J.L.B. Smith Instit. Ichthyol., 65, 1–40.

Jardas, I. (1985): Check-list of the fishes *(sensu lato)* of the Adriatic Sea (Cyclostomata, Selachii, Osteichthyes) with respect of taxonomy and established number. Biosistematika, 1, 45–74. *(In Croatian)*

Jardas, I. (1996): Jadranska ihtiofauna. Školska knjiga, Zagreb, 553 str.

Jardas, I., A. Pallaoro, N. Vrgoč, S. Jukić-Peladić & V. Dadić (2008): Crvena knjiga morskih riba Hrvatske. Ministarstvo kulture, Zagreb, 396 str.

Joksimović, A. (2007): Najpoznatije ribe crnogorskog primorja. Crnogorska Akademija nauka i umjetnosti, Posebna izdanja (Monografije i studije), Vol. 58. Odeljenje prirodnih nauka, Vol. 30., 140 str.

Šoljan, T. (1975): I pesci dell'Adriatico Arnoldo Mondadori Editore, Verona, 522 p.