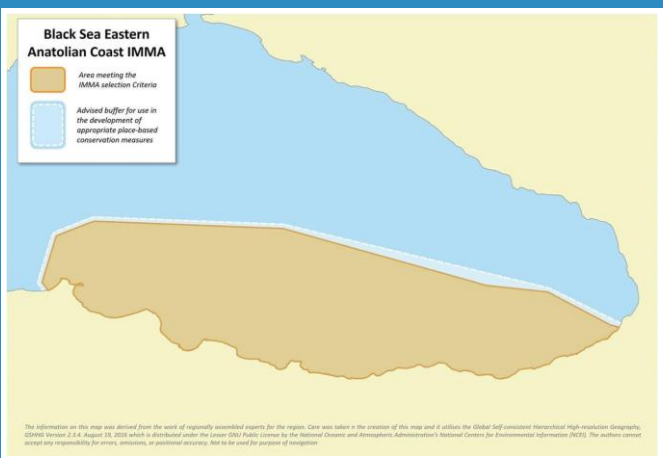

Area Size

71 143 km²

Qualifying Species and Criteria

Black Sea Harbour porpoise –
Phocoena phocoena relicta
Criterion A; B (2); C (2)

Black Sea Common dolphin –
Delphinus delphis ponticus
Criterion A; B (2); C (2)

Summary

Black Sea Eastern Anatolian Coast IMMA is a large area in the southeast of the Black Sea that has important aggregations and feeding areas for endangered harbour porpoise *Phocoena phocoena relicta* and common dolphins *Delphinus delphis ponticus.* The IMMA runs from the coast of the Sinop Peninsula in the west, to Hopa on the eastern border to Georgia. While harbour porpoises concentrate in the near coastal zone, common dolphins use habitat further north and offshore, following migrating fish schools. The cetacean presence is closely related to quality and quantity of fish resources, especially anchovy, which overwinters in this area. Migratory fish species are preferred mainly by common dolphin and bottlenose dolphins in the eastern Black Sea and there are high fish resources and

Black Sea Eastern Anatolian Coast IMMA

Summary, continued.

extensive fisheries in the Eastern Anatolian Coast IMMA region.

Description:

This wide region is one of the productive areas for migratory fish species, mainly anchovy due to nutrient abundance carried by the rivers, ie; Kızılırmak, Yesilırmak, Degirmendere, Solaklı, Fırtına, Coruh. Phytoplankton and zooplankton abundance form a good environment for anchovy and other species predating on anchovy. Mountains parallel to the coastline reach to the sea with high slope and valleys and continue into the ocean realm to form deep canyons in the sea which offer shelter for anchovy schools during cold months (Chashchin, 1996; Daskalov et al., 2012; Gücü et al., 2017). The continental shelf is very narrow and there is an anoxic zone under the depths of 150-200 m, therefore some species use this very narrow littoral strip, which serves as nursery, feeding, sheltering and reproduction zone, such as Mediterranean mussel, Rapa whelk, baby clam, gobies. The majority of fish production is provided in this area by purse seining due to the schooling behaviour of anchovy, horse mackerel, blue fish, bonito, etc. Due to the high abundance of prey fish, small cetaceans are known to exist in this area, including further offshore area based on the limited number of surveys, including the CeNoBS aerial survey (ACCOBAMS, 2021). Thus, the northern border of this IMMA is drawn on the FIR of the relevant survey. The ship-based survey along the whole Turkish coast of the Black Sea conducted in April and July 1987 showed that the harbour

porpoise was the dominant species and followed by common dolphin within the area (Çelikkale et al., 1988, 1989). Another survey made for anchovy stocks in 2014 (July and October) also revealed that common dolphins were the most common species throughout this IMMA (Saydam, 2015). More recently in 2021, a ship-based survey conducted along the eastern coast of the Turkish Black Sea revealed the wide distribution of both the common dolphins and harbour porpoises in this IMMA (Özsandıkçı et al., 2021, 2022).

The area includes three EBSAs which concern cetaceans (Trabzon-Arsin, Trabzon-Sürmene, and Artvin-Arhavi EBSAs).

Criterion A: Species or Population Vulnerability

All three Black Sea subspecies, Black Sea bottlenose dolphin *Tursiops truncatus ponticus,* Black Sea common dolphin *Delphinus delphis ponticus,* and Black Sea harbour porpoise *Phocoena phocoena relicta*, are sighted in this IMMA, but their densities change according to the season and locations due to variations in prey abundance and environmental factors. The Black Sea subspecies of harbour porpoise and bottlenose dolphin are currently listed as Endangered and the Black Sea common dolphin as Vulnerable in IUCN Red List.

Figure 1: Black Sea bottlenose dolphin (*Tursiops truncatus ponticus*) in Sinop. Photo credit: Dr. Uğur ÖZSANDIKÇI

Figure 2: Black Sea common dolphin (*Delphinus delphis ponticus*) in Ordu. Photo credit: Dr. Uğur ÖZSANDIKÇI

Figure 3: Black Sea harbour porpoise (*Phocoena phocoena relicta*) in Trabzon. Photo credit: Dr. Uğur ÖZSANDIKÇI

Criterion B: Distribution and Abundance
Sub-criterion B2: Aggregations

Survey data show that common dolphins (*Delphinus delphis*) are widely observed across the IMMA. The heat map generated from the CeNoBS surveys conducted in 2019 show aggregations of this species in the western part of the IMMA off Sinop to Samsun, but they are also widely distributed along the entire coast and extend to offshore areas. Harbour porpoise are present in the narrow coastal strip in waters less than 1000 m deep. Bottlenose dolphins (*Tursiops truncatus*) are very rare compared to the above two species and there was no sighting in some surveys.

In a study conducted in the Southern Black Sea in 2022 (Özsandıkçı et al., 2022), a total of 849 cetacean groups were recorded, with 448 groups (1846 individuals) during winter and 401 groups (947 individuals) during summer. Encounter rates in the eastern and western regions of Sinop revealed noteworthy seasonal variations. In winter, encounter rates for bottlenose dolphins were 0.03 ind/km in the east and 0.14 ind/km in the west, for common dolphins, 0.92 ind/km in the east and 0.68 ind/km in the west, and for harbour porpoises, 0.79 ind/km in the east and 0.47 ind/km in the west. During the summer season, encounter rates were 0.14 in/km in the east and 0.07 ind/km in the west for bottlenose dolphins, 0.47 ind/km in the east and 0.26 ind/km in the west for common dolphins, and 0.35 ind/km in the east and 0.14 ind/km in the west for harbour porpoises. These findings demonstrate a high density of common dolphins and harbour porpoises, in the eastern region of Sinop, emphasising the significance of this area for cetaceans.

Figure 4: Common dolphin (*Delphinus delphis*) in Sinop. Photo credit: Dr. Uğur ÖZSANDIKÇI

Figure 5: Common dolphins (*Delphinus delphis*) in Samsun. Photo credit: Dr. Uğur ÖZSANDIKÇI

Figure 6: Common dolphins (*Delphinus delphis*) mother and calf in Rize. Photo credit: Dr. Uğur ÖZSANDIKÇI

Criterion C: Key Life Cycle Activities
Sub-criterion C2: Feeding Areas

Stomach content analyses show that all three cetacean species feed on a wide range of fish species in the Black Sea. Therefore, their food items vary according to the available food resources. The main prey species for harbour porpoise are anchovy, sprat, whiting, and gobies. Anchovy and sprat is also the main prey for common dolphins. Whiting, turbot and mullet species (*Lisa* spp., *Mugil cephalus* and *M. so-iuy*) are favourable for bottlenose dolphins (Birkun, 2002).

The narrow strip of coastal water less than 200 m in depth is rich in many demersal and pelagic species (Daskalov et al., 2012). Demersal fish species (red mullet and whiting) are common in the area all year around. One of the main preys of Black Sea common dolphins and harbour porpoises, anchovy winters in the area. The decline of prey fish resources, resulting in reduced prey availability, has a strong influence mainly on common dolphins and harbour porpoises (Birkun, 2002; Tonay et al., 2007; Birkun et al., 2014). The presence and movements of small cetaceans in the IMMA is due to prey availability or scarcity and their concentration in this IMMA is due to the rich habitat supporting anchovy, horse mackerel, blue fish and bonito, all littoral zone species that are cetacean prey (Bilgin et al., 2018).

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