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Indo-Pacific humpback dolphin

The **Indo-Pacific humpback dolphin** (*Sousa chinensis*; Chinese: 中華白海豚; pinyin: *Zhōnghuá bái hǎitún*)^[2] is a species of humpback dolphin inhabiting coastal waters of the eastern Indian and western Pacific Oceans.^[3] This species is often referred to **Chinese white dolphins** in China (including Hong Kong, Macao and Taiwan) and Singapore as common name. Some biologists regard the Indo-Pacific dolphin as a subspecies of the Indian Ocean humpback dolphin which ranges from east Africa to India. However, DNA testing studies have shown that the two are distinct species.^[1] Additionally, a new species (Australian humpback dolphin, *S. sahuensis*) has just recently been split off from *S. chinensis* and recognized as a distinct species. Nevertheless, there are still several unresolved issues in differentiation of Indian-type and Indo-pacific-type humpback dolphins. In fact, the taxonomic affinities of humpback dolphins in the entire Bay of Bengal (i.e., eastern India, Sri Lanka, Bangladesh, and Myanmar) need to be urgently re-examined. There is also still some uncertainty regarding the exact taxonomic status of populations observed in Mainland Malaysia and Borneo. In particular, a unique subspecies (*S. c. taiwanensis*) may exist in Taiwan (IUCN Red List version 3.1).

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Indo-Pacific humpback dolphin



Conservation status

Extinct

Threatened

Least Concern

EX EW CR EN VU NT LC

Vulnerable (IUCN 3.1)^[1]

Scientific classification

Kingdom: Animalia

Phylum: Chordata

Class: Mammalia

Order: Artiodactyla

Infraorder: Cetacea

Family: Delphinidae

Genus: *Sousa*

Species: ***S. chinensis***

Binomial name

Sousa chinensis
(Osbeck, 1765)

See also

References

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Description

An adult Indo-Pacific humpback dolphin is gray, white or pink and may appear as an albino dolphin to some. Uniquely, the population along the Chinese coast has pink skin,^[4] and the pink colour originates not from a pigment, but from blood vessels which were overdeveloped for thermoregulation. The body length is 2 to 3.5 m (6 ft 7 in to 11 ft 6 in) for adults 1 m (3 ft 3 in) for infants. An adult weighs 150 to 230 kg (330 to 510 lb). Indo-Pacific humpback dolphins live up to 40 years, as determined by the analysis of their teeth.

At birth, the dolphins are black. They change to grey, then pinkish with spots when young. Adults are gray, white or pink.

Behaviour

Indo-Pacific humpback dolphins come to the water surface to breathe for 20 to 30 seconds before diving deep again, for two to eight minutes. Dolphin calves, with smaller lung capacities, surface twice as often as adults, staying underwater for one to three minutes. Adult dolphins rarely stay under water for more than four minutes. They sometimes leap completely out of the water. They may also rise up vertically from the water, exposing the dorsal half of their bodies. A pair of protruding eyes allows them to see clearly in both air and water.

Reproductive cycle

Indo-Pacific humpback dolphins are sociable creatures and live in groups of three to four. Female dolphins become mature at 10 years old, while the males become mature at 13 years old. They usually mate from the end of summer to autumn. Infant dolphins are usually born 11 months after the mating. Mature females can give birth every three years, and parental care lasts until their offspring can find food themselves.

Humans and the environment

The Indo-Pacific humpback dolphin is threatened by both habitat loss and pollution. Conservationists warn that Hong Kong may lose its rare Indo-Pacific humpback dolphins, also known as pink dolphins for their unique colour, unless China takes urgent action against pollution and other threats. Their numbers in Hong Kong waters have fallen from an estimated 158 in 2003 to just 78 in 2011, with a further decline expected by



Combined ranges of *Sousa chinensis* and *Sousa sahulensis*



Tail with visible grey and pink colours

the Hong Kong Dolphin Conservation Society. A tour guide from Hong Kong Dolphinwatch spotted a group of pink dolphins helping a mother support the body of her dead calf above the water in an attempt to revive it. The scene, captured on video and widely shared on Facebook, has raised fresh concerns about the dwindling population in a city where dolphin watching is a tourist attraction. "We're 99 percent certain the calf died from toxins in the mother's milk, accumulated from polluted seawater," said Hong Kong Dolphinwatch spokeswoman Janet Walker, who added it was the third such incident reported in April alone. Fewer than 2,500 of the mammals survive in the Pearl River Delta, the body of water between Macau and Hong Kong, with the majority found in Chinese waters and the rest in Hong Kong.^[5]

Distributions and dolphin watching

In Hong Kong, boat trips to visit the Indo-Pacific humpback dolphins have been running since the 1990s.^[6] The dolphins mainly live in the waters of Lantau North, Southeast Lantau, the Soko Islands and Peng Chau. A code of conduct regulates dolphin-watching activity in Hong Kong waters.^[7]

There have been some reports of dolphin watching practices that have further endangered the Indo-Pacific humpback dolphins, such as in Sanniang Bay dolphin sanctuary in Qinzhou^{[8][9]} and off Xiamen.^[10] However, these generally are small, locally organised one-off tours or private pleasure boats that do not adhere to the Hong Kong Agricultural and Fisheries Department's voluntary code of conduct.



Adult Chinese white dolphin swimming off the coast of Lantau Island, Hong Kong

Nánpēng Islands Marine Sanctuary in Nan'ao County is also home to local pods.^[11] The population in Leizhou Bay, Leizhou Peninsula, comprising nearly 1,000 animals and the second largest population in the nation, may also be targeted for future tourism.^[12] Hepu National Sanctuary of Dugongs, and waters around Sanya Bay and other coasts adjacent on Hainan Island are home to some dolphins.^[13] As the environment and local ecosystems recovery, dolphins' presences in nearby waters have been increasing such as vicinity to the nature sanctuary of Weizhou and Xieyang Islands.^{[14][15]} Gulf of Tonkin waters in Vietnam may have unstudied populations that may appear elsewhere such as along Xuân Thủy National Park and Hòn Dấu Island in Hải Phòng.^[16]

Cantonese slang

The Cantonese language has a slang expression *wu gei bak gei* (often written as 烏忌白忌, "black taboo white taboo") which means someone or something is a bad omen or a nuisance. The phrase originates from the Cantonese fisher people, because they claim the dolphins eat the fish in their nets. However, in formal Chinese, it should be written as 烏鯨白鯨, with the *gei* originally in olden Chinese, meaning dolphins. The *wu* refers to the finless porpoises, which are black, and the *bak*, white, referring to Chinese river dolphins. These two species often interrupt and ruin the fishermen's catch. As years passed, because "dolphin" sounds the same as

"bad luck", the meaning of the phrase changed. However, in Cantonese, *wu* refers to the calves of Chinese white dolphin and *bak* refers to the adults. Nowadays, dolphins are not called *gei* anymore, but 海豚 (*hai tun*), literally meaning "sea pig", with none of the negative connotations for pig found in English.

Eastern Taiwan Strait (ETS) population

The Indo-Pacific humpback dolphins were first discovered along the west coast of Taiwan in 2002. Based on a survey done in 2002 and 2003, they are often found in waters <5m deep, and no evidence shows that they appear in water deeper than 15m.^[17] A study in 2008 found that the population of humpback dolphins, which occupies a linear range of about 500 km² along the central west coast of Taiwan, is genetically distinct from all populations living in other areas.^[18] And this population is called Eastern Taiwan Strait (ETS) population.

Taiwan is a densely populated island and highly developed area, which has many industrial development projects, especially along the west coast, where the ETS populations of Indo-Pacific humpback dolphins live. Based on data collected between 2002 and 2005, the ETS population of humpback dolphins was less than 100 individuals.^[17] Unfortunately, the newest data released in 2012 shows that only 62 individuals are left. It means during those 7 years, population of humpback dolphins is being destroyed constantly and severely. A preliminary examination revealed that the ETS humpback dolphin population meets the IUCN Red List criteria for "Critically Endangered".^[19] Without further protection and regulation, this population will go extinct quickly.

There are several facts that result in the decreasing number of ETS population of humpback dolphins. First, large-scale modification of the shoreline by industrial development including hydraulic filling for creating industrial or science parks, seawall construction and sand mining cause habitat fragmentation and diminish dolphin's habitats. In addition, exploitation of shoreline also contributes to toxic contamination flows into dolphin's habitats. The chemical pollution from industrial or agricultural and municipal discharge results in impaired health of dolphins, for instance, reproductive disorders, and compromised immune system.^[20]

Second, fishing activities along the west coast of Taiwan are thriving, and cause many impacts on dolphins. Widespread and intensive use of gillnets and vessel strikes are potential threats for dolphins. Over exploitation of fish by fisheries' is another threat for the dolphin population. It has led to disturbance of marine food web or trophic level and reduces marine biodiversity. Therefore, dolphins have not enough prey to live on.

Still another problem is reduced amount of freshwater flows into estuaries from rivers. Since ETS population of humpback dolphins is closely associated with estuaries habitat, the elimination of freshwater discharge from rivers significantly decreases the amount of suitable habitats for dolphins.^[17]

Hydroacoustic disturbance is another critical issue for dolphins. Sources of noise can come from dredging, pile driving, increased vessel traffic, seawall construction, and soil improvement. For all cetaceans, sound is vital for providing information about their environment, communicating with other individuals, and foraging; also, they are very vulnerable and sensitive to the effects of noise. Elevated anthropogenic sound level causes many dysfunctions of their behaviors, and even leads to death.^[17]

In addition to threats from anthropogenic activities, dolphins are potentially at the risk due to the small population size, which may result in inbreeding and decreased genetic and demographic variability. Finally, climate change causes more typhoons to hit the west coast of Taiwan and cause great disturbance to dolphins' habitats.

Conservation

The Indo-Pacific humpback dolphin is listed on Appendix II^[21] of the Convention on the Conservation of Migratory Species of Wild Animals (CMS). It is listed on Appendix II^[21] as it has an unfavourable conservation status or would benefit significantly from international co-operation organised by tailored agreements. In the interim of 2003–2013, the number of these dolphins in the bay around Hong Kong has dwindled from a population of 159 to just 61 individuals, a population decline of 60% in the last decade. The population continues to be further threatened by pollution, vessel collision, overfishing, and underwater noise pollution.^[22]

In addition to their natural susceptibility to anthropogenic disturbances, the Chinese white dolphin's late sexual maturity, reduced fecundity, reduced calf survival, and long calving intervals heavily curtails their ability to naturally cope with elevated rates of mortality.^[23]

China has launched the largest Indo-Pacific Humpbacked Dolphin sanctuary on Taiwanese coasts.^[24] The Indo-Pacific humpback dolphin is also covered by the Memorandum of Understanding for the Conservation of Cetaceans and Their Habitats in the Pacific Islands Region (Pacific Cetaceans MoU (<http://www.pacificcetaceans.org/>)).

Timeline of main events

- **1637:** The Indo-Pacific humpback dolphin was first documented in English by the adventurer Peter Mundy in Hong Kong near the Pearl River. The species are attracted to the Pearl River Estuary because of its brackish waters.
- **1765:** Pehr Osbeck gives the first scientific description of the species.^[25]
- **Late 1980s:** Environmentalists started to pay attention to the Indo-Pacific humpback dolphin population.
- **Early 1990:** The Hong Kong public started to become aware of the Indo-Pacific humpback dolphin. This was due to the side effects of the construction of the Chek Lap Kok Airport. It was one of the world's largest single reclamation projects: the reclamation of nine square kilometers of the seabed near Northern Lantau, which was one of the major habitats of the dolphins.
- **Early 1993:** Re-evaluation of the environmental effects of the construction of Chek Lap Kok Airport. This alerted eco-activists such as those from the World Wide Fund for Nature in Hong Kong, in turn bringing media attention on the matter. Soon enough, the Hong Kong Government began getting involved by funding projects to research on the Indo-Pacific humpback dolphins
- **Late 1993:** The Agriculture, Fisheries and Conservation Department was founded.
- **1996:** Dr. Thomas Jefferson began to conduct research on the Indo-Pacific humpback dolphins in hope of discovering more about them.
- **1997:** The Indo-Pacific humpback dolphin became the official mascot of the 1997 sovereignty changing ceremonies in Hong Kong.
- **1998:** The research results of Dr. Thomas Jefferson was published in "Wildlife Monographs".
- **1998:** The Hong Kong Dolphinwatch was organized and began to run dolphin watching tours for the

general public to raise the public's awareness of the species.

- **2000:** The Agriculture, Fisheries and Conservation Department started to conduct long-term observation of the Indo-Pacific humpback dolphins in Hong Kong.
- **2000:** The population of Indo-Pacific humpback dolphins has reached around 80–140 dolphins in the Pearl River waters.
- **2014:** Dr. Thomas Jefferson and Dr. Howard C. Rosenbaum revised the taxonomy of the humpback dolphins (*Sousa* spp.). They describe a new species, the Australian humpback dolphin and define the accepted common name for this species, the Indo-Pacific Humpback dolphin.^[26]

See also

- Hong Kong Dolphin Conservation Society
- Wildlife of China
- List of endangered and protected species of China
- List of cetacean species

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External links

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- Hong Kong Dolphinwatch (<http://www.hkdolphinwatch.com/>)
- Hong Kong Dolphin Conservation Society (<http://www.hkdcs.org/>)
- Convention on Migratory Species page on the Indo-Pacific humpback dolphin (http://www.cms.int/reports/small_cetaceans/data/S_chinensis/s_chinensis.htm)
- Official webpage of the Memorandum of Understanding for the Conservation of Cetaceans and Their Habitats in the Pacific Islands Region (<http://www.pacificcetaceans.org/>)

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