

RESEARCH ARTICLE

A list of macrofauna on the continental shelf of Gökçeada Island (northern Aegean Sea) with a new record (*Gryphus vitreus* Born, 1778) (Brachiopoda, Rhynchonellata) for the Turkish seas

Onur Gönülal*, Sedat Ozan Güreşen

Gökçeada Marine Research Department, Faculty of Fisheries, Istanbul University, Gökçeada, Çanakkale, TURKEY

*Corresponding author: ogonulal@istanbul.edu.tr

Abstract

Long-term sampling (1974-2013) of macro fauna of the Gökçeada Island (northern Aegean Sea) provided qualitative information on many taxa including Porifera, Cnidaria, Mollusca, Arthropoda, Brachiopoda, Bryozoa, Spiculida, Echinodermata, Chordata. *Gryphus vitreus* (Brachiopoda) and *Funiculina quadrangularis* (Pallas, 1766) are the first records for the Turkish seas and the Aegean coast of Turkey, respectively. The present paper aims to describe macrofauna occurring on the continental shelf of Gökçeada Island. This checklist was based mainly on review of the literature published since 1974 and studies conducted at Gökçeada Marine Research Department in 2007-2013. The present paper also reports a total of 10 alien species along the continental shelf of Gökçeada Island. *Calinectes sapidus* Rathbun, 1896 is one of the alien species of commercial importance.

Keywords: Macrofauna, Gökçeada, continental shelf, *Gryphus vitreus*

Introduction

The Gökçeada Island is the largest island in Turkey. It is believed to have been parts of Thrace and Anatolia (Koral *et al.* 2009). The island has a coastline of 92 km and its surface area is 279 km².

The northern Aegean Sea has been considered as a subunit of the Mediterranean Sea (Peres 1967). Due to many islands in the northern Aegean Sea, the water movements vary greatly. The Black Sea waters from the Çanakkale Strait flow towards north in winter and south in summer. The water mass surrounding the island is affected by cooler and less salty water coming from the Sea of Marmara. The area is enriched by nutrients of the Meriç River and has a variety

of pelagic fish feeding on abundant phytoplankton (Ulutürk 1987). Temperature and salinity of the island coastal water ranged between 11.5-30.2°C and 34.8-35.3‰, respectively.

Continental shelves, which comprise less than 10% of the ocean, are the most active sites of biogeochemical processes in oceans and where light conditions are reduced (Wollast 1991; Antoniadou and Chintiroglou 2005). This environment is quite sensitive to anthropogenic pressure, such as coastal technical constructions, terrigenous water outfall, toxic wastes, fishing and collection of rare species, invasion by alien species *etc.* (Bellan-santini *et al.* 1994; Boudouresque and Verlaque 2002; Chintiroglou *et al.* 2005).

Species richness is considered as the most appropriate measure to assess biodiversity in a specific area (Olsfrad *et al.* 1998). The value of biodiversity is an indication of environment health and for the functioning of ecosystems (Bengtsson *et al.* 1997). The main goal of the present paper is to present fauna of the Gökçeada island.

Materials and Methods

This study was based mainly on literature review and studies carried out between 1973-1978 at Gökçeada Fisheries and Sponge-Fishing Research Department (former name of Gökçeada Marine Research Department) where sea sponges were cultivated under uncontrolled conditions (Kara 1975). These studies carried out between 1973-1978 were not published. These reports can be found in the library of Gökçeada Marine Research Department and given as “unpublished reports” in Table 1.

Besides, the data collected during 2007-2013 on Gökçeada marine macrofauna by Gökçeada Marine Research Department were also evaluated. Materials obtained between 2007-2013 were collected by means of dredge, baited trap, long-line, set net and bottom trawl and scuba diving on the continental shelf area around the Gökçeada Island.

The study area comprised the continental shelf of the Gökçeada Island with depths ranging from 0 to 200 m (Figure 1). All materials were identified to species level and the nomenclature of the higher taxa followed WoRMS (2014).

Results

Incorporating review of the literature, 685 species are included on the present checklist. 149 of the species are recorded for the first time from the Gökçeada island. Among these, *G. vitreus* represents a new record for the Turkish seas.

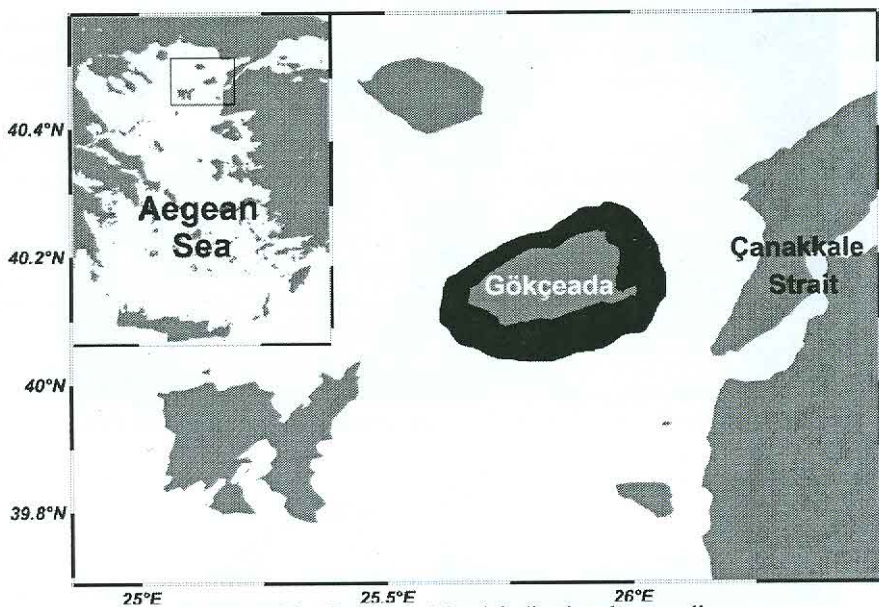


Figure 1. Map of the Gökçeada Island, indicating the sampling area

New records

***Gryphus vitreus* (Born, 1778)** (Figure 2)

Material examined: The northern Aegean Sea, Turkey, Gökçeada Island, 10.01.12, Coordinates; 40°05'31"N 25°36'70"E, 180-190 m.

Gryphus vitreus (Brachiopoda), a new record for the Turkish coast, prefer substrate rock, gravel clast and bio-depth eurybathic and circalittoral-bathyal zone. A previous dearth of materials from the eastern Mediterranean has now been at least partially remedied by new records from the coasts of Cyprus, Israel Egypt and Lebanon and South Aegean Sea. Its previous records are from the eastern Mediterranean Sea (Brunton 1989; Kuznetsov *et al.* 1993) and the Greek waters of the South Aegean Sea (Logan *et al.* 2002). According to Logan *et al.* (2004), there are 14 species of brachiopods which can be now considered valid for the present-day Mediterranean Sea.

***Funiculina quadrangularis* (Pallas, 1766)** (Figure 3)

Material examined: The northern Aegean Sea, Turkey, Gökçeada Island, 10.04.13, Coordinates; 40°09'45"N 25°41'90"

F. quadrangularis (Anthozoa) is a new record for the Aegean coast of Turkey. It is also known from the Aegean Sea (Pérès and Picard, 1958; Vafidis *et al.* 1994). It has been reported by Uysal *et al.* (1998) from the Marmara Sea.

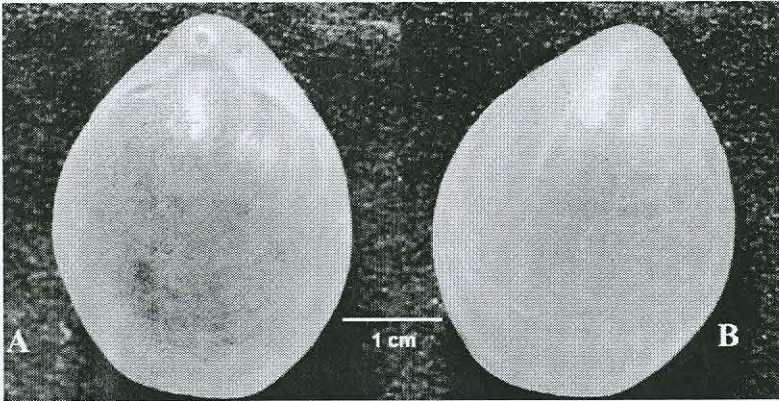


Figure 2. *Gryphus vitreus* (Born, 1778); A) dorsal view and B) ventral view

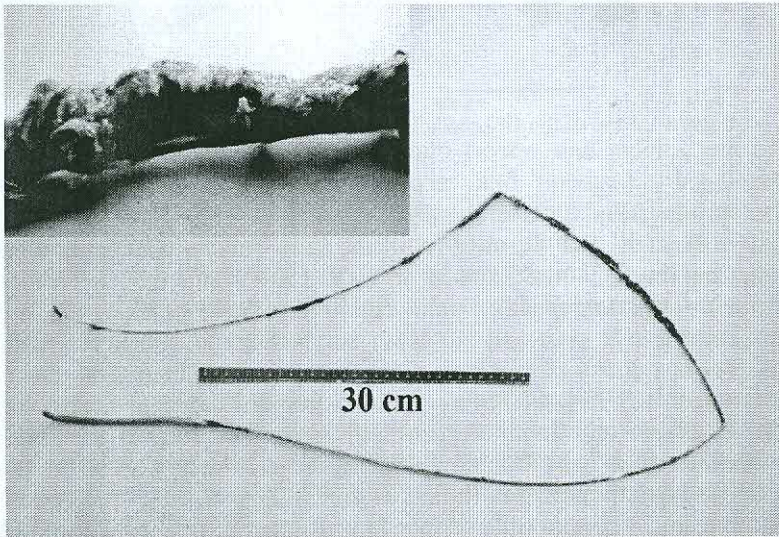


Figure 3. *Funiculina quadrangularis* (Pallas, 1766)

List of species

Mainly based on literature review, a total of 685 species belonging to 10 phyla (not including Peracarida (superorder) and Phylum Annelida) are known from the Gökçeada Island. The species list of each phylum and classis are presented in Table 1. Among these, 532 species had been previously reported from the Gökçeada Island. The remaining 149 species found during the present study are new records for the Gökçeada Island.

