

**SHORT COMMUNICATION**

**Cetacean strandings in the Turkish Western  
Black Sea coast during 2007-2009**

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**Abstract**

The seasonal surveys of stranded cetaceans were performed on the Turkish coast of the western Black Sea during summer 2007-spring 2009. Fifty stranded cetaceans were found, which included 24 harbour porpoises (48%), 15 bottlenose dolphins (30%), 6 common dolphins (12%) and 5 unidentified specimens. Most of the stranding cases were observed during the summer of 2007 (0.3 individuals per km). During the winters, there was no observation of harbour porpoise stranding. Eight individuals showed some evidence of net entanglement. This is the first seasonal study on cetacean strandings in Turkey.

**Keywords:** Black Sea, cetacean, strandings, harbour porpoise, bottlenose dolphin, common dolphin

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**Introduction**

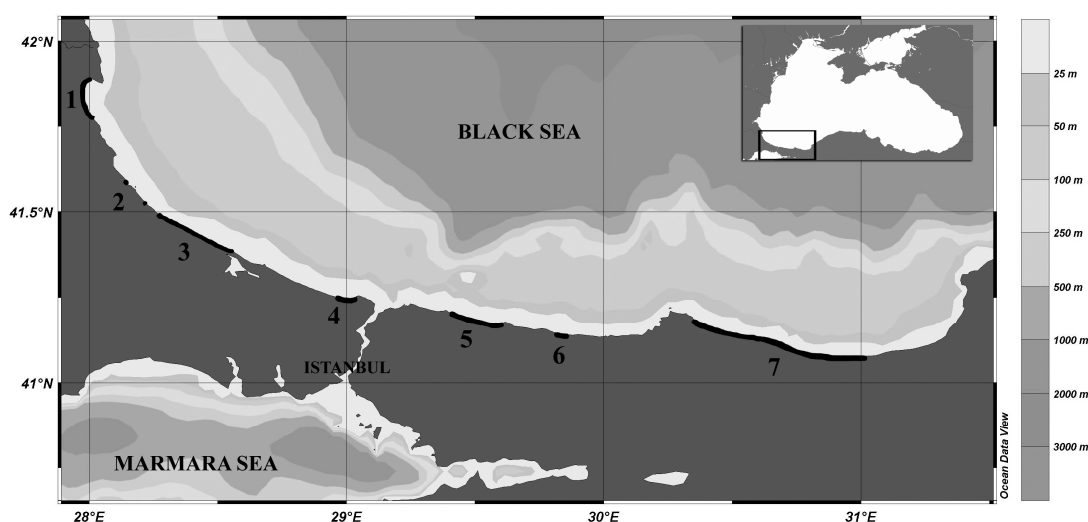
There are three cetacean species living in the Black Sea; the harbour porpoise (*Phocoena phocoena*), bottlenose dolphin (*Tursiops truncatus*) and common dolphin (*Delphinus delphis*) (Öztürk 1996). Cetaceans in the Black Sea have been faced with several threats such as accidental catch in fishing gears (bycatch), habitat degradation and mass mortality events (Birkun 2008). Large numbers of harbour porpoise die as a result of bycatch during the turbot fishery on Turkish western Black Sea coast every year (Öztürk 1996; Tonay and Öztürk 2003).

A number of cetacean stranding surveys were conducted along the 46 km-long sandy beaches on the Turkish western Black Sea coast during April, May and June in 2003 – 2005 turbot fishery season (Tonay *et al.* 2008). In 2003 and 2009 mass mortality events were reported in the same area (Tonay *et al.* 2008 and

2012). However, there are not sufficient studies conducted on a seasonal basis, on cetacean mortality. This study is the first seasonal study on cetacean strandings in Turkey. The aim of the study is to collect the first-hand data on the stranding rates in winter and autumn, when not much data had been available previously, to understand the seasonal variation of strandings in a year.

## Materials and Methods

In this study, stranded cetaceans on the approximately 270km of Turkish Western Black Sea coast were examined. The study area covers the coast between İğneada in the west and Akçakoca in the east. The surveys were conducted seasonally between the summer of 2007 and the spring of 2009. Seven stations (four stations on the 43 km-long beaches between summer 2007 and spring 2008) on 123 km of sandy beaches were selected based on accessibility (Figure 1). The total effort covered the distance of 664 km. All stranded cetaceans were photographed, standard body length was measured, species and sex were identified.



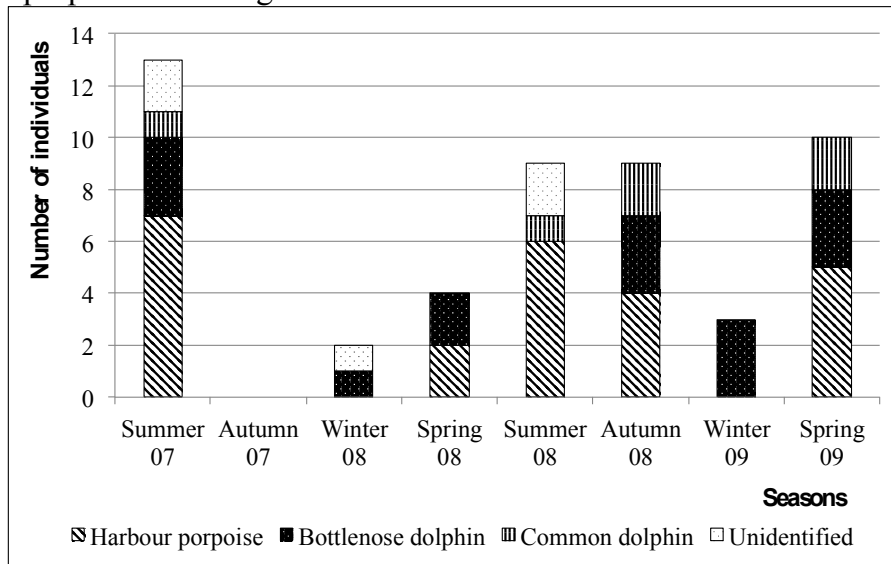
**Figure 1.** Study area.

(1. İğneada-Panayır yeri, 2. Kastro, Çilingöz, 3. Yalıköy-Terkos, 4. Kısırkaya-Kilyos, 5. Sahilköy-Şile, 6. Kurfalı – Ağva, 7. Kefken-Akçakoca)

## Results and Discussion

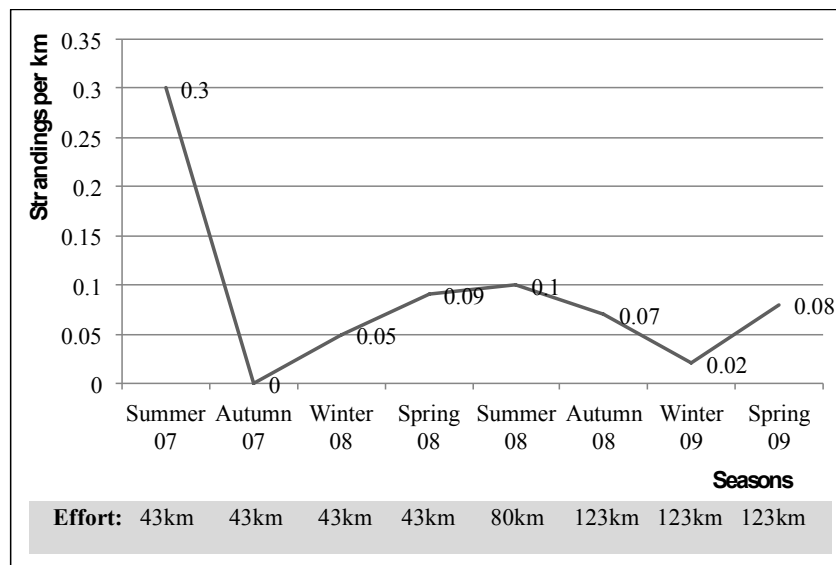
A total of 50 stranded cetaceans were found by eight surveys. The most common species was the harbour porpoise (24: 48%), followed by the bottlenose dolphin (15: 30%), then the common dolphin (6: 12%) and unidentified individuals (5: 10%). Among the stranded cetaceans, only eight individuals showed some evidence of net entanglement as most stranded cetacean specimens (91%) were at an advanced stage of decomposition (stage 4 and 5). Strandings of the harbour porpoise, which is the most negatively affected species by the turbot fishery, were observed during spring and summer

(83%), which includes the illegal turbot fishing season (Figure 2). Two specimens found in autumn and winter, however, were determined to die due to the interaction with fisheries. There was no fishing ban in the region during that period. During the winters of 2008 and 2009, there was no observation of harbour porpoise stranding.



**Figure 2.** Seasonal distribution of stranded cetaceans.

The most stranding cases were observed during the summer of 2007 (Figure 3). No stranding was observed in the autumn of 2007. Although the length of the beaches monitored almost tripled in the second year of the study, the number of cetaceans per kilometre did not increase.

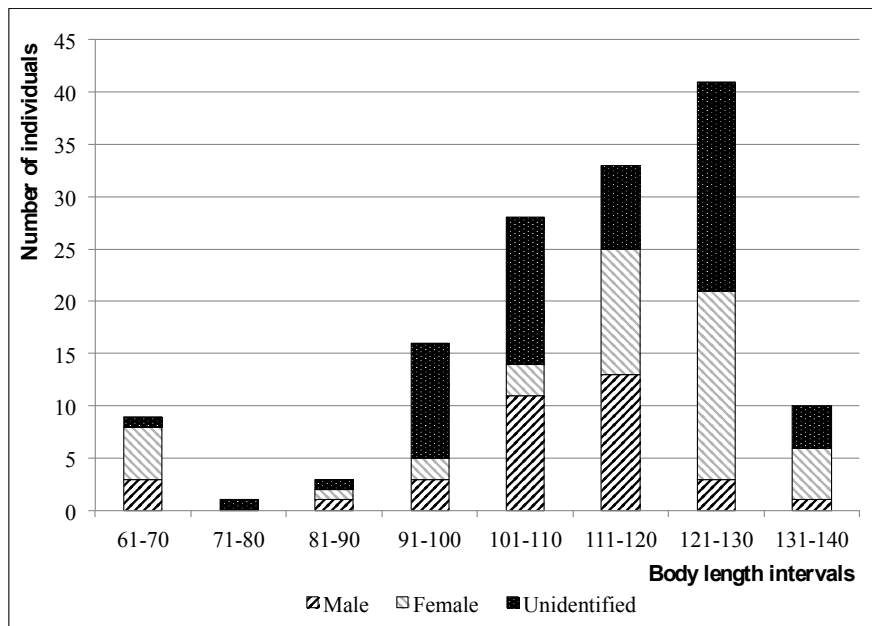


**Figure 3.** Strandings per km in the study period and effort.

A total of 375 stranded individuals were determined, 211 of which were found in 2003-2005 (Tonay *et al.* 2008), 50 during this study conducted in 2007-2009,

and at least 114 in the summer of 2009 when there was a case of unusual mass stranding (Tonay *et al.* 2012). Among them, 67% were harbour porpoises (the highest), 10% common dolphins and 9% bottlenose dolphins.

Body length distribution of 141 harbour porpoises is shown in Figure 4. The highest frequency (41 individuals) was found in the 121-130 cm interval. Whereas the maximum length range of stranded males was 111-120 cm, that of females was 121-130 cm. Among the stranded individuals, high neonate mortality was observed, especially within the length range of 61-70 cm. No harbour porpoise bigger than 140 cm was found.



**Figure 4.** Body length and sex distribution of stranded 141 harbour porpoises (2003-2005, 2007-2009).

Mortality associated with bycatch in turbot fisheries is a major concern for the conservation of cetaceans in the Black Sea, particularly the harbour porpoises. Turbot fishing by using bottom nets, especially in May and June, is a threat to the sustainability of harbour porpoise stocks. The proper implementation of the ban on turbot fishing will result in a decrease in the mortality of this Black Sea harbour porpoise.

Regular monitoring of cetacean mortality and expansion of the existing stranding network in the region will make it possible to know the status of the population and to follow unusual mass mortality events, thus to lay the foundations of conservation efforts.

#### **Acknowledgement**

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## **2007–2009 yılları arasında Türkiye'nin Batı Karadeniz kıyılarında karaya vuran deniz memelileri (Cetacea)**

### **Özet**

Batı Karadeniz Türkiye kıyılarında, 2007 yaz mevsimi ile 2009 bahar mevsimi süresince karaya vuran deniz memelileri (cetacea) üzerine mevsimsel bir araştırma gerçekleştirilmiştir. 24 mutur (%48), 15 afalina (%30), 6 tirtak (%12), ve 5 tanımlanamayan olmak üzere toplam 50 cetacea bireyi ölü olarak bulunmuştur. En çok karaya vurma olayı 2007 yazında gözlenmiştir (km'ye düşen birey 0.3). Kış mevsiminde karaya vuran mutur gözlenmemiştir. Sekiz bireyde tesadüfi ağa yakalanma izleri tespit edilmiştir. Bu çalışma karaya vuran deniz memelilerine yönelik Türkiye'de yapılan ilk mevsimsel çalışmadır.

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