



## In situ predation of *Boops boops* (Linnaeus, 1758) on the rare hydrozoan, *Geryonia proboscidalis* (Forsskål, 1775), in the Aegean Sea, Turkey

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### ARTICLE INFO

#### Research Article

Received 21 June 2017  
Accepted 28 September 2017

#### Keywords:

Bogue  
Fish  
Feeding  
Predation  
Hydrozoa  
Jellyfish

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### ABSTRACT

Most data of fish feeding on cnidarians were obtained from the studies on gut contents of the predators rather than in situ observations. The feeding observation of *Boops boops* on *Geryonia proboscidalis* was observed in September 2013, in Sığacık Bay, the Aegean Sea, Turkey. The four bogue specimen was approximately 10-12 cm in total length (TL), and two out of six tentacles and tip of oral arm of *G. proboscidalis* was extirpated before the incidence. *B. boops* individuals directly attacked the intact tentacles of the hydrozoan, and extirpated rest of them in a minute. The present observation is also the northernmost record of *G. proboscidalis* from the Turkish coasts.

DOI: <https://doi.org/10.24925/turjaf.v5i11.1350-1352.1382>

### Introduction

Cnidarians are well known predators of zooplanktonic and macroscopic marine organisms (Arai, 2005; Purcell and Arai, 2001). As a prey, they are in the diet of a wide range of marine organisms including other cnidarians, fishes, molluscs, arthropods, reptiles and birds (Arai, 1988, 2005; Ates, 1988; Cardona et al., 2012; Purcell, 1991; Purcell and Arai, 2001). Most of the data were obtained from the studies on the gut contents of the predators rather than in situ observations (Arai, 2005). However, gelatinous organisms are difficult to be obtained from the gut contents of those predators as they are rapidly digested (Arai et al., 2003) and disintegrate in fixatives used to preserve the organs (Mianzan et al., 2001). Although they have not been observed in some feeding studies using standard fixatives (e.g. formalin) (Bayhan and Sever, 2015), they were found in gut contents of at least 124 fish species (Pauly et al., 2009).

In the Mediterranean Sea, there are two hydrozoan species found from the family Geryoniidae (order

Trachymedusae); *Geryonia proboscidalis* (Forsskål, 1775), *Liriope tetraphylla* (Chamisso and Eysenhardt, 1821) (Bouillon et al., 2004). Although both species have hemispherical umbrella, *L. tetraphylla* has a thick and rigid mesoglea in contrast to *G. proboscidalis* (Bouillon et al., 2004). *G. proboscidalis* has a slightly wider umbrella (35-80 mm) compared to *L. tetraphylla* (10-30 mm), and it has six long tentacles which is four in the latter (Bouillon et al., 2004).

The bogue (*B. boops*) is a coastal species of seabreams (Sparidae). It is found in the Eastern Atlantic, in the Mediterranean and the Black Sea. It is omnivorous and its diet composition include crustaceans, polychaete, copepod, algae, cnidarians, mollusca, porifera and protozoans (Bilge, 2008; El-Maremie and El-Mor, 2015).

In situ predation of *B. boops* on *G. proboscidalis* was reported in this study. In addition, this is an additional record of rare hydrozoan *G. proboscidalis* from the Aegean Sea.

## Materials and Methods

The observation was made in September 2013, during the snorkeling at the northwestern nearshore of Sığacık Bay (Fig. 1-F), in the Aegean Sea, Turkey (Fig. 1-G). Bouillon et al., (2004) was followed in the identification of *G. proboscidalis*. Sea temperature, salinity and dissolved oxygen were 23.2°C, 38.2‰ and 7.9mg/L, respectively.

## Results and Discussion

The *G. proboscidalis* with an approximate umbrella width of 5 cm was observed swimming at the observation location. Two out of six of its tentacles was already extirpated at first sight. Four *B. boops*, ~10-12 cm in total length, directly attacked its four intact tentacles and removed them about in a minute (Fig 1- B, C, D). The bogues also damaged the margins of its umbrella and they moved away afterwards (Fig. 1- E).

In the Mediterranean, cnidarians have already been observed from the gut contents of *B. boops*, but the

species of the gelatinous organisms could not be specified. In a feeding study in the Aegean Sea, cnidarians were detected in the stomach contents of 10.1% of *B. boops* (n=982) of which their total length (TL) varied between 9.3 and 28.1 cm (Bilge, 2008). Similar results (10%, n=500) were obtained from the eastern coasts of Libya (El-Maremie and El-Mor, 2015). In the same study, it was observed that specimen of smaller size classes (40% of 9.5-15.4 cm; 19% of 15.5-23.4 cm; 2% of >23.5 cm TL) were more likely to feed on cnidarians (El-Maremie and El-Mor, 2015). The approximate total lengths of the four bogues observed in this study were also 10-12 cm. This indicates that gelatinous organisms may be an important part of the diet of the bogues within this length range. In another observation (Gülşahin et al., 2013), tentacles of the same species were also missing, similar to those observed in the present study. This suggests that the tentacles of this species may be attractive to some fish (species). On the other hand, it is notable that the bogues in the present observation did not attack the bell but the tentacles.

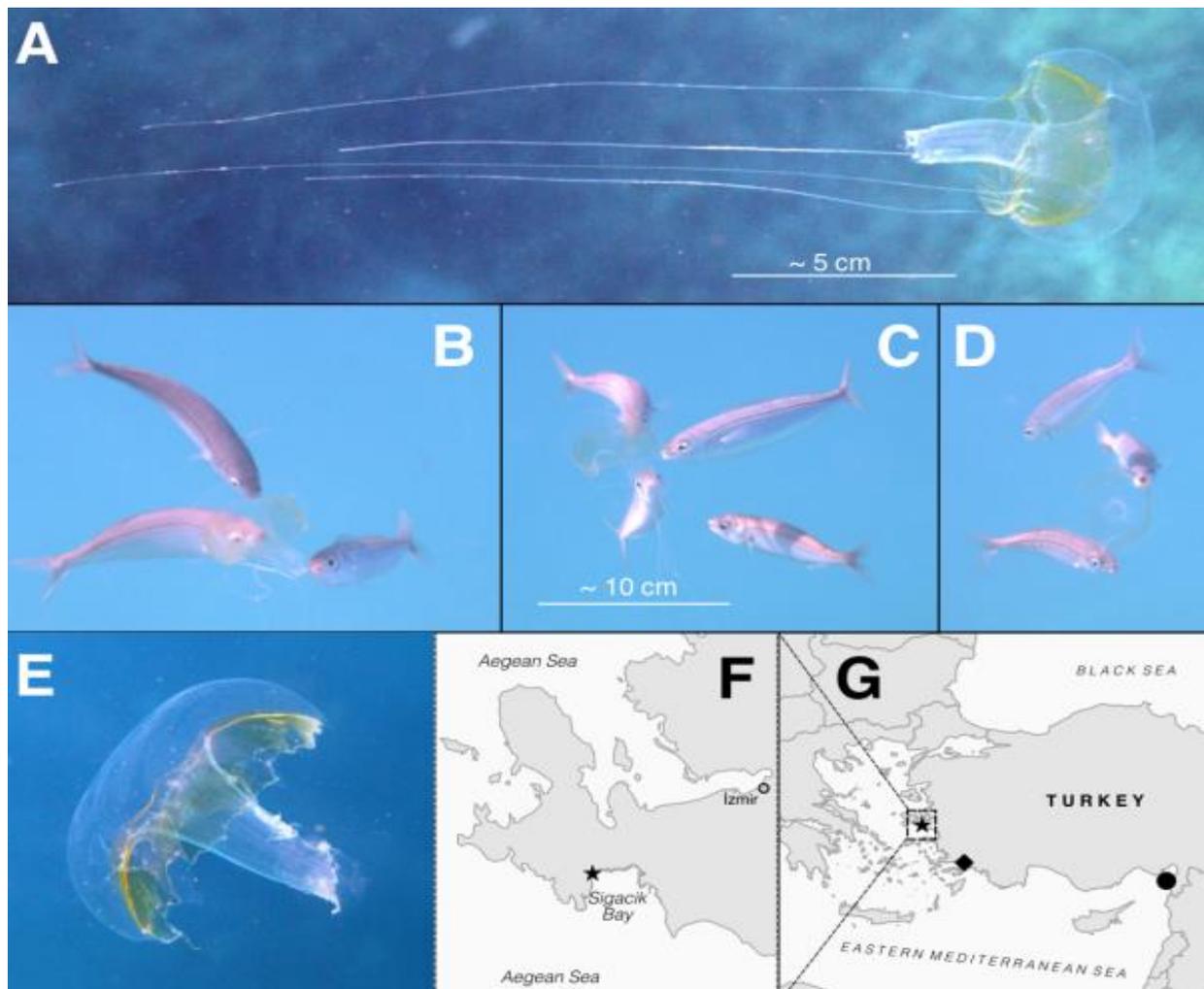


Fig. 1 The incident and its location. A- Condition of the *G. proboscidalis* before predation, B,C,D- attack of the four *Boops boops* E- Final condition of *G. proboscidalis*, F- detailed location of the observation, G- general location of the present study (★) and the previous records of *G. proboscidalis* from Turkey (Gülşahin et al., (2013) (◆), Ergüden et al., (2014) (●).

*G. proboscidalis* is known from the eastern and western Mediterranean Sea and the Adriatic Sea. It has been recently observed from Turkish coasts; Gökova Bay on the Southern Aegean Sea in June 2013 (Gülşahin et al., 2013) and İskenderun Bay on the Northeastern Mediterranean coasts of Turkey in July 2012 (Ergüden et al., 2014). The present observation is the northernmost record of *G. proboscidalis* from Turkish coasts. The fact that the observation dates of the three studies being close to each other and the absence of any subsequent records support the argument suggesting that the species may be carried with sea currents or ballast waters at this particular time frame.

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