

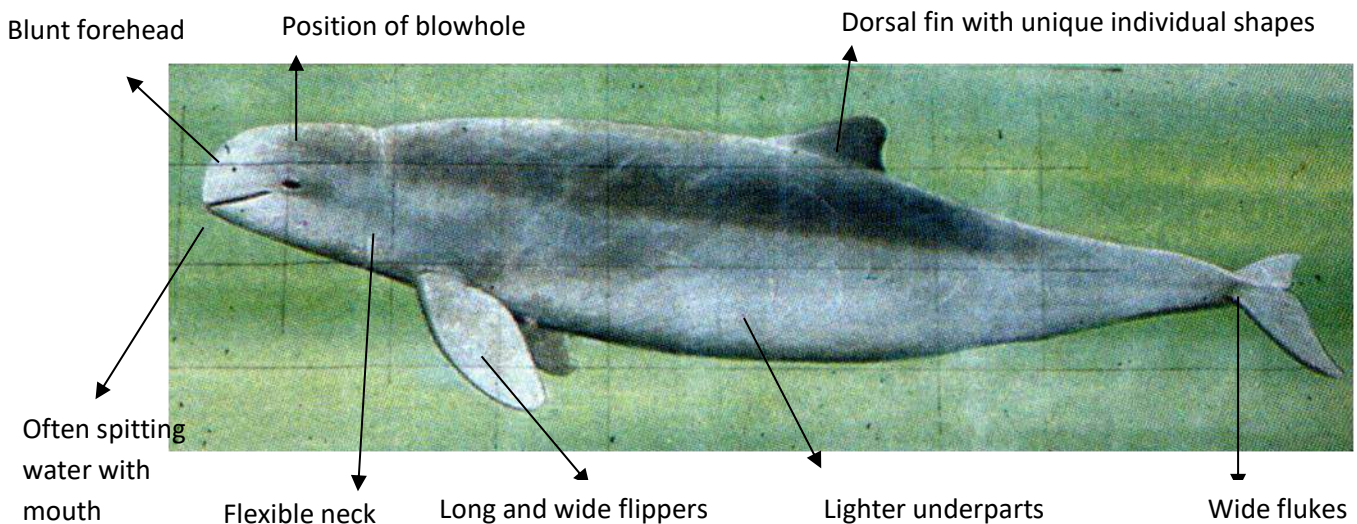
Pesut Mahakam 2020 Fact Sheet



Pesut Mahakam is the local name of the only freshwater dolphin in Indonesia that lives in the Mahakam river. The species is worldwide known as the Irrawaddy dolphin with its Latin name *Orcaella brevirostris*, which means "small orca with a short beak". Mahakam dolphins differ genetically from those that live in shallow, coastal waters. The population in the Mahakam was given the name "pesut" by local residents because of the sound that came from their blow holes as they surfaced. They are referred to as facultative river dolphins because this species exists in two habitats, i.e. coastal areas and 3 large rivers, namely Mahakam (Indonesia), Mekong (Vietnam, Laos, Cambodia) and Ayeyarwaddy (Myanmar). They also inhabit large river mouths such as

the Sundarbans in Bangladesh and lagoons, such as Lake Chilka in India and Songkhla Lake in Thailand. However, it has been hypothesized that coastal / freshwater separation occurred in the glacial period, 500,000 years ago where there was a drastic change in the oceans and land masses with no movement between coastal and river dolphins.

General characteristics



Length/ weight: The length of adult dolphins is between 2 - 2.7 m and the weight is between 90-150 kg, where males are larger than females. Newborns have a length of 90 cm - m with a weight of 10 - 12 kg.

Swimming Speed: Pesut often swim at a speed of 5 km / hour, but sometimes they can swim fast with a maximum speed of 20 km / hour.

Sonar: Pesut constantly emit high frequency sounds for orientation, find prey and detect objects (dominant frequency around 120 kHz = ultra-sonic) as well as for communication between individuals. Various sounds are also emitted to express their moods and each individual has its own unique whistle shape (0.8 -18.4 kHz = infra-sonic)







Scan to listen to Pesut's voice



When using sonar, dolphins emit and receive ultra-echo sounds at the same time. The dolphin brain calculates the distance based on the time it takes between emitting the sound and receiving the returning echo from the targeted object

Status

Pesut are classified as "critically endangered" according to the Red List of the International Union for Conservation of Nature (IUCN) and adopted as a symbol of the Province of East Kalimantan (Kreb & Smith, 2000). Although pesut are protected in Indonesia, their habitat has not yet been protected. In 2022 it is estimated that the population of Pesut consists of only 62 individuals, identified based on the unique shape of the dorsal fin of each individual.

Rossi	Jannah	Musmus	Hook
			

Distribution

In the main river pesut is most often found between Muara Kaman to Penyinggahan. However, seasonally it can also be found in the downstream areas of Muara Kaman to Tenggarong and upstream to Laham. Besides, dolphins are also found in the tributaries of Kedang Rantau, Kedang Kepala, Belayan, Kedang Pahu, Pela River and Semayang-Melintang Lake and rarely can enter Lake Jempang to Jantur village. There is also a small group in the rapids area on the Ratah River (Kreb & Budiono, 2016, 2019).

Home range

Pesut may swim up and downstream along a strip of 10 km river, which is repeated several times a day, although at times they can travel above 45 km river stretch in one day. Throughout the year, female dolphins move in river segments with an average of 45 km (max. 100 km) and male dolphins up to 100 km (max. 165 km), not including seasonal migration upstream into tributaries in the dry season where they may move as far as 250km from the usual location (Kreb, 2004).

Sosial Ecology

Usually, the number of dolphins in a group consists of 8 individuals but sometimes can reach 30 individuals. Single individuals may be found occasionally. The gestation period is 14 months and females only give birth to one calf while lactation may occur until 1.5 years. However, calves have been observed to swim very close to the mother up to 3 years of age. So every adult female (8 years and over) only gives birth once every 2-3 years. Mating takes place between different groups and males are competing to mate with females.

Births occur throughout the year but more in the dry season (July-September). The Pesut Mahakam age is estimated to be between 30-50 years.

Irrawaddy often emits a variety of different sounds, which are indicated as their high social level. Irrawaddy dolphins in the water sound like grunts, cracking, moans, squeaking, whistling and calling. When they travel they often whistle to connect between individuals and each individual has their own type of whistle (Kreb, 2004).



Behavior

Pesut in the literature is usually described as a slow swimmer, which rarely surfaces. But actually, pesut dolphins also carry out active activities such as saltos and breaching in addition to other routine activities such as touring, foraging, going back and forth, and communicating. Other behaviors of dolphins are waving fins and tails, peering, wagging tails and slapping hard into the water. The most unique behavior is to spray water to find food. The animals often look for food at river mouths and in tributaries and near the river shores of the river because it is easier to catch fish.



Spy-hop



Spitting water



Br



Fin wave



Fluke wave



Roll over & sideways swim

Why do Pesuts spit water?

Pesut and Beluga are dolphin species which are known to frequently spray water from their mouths. When dolphins search for food they spit water horizontally, which is a strategy to confuse and catch fish. Interestingly, some individuals can spit water vertically (perpendicularly) in the air or spit water on other dolphins. It is thought this was done by male dolphins to attract attention and show the female dolphins how skillfully they can spit water and catch





Favorite Pesut diet:
 Cyrpinids, carp, cat fish (ikan repang, kendia, lais, jelawat, patin,baung) and shrimp

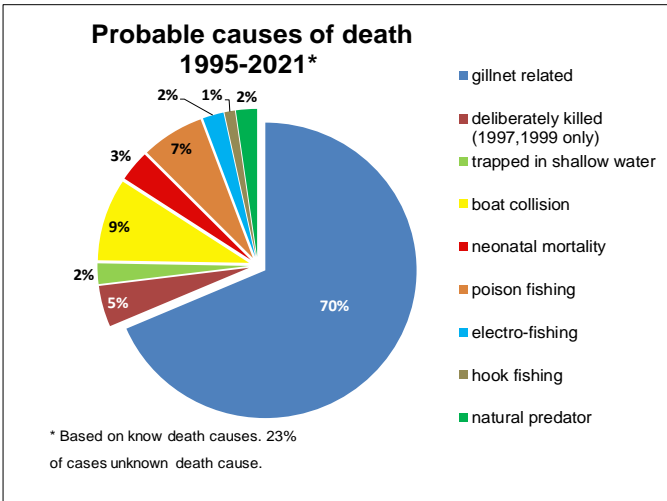
Birth and mortality rates

Every year the number of calves born is between 4-7 newborns but the average number of deaths per year is 4 dolphins based on annual mortality data between 1995-2023. Of all the dead dolphins found 22% were calves, 7% juveniles and 71% adults.



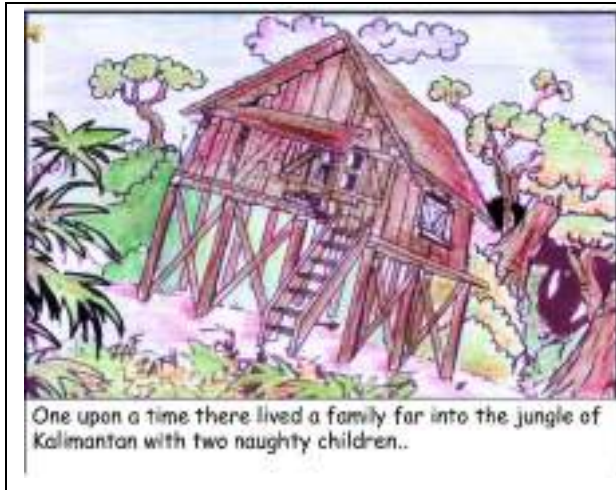
Threats

- Immediate death. Of all known deaths 70% were caused by gillnets.
- Declining food sources: Due to the use of illegal fishing gear (electro-fishing, poison); conversion of fish spawning swamp areas for plantations; and due to erosion.
- Pollution of chemicals from large plantations and mining and inorganic waste. In the YK-RASI report (2018) it is said that heavy metal content has been found, with contamination levels 23 times exceeding the the minimum water quality standard. Fishermen were also observed using poisons from chemicals. Not only fish are poisoned by this chemical, but also humans who eat fish, and dolphins who eat fish have been poisoned. Six dolphins died in only a period of 2 months - between August & October 2018 during the dry season and many reports about people poisoning fish obtained.
- Noise pollution from boats and speedboats and coal barges disturbing dolphin. In addition, these barges have already been observed to chase dolphins away from their daily trajectory if a barge crosses in a narrow river.
- Pesut have been stranded in swamps and entangled in gillnets. But there are also dolphins rescued by the local community and our NGO. Since 2002, there have been 9 reports of dolphins that were released from being caught in gillnets. In 2002, 2009, 2017 and in 2019 there were 7 dolphins that survived from the swamps.



Legends

According to the local legend, pesut originates from naughty children that disobeyed their parents and got lost in the forest. While they were so hungry they ate a pot of rice still cooking over the fire in a hut that belonged to a shaman. After eating the rice, they got unbearably hot and looked for water. Once they found a river they jumped in and transformed into pesuts with steam coming out of their blow holes. Because the people feel sorry for the dolphins they are generally much revered by the local people and cause them no harm.





Conservation successes

- The establishment of an aquatic conservation area to protect the Pesut Mahakam on 8/8/2022 by ministerial decree (Kepmen KP Nomor 49, Tahun 2022: Kawasan Konservasi di Perairan Mahakam Wilayah Hulu Kabupaten Kutai Kartanegara)!! This protected area is the first (!) of its kind to be established by the Ministry of Marine Affairs and Fisheries (MMAF) within an inland freshwater system in Indonesia and will set an example for more aquatic conservation areas in freshwater habitat. The area has a total size of 42.667,99 ha, including 1.081,28 ha of core area, 30.695,74 ha of limited usage area and 10.890,97 ha of rehabilitation and maintaining ecological function of riparian and swamp areas. Earlier this area was protected at the district level after a district decree was issued by the regent Kutai Kartanegara with the support of 27 villages! Establishment of the Aquatic Conservation Area aims to: 1. secure the quality of the Mahakam Pesut (habitat); 2. protect other biodiversity as well; 3. enable food security and 4. ensure the welfare of the people living in the reserved area

- Stipulation of the national Management Plan (MP) of the newly established aquatic conservation area (PA). Kepdirjen PKRL Nomor 61, 2023- Rencana Pengelolaan Kawasan Konservasi di Perairan Mahakam Wilayah Hulu Kabupaten Kutai Kartanegara
- Since July 2020, after a series of trial studies between 2018-2020, gradually a total of 266 underwater acoustic deterrents (per Dec 23) have been provided to fishermen to attach to their gillnets and were able to deter dolphins at c. 10m from nets and resulted in zero entanglements since their first deployment.

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