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# First Record of An East Asian Finless Porpoise with Solid White Color in Waters of Changdao Island

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## Abstract

An East Asian finless porpoise with solid white color for the first time in the waters of Changdao Island, Shandong Province, China was discovered. After searching and comparing the literature, we did photographs comparison and it was supposed to be anomalously white individual and had high possibility of albino.

**Keywords:** East asian finless porpoise; anomalously white; albino; changdao island

**Abbreviation:** EAFP: The East Asian Finless Porpoise

## Introduction

The East Asian finless porpoise (EAFP, *Neophocaena asiaeorientalis sunameri*) belongs to Cetacea, Odontoceti, Phocoenidae and *Neophocaena*, which is a small, toothed whale distributed inshore [1,2]. The finless porpoise (*Neophocaena phocaenoides*) used to be regarded as one species, and further divided into three subspecies or populations: the South China Sea population (*N. p. phocaenoides*), the Yangtze population (*N. p. asiaeorientalis*), and the Yellow Sea population (*N. p. sunameri*) [3-5]. Until 2011, the results showed genetic and reproductive isolation from morphology and molecular biology studies and separated the finless porpoise into two independent species, namely, Indo-Pacific finless porpoise (*N. phocaenoides*) and narrow-ridged finless porpoise (*N. asiaeorientalis*), there are two subspecies of narrow-ridged finless porpoise:

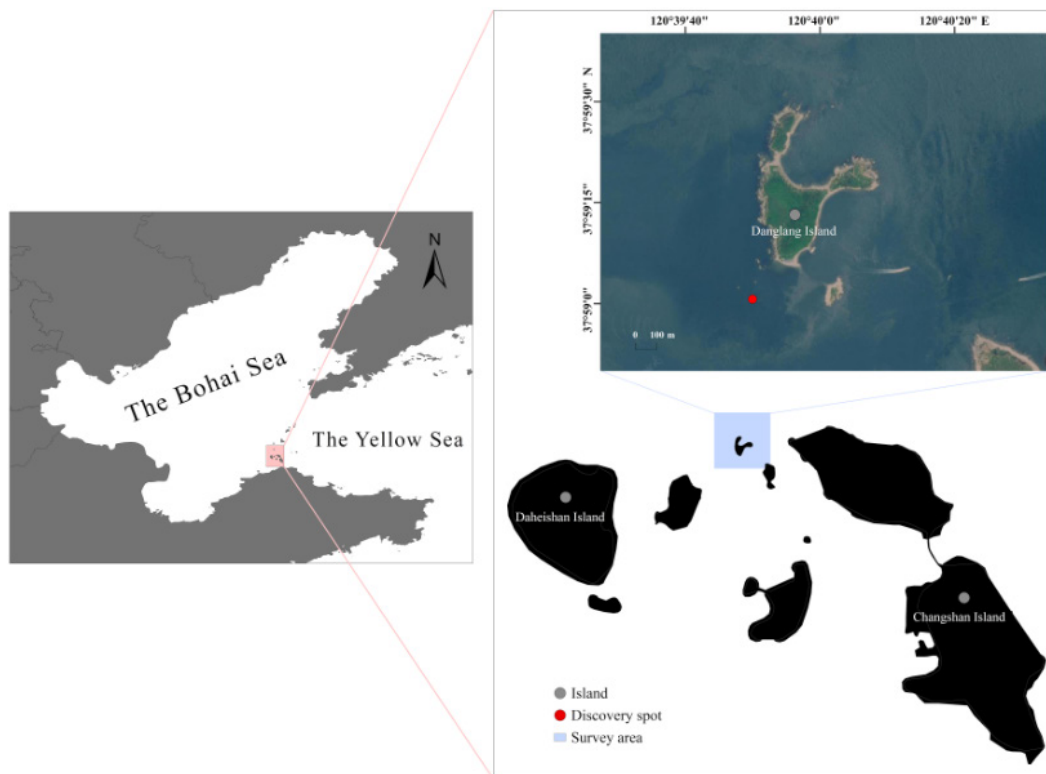
Yangtze finless porpoise (*N. a. asiaeorientalis*) and EAFP (*N. a. sunameri*) [1]. In 2018, researchers using genomic DNA sequence data suggested that the Yangtze finless porpoise was reproductively isolated from the other porpoise populations, and the narrow-ridged finless porpoise should be split into two species: the Yangtze finless porpoise (*N. asiaeorientalis*) and the EAFP (*N. sunameri*) [6].

Referring to current documents of the International Union for Conservation of Nature (IUCN), the International Whaling Commission (IWC) and the Society for Marine Mammalogy (SMM), however, the EAFP is still considered to be a subspecies of the narrow-ridged finless porpoise. The EAFP is known from shallow, cool temperate coastal and estuarine waters of the western north Pacific, from the Taiwan Strait (especially the Matsu and Kinmen archipelagos)



northwards to Korea and central Japan [1,7]. In China, this species mainly distributes in the Yellow Sea and the Bohai Sea, the East China Sea may be its overlapping transition area [5]. Changdao Island (part of the Changshan Islands) is located in Yantai City, Shandong Province, between the Bohai Sea and the Yellow Sea (Figure 1), where is a hot spot distribution area of the EAFP [8]. Because of the

wide distribution area of the EAFP, it is very difficult to investigate the whole population, line transect sampling method is generally used for aerial observation or ship observation [9]. Besides, the wide use of digital cameras has realized the nondestructive collection of natural marks of cetaceans and pinnipeds by Photo-Identification [10].



**Figure 1:** Survey area and discovery spot.

Therefore, we combine the Photo-Identification (photographs taken by NIKON D6) with unmanned aerial vehicles (DJI Mavic 3 Pro and DJI Phantom 4 Pro V2.0) to track targets continuously, and then study their behaviors and establish the Individual Identification Databases, especially the spotted seal (*Phoca largha*) and the Indo-Pacific humpback dolphin (*Sousa chinensis*). We have photographed the Indo-Pacific humpback dolphins' mating, predation, infanticidal behavior and the other precious images in this way.

### Case Presentation

Generally, we conduct the annual survey of the spotted seal in Changdao Island waters every year from March to May. The ship is parked in an area 10 meters away from the seals' reefs to take photos and record their behaviors and characteristics. On the afternoon of March 16, 2024, during the routine annual follow-up investigation of the spotted seal, 4~6 EAFPs were found in the waters (37°59'03"N, 120°39'48"E) at the south side of Danglang Island

(also known as Dabian Island) (Figure 1). The water depth was 12 m, the water temperature was 2.5°C (36.5°F), sunny weather. We found that there was an individual with solid white color at 3 p.m., which was often accompanied by a black one. The porpoise roughly the same size as the accompanying individual, was slightly thin, but its body color was completely white, and no significant black deposition was seen (Figure 2). The two individuals were always accompanied (Figure 3). Occasionally, the solid white one rubbed the abdomen of the black one with its head, and their behavior was intimate. Then a mother-calf pair appeared, they swam together for a while and entered the aquaculture area where people farmed oysters (Figure 4). The four EAFPs were scattered around the ship, which made it difficult to track. After continuous tracking for about 50 min, they were finally lost at 4 p.m. and were never seen again. Though lighting conditions can greatly influence field observations [11], the sunny weather and photographs can prove that the color of this individual is solid white.



**Figure 2:** The EAFP with solid white color and the accompanying black EAFP.



**Figure 3:** The four EAFPs together.

## Discussion

It is generally believed that the body color of the EAFP is gray or dark gray like the black one, but some adults are gray-white or white [12]; It is also recorded in book that the individuals of EAFP distributed in the Sea of Japan and the northern China are usually

creamy white [7]. Even so, the EAFPs observed in northern Chinese waters are predominantly gray, even if it is a white individual, its body color looks light creamy white (Figure 5). In comparison, Japanese EAFPs may be whiter. However, since information on its occurrence in waters southwest of Japan like Iki, Tsushima, and Nansei Islands is extremely scarce, it is considered that the individuals

exchanges between Japan and China are rare [13]. In this case, the individuals of Japan could not appear in Chinese waters. Moreover, there is only one with solid white color in this cluster, which is not normal, the individuals in most clusters should be the same color (Figure 5), so we think it is anomalously white individual and has high possibility of albino. The exterior colors of cetaceans are im-

portant environmental adaptations, almost dependent on the melanin in the skin. Despite the melanin can provide camouflage for increasing animals survival, as many as 22 cetacean species have a surprisingly frequent occurrence of anomalously white individuals [14].



**Figure 4:** An EAFP photographed in Changhai County, Dalian, Liaoning, China, showing the light creamy white color typical of EAFP from the northern portions of the species' range. Photo with permission by Hongbo Li from National Marine Environmental Monitoring Center.



**Figure 5:** Two EAFPs together are same light creamy white, photographed in Changhai County. Photo with permission by Hongbo Li from National Marine Environmental Monitoring Center.

They are usually characterized by reduced or absent pigmentation of melanin in the skin, eyes, and hair [15], showing white color and “pink” eyes. The most famous of these species was an all-white humpback whale (*Megaptera novaeangliae*), named “Migaloo” in Australia. His eyes were not photographed in any photographs, however, subsequent genetic testing confirmed that he was an albino [15]. Similarly, though the color of the iris of the EAFP’s eyes is not clearly visible in any photographs, all kinds of evidence show that the EAFP we photographed is an anomalously white individual, and we still highly suspect that it is an albino individual. Since its own records, there are few corresponding written descriptions or sightseeing records of anomalously white EAFP, most of the sightseeing records are creamy white or gray-white. Up to now, there are no literature records, photos and videos about the EAFP with solid white. This incident represents the first report of an EAFP with solid white color in the waters near Changdao Island.

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### Conflict of Interest

The authors declare no conflict of interest.

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