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A Hermatophroditic Specimen of Chub Mackerel *Scomber japonicus* in the Dardanelles, Turkey

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Abstract: A hermaphroditic individual of the Chub mackerel, *Scomber japonicus*, caught in the Dardanelles is described in this study. This specimen is the first record of hermaphroditic Chub mackerel for the Mediterranean Sea.

Key words: Scomberidae, *Scomber japonicus*, hermaphroditism, chub mackerel, dardanelles, Mediterranean sea

INTRODUCTION

Fish migrate in large schools during certain periods of the year through the Dardanelles (Kocatas and Bilecik, 1992). One of the main migrating fish species through this strait is Chub mackerel, *Scomber japonicus* Houttuyn. It is widespread over the coastal waters of the tropical and subtropical regions of the Pacific, Indian, Atlantic Ocean, the Mediterranean and Black seas. It can undertake long migrations and is vertically distributed from the sea surface up to 300 m (Collette and Nauen, 1983).

MATERIALS AND METHODS

During a study of the hook selectivity, 23 individuals of Chub mackerel were caught in 18 March 2009 in the Dardanelles. Fish were identified based on Collette and Nauen (1983) and scientific names of species were checked with the fish base (Froese and Pauly, 2009). Fish were measured to the nearest cm (total length) and weighed to the nearest g.

RESULTS AND DISCUSSION

Internal examination of fish samples revealed that one individual was hermaphrodite, bearing an ovary and a testis. The tissues of ovary and testis were easily discernible as indicated by clearly divided regions in the same lobe of the hermaphrodite gonad (Fig. 1). The total length and body weight of the hermaphrodite individual were 24.5 cm and 145.09 g, respectively. The length and body weight of the rest of the fish samples ranged between 22.4-27.5 cm and 107.44-206.09 g, respectively. The weight of the hermaphrodite gonad was 1.35 g.

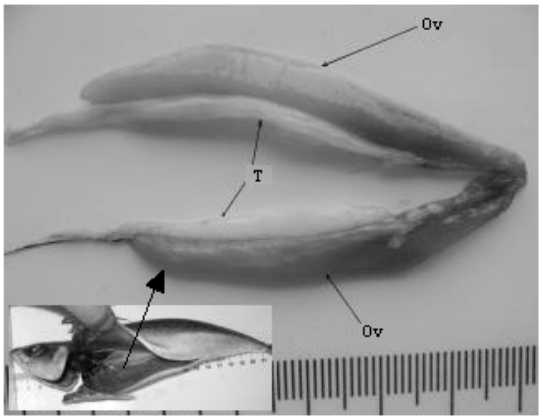

Fig. 1: A hermaphroditic Chub mackerel and their gonads (Ov, ovary and T, testis)

Normal hermaphroditism occurs in species in which the individual is born as a male and changes sex to a female (Protandry) or born as a female and then changes sex to a male (Protogyny) (Atz, 1964). All other forms of sex changes are termed abnormal hermaphrodites or intersexes (Atz, 1964; Devlin and Nagahama, 2002). Abnormal hermaphroditism has been reported for several fish species and both environmental factors and endogenous processes have been suggested to potentially affect sex-determination in fishes (Devlin and Nagahama, 2002).

Abnormal hermaphroditism in scombrids fishes were reported earlier for *Scomber scombrus* Lin. (Stewart, 1891), *Rastrelliger kanagurta* Cuvier (Prabhu and Raja, 1959), *Katsuwonus pelamis* Lin. (Raju, 1960; Uchida, 1961), *Thunnus orientalis* Temminck and Schlegel (Sawada *et al*., 2002) and *Thunnus thynnus* Lin. (Caprioli *et al*., 2007). Information on the abnormal

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hermaphroditism of Chub mackerel was previously reported only from the Japan sea (Takizaki, 1953; Okiyama and Kawaguchi, 1974).

CONCLUSION

This specimen is the first record of abnormal hermaphroditic Chub mackerel for the Mediterranean and Black sea.

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