

# Sinop IMMA

## Summary, continued.

densities of harbour porpoises, bottlenose dolphins and common dolphins increase considerably in the spring (i.e. breeding season). Such agglomerations coincide with increased commercial turbot fishing using bottom gillnets (both legal and illegal). This overlap is the main cause of the high number of bycatch records, making the region essential for the conservation of Black Sea cetaceans, particularly for harbour porpoises. Furthermore, observations of stranded newborn harbour porpoises are an indication that the Sinop IMMA might include suitable habitat for breeding and calving.

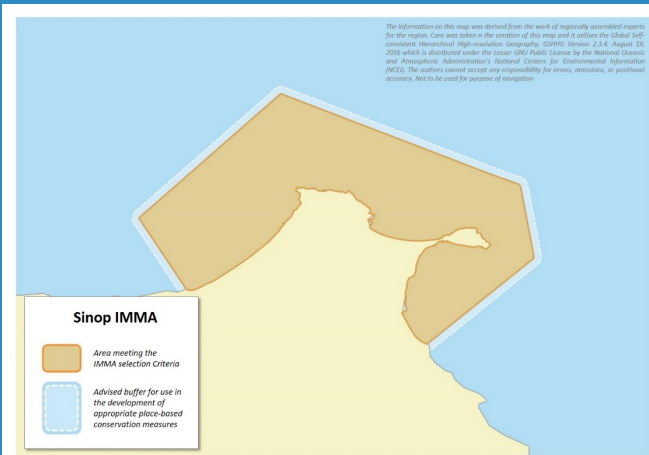
## Description

The Sinop IMMA surrounds the Sinop Peninsula, including the Boztepe Peninsula. The area hosts a total of 94 fish species belonging to 44 families (Bat et al., 2005). Sinop Bay, on the east side of the peninsula, is a natural harbour. The hydrographic conditions near the bay create a mixing zone between the eastern and western Black Sea. Therefore, the biological diversity in this area is relatively rich (Kırkım et al., 2014). One of the major coastal eddies in the Black Sea is located in the northwest part of the IMMA (Oğuz et al, 1993). The seafloor in the north is rather steep and reaches a depth of 2000 meters at 10 nautical miles off the Boztepe Peninsula.

In 2004, the western part of the Sinop Region was identified as a Key Biodiversity Area (KBA, 2020). The IMMA also includes Hamsilos Bay, which is a nature park.

## Criterion A: Species or Population Vulnerability

The Black Sea subspecies of harbour porpoise *Phocoena phocoena relicta* and bottlenose dolphin *Tursiops truncatus ponticus* are listed as Endangered (EN), and common dolphin *Delphinus delphis ponticus* (Fig. 2) as Vulnerable (VU) on the IUCN Red list (Gol'din et al., in press; Öztürk et al., in press; Tonay et al., in press).



## Area Size

755 km<sup>2</sup>

## Qualifying Species and Criteria

Black Sea bottlenose dolphin –

*Tursiops truncatus ponticus*

Criteria A, B2, C2

Black Sea common dolphin –

*Delphinus delphis ponticus*

Criteria A, B2, C2

Black Sea harbour porpoise –

*Phocoena phocoena relicta*

Criteria A, B2, C2

## Marine Mammal Diversity

*Tursiops truncatus ponticus*, *Phocoena phocoena relicta*, *Delphinus delphis ponticus*

## Summary

The Sinop region is home to three Black Sea cetacean subspecies — harbour porpoise, bottlenose dolphin and common dolphin. The Black Sea subspecies of harbour porpoise and bottlenose dolphin are listed as Endangered while Black Sea common dolphins are listed as a Vulnerable species on the IUCN Red List. The boundaries of the Sinop IMMA are delimited to the 200 m depth contour around the peninsula. There is evidence that there might also be high densities of common dolphins and harbour porpoises much further offshore all round the peninsula. However, the IMMA is limited to coastal waters around the peninsula, which is considered one of the main wintering areas for harbour porpoises. Estimated

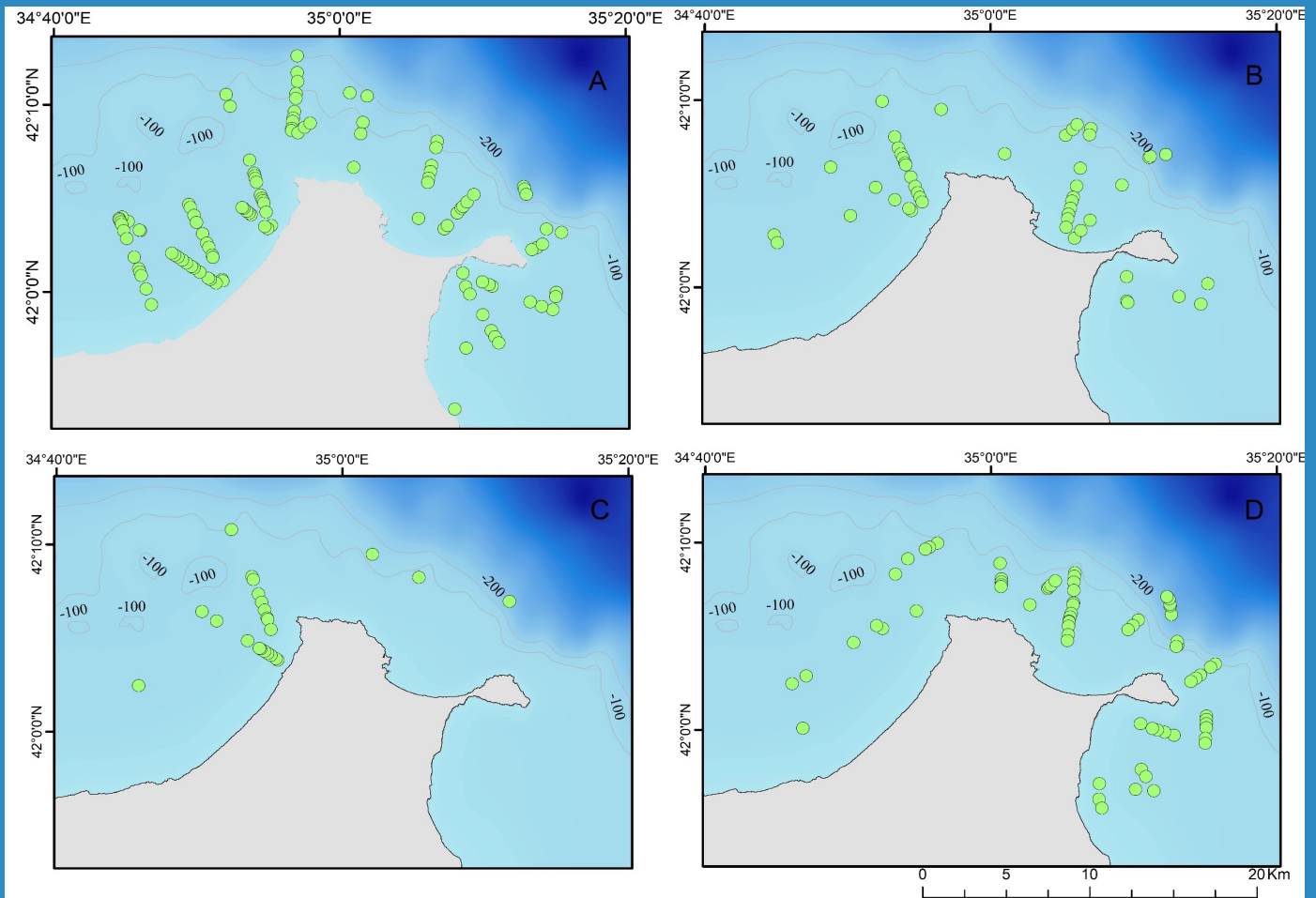


Figure 1: Seasonal distribution of harbour porpoise sightings in the Sinop IMMA (A: Spring, B: Summer, C: Fall, D: Winter) From Öz sandıkcı (2021).

## Criterion B: Distribution and Abundance

### Sub-criterion B2: Aggregations

Although the harbour porpoises in the Black Sea (Fig. 3) tend to form small groups of from one to ten individuals, they can be seen in aggregations of hundreds of individuals in fish-abundant regions along their seasonal migration routes (Birkun, 2008). Large groups (up to 150 individuals) were observed during the winter in the Sinop IMMA. The area is known as a wintering ground for anchovy and is also a known wintering ground for harbour porpoises. Estimated winter density for harbour porpoises in the Sinop IMMA is 1.86 individuals/km<sup>2</sup> (Fig. 1) (CV: 20.43%; 95% CI: 1.22-2.82) (Özsandıkçı, 2021).

In the spring season, there is a considerable increase in the estimated density of all three Black Sea cetacean species. According to the results of line transect surveys conducted in the spring of 2019, density estimates were 3.14 individuals/km<sup>2</sup> (CV: 29.96%; 95% CI: 1.76-5.62) for harbour porpoise,

0.44 individuals/km<sup>2</sup> (CV: 24.55%; 95% CI: 0.27-0.72) for bottlenose dolphin and 1.06 individuals/km<sup>2</sup> (CV: 18.68%; 95% CI: 0.73-1.53) for common dolphins (Özsandıkçı, 2021). In another boat-based survey, harbour porpoise sightings were clustered in the Sinop region and adjacent waters (Tonay, 2006, unpublished data). Increased numbers of bycaught harbour porpoise in turbot gillnets also implies spring aggregation of this species in the area (Gönener and Bilgin, 2009). Harbour porpoise and common dolphin observations were recorded in the Sinop IMMA during the basin-wide aerial surveys within the CeNoBs Project (Paiu et al., 2021.).

The results of the recent basin-wide aerial surveys conducted within the CeNoBS project in the summer of 2019 indicate high densities of common dolphins and harbour porpoises much further offshore of the peninsula. On the other hand, the results of another boat-based line transect study carried out in shallow waters in four seasons show clear evidence of the Sinop region's importance and the IMMA has therefore been defined to reflect this.



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Figure 2: A Black Sea common dolphin breaking the surface.



Figure 3: A Black Sea harbour porpoise. Photo: Uğur Özsandıkçı

## Criterion C: Key Life Cycle Activities

### Sub-criterion C2: Feeding Areas

The Sinop IMMA is an area of intensive fishing activities, including both artisanal and industrial fisheries. The area is also well known as an overwintering area of the anchovy (Chashchin, 1996) which is the main prey species of the harbour porpoise. Evidence that harbour porpoises use the IMMA as a wintering ground is related mostly to the presence of overwintering anchovy schools in the area. All three

cetacean species have been observed engaged in feeding behaviour (associated with sea gulls, foraging behind trawlers) in the recent boat-based surveys (Özsandıkçı, 2021).

Anchovy stocks along the north Black Sea coast migrate directly to the mid-south Black Sea coast at the beginning of December and form dense schools

when the water temperature drops suddenly due to the influence of strong northerly winds (Gucu et al., 2017). The Sinop region is a peninsula elongated to the north, and it is an intersection point for the migration routes of pelagic fish moving between the east and west. The European sprat, which is another main prey fish of cetaceans in the Black Sea, migrates to the coastal regions of the south-central Black Sea during spring (Daskalov et al., 2012) and may also be related to the cetacean aggregations in this region.

## Supporting Information

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