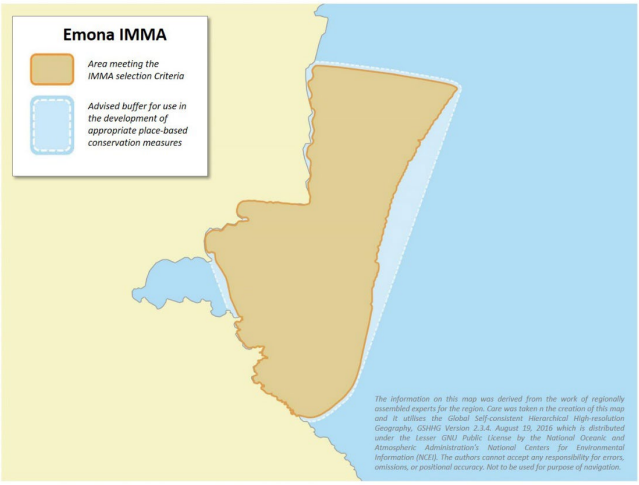

Area Size

2,459 km²

Qualifying Species and Criteria

Black Sea bottlenose dolphin –

Tursiops truncatus ponticus

Criteria A, B2, C2

Marine Mammal Diversity

Tursiops truncatus ponticus, Phocoena phocoena relicta, Delphinus delphis ponticus

Summary

The Emona IMMA is located in the Bulgarian Black Sea shelf region and extends from the coast to depths of 60 m. The bottom substrates are a combination of muds with layers of shell detritus, with sublittoral mussel banks as biogenic reefs and sandbanks. The area has biological and ecological significance due to high productivity, high pelagic and benthic fish resources, and preserved ecosystems with rich biodiversity. The IMMA is regularly used as a feeding area by bottlenose dolphins, common dolphin and harbour porpoise, the latter of which exhibit a seasonal pattern of occupancy in the IMMA. The Emona IMMA includes SCIs (Sites of Community Interest) Emona, Emine-Irakli, and Plazh Shkorpilovtsi.

Emona IMMA

Description

The Emona IMMA is situated in the central part of the Bulgarian Black Sea shelf and encompasses waters from the coast up to 60 m deep. The bottom substrates are gray-black, gray and gray-green terrigenous muds with layers of shell detritus. The IMMA includes the largest sandbank covered by seawater along the Bulgarian coast. The area is a permanent habitat for all three Black Sea cetacean species due to its high productivity, abundant fish resources (Prodanov et al., 1997), and well-preserved ecosystems with rich biodiversity.

Criterion A: Species or Population Vulnerability

Populations of the three cetacean species in the Black Sea were assessed in 2008 and listed on the IUCN Red List as: Vulnerable for the Black Sea common dolphin, Endangered for Black Sea bottlenose dolphin and EN A1d+4cde for Black Sea harbour porpoise. Currently, the IUCN conservation status of all three subspecies is being reassessed based on updated information including two aerial surveys conducted in the past 10 years and data on bycatch levels.

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

Combined visual and acoustic line-transect surveys of cetacean abundance were carried out in the Emona IMMA in 2015 and 2017 (Panayotova et.al, 2017; 2020) (Figs. 1, 2, 3)

In 2015, harbour porpoise and bottlenose dolphin were observed. The estimated values for density of bottlenose dolphin groups and for single animals were 0.108 groups/km² and 0.322 individuals/km². Absolute abundance was estimated as 819 individuals (CV = 25.54%) in the study area and the encounter rate was 0.066 individuals/km.

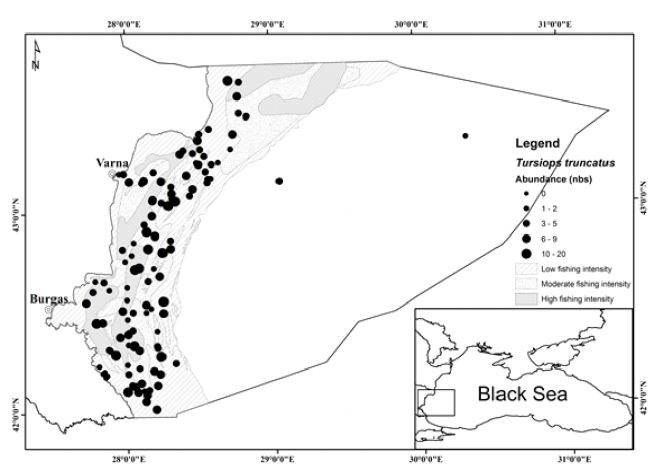

Figure 1: Distribution of *Tursiops truncatus* sightings in the Bulgarian Black Sea area during 2006-2013 surveys. Circles show the sightings locations and their size corresponds to the number of the observed individuals (Panayotova and Todorova, 2015a).

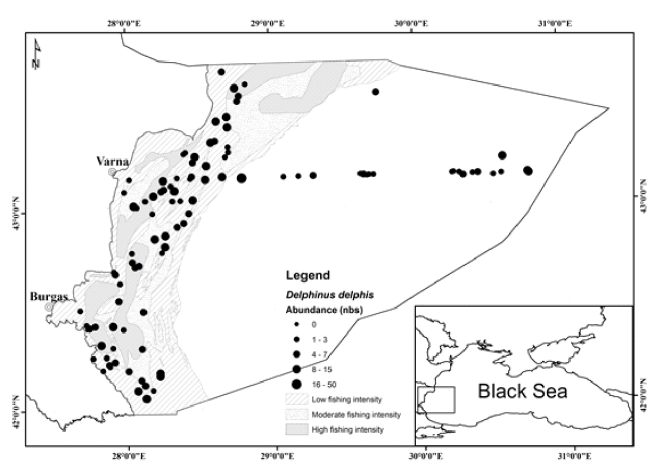

Figure 2: Distribution of *Delphinus delphis* sightings in the Bulgarian Black Sea area during 2006-2013 surveys. Circles show the sightings locations and their size corresponds to the number of the observed individuals (Panayotova and Todorova, 2015a).

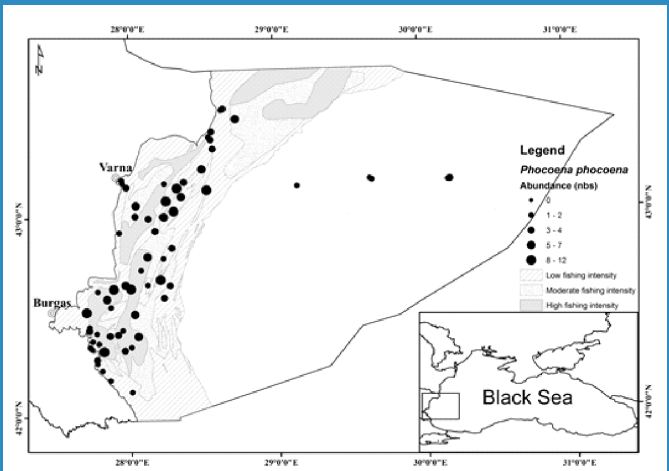

Figure 3: Distribution of *Ôèí Xí ãi Ţ ôèí Xí ãi Ţ* sightings in the Bulgarian Black Sea area during 2006-2013 surveys. Circles show the sightings locations and their size corresponds to the number of the observed individuals (Panayotova and Todorova, 2015a).

Harbour porpoises were observed in the shelf area, mostly in offshore areas at depths of more than 40 m. Density estimates of harbour porpoise groups and individuals were 0.057 groups/km² and 0.15 individuals/km². Absolute abundance was estimated as 380 individuals (CV = 43.46%) in the surveyed area, and encounter rate was 0.057 individuals/km. A total of 27 detections of harbour porpoise and 16 of bottlenose dolphin were also made.

In 2017, during a line-transect survey covering the whole Bulgarian Black Sea shelf, all three Black Sea cetacean species were observed (Panayotova et.al, 2020). Estimated abundance for common bottlenose dolphin was 1,365 individuals (CV = 35.62%, 95% CI: 684 – 2722), densities of groups and single animals were, respectively, 0.0475 groups/km² and 0.113 individuals/km² and the encounter rate - 0.0351 individuals/km (Panayotova et.al, 2020). For common dolphins, the estimated values for density of groups and for single animals were 0.0414 groups/km² and 0.0796 individuals/km². Abundance was calculated at 963 individuals (CV = 32.79%, 95% CI: 507 - 1827) in the study area and the encounter rate - as 0.0263 individuals/km (Panayotova et.al, 2020). In 2017, harbour porpoises were the most abundant species observed, with calculated abundance of 6,474 individuals (CV = 21.81%, 95% CI: 4227 - 9916) an encounter rate of 0.118 individuals/km and estimated values for density of groups and for single animals of 0.186 groups/km² and 0.536 individuals/km², respectively.

All three species were observed in 2013 and 2019 in the area during the regional aerial surveys (Paiu et al., 2021; Birkun et.al, 2014).

Historical data on opportunistic sightings during surveys for fish stock assessments in 2006 – 2013 (Panayotova and Todorova, 2015a; 2015b) underscore the importance of the area as a foraging ground for all three species. During ten vessel transect surveys of Bulgarian territorial waters between 2017-2021, the mean encounter rate for Black Sea bottlenose dolphin in the IMMA was above the average for the entire Bulgarian territorial waters of the Black Sea (Popov, 2017; 2018; 2019; 2020).

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

The bottlenose dolphins off Emona feed on both benthic and pelagic fishes, which are abundant in the IMMA. Diverse substrate, including mussel beds, reefs and sandbanks, combined with permanent currents along Cape Emine, drive the diversity and abundance of local fish stocks. The area is one of the main fishing grounds along the Bulgarian coast, and there is a large biomass of the main prey species for dolphins (i.e. whiting, anchovy, sprat and red mullet) (Panayotova and Todorova, 2015c). A comparison of bottlenose dolphin observations to the intensity of fishing activities along the Bulgarian coast indicated that the dolphins show a clear preference for the areas with moderate and intense fishing activities (Panayotova and Todorova, 2015a).

Supporting Information

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