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Area Size

36,851 km²

Qualifying Species and Criteria

Black Sea harbour porpoise–

Phocoena phocoena relicta

Criteria A, B2, C2, D1

Marine Mammal Diversity

Phocoena phocoena relicta

Summary

The IMMA occupies the whole Sea of Azov (except the Sivash lagoons) and includes waters between 0 and 14 m deep. The Sea of Azov is an important habitat area for marine life, including various fish species as well as a distinct population of the harbour porpoise (*Phocoena phocoena relicta*), which migrate into the sea during the summer reproductive season. The harbour porpoises in the Sea of Azov are distinct in their morphology, with a larger body size and distinct skull shape and skull proportions, including a wider rostrum which can be better used for foraging near the seafloor. Therefore, they show a stable distinct morphological and ecological type. Commercial fishing has a huge impact on the Azov harbour porpoise population. Numerous porpoise bycatch and stranding cases (including neonates) are recorded from this area, and the population size is estimated to have decreased by 60% between 2001 and 2013.

Sea of Azov IMMA

Description

The Sea of Azov is an epicontinental sea and the northernmost water body of the Black Sea basin. It is an extremely shallow sea with a maximum depth of 14 m. It is connected to the Black Sea through the Kerch Strait. The hypersaline Sivash Bay, in the west, is isolated by the Arabat Spit from the rest of the Azov Sea. The bathymetry of the Sea of Azov is notable for its deepening towards the center. The salinity is around 11-14‰ and the temperature of the sea is 24-25 °C up to 33 °C in the summer and 1-3 °C in the winter. Winter ice cover reaches 29 % of the whole sea area (Borovskaya and Leksikova, 2008) and cetaceans usually leave the Azov Sea during this time (Savenko et al., 2013). However, during the warm season (usually from April to November), there is abundant prey for the harbour porpoises, especially anchovy, sand smelts and gobies, (Zalkin, 1940; Drozdov, 2011).

Criterion A: Species or Population Vulnerability

The Sea of Azov is an important habitat for the endangered Black Sea harbour porpoise (*Phocoena phocoena relicta*) (Fig. 1) (Birkun, 2003; Gol'din, 2004; Birkun and Krivokhizhin, 2011; Gol'din and Vishnyakova, 2015; 2016; Öztürk et al., in press). Fisheries strongly impact the population status of the Azov Sea Black Sea harbour porpoises. Numerous porpoise bycatch and stranding cases (Fig. 2) are recorded from this area (652 cases in 1999-2013 only from the southern coast strip 80 km long), and the population size is estimated to have decreased by 60% during 2001-13 (Vishnyakova and Gol'din, 2015a,b; Vishnyakova, 2017).

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

The Azov population of the Black Sea harbour porpoise inhabits the IMMA during the warm season (April to November) (Savenko et al., 2013). The entire

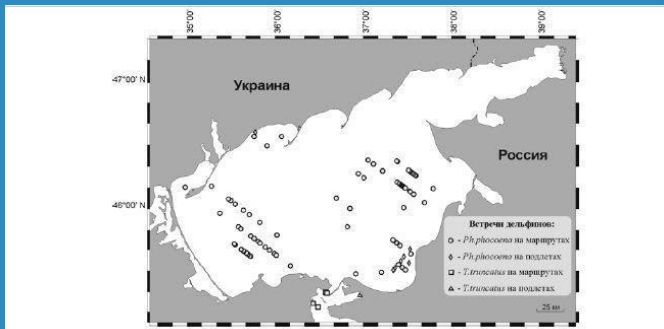


Рис. 2.1 – Распределение встреч азовок и афалин в Азовском море и Керченском проливе при авиачуete в июле 2001 г. [29].



Рис. 2.2 – Распределение встреч азовок в Азовском и Черном морях при авиачуete в августе 2002 г. [30].

Figure 1: Harbour porpoise and bottlenose dolphin sightings in the Sea of Azov and Kerch Strait (aerial surveys). Top: July 2001; bottom: August 2002 (from Birkun, 2003). Note that bottlenose dolphins were only sighted in the Kerch Strait.



Figure 2: A dead Black Sea harbour porpoise stranded on the shore of the Sea of Azov. Photo: Pavel Gol'din

Criterion C: Key Life Cycle Activities

Sub-criterion C1: Reproductive Areas

The Sea of Azov is an important reproductive area for harbour porpoises as they are permanently present in the area during their mating and calving season (Gol'din, 2004; Savenko et al., 2013). Numerous neonate porpoises were recorded (alive and dead) in the southern Sea of Azov from April to September (Gol'din, 2004), and neonates were the most numerous age group in strandings, comprising more than 20% of the overall stranding record (Vishnyakova, 2017).

Criterion D: Special Attributes

Sub-criterion D1: Distinctiveness

The porpoises in the Sea of Azov are distinct in their morphology: they have larger body (Gol'din, 2004), and are significantly different from Black Sea porpoises in their skull shape and skull proportions proportions. This may be due to seasonal differences in feeding: Azov porpoises have a wider rostrum which shows clinorhynch (the angle between the Hirnstamm basis and the ventral surface of the maxilla) and thus can be better used for foraging near the sea floor (Gol'din and Vishnyakova, 2015; 2016). Therefore, they show a stable distinct morphological and ecological type within a certain isolated geographical area. In addition, the Azov porpoises differ in population demography from their Black Sea counterparts: they have a shorter life span (on average, 7 vs 10 years) which has been gradually decreasing since 1999 to 6.5 years in 2013 (Vishnyakova, 2017).

Azov harbour porpoise population was estimated by a single aerial survey in 2001 as 2,922 (1,333–6,403; 95% CI) individuals, uncorrected for $g(0)$ (Öztürk et al., in press): after correction, this estimate could be 13,500 individuals (Vishnyakova, 2017). In 2001–2013 harbour porpoise abundance, as estimated by modelling of population demography based on age structure, decreased by 60% and was estimated as at least 5,500 individuals (Vishnyakova, 2017). During the summer the porpoises form two major aggregations in the western and the eastern parts of the Azov sea, each of several thousand individuals (Birkun, 2003; Vishnyakova, 2017). The Sea of Azov is an important area for fisheries with high aggregations of anchovy, sand smelts, gobies and other fish species either permanently present or migrating to the productive feeding ground during summer (Zalkin, 1940; Drozdov, 2011). The Sea of Azov was once considered a particularly productive area within the region, although its productivity declined during the 20th century (Drozdov, 2011).

Supporting Information

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**MARINE MAMMAL
PROTECTED AREAS
TASK FORCE**

IMMA

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TETHYS
since 1986

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