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First Record for the Histioteuthis reversa (Verrill, 1880), (Cephalopoda/ Histioteuthidae) in the Gulf of Antalya, Turkey

Hatice Üstüner[a*], and Mehmet Gokoglu[b]

a. Antalya Science and Art Center, Turkey.
b. Akdeniz University, Faculty of Fisheries, Antalya, Turkey.

Abstract

A different squid species was caught with a trawling net at the coordinates of 36° 39'.431'' N; 31° 9.841''E and a depth of approximately 600-650 m in the Gulf of Antalya. In the identification of species, this squid species was determined to be Histioteuthis reversa (Verrill, 1880). This is the second record for the squid species in the Mediterranean Coast of Turkey and the first record in the Gulf of Antalya.

Keywords: Gulf of Antalya; Histioteuthis reversa; Mediterranean; Record

1. Introduction

Histioteuthis reversa, also known as reverse jewell squid (Verrill, 1880), is a cephalopod species belonging to the Histioteuthidae family (Palomba et al., 2021). Members of the Histioteuthidae family living in the deep waters are mesopelagic. There are 19 species of two genera (Histioteuthis and Stigmatoteuthis) in all the world's oceans. In the Mediterranean, the Histioteuthis genus is represented by two species, *Histioteuthis reversa* and *Histioteuthis bonnellii* (Culurgioni et al., 2010; Quetglas et al., 2010). *H. reversa*, native to the Atlantic Ocean and the Mediterranean Sea, is one of the most common Histioteuthidae species in the North Atlantic excluding the Caribbean Sea, Gulf of Mexico, and the Southern Subtropical Region. It is distributed up to the Southern East Atlantic (Gibson and Atkinson, 2009; Voss 1969). This species is an important prey source for higher trophic levels such as marine mammals and consumes crustaceans, other cephalopods, and fish (Bello, 1996; Quetglas et al., 2010; Palomba et al., 2021).

Mature members of these species are distributed at a depth between 600 and 1300 m during the day and night and younger members are distributed at a depth of 0-200 m. Egg-laying females usually appear on the surface; therefore, females are thought to rise towards surface to lay eggs (Voss et al., 1998). Large and small photophores intermingle on the ventral surface of the mantle and there are 18 photophores around the right eyelid (17 large and 1 small) (Voss, 1969; Voss et al., 1998). Mature females (114-186 mm in gladius length) appear to attain a larger body size compared to males (49-99 mm in mantle/gladius length) (Voss et al., 1998). This size difference is thought to be associated with the unusual elongation of the body as the female goes through the maturation process (Young and Vecchione, 2000).

The presence of the species was reported by various researchers in the Iberian Peninsula in the Mediterranean (Gonzalez and Sanchez, 2002) and the Eastern Mediterranean (Salman et al., 2002; Salman, 2009; Öztürk et al., 2014). Gokoglu et al., 2021) reported the species for the Gulf of Mersin, which is one of the Mediterranean coasts of Turkey. This study aimed to identify the different squid species caught during trawling in the Gulf of Antalya and include it in the fauna list of the Gulf of Antalya.

2. Materials and Methods

On 16 October 2021, a different squid species was caught with a trawling net, which aimed to harvest red shrimp (*Aristaeomorpha foliacea* and *Aristeus antennatus*), at the coordinates of 36° 39'.431'' N; 31° 9.841''E and a depth of approximately 600-650 m in the Gulf of Antalya. This squid species was taken and brought to the laboratory of the Faculty of Fisheries of Akdeniz University and the species were identified according to Voss et al. (1998) and Young and Vecchione (2018). The mantle length and total weight of the species brought to the laboratory were measured and photographs were taken.

** Author correspondence: Antalya Science and Art Center, Turkey*
e-mail: h.ustuner1977@gmail.com

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Figure 1. The area where the squid (H. reverse) was caught in the Gulf of Antalya.

3. Result and Discussion

. The squid species caught with a trawling net at a depth of 600-650 m in the Gulf of Antalya was identified as *Histioteuthis reversa*. This squid species has four pairs of arms, a pair of tentacles, and two unequal eye sizes. The right eye is surrounded by seventeen large photophores and one small photophore (Figure 2). There are seven large photophores in the frontal areal of the left eye, which is larger than the right eye. These characteristics of the species are consistent with those which were described by Voss et al., (1998), Gibson et al (2009), and Gökoglu et al. (2021) for *H. reversa*. These characteristics are important in the identification of species.

The length of the cup-like mantle of the sample which was caught in the Gulf of Antalya was measured as 6 cm. There were deformations in the arms of this sample (Figure 3), which was caught with a trawling net. The weight of the sample in this state was determined as 76.07 g. The weight and mantle length of the sample recorded in the Gulf of Mersin by Gökoglu et al. (2021) were 230 g and 13 cm, respectively. Compared to the sample caught in this study, the sample caught in the Gulf of Mersin is a larger individual.

Figure 2. The right eye of Histioteuthis reversa and surrounding photophores.

Voss et al. (1998), Gibson et al. (2009), Fanelli et al. (2018) reported the presence of a pelagic deep-sea organism, H. reversa, in their research in the deep waters of the Northwest Mediterranean. Gökoglu et al. (2021) also reported this species for the first time from the Gulf of Mersin on the Mediterranean coast of Turkey.

In the literature, no record of the species from the Gulf of Antalya was found. In this study conducted on *H. reversa*, which lives in the very deep waters of the Mediterranean and is very rare, the species is being reported for the second time from the Mediterranean coast of Turkey and for the first time from the Gulf of Antalya.

Figure 3. *H. reverse* caught in the Gulf of Antalya.

This research will shed light on future studies on the detection, distribution, population dynamics, and ecology of H. reversa in other regions of the Mediterranean. Furthermore, one more species was included in the fauna of the Gulf of Antalya with this study.

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