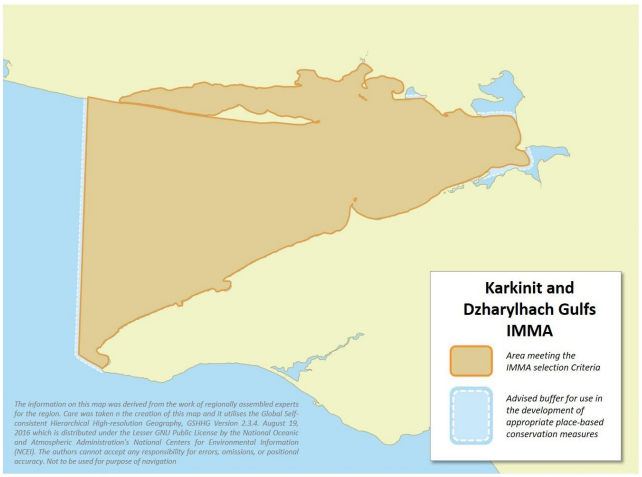

Area Size

4,313 km²

Qualifying Species and Criteria

Black Sea bottlenose dolphin – *Tursiops truncatus ponticus*
Criteria A, B2, C1, C2

Black Sea common dolphin – *Delphinus delphis ponticus*
Criteria A, B2, C1, C2

Black Sea harbour porpoise – *Phocoena phocoena relicta*
Criteria A, B2, C1, C2

Marine Mammal Diversity

Tursiops truncatus ponticus, Phocoena phocoena relicta, Delphinus delphis ponticus

Summary

The Karkinit and Dzharylhach (Carılğaç) Gulfs separate the northwestern Crimean Peninsula from the northern Ukraine mainland and include the coastal waters between Lazurne and the Tarkhankut Cape. The IMMA includes coastal waters at depths between 0 and 30 m. All three Black Sea cetacean species inhabit and feed in the area The IMMA is an important summer area for the local coastal populations of bottlenose dolphins and common dolphins which show strong site fidelity over at least several years, forming stable alliances and reproducing in the area. Also, remarkably dense aggregations of harbour porpoises are seen in the IMMA in summer.

Karkinit and Dzharylhach Gulfs IMMA

Description

The Karkinit and Dzharylhach (Carılğaç) Gulfs separate the northwestern Crimean Peninsula from the northern Ukraine mainland and include the coastal waters between Lazurne and the Tarkhankut Cape. The maximum depth within the IMMA is roughly 35 m, but the majority of the area is between 0 and 20 m deep. The IMMA has low salinity, which is typical for this area and the sea temperature in the winter seasons is 3-6 °C. Part of the IMMA, especially the Dzharylhach Gulf, is often ice-covered during cold winters. However, during warm seasons, this is a highly productive habitat that is rich in prey, making it attractive for all three Black Sea cetacean species (Bel'kovich, 1978; 1987; Birkun, 2006b; Gol'din et al., 2017).

Criterion A: Species or Population Vulnerability

The Dzharylhach (Carılğaç) and Karkinit Gulfs in the northwestern Black Sea are important seasonal habitat (with the exception of winter) for the three threatened Black Sea cetacean subspecies; the Endangered harbour porpoise and bottlenose dolphin, and the Vulnerable common dolphin (Fig. 2) (Birkun, 2002; Mikhalev, 2005; 2008; Birkun et al., 2014; Gol'din et al., in press; Öztürk et al., in press). However, the deeper south-western part of the IMMA is inhabited by all three species (Agafonov et al., 1982). The harbour porpoise is particularly vulnerable in this area due to extensive bycatch in fishing gears in the Karkinit Gulf during its reproductive season (Fig. 1) (spring and summer) (Pavel Gol'din, pers. comm.), and therefore warrants special protection in its breeding areas (Birkun, 2006a).

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

Black Sea cetaceans occur in the northern part of the IMMA during the warm season and in the southern part of the area year-round (Bel'kovich, 1978, 1987; Birkun, 2006b; Gol'din et al., 2017). Groups of Black Sea bottlenose dolphins and Black Sea common dolphins have been recorded in the IMMA, and there have been numerous photo-identification recaptures of known individuals over at least 5 years, (Gladilina et al., 2022). The abundance of the local coastal population of bottlenose dolphins near the Dzharylhach Island is about 50 individuals; the group includes a few stable pairs and alliances of individuals. At least 12 individuals were resighted in 2016-2019 (Gladilina et al., 2017a). A few individuals show distinctive hunting, beaching, and play behaviour (Gol'din et al., 2017). The abundance of common dolphins in the Dzharylhach Gulf is about 200 individuals, and at least 7 individuals were resighted between 2016 and 2019 years (Gladilina et al., 2017a; 2017b; Gol'din et al. 2017; Gladilina et al., 2020; Gladilina et al., 2022l.). The density of the harbour porpoises in the Dzharylhach Gulf in summer reaches 1.5 specimens per km^2 which is the highest density throughout the northern Black Sea and among the highest in the entire Black Sea (Gladilina et al., 2017a).

Criterion C: Key Life Cycle Activities Sub-criterion C1: Reproductive Areas

The IMMA is an important reproductive area for bottlenose and common dolphins during the warm season. Bottlenose and common dolphins were observed in the IMMA with calves of all age categories: newborns, calves, and juveniles. During the 2016 and 2017 summer seasons, 27% of the groups of bottlenose dolphins and 30% of the groups of common dolphins were observed with calves and juveniles (Gladilina et al., 2017a; Gol'din et al., 2017; Gladilina, 2018). Mating behaviour was recorded for bottlenose dolphins in shallow waters near the Dzharylhach Island (Gladilina and Gol'din, pers. comm.).

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

This area has a high concentration of migratory fish (e.g. horse mackerel and sand smelt) that are important prey species for common dolphins and harbour porpoises, plus mullets, and garfish, an important prey of bottlenose dolphins. The main behaviour observed for all cetaceans in the area was foraging (Bel'kovich, 1978, 1987; Gol'din et al., 2017; Gladilina, 2018). Sand smelts (*Atherina sp.*), horse mackerel (*Trachurus mediterraneus*) and garfish (*Belone belone*) were directly identified as prey of common dolphins during boat surveys in the Dzharylhach Gulf in summer 2016 and 2017 (Gol'din et al., 2017). Different mullets (Mugilidae) are very important prey for bottlenose dolphins, according to vessel surveys and coastal observations from different years (Bel'kovich, 1978, 1987; Birkun, 2006b; Gol'din et al., 2017).

Figure 1: Bycatch victim: A Black Sea harbour porpoise caught in a fishing net. Photo courtesy Mare Nostrum, taken by Costin Timofte

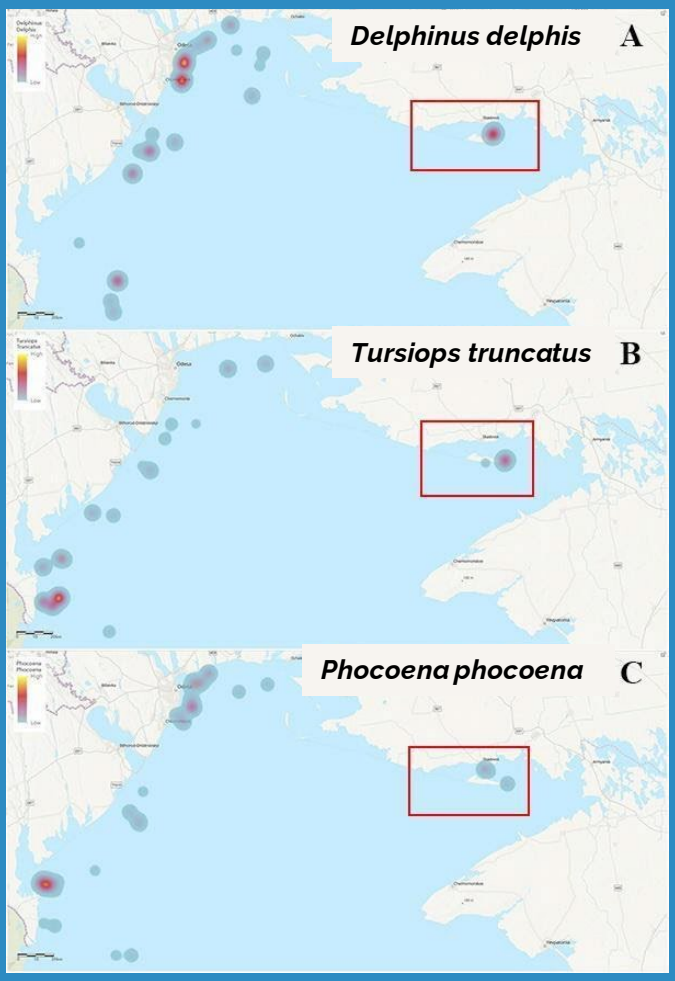

Figure 2: Density of cetaceans in the Ukrainian territorial waters, 2019 (Gladilina et al., unbubl.).

Supporting Information

Agafonov, A.V., Bel'kovich, V. M., Deulin, V. B., Kozarovitskiy, L. B., Moskvina-Tarkhanova, I. A., Safronov, O. V. and Kharitonov, S. P. 1982. 'Some aspects of the seasonal dynamics of dolphin appearance in the coastal waters of the northwestern Crimea'. Study, protection and rational use of marine mammals: Abstracts of reports of the 8th All-Union meeting, Astrakhan:4-6 [In Russian].

Bel'kovich, V.M. 1978. Behaviour and bioacoustics of dolphins. Shirshov Institute of Oceanology AS USSR, Moscow. 199 pp.

Bel'kovich, V.M. 1987. Behaviour and bioacoustics of dolphins. Shirshov Institute of Oceanology AS USSR, Moscow. 220 pp.

Birkun, Jr, A. 2002. The current status of bottlenose dolphins (*Tursiops truncatus*) in the Black Sea. In Report of the first meeting of the Parties to the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS). Document AC18-Inf. 2. 25 pp.

Birkun, Jr., A.A. (comp.). 2006a. Conservation Plan for Black Sea Cetaceans. ACCOBAMS and Black Sea Commission. 50 pp.

Birkun, A.A. 2006b. Cetaceans. North-West Part of The Black Sea: Biology And Ecology, Naukova Dumka:314-332 [In Russian].

Birkun, Jr., A., Northridge, S.P., Willsteed, E.A., James, F.A., Kilgour, C., Lander, M. and Fitzgerald, G.D. 2014. Studies for carrying out the common fisheries policy: adverse fisheries impacts on cetacean populations in the Black Sea. Final report to the European Commission, Brussels, 347p.

Gladilina, O.V. 2018. The bottlenose dolphin (*Tursiops truncatus*) in the waters of the northern Black Sea: biology and population structure. Dissertation submitted for the completion of the degree of Candidate of Sciences in Biology, qualification 03.00.08, zoology. Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine. Kyiv. 215 p.

Gladilina, E.V., Vishnyakova, K.A., Neprokin, O.O., Ivanchikova, Yu.F., Derkacheva, T.A., Kryukova, A.A., Savenko, O.V. and Gol'din, P.E. 2017a. 'Linear transect surveys of abundance and density of cetaceans in the area near the Dzharylgach Island in the north-western Black Sea'. Vestnik zoologii, 51(4):335-342. DOI 10.1515/vzoo-2017-0038.

Gladilina, E., Savenko, O., Gol'din, P., Vishnyakova, K. and Neprokin, O. 2017b. Data on cetacean occurrence collected during the project "Identification and initial assessment of cetacean groupings in coastal waters of the north-western Black Sea, Ukrainian sector" funded by ACCOBAMS 2016-2017. Version 1.3. Ukrainian Scientific Centre of Ecology of the Sea (UkrSCES). Dataset/Occurrence. http://gp.sea.gov.ua:8082/ipt/resource?r=accobams_2016-2017&v=1.0 http://www.iobis.org/explore/#/dataset/4717

Gladilina, E., Vishnyakova, K., Ivanchikova, Ju., Neprokin, O. and Gol'din, P. 2020. EU-UNDP Project - Improving Environmental Monitoring in the Black Sea - Selected Measures (EMBLAS-Plus). Cetaceans (Photo-ID). Data downloaded from OBIS-SEAMAP (http://seamap.env.duke.edu/dataset/2129)

Gladilina E., Vishnyakova K., Ivanchikova Ju., Neprokin O. and Gol'din P. (2022.). National Monitoring Survey NMS Ukraine – Cetaceans. 2020. EU-UNDP Project 'Improving Environmental Monitoring in the Black Sea – Selected Measures (EMBLAS-Plus). Final report. Annexes pp. 182-196.

Gol'din, P., Gladilina, E., Savenko, O., Vishnyakova, K., Neprokin, O. and Ivchenko, Ye. 2017. Identification and initial assessment of cetacean groupings in coastal waters of the north-western Black Sea, Ukrainian sector (final report). MoU ACCOBAMS N° 09/2016/FAC, 100 p.

Gol'din P., Gladilina E., Öztürk A. A., Tonay A.M. In press. *Tursiops truncatus* ssp. *ponticus*. The IUCN Red List of Threatened Species

Mikhalev, Yu.A. 2005. 'The Peculiarities of the Distribution of the Harbour Porpoise, *Phocoena phocoena relicta* (Cetacea), in the Black Sea'. Vestnik Zoologii 39(6):25–35 [In Russian].

Öztürk A.A., Tonay A.M., Gol'din P., Vishnyakova K. In press. *Phocoena phocoena* ssp. *relicta*. The IUCN Red List of Threatened Species.

Acknowledgements

We would like to thank the participants of the 2021 IMMA Regional Expert Workshop for the identification of IMMAs in the Black Sea, Turkish Straits System and Caspian Sea. Funding for the identification of this IMMA was provided by the Global Ocean Biodiversity Initiative funded by the German government's International Climate Initiative (IKI) and the Tethys Research Institute, through a contribution from the MAVA Foundation. Support was also provided by Whale and Dolphin Conservation.

Suggested Citation: IUCN-Marine Mammal Protected Areas Task Force, 2021. Karkinit and Dzharylhach Gulfs IMMA Factsheet. https://www.marinemammalhabitat.org/wp- content/uploads/imma-factsheets/BlackandCaspianSeas/karkinit-to-dzharylhach-gulfs-BlackandCaspianSeas.pdf. Downloaded on (day month year).

PDF made available for download at https://www.marinemammalhabitat.org/wp-content/uploads/imma-factsheets/ BlackandCaspianSeas/karkinit-to-dzharylhach-gulfs-BlackandCaspianSeas.pdf.