



## The New Maximum Length of the *Solea solea* (Linnaeus, 1758) in the Turkish Coast of Black Sea

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### Abstract

In this study, a female specimen of common sole (*Solea solea*) with 36.7 cm in total length and 466.0 g in total weight was caught off Ordu region (eastern Black Sea, Turkey) with trammel net at 10 m water depth on May 6, 2021. The age of specimen was determined to be 6 years old. Measured total length were the maximum value of *Solea solea* in the Turkish coast of Black Sea.

### Keywords:

Largest individual, Length, Weight, Age, Soleidae

### Article history:

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### Introduction

The common sole, *Solea solea* (Linnaeus, 1758) is a benthic species inhabiting muddy and sandy bottoms, from the shore down to 300 m and is widespread commonly in the eastern central Atlantic and in the Mediterranean (Frimodt, 1995). This species was known from the Adriatic Sea, Gulf of Lion, Ligurian Sea, Ionian Sea, Tyrrhenian Sea, Aegean Sea, Sea of Marmara and Black Sea (Gabr et al., 2003). They tend to occupy shallow, sandy and sandy/muddy habitats from zero to 200 m, but usually 10-60 m (Frimodt, 1995). The common sole feeds on worms, molluscs and small crustaceans while polychaetes represent the 80% of the diet (Salen-Picard et al., 2002). The maximum length is important parameters that are applied directly or indirectly in most of the stock assessment models (Pauly, 1980) and it is important to regularly update the maximum size of commercially important species (Navarro et al., 2012). The present record demonstrated maximum size of this species for the Black Sea.

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## Materials and Method

Sampling was carried out on May 6, 2021 in Ordu province of the eastern Black Sea region (41°03'23.9"N – 37°29'49.4"E). A female *S. solea* individual was caught by a trammel net at a depth of 10 m during a biological sampling. Fischer et al. (1987) was used for identifying of the species. Total length (TL) was measured with a Vernier caliper to the nearest 0.01 cm and fish weight (W) was taken to the nearest 0.1 g with a digital balance. Sex was determined macroscopically according to Gunderson (1993). Sagitta otolith was weighed by digital balance to the nearest 0.0001 g (Ross & Hüsey, 2013). The otolith length and width (Figure 2) were measured using imaging software (Nikon NIS Elements 3.0) to the nearest 0.01 µm under a stereo microscope (Javor et al., 2011).

## Results and Discussion

A specimen of *S. solea* was caught with trammel nets at about 10 m depth. Sampling was carried out on May 6, 2021 in the Fatsa region (Ordu, eastern Black Sea). The sampled individual were 36.7 cm length and 466.0 g in weight (Figure 1). The presence, shape and color of the gonads showed that it was a female individual and the age of the fish was 6 years old. The otolith weight, length and width were measured as 0.0432 g, 1296.73 µm and 1183.45 µm, respectively (Figure 2).



Figure 1. The female *Solea solea* with 36.7 cm total length was caught from the Ordu region (eastern Black Sea).

It has been reported that this species can grow up to a maximum size of 70 cm (Quéro et al., 1986) and up to 26 years of age (Deniel, 1990). Hitherto, the maximum total lengths of common sole were reported as 27.6 cm from the Black Sea coast of Turkey (Büyükdeveci et al., 2020) and 33.2 from the Sea of Marmara (Demirel & Dalkara, 2012). The individual caught in current study is the largest common sole ever reported in the Turkish coast of Black Sea.

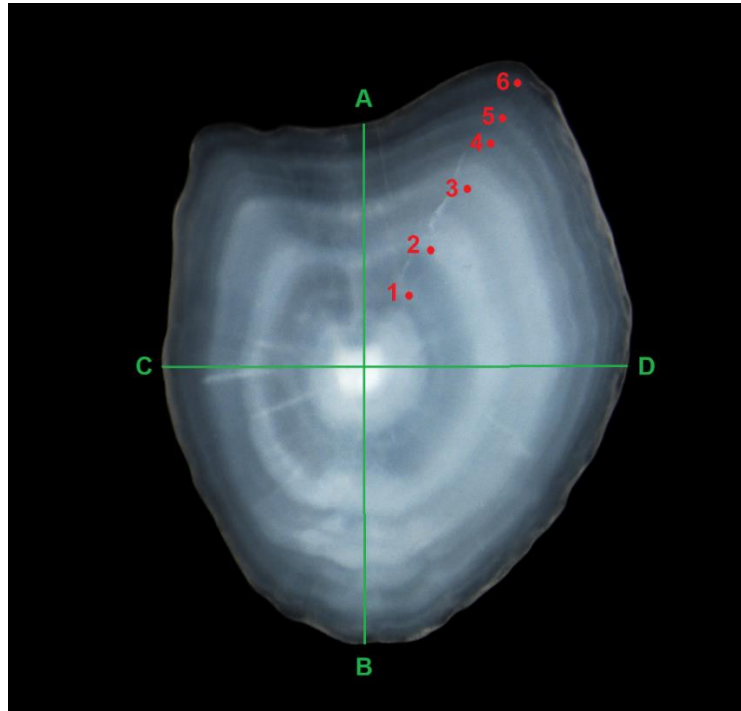


Figure 2. Surface view of the sagittal otoliths of *Solea solea* (6 years old). Otolith length (from A to B point) and width (from C to D point) measures are shown right side.

It is essential to regularly update the maximum size information of a fish species in a region for fisheries biology. The size of the present specimen was the maximum length of *S. solea* ever registered for the Turkish coast of Black Sea.

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### Conflict of Interest

The authors declare that they have no competing interests. All applicable international, national, and institutional guidelines for the care and use of animals were followed. Local ethics committee approval was received.

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