

SHORT COMMUNICATION

An unusual interaction between bottlenose dolphins (*Tursiops truncatus*) and a harbour porpoise (*Phocoena phocoena*)

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Abstract

This short communication reports an observation of unusual non-agonistic interactions between a juvenile harbour porpoise (*Phocoena phocoena*) and a group of bottlenose dolphins (*Tursiops truncatus*) in the Marmara Sea on 25 April 2015.

Key words: Cetacea, Istanbul Strait (Bosphorus), interspecific association

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Three cetacean species occur in the Istanbul Strait and adjacent waters, Marmara Sea and Black Sea; short-beaked common dolphin (*Delphinus delphis*), bottlenose dolphin (*Tursiops truncatus*) and harbour porpoise (*Phocoena phocoena*). The Istanbul Strait is a part of the Turkish Strait System (TSS) along with the Çanakkale Strait and Marmara Sea (Figure 1). TSS is a transitional zone between the Aegean and Black Seas and constitutes either a barrier, a corridor or an acclimatization zone for living organisms (Öztürk and Öztürk 1996).

Interspecific associations or interactions have been reported for many cetacean species (Frantzis and Herzing 2002). Bottlenose dolphins have been recorded to exhibit such interactions with at least 17 marine mammal species, which include baleen whales, sperm whale, dolphins, porpoises, pinnipeds, sirenians (Deakos *et al.* 2010; Wilson and Krause 2013). There are also interactions reported between harbour porpoise and several other cetacean species, such as killer whales (*Orcinus orca*) (Ford *et al.* 1998), white-beaked dolphins (*Lagenorhynchus albirostris*) (Haelters and Everaarts 2011), Pacific white-sided dolphins (*L. obliquidens*) (Baird 1998), Atlantic white-sided dolphin (*L. acutus*) (Larrat *et al.* 2012) and short-beaked common dolphin (*D. delphis*) (Ryan *et al.* 2017).

We here report an observation of unusual non-agonistic interactions between a juvenile harbour porpoise with a group of bottlenose dolphins in the Marmara Sea, Turkey, on 25 April 2015. The observation took place approximately 0.7 nm offshore ($40^{\circ} 60.000$ N to $28^{\circ} 59.897$ E) in the Marmara Sea entrance of the Istanbul Strait (Bosphorus) (Figure 1). It was recorded by nature photographers with both video and digital SLR cameras. During the observation (113 minutes), a juvenile harbour porpoise swam with three adult bottlenose dolphins. It continually synchronized with one of these dolphins. During the observation, bow-riding with the observation boat was documented for eight minutes (Figure 2, see also the video by TUDAV (2016)).

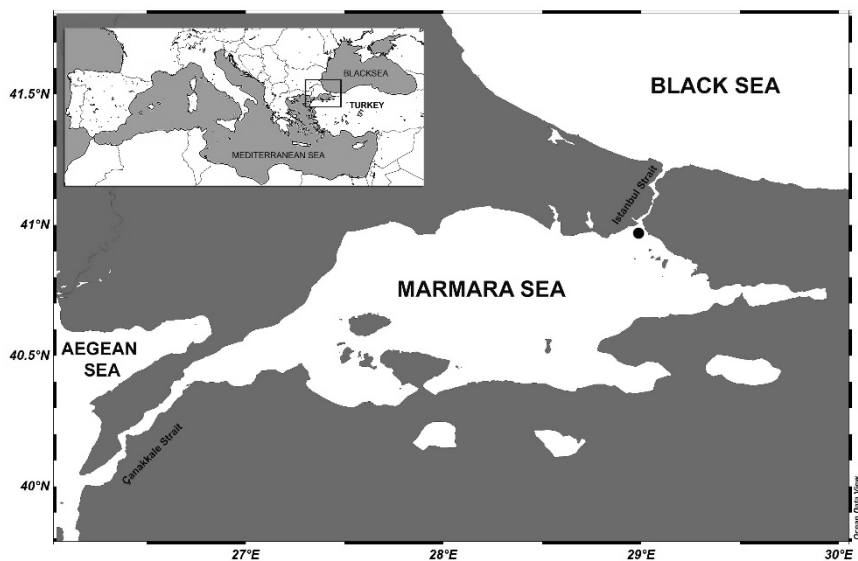


Figure 1. The Turkish Straits System and the observation location

In the photographs and video frames examined, the harbour porpoise was swimming in an echelon position; like a mother-calf pair (calf in very close proximity to its mother's mid-lateral flank). This position clearly provides hydrodynamic benefits to calves (Noren 2008). This porpoise may take advantage of this opportunity to save energy.



Figure 2. a-b) A juvenile harbour porpoise (indicated with white arrow) swimming with bottlenose dolphins, c-d) bow-riding with the observation boat

Based on the average adult body length of bottlenose dolphins in the Black Sea being 240 ± 14 cm for females and 255 ± 10 cm for males (Gol'din and Gladilina 2015), the size of this harbour porpoise is estimated to be about 90-110 cm, which is the typical size of a juvenile animal. By the end of the first year of life, the body length of male harbour porpoises in the Black Sea reaches 98–117 cm (mean $108.6 \pm SD 3.2$ cm), of females 103–118 cm (109.4 ± 6.2 cm) while neonates have mean body length $72.6 \pm SD 4.0$ cm (Gol'din 2004). It is assumed, therefore, this porpoise is a juvenile, possibly born in the previous year.

Interactions between harbour porpoises and bottlenose dolphins have been reported extensively. In all these records, bottlenose dolphins were reported attacking harbour porpoises (Ross and Wilson 1996; Jepson and Baker 1998; Patterson *et al.* 1998; Cotter *et al.* 2011). It was proposed that these attacks notably result from competitive interactions for food (Ross and Wilson 1996; Spitz *et al.* 2006) or infanticide (Patterson *et al.* 1998) *etc.* While dolphin species are known to frequently engage in mixed species associations, to our knowledge, this is the first description of a non-agonistic interspecific association between the bottlenose dolphin and the harbour porpoise. Besides there is no observation or report on agonistic behaviour in the Turkish Seas. However, inter-specific competition over prey fish resource between these species has been implied in the Istanbul Strait by a passive acoustic monitoring study. According

to Dede *et al.* (2014a) when bottlenose dolphin dominated the area porpoises shift their location to far from them.

Previously interspecific associations behaviour found include: cooperative feeding (Herzing and Johnson 1997), aggression (Ross and Wilson 1996), object-oriented play (Deakos *et al.* 2010) or in rare cases, displaced epimeletic (care-giving) behaviour between Pacific white-sided dolphins and a neonatal harbour porpoise (Baird 1998). Although there was no multiple or long-term observations, the most appropriate description of the behaviour observed is “affiliative,” which includes travel and neutral association (Herzing and Johnson 1997; Ryan *et al.* 2017) with “displaced epimeletic behaviour” because a porpoise was observed in an echelon position with a bottlenose dolphin individual.

The entrances of the Istanbul Strait which is one of the narrowest straits in the world are feeding grounds (Dede *et al.* 2014b) and critical habitats for bottlenose dolphins (Akkaya Bas *et al.* 2015) although in the southern entrance (Marmara side) domestic and international marine traffic is heavy (Dede *et al.* 2008). About 46,000 vessels pass through the Istanbul Strait annually and southern part is most busy area because of the passenger ferries that are working both sides mutual. While bottlenose dolphins are seen in the southern entrance throughout the year, harbour porpoises are seen less frequently in the southern than in the northern entrance (Dede *et al.* 2008; Akkaya Baş *et al.* 2017). Synchronized swimming has been reported in porpoises (Sakai *et al.* 2011) and implied as an anti-predator response of cetaceans to both predators and human (boat) presence (Senigaglia *et al.* 2012; Hastie *et al.* 2013). In light of this information, the “experienced” bottlenose dolphins might “escort” the “inexperienced” juvenile harbour porpoise in this potentially high-risk environment in the present case.

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Bir afalina ve mutur bireyi arasında olağandışı etkileşim

Öz

Bu kısa makalede 25 Nisan 2015 tarihinde Marmara Denizi’nde bir grup afalina (*Tursiops truncatus*) ile genç bir mutur (*Phocoena phocoena*) olağan dışı etkileşimi rapor edilmiştir.

Anahtar Kelimeler: Cetacea, İstanbul Boğazı, türlerarası ilişki

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