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Pesut (*Orcaella brevirostris*) Distribution in Mahakam Watershed East Kalimantan from Time To Time

(Case Study of Community Perception in East Kalimantan)

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Abstract:- Pesut Mahakam (Orchaella brevirostris) is an Indonesian freshwater dolphin that can only be found in the Mahakam River Basin in East Kalimantan. The Mahakam River is the main habitat for these animals, distributed from the Mahakam Delta (Samarinda) to West Kutai (Melak), while the lake and swamp are cruises for playing and foraging. The distribution of the Mahakam Pesut (Orchaella brevirostris) in the Mahakam River has always shifted from time to time. The study was conducted in 2017 - 2018 in Samarinda, Kutai Kartanegara and West Kutai, East Kalimantan, with survey methods and direct interviews with fishermen, community members, the Marine and Fisheries Service, and the Natural Resources Conservation Agency (BKSDA) of East Kalimantan Province. The purpose of this study was to determine the population and distribution of Pesut (Orchaella brevirostris) in the Mahakam River. Pesut Mahakam (Orchaella brevirostris) era before the 1980s distributed from the Mahakam Delta to the Upper (Melak); in the era of 1980 - 2000 Pesut Mahakam was distributed from the Kutai Kartanegara area to Melak; whereas the era of 2000 until now Pesut Mahakam is only distributed in the Kutai Kertanegara region (Middle Mahakam).

***Keywords*—** Distribution; Pesut Mahakam; From time to time; Mahakam watershed.

I. INTRODUCTION

Mahakam River is the largest river that divides the province of East Kalimantan. This river also supports the lives of residents in small villages in the upstream, downstream, and along its tributaries. In the upstream part, the river flow crosses the territory of Mahakam Hulu Regency, West Kutai Regency, Kutai Kartanegara Regency and Samarinda City downstream. The length of this river reaches 920 kilometers, the width of the river between 300-500 m with an area of approximately 149,277 km2.As an upstream-middle-downstream system, the ecosystem in the Mahakam River is very complex. Being a water source (inlet) for lakes on the Mahakam River crossing. The lake is the center of fisherman's economic activity Fishermen depend on the availability of food sources on the lakes on the Mahakam River. Fisherman activities fishing in the core river system and lakes in Mahakam. In addition, fishing is the main livelihood of the community around the riverbanks.

Some records explain that the Mahakam River is the second longest river in Indonesia. No wonder it is home to a variety of animals. One endemic animal that has become an icon of the area, namely Irrawaddy dolphin dolphin (Orcaella brevirostris). Mahakam dolphins are known as freshwater mammals whose existence is threatened. Its distribution is increasingly narrowing and increasingly difficult to find in nature. In Indonesia, mahakam dolphins can only be found in the East Kalimantan region precisely in the core waters of the Mahakam River and lakes (which are connected to the Mahakam River) (Kreb 2005).

Based on the internationally recognized IUCN redlist data, it was determined that the species that was made an icon of East Kalimantan was included in the category of "very endangered" in 2000. Even based on research conducted by the RASI Foundation in 2017, the population of the Mahakam dolphin was only 75-80 tail. This species's population continues to decline every year.

II. METHOD

The study was conducted in 2017 - 2018 in Samarinda, Kutai Kartanegara and West Kutai, East Kalimantan, with survey methods and direct interviews with fishermen, community members, the Marine and Fisheries Service, and the Natural Resources Conservation Agency (BKSDA) of East Kalimantan Province. Data collected in this study are population, distribution, and community information about Pesut Mahakam.

The research equipment used was GPS to determine location, Drown to take location photos from the air, digital SLR cameras with a minimum lens of 300 mm to record images of the presence of dolphins,

III. RESULTS AND DISCUSSION

The Mahakam watershed is the Main and most important watershed, having a length of about 931 km (measured) and an area of 77,095 km2 covering 5 regencies / cities. The average rainfall in the Mahakam watershed is around 2580.61 mm / year, the Mahakam watershed also has 328 tributaries, with an area of 199,407 Ha of public waters. In addition, the Mahakam watershed has the Mahakam Delta, which covers 150,000 hectares in the form of a bigfoot (bird's foot) with diverse river channels and each has an estuary. In the Mahakam Delta there

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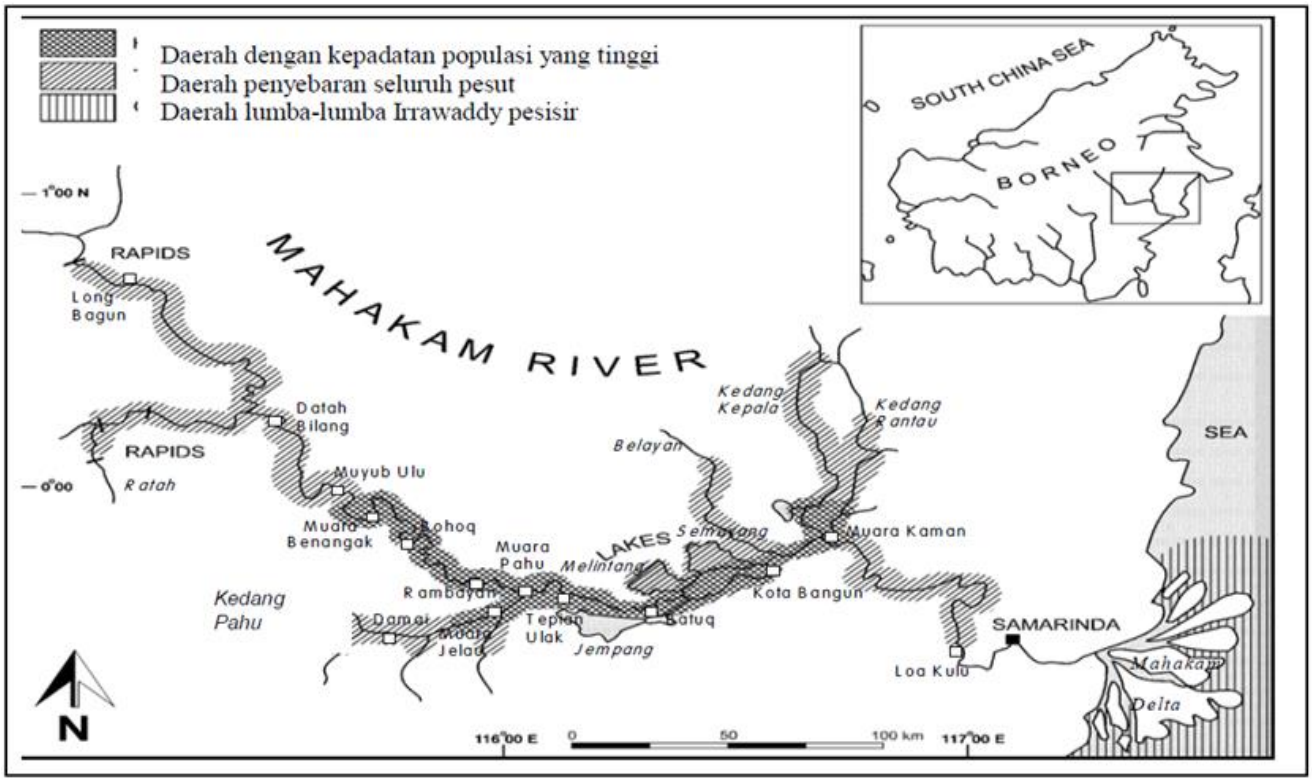
are 100,000 Ha of mangrove forest land, but 85% are in damaged condition. The Mahakam watershed also has a high biodiversity, including 86 species of freshwater fish, one of which is Irrawady Irrawady (Orcaella brevirostris) which is a freshwater dolphin whose population is said to only exist in East Kalimantan, Myanmar and Cambodia / Laos .

The rivers and lakes found in the Mahakam watershed in the beginning before they were disturbed by humans, have natural water quality. Dust, atmospheric minerals and various gases are dissolved in rain water which in turn will determine the status of the river's natural water quality. The minerals and gases commonly found dissolved in rain water are carbon, sulfur, sodium, calcium, oxygen, nitrogen and silicon. During the process of interception of rainwater, water escapes (throughfall) and stemflow water will bring along more mineral material and organic elements from the vegetation body (leaves and stems / branches). Along with the passage of water that has mixed with these minerals to the soil surface, there is a mixture and exchange of minerals and nutrients derived from the components of fauna and flora in the soil. When in the end the water appears as a stream of river water.

Mahakam rivers and tributaries, the upstream and downstream sections differ in physical condition, including the depth and width of the river. River water flow is usually unidirectional, the river bed is unstable, there is erosion or there is sediment. Water temperature fluctuates, but the temperature of the top and bottom layers is almost uniform. River water is generally saturated with oxygen, enough to get light, although there is river water that is lacking oxygen and not getting enough light. Usually river water does not contain much plankton, and plants that grow in the river are usually periphyton. Nutrients vary from place to place. There is rarely a pile of organic material at the bottom of a river, because it always goes with the flow of water. Only the edges of the river and in certain places that contain fish, because generally the primary production is on the river banks, although production is generally low.



Map 1:- Areas of distribution of dolphin dolphins before the 1980s

At that time (before the 1980s) the distribution of the Pesut Mahakam (Orcaella brevirostris) was evenly distributed from the sugai Mahakam estuary to the Melak area. From the speech of the people of Samarinda they still often witness the emergence of Pesut Mahakam in the Samarinda region, especially when the tide is deep. From the testimony of the Handil people who work as coconut traders in Samarinda Morning Market, every time they bring coconut from Handil their ships often race with the Mahakam Pesut, as if the Mahakam Pesut invites a race with a coconut merchant ship.

Along with the increase in logging activities in the Mahakam watershed and the number of playwood industries built on the banks of the Mahakam river, the activities on the Mahakam river have become more congested, starting from community transport vessels from Samarinda to Melak, the flowing back and forth of timber company employee ships, to the activity of transporting logs from the log upstream of Mahakam to Samarinda, the activities of the Mahakam Pesut in Samarinda began to be disrupted, so after the 1980s the distribution of the Mahakan Pesut shifted only from Tenggarong to Melak (Kutai Regency).

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Map 2:- Regional distribution of dolphin dolphins between the 1980s and 2000s

In 1989, the people of Muara Lawa Subdistrict who worked as fishermen in the Lawa River when installing fish nets / rengge in the afternoon had to pay attention to the activities of the population of Pesut whose members reached 30-40 tails, so as not to be wrapped around the net. Meanwhile, to lift the net / gillge in the morning must be done quickly before 06.00 CET, because if it's too late then the fish trapped in the net will be eaten by the Pesut Mahakam group, especially large fish such as Baung, Lais and Patin fish.

In 1992 East Kalimantan was hit by a long drought, lakes and swamps in the Mahakam watershed experienced drought, the connecting lakes rivers were covered with water weeds (water hyacinth, kumpai and mimosa), many Mahakam Pesut were trapped in drought in the Melintang river and died, to the population Pesut Mahakam has decreased. Around 1993 the East Kalimantan development sector began to develop, from gold mines to coal mines, the impact of lake sedimentation and the Mahakam watershed is getting shallower, fish reserves have decreased in productivity, the more years the reservoirs in the Mahakam watershed are experiencing drought and most have become land, so fish -the fish source of dolphin feed is increasingly reduced. With the reduced productivity of the lake and reservoir in the Mahakam watershed, many of them have nets that cut across the river so that many Pesut Mahakam have died entangled in fishing nets. due to being caught in a fishing net.

Around 2000 coal mining in West Kutai began to develop and transportation activities in the upstream Mahakam river began to be congested, so that the habitat of pesut was increasingly pressed, rarely found in the West Kutai region, they were only found in the Middle Mahakam watershed (Kutai Kartanegara region).

With an average death of 4-6 head / year and the number of births below 4 head / year, the total population of the Mahakam dolphin is decreasing, as a result of monitoring by the RASI and LEMILKA foundations with the support of PT. Bara Tabang in 2017 and 2018, the population of Pesut Mahakam ranges between 70-80 tails, and the spread is limited to the Muara Muntai area, Kota Bangun, Pela River, Belayan River, Kedang River and Kedang Rantau River in Kutai Kartanegara District.

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Map 3:- Distribution areas of Pesut Mahakam after the 2000s

Increasingly dense community activities in the Mahakam watershed and many settlements on the banks of the Mahakam river and lakes will further narrow the habitat of the dolphin and suppress the population of the Mahakam Pesut, it needs the cooperation of various parties to save the existence of the Mahakam Pesut which from time to time is increasingly rare, so that mammals East Kalimantan's mascot is not extinct.

IV. CONCLUSION

Before the 1980s when the Mahakam river was still relatively unpolluted and community activities on the Mahakam river were still lacking, the distribution of dolphins spread from the estuary to the upstream of the Mahakam river (Samarinda to Melaak)

In the 1980s - 2000s, industrial development in Samarinda was increasingly rapid, so the distribution of Pesut Mahakam was pushed to the Kutai region (Tenggarong to Melak), after the 2000s mining in West Kutai experienced rapid development, to narrow the habitat of Pesut Mahakam.And currently Pesut Mahakam is only distributed in the Central Mahakam watershed, namely in the Muara Muntai area, Kota Bangun, Pela River, Belayan River, Kedang Kepala River and Kedang Rantau River in Kutai Kartanegara District.

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