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Activities and Behavior of Cetaceans

Dwimei Ayudewandari P*, Rini Devita Sari, Faza An'imah, Najwa Eka Roseva, Niken Rossiana Puspitasari, Nasywa Romadloniyah, Retno Cahyaningtyas
Program Studi Biologi Pendidikan Biologi, Fakultas Sains dan Teknologi, UIN Walisongo Semarang Jl. Prof Hamka no 3-5, Nhaliyan Semarang,
email: dwimeibiologi@walisongo.ac.id

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Abstract. The activities and behavior of several cetaceans show their own characteristics, from dolphins showing various movements to dugongs who like to hug humans. In this study we report and discuss scientific information about the various types of activities and characteristics possessed by animals belonging to the cetaceae. The research method is in the form of a literature review by searching for articles in the database, namely Google Scholar with the year 2003-2021. Articles are searched using keywords that have been determined by the researcher. Keywords for this search included the following terms: activity, behavior in cetaceae, locomotion in dolphins, whales, porpoises, sea lions, and seals. Based on the results of this literature review, we conclude that cetaceae are marine mammals that are quite unique, the activities of cetaceans are very diverse and the activities that are often shown are aerials.

Key words: Activity, Behavior, Cetaceae, Swimming

INTRODUCTION

The waters of Indonesia are known to have a high diversity of biota in the world, including a high diversity of marine mammals (Cetacea). Cetacea is a group of marine mammals that are fully adapted to aquatic life, including whales and dolphins. According to (Barnes, 1996; Rudolp et al., 1997; Kahn, 2003), there are about 30 species of whales and dolphins in Indonesian waters out of a total of 86 species worldwide. Marine mammals are long-lived and have slow growth, making them highly vulnerable to excessive hunting pressure. According to Dale (1998), the classification of the Cetacea Order belongs to the Animalia Kingdom, Chordata Phylum, Mammalia Class. This

order consists of 12 families comprising 88 species worldwide, while in Indonesian waters, 30 species are found.

Some animals classified in the cetacean order include dolphins, whales, Irrawaddy dolphins, and dugongs. These animals undoubtedly have various daily activities that can be observed and studied. Each animal also has its own characteristic activities. In recent years, dolphins in Indonesia have been hunted for consumption. Continuous hunting can lead to a decline in the dolphin population in the wild. In fact, dolphins are already protected animals, and efforts to protect various cetaceans, especially dolphins, have not been optimally carried out in Indonesia due to a lack of knowledge. The status of cetaceans, especially dolphins, in the IUCN is endangered. Another factor contributing to the endangered status of dolphins is habitat destruction (Yusron, E. 2012).

RESULTS AND DISCUSSION

The research method used in this article is literature review through the Google Scholar search engine, covering the period from 2003 to 2022. The search for article references was conducted using the keywords "Cetacean Activities" and "Marine Mammal Behavior."

A total of 10 journals were used based on the search for article references through Google Scholar. All articles were in Indonesian. We identified the main ideas in each article, extracted unique facts contained within them, and evaluated the strengths, weaknesses, and challenges faced by the researchers. The main focus of our discussion was on the abstract, introduction, and literature review sections. The reviewed articles primarily discussed the activities and behavior of various Cetaceans.

RESULTS AND DISCUSSION

The study utilized a single database, Google Scholar, by inputting keywords such as activities, behavior in cetaceans, movements in dolphins, whales, river dolphins, sea lions, and seals.

Activities and Behavior of Dolphins

The activities of dolphins moving in groups and leaping above the surface of the sea are certainly familiar to us. Dolphins have unique characteristics such as engaging in various behaviors during their movements on the water's surface, such as leaping out of the water (aerials) by performing somersaults, spins, and flips (Raudina,

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Anggit Sapta, Taufiq-Spj, Nur, & Redjeki, Sri. 2021) while emitting sounds aimed at communicating with other dolphins to avoid getting lost and also to attract the attention of their group if separated (Dharmadi, D., Faizah, R., & Wiadnyana, N. N. 2010). Besides leaping out of the water (aerials), dolphins also engage in various other movements and activities, including stationary (remaining still, not moving), traveling (swimming towards a specific direction by leaping and swiftly dropping themselves continuously according to wind conditions of 7-10 knots) (Dethan, Thommy A., Merryanto, Yohanes, Supit, Rockie R.L. 2019), logging or resting position (swimming in place with their heads emerging above the water's surface, resembling a log), avoidance (movement to avoid sailing vessels), feeding (food-seeking activity), and hunting (preying on targets). Dolphins also form larger groups as part of their hunting strategy because their food sources, which are scattered fish, are found in open waters. Typically, dolphin behaviors related to hunting occur from morning to afternoon due to their feeding habits during this time (Dharmadi, D., Faizah, R., & Wiadnyana, N. N. 2010). In the evening, dolphins usually go to a place to rest (Yusron, E. 2012).

Activities and Behavior of Dugongs

Dugongs are marine mammals that breathe using lungs and cannot extract dissolved oxygen from water. Through observations conducted using a single boat, several activities performed by dugongs were identified, including breathing (38.68%) and swimming at the surface (37.4%). Another observed activity was the protrusion of the male's penis (5.76%) and rubbing it against the boat's hull. Dugongs have a unique male reproductive organ, which is located inside their bodies and emerges when stimulated. This phenomenon also occurs in other marine mammals such as dolphins, where the male genitalia is exposed and rubbed when in heat.

Hodgson (2004) explained that there are six categories of daily behaviors observed in Moreton Bay, including: 1. Feeding, 2. Traveling, 3. Resting, 4. Socializing, 5. Rolling, and 6. Surfacing. Burgess (2012) stated that dugongs with a body length of 2.5 meters have reached adulthood and experience a high increase in testosterone hormone levels. In general, the natural behavior of dugongs is to avoid human interaction. Only dugongs that have frequent interactions with humans will exhibit activities around them. The potential danger humans face when regularly interacting with dugongs is the absence of fear towards humans and the tendency of the animal to

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express its mating behavior towards humans rather than other dugongs.

Activities and Behavior of Sea Lions and Seals

On the beach, sea lions and seals will move up or down the intertidal zone to cool or warm their bodies. When it's too hot, sea lions maximize their surface area by spreading their flippers, while if it's too cold, they will lie on their flippers. Elephant seals flip sand onto their backs to help maintain a lower body temperature on sunny days, while Hawaiian monk seals (Monachus schauinslandi) seek shade under bushes or in small crevices on hot, sandy coral islands. However, all these behavioral mechanisms are not unique to marine mammals, except that these animals have the ability to utilize the ocean to regulate their temperature as needed. A good example of feeding and thermoregulation is the humpback whale (Megaptera novaeangliae), which migrates to the cold waters of Alaska during the summer to feed but heads south to warm waters near Hawaii for breeding (Azhari, 2020).

Activities and Behavior of Irrawaddy Dolphins

In general, Irrawaddy dolphins exhibit more surface behaviors in rivers compared to the sea. Due to the heavy boat/ship traffic, high debris load, and low surface light in rivers, Irrawaddy dolphins must perform various movements to avoid collisions with boats and other objects in the river.

The frequency of individuals surfacing per minute is also influenced by the number of individuals in the group (group size). Although the correlation is weak, regression analysis suggests that in rivers without boats, a larger group is predicted to have a higher frequency of surfacing events per minute, whereas in the sea, the opposite is true. The correlation between the number of dolphins floating in rivers and the sea, group size, and the presence of boats shows contrasting values in the absence of boats. The analysis of river data indicates that a larger group is predicted to have a lower frequency of individual sightings per minute. In contrast, in the sea, the presence of boats means that the larger the group, the higher the frequency of sightings. Because the river habitat is narrower than the sea, to avoid large groups of boats, the dolphins dive as it is not possible to avoid horizontally.

Even when the river's visibility is low, large groups choose to avoid boats by diving for a long period and always staying together in a group rather than swimming fast but scattered due to the limited (narrow) habitat of Irrawaddy dolphins in rivers. The intact shell provides a sense of security for the dolphins, although loud engine noise from boats in the water makes the dolphins increasingly uncomfortable and stressed. Small groups choose to avoid boats by swimming fast because it is easier for small groups to maintain integrity compared to large groups, and they also try to reduce stress caused by noise pollution.

Large groups in the sea can more easily maintain group integrity by swimming faster rather than diving for a long time because their marine habitat is vast, and they can swim in any direction within the cohesive group. Avoiding boats by swimming fast, but detecting small groups in a large habitat is challenging, resulting in reduced observation accuracy. The frequency of Irrawaddy dolphin sightings is highly influenced by the distance and type of passing boats (Margareta & Damayanti, 2003).

CONCLUSION

Based on this literature review, we conclude that the activities of cetacean animals are highly diverse, with aerial behaviors being commonly observed. Further research is needed to provide a better understanding of the behaviors exhibited by cetacean animal.

REFERENCES

Azhari, Amira Z. 2020. Adaptasi Mamalia Laut Terhadap Termoregulasi pada Lingkungan Yang Ditinggali. Pendidikan Fisika, Universitas Negeri Jakarta.

Baird, R.W., A.D.Ligon., S.K.Hooker., A.M.Gorgone. 2001. Subsurface and Nighttime Behaviour of Pantropical Spotted Dolphins in Hawai'i. Canada Journal Zoology. Vol 79:988-996.

Burgess AE, Lanyon JM, Keeley T. 2012. Testosterone and tusks: maturation and seasonal reproductive patterns of live, free- ranging male dugongs (Dugong dugon) in a subtropical population. Reproduction. (143): 683-697

Dethan, Thommy A., Merryanto, Yohanes,Supit, Rockie R.L. 2019. Sebaran dan Tingkah Laku Lumba - Lumba di Perairan Solor kabupaten Flores Timur Provinsi Nusa Tenggara Timur. Jurnal ACADEMIA. Hlm 11 - 13.

Dharmadi, D., Faizah, R., & Wiadnyana, N. N. 2010. Frekuensi Pemunculan, Tingkah Laku, dan Distribusi Mamalia Laut di

Laut Sawu, Nusa Tenggara Timur. Jurnal BAWAL Vol. 3 No. 3. Hlm 209 - 215.

Hodgson AJ. 2004. Dugong behaviour and responses to human FPIK Unpatti - Ambon. influences. PhD thesis, James Cook University,Townsville, Ausralia.

Margareta, Erri. N. & Karen Damayanti. 2003. Pengaruh Lalu lintas Kapal terhadap Perilaku Muncul Pesut (Orcaella brevirostris) di Sungai Mahakam dan Teluk Balikpapan. Jurnal Bionatura 5(3).Hlm 203 – 215.

Raudina, Anggit Sapta, Taufiq-Spj, Nur, & Redjeki, Sri. 2021. Biodiversitas dan Tingkah Laku Kemunculan Cetacea di Perairan laut Sawu, Nusa Tenggara Timur. Journal of Marine Research Vol. 10 No. 4. Hlm 457 - 459.

Siahainenia, S. R. 2010. Tingkah Laku Lumba-Lumba Di Perairan Pantai Lovina Buleleng Bali. In Jurnal Amanisal PSP

Yusron, E. 2012. Biodiversitas Jenis Cetacean di perairan Lamalera, Kupang, Nusa Tenggara Timur. Jurnal ILMU KELAUTAN Vol. 17 No. 2. Hlm 59 – 6