

## **Editor's Note to the issue dedicated to the Finike Seamounts (Anaximander) Special Environmental Protection Area, the eastern Mediterranean Sea**

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### **Abstract**

The Finike Seamounts (Anaximander) area was designated as the Special Environmental Protection Area (SEPA) in 2013 by the Turkish government to protect its unique biodiversity components such as rich benthic communities, vulnerable deep sea species and highly migratory species. As the area is not totally inside the territorial waters of Türkiye, this initiative can facilitate and be beneficial for transboundary cooperation in terms of conservation for highly mobile and vulnerable species such as sea turtles, bluefin tuna, seabirds, and cetaceans. Besides, it can be included in the Specially Protected Areas of Mediterranean Importance (SPAMI) list under the Barcelona Convention in order to promote bilateral cooperation with the neighbouring countries. Designation as one of the Ecologically or Biologically Significant Marine Areas (EBSAs) under the Convention of Biological Diversity is also another option for marine conservation in this region. Finally, the Finike Seamounts SEPA needs a long-term scientific monitoring study to understand both the benthic and pelagic components of its biodiversity. The surveys in 2021 initiated such a study and the papers published in this issue of the journal (Vol.28 No.2) as the results of 2021 surveys provide the baseline data of the Finike Seamounts SEPA to be referred and evaluated for the coming years.

**Keywords:** Finike Seamounts (Anaximander), marine biodiversity, marine conservation, Special Environmental Protection Area

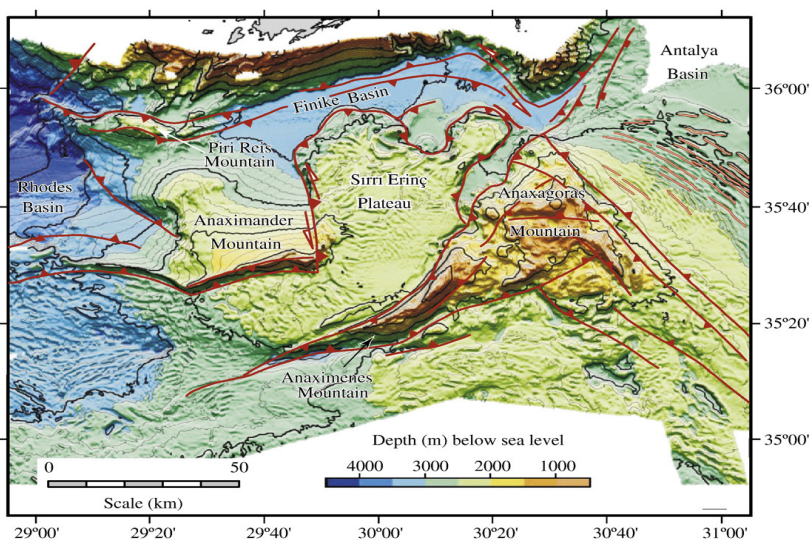
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Seamounts are unique marine ecosystems that often support fragile habitats and vulnerable species of fauna and flora (Alder and Wood 2012). The Finike Seamounts area can be considered as a group of isolated underwater islands in the

eastern Mediterranean Sea, playing a stepping stone role between offshore and coastal areas. Thus it facilitates the connectivity of different habitats, which is highly important for the conservation of vulnerable migratory species.

Several studies have reported the importance of the seamounts both in the pelagic and benthic realms (Pitcher *et al.* 2010; Morato *et al.* 2013). In the eastern Mediterranean Sea (Levantine Basin), the Finike Seamounts (Anaximander) are located off the southern coast of Türkiye. The peaks are 700-1100 m deep, elevating from the sea floor at 1500-2000m deep. Piri Reis, Anaximander, Anaxagoras and Anaximenes mountains are a chain of seamounts. The Sırrı Erinç Plateau is also located in the main geological setting of the Finike Basin (Figure 1). The Finike Seamounts are under the influence of Rhodos Gyre in terms of nutrient enrichment. Two anticyclone systems have been identified: the Antalya and, further west, the Anaximander Anticyclone (Onken and Yüce 2000).

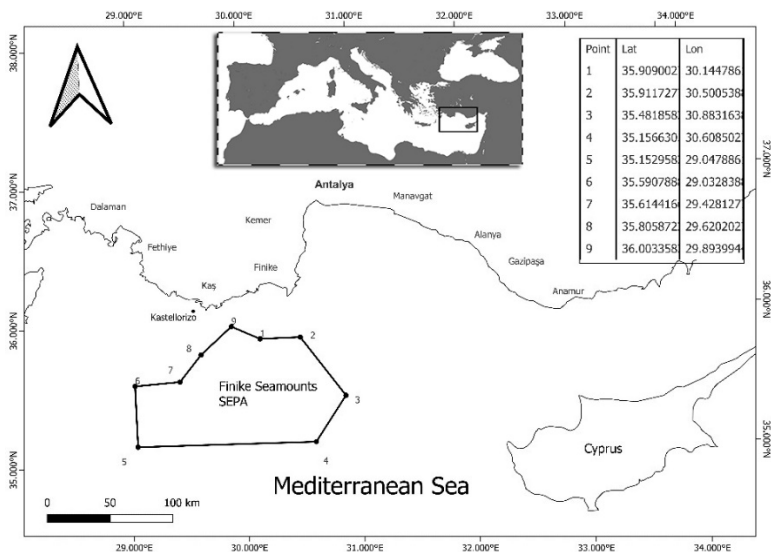


**Figure 1.** Geological setting of the Finike Basin (Aksu *et al.* 2009)

The Finike Seamounts have unique habitats, such as cold seeps, vents and mud volcanoes (Charlou *et al.* 2003). Chemosynthetic communities are also discovered on mud volcanoes (Olu-Le Roy *et al.* 2004). The community of the Anaximander mud field was dominated by bivalves commonly found at seeps (Olu-le Roy *et al.* 2004). In particular, mud volcanoes with methane cold seeps community were reported from this area. This community is quite different from all other known cold seep communities (Medioni 2003). The seamounts system was studied during the Turkish Eastern Mediterranean Cruise in 2007 and 2008, which visited Northern part of Cyprus, Syria and Lebanon. Later, the Finike Seamounts was proposed as a high sea marine protected area by Öztürk (2009). There have been some other studies carried out in the region. One of the examples

was that E/V Nautilus, a renowned oceanographic research ship, made an expedition in the deep seas of the Mediterranean, including the Finike Seamounts area (Anaximander Mountain) in 2012, providing additional information and vivid images (Raineault *et al.* 2013).

After several years of internal consultations and exchanges of information among relevant authorities and scientists in order to protect its biological and ecological values, the Turkish government designated the region as the “Finike Seamounts Special Environmental Protection Area (SEPA)” on 16 August 2013. This SEPA is also the first marine protected space without any land component. Its surface area (1,124,173 ha) is larger than Cyprus Island (9.251km<sup>2</sup>) (Figure 2).



**Figure 2.** Finike Seamounts Special Environmental Protection Area (SEPA)

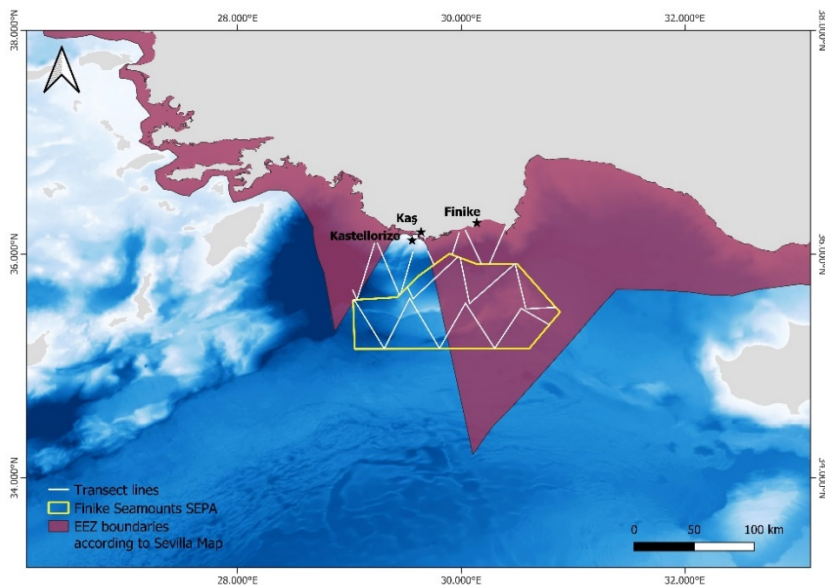
The northern corner of the Finike Seamounts SEPA is only 15 km east of the neighbouring Kaş/Kekova SEPA, which was designated in 1990. They are complementary to each other mainly for the migratory species in terms of effectivity in protecting marine biodiversity in the coastal area and the deep high sea area. Migratory species such as cetaceans (dolphins and whales) use large pelagic areas as foraging grounds and migratory corridors (Dede *et al.* 2012; Öztürk *et al.* 2012a,b, 2015).

There are limited studies available about marine biodiversity of the Finike Seamounts. Cold seep communities were studied by Olu-le Roy *et al.* (2004) and marine biodiversity by Öztürk *et al.* (2010) who reported a total of eight fish, four crustacean and one cephalopod species. Blake and Ramey-Balci (2020) also reported spionid polychaete (Annelida, Spionidae) from a deep-water cold seep

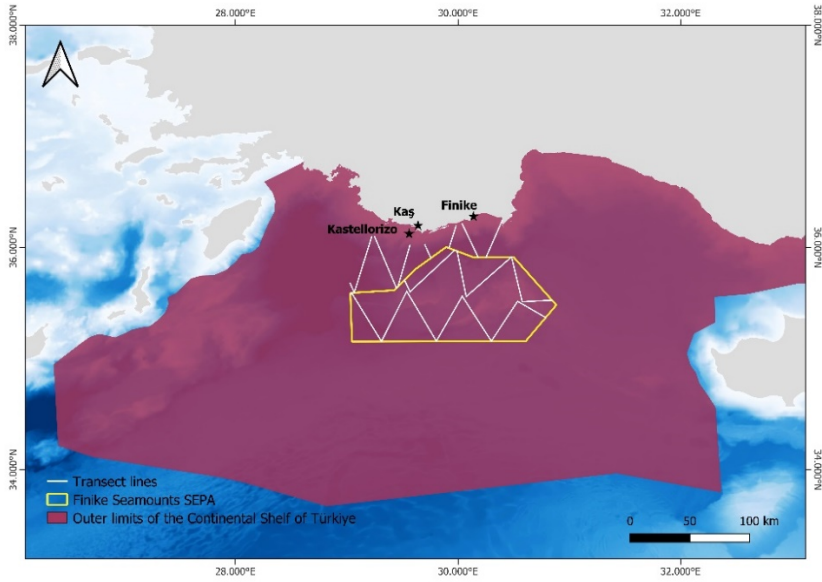
site in the eastern Mediterranean Sea. Woodside *et al.* (2006), Dede *et al.* (2012), Akkaya *et al.* (2020, 2022) and Awbery *et al.* (2022) studied cetaceans' presence and abundance in the area. Besides, Ürkmez (2021) reported some meiobenthic communities in the area.

In 2021, to elaborate an effective management plan for the protection of this SEPA and filling the gap of information on cetaceans, the Turkish Ministry of Environment, Urbanization, and Climate Change (TMEUC) decided to start cetacean monitoring in the area. In the framework of monitoring studies funded by TMEUC in the Finike Seamounts SEPA, two surveys on a research vessel YUNUS-S, Faculty of Aquatic Sciences, Istanbul University, were carried out in May and September, 2021.

Line transects were followed to cover the wide area to understand the presence of cetaceans. In addition, other migratory species, such as sea birds, sea turtles, fish, zooplankton, crustaceans, foraminifera and marine litter, including micro plastics were studied. It is obvious that the Finike SEPA has a transboundary characteristic due to a Greek island of Kastellorizo, which is about 2000 m off the Turkish mainland coast. Boundary delimitation is claimed by Greece according to Sevilla map (Figure 3). On contrary, Figure 4 shows the outer limits of the continental shelf of Türkiye according to a letter dated 18 March 2020 from the Permanent Representative of Türkiye to the United Nations Secretary-General.



**Figure 3.** Sevilla Map showing the theoretical EEZ of the region (<https://www.marinerregions.org/gazetteer.php?p=details&id=5697>)



**Figure 4.** Outer limits of the continental shelf of Türkiye according to the letter dated 18 March 2020 from the Permanent Representative of Türkiye to the United Nations Secretary-General

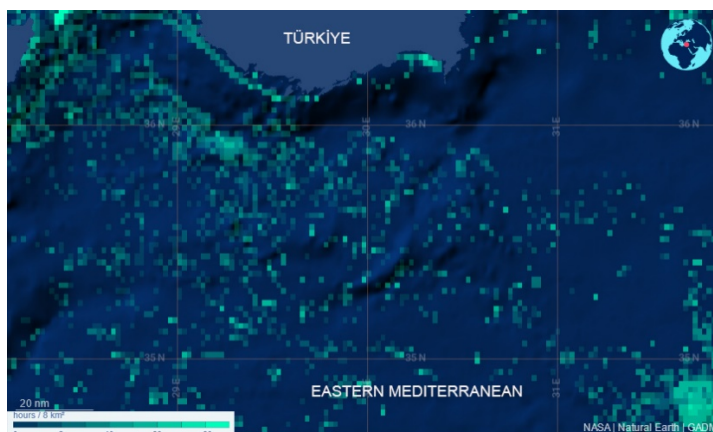
All findings of the two surveys are presented in this issue (*Journal of Black Sea /Mediterranean Environment* Vol.28, No.2) with the participation of experts from various disciplines.

There is no experience for seamount protection and governance in the eastern Mediterranean Sea. The protection of different seamounts may ultimately result in different outcomes. Protection of any form, however, can be beneficial for marine species, both pelagic and benthic, and can enhance the protection of biodiversity and resilience of the ecosystem in the region.

The management of fish stocks has crucial importance. Within the scope of the above mentioned surveys, it can be concluded that it is necessary to increase research intensities for understanding distribution, abundance, biology, catch data and fisheries management mainly for cartilaginous species as there is very limited amount of data available at present. This does not mean that the effort for other species should be reduced or stopped. They should be continuously monitored to ensure the updates of the information. Akyol and Ceyhan (2017) reported that the area between Fethiye and Kaş is one of the swordfish catching areas. Swordfish longlining is a threat and long lining fishing needs to be managed and monitored in the region. Fishing activities should be carefully monitored and managed to mitigate any bycatch or overfishing. The Finike Seamounts should be

recommended as a Fisheries Restricted Area to protect sensitive deep sea habitat by General Fisheries Commission for the Mediterranean (GFCM).

Protection of vulnerable species and management of migratory fish stocks are urgently needed. At least some of the shared stocks need special management measures. Figure 5 shows there were fishing activities in the seamounts chains and surrounding water.

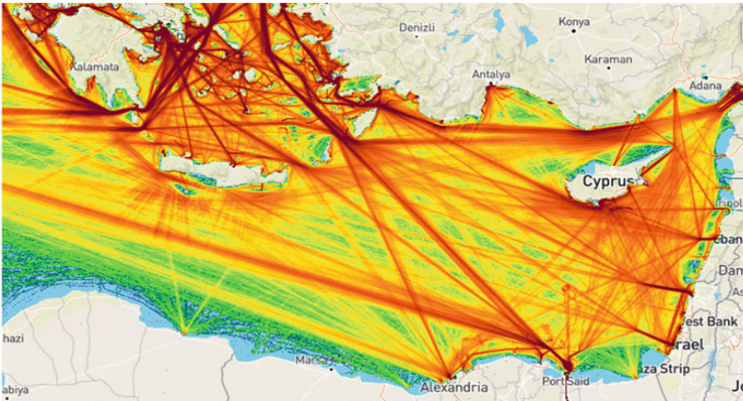


**Figure 5.** Apparent fishing effort estimated by AIS data in the Finike SEPA and surrounding area in 2021 (Source: <https://globalfishingwatch.org/>)

Designation of Fisheries Restricted Area (FRA) to Finike Seamounts SEPA is an urgent matter with the possible support of FAO/GFCM. Eratosthenes Seamount has been designated in accordance with the Recommendation 2006/3 as an area with restricted fisheries in order to protect the deep sea sensitive ecosystem.

Seismic surveys and drilling activities for petrol, natural gas as well as military activities have been increasingly intense in the area. The noise made by these activities has created a negative impact on the cetaceans as these animals depend on underwater sounds for feeding, navigation and communication. More research is needed but precautionary approaches should be taken with the use of Marine Mammal Observers and Passive Acoustic Monitoring during seismic surveys. Military activities should also be managed not to disturb the cetaceans in the area.

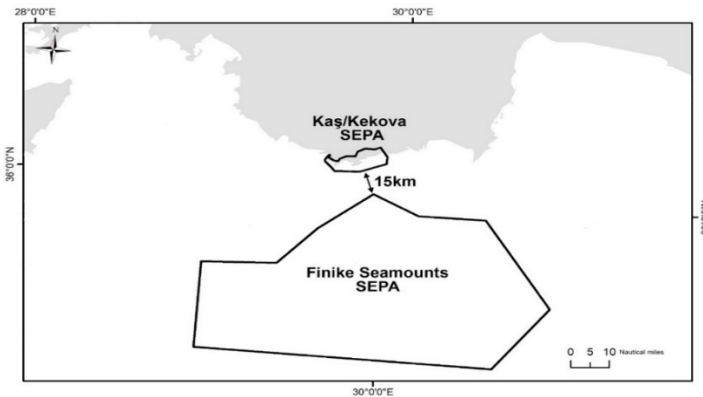
Heavy maritime traffic is another threat to this SEPA because the area is situated on the transportation lines connecting several important ports in the eastern Mediterranean Sea (Zodiatis *et al.* 2017), mainly Rhodes, Alexandria, Port Said and İskenderun (Figure 6). As floating marine litter was observed in the entire survey area (see in this issue), the implementation of the International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78 should be more strictly enforced on commercial vessels passing through the area. The risk of ship strikes for cetaceans should also be considered.



**Figure 6.** Maritime traffic density in the eastern Mediterranean (after Zodiatis *et al.* (2017))

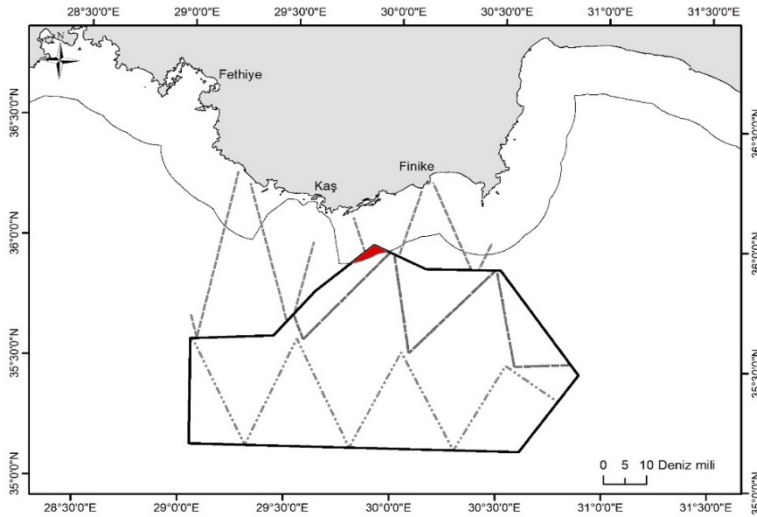
To protect highly migratory species, such as cetaceans, it is important to cooperate through regional agreements such as the Barcelona Convention and the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS).

In the east of Antalya province, the Kaş/Kekova SEPA was declared in 1990. It covers over 258km<sup>2</sup>, of which 166km<sup>2</sup> is marine and 92km<sup>2</sup> on land, encompassing the areas of Kaş and Demre. As can be noticed in Figure 7, this SEPA is very close to the Finike Seamounts SEPA. There is only 15km between the closest parts of the two SEPAs and this can serve as a complementary zone for mainly transboundary species such as sea turtles and cetaceans. It is also reported that Kaş/Kekova SEPA hosts some cetacean species (Akkaya *et al.* 2020).



**Figure 7.** The geographical distance and location of the Kaş/Kekova and Finike Seamounts SEPAs

The area of 35 km<sup>2</sup> within the Finike Seamounts SEPA is inside of the territorial water of Türkiye in the eastern Mediterranean Sea and the rest is also inside the outer limit of the continental shelf of Türkiye (Figure 8). Nevertheless, Greek island Kastellorizo is closest to the SEPA. Thus, it can be a good governance model for transboundary cooperation bilaterally between Türkiye and Greece if they can work together for the protection of marine biodiversity in the area.



**Figure 8.** Turkish territorial part (shown in red) in the Finike Seamounts SEPA

In terms of transboundary species migration, the connectivity between Kastellorizo Island, Finike Seamounts and Kaş/Kekova SEPA needs further investigation.

The Contracting Parties to the Barcelona Convention established the List of Specially Protected Areas of Mediterranean Importance (SPAMIs). This tool promotes cooperation in the management and conservation of natural areas, as well as in the protection of threatened species and their habitats. According to the provisions of the Specially Protected Areas (SPA/BD) Protocol, SPAMIs may be established in the marine and coastal zones subject to the sovereignty or jurisdiction of the Parties and in areas situated partly or wholly on the high sea (Algan 2019).

For now, some SPAMIs have been listed including an area established on the high sea such as the Pelagos Sanctuary for cetaceans. In fact, Öztürk *et al.* (2012a) already proposed two seamount areas as SPAMIs, Finike (Anaximander) and Mediterranean (Eratosthenes) because of various threats they are already facing.



Ecologically or Biologically Significant Areas (EBSAs) designated under the Convention of Biological Diversity (CBD) have been recognized in the eastern Mediterranean Sea as well. A small portion of the Finike Seamounts SEPA overlaps with the Hellenic Trench EBSA. The entire Finike Seamounts SEPA should be, however, designated as an EBSA because seamount habitats are one of the sensitive biodiversity areas.

Finally, the Finike Seamounts SEPA needs a long-term scientific monitoring study to understand both the benthic and pelagic components of its biodiversity. The surveys in 2021 onboard YUNUS-S initiated such a study and the papers published in this issue of the journal (Vol.28 No.2) provide the baseline data of the Finike Seamounts SEPA to be referred and evaluated for the coming years.

### **Acknowledgement**

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### **Editör yazısı**

## **Doğu Akdeniz Finike Denizaltı Dağları (Anaximander) Özel Çevre Koruma Bölgesi hakkındaki bu sayı üzerine**

### **Öz**

Finike Denizaltı Dağları (Anaximander), Türkiye hükümeti tarafından Özel Çevre Koruma Bölgesi (ÖÇK) olarak 2013 yılında ilan edildi. Finike Denizaltı Dağları ve buna bağlı yaşam alanları, hassas türler, denizaltı su çıkışları, çamur volkanları gibi özel biyoçeşitlilik öğelerini içermektedir. İlan edilen alanın hepsi Türk karasuları içinde olmayıp, Doğu Akdeniz'de açıkdeniz kısımlarının korunmasını amaçlamaktadır. Bu inisiyatif Doğu Akdeniz'de sınır ötesi işbirliklerini oluşturma ve deniz kaplumbağaları, orkinoslar, deniz kuşları ve setaseler gibi göçmen ve hassas türler açısından önem taşımaktadır. Ayrıca, bölgesel işbirliğini ve hassas türlerin ve habitatlarının korunmasını teşvik etmek için Barcelona Sözleşmesi kapsamında Akdeniz Öneminde Özel Koruma Alanları (SPAMI) listesine dahil edilebilir. Biyolojik Çeşitlilik Sözleşmesi (CBD) kapsamında Ekolojik ve Biyolojik Hassas Alanlar (EBSA) olarak belirlenmesi de bölgenin korunması için başka bir seçenektir. Son olarak, bu alanda bentik ve pelajik ekosistem biyoçeşitliliğinin anlaşılması için uzun süreli araştırmalar yapılması gerekmektedir. 2021 yılı araştırmalarının sonuçları derginin bu sayısında (Vol.28 No.2) yayınlanarak, Finike Denizaltı Dağları ÖÇK Bölgesi'nin temel verileri olarak gelecek yıllarda başvurulması ve değerlendirilmesi hedeflenmiştir.

**Anahtar kelimeler:** Finike (Anaximander) Denizaltı Dağları, denizel biyoçeşitlilik, deniz koruma, Özel Çevre Koruma Bölgesi

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