International Journal of Zoology Studies
ISSN: 2455-7269; Impact Factor: RJIF 5.14
Received: 08-01-2019; Accepted: 13-02-2019
www.zoologyjournals.com
Volume 4; Issue 2; March 2019; Page No. 11-14

Pengamatan Pesut Mahakam (*Orcaella brevirostris*) di sepanjang perairan sungai Mahakam (Dolphin Observation along the river of Mahakam)

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Abstract
The population and distribution of dolphins along the Mahakam River extends very far upstream and into the river's tributaries. The influence of ocean tides and flooding provide opportunities for dolphins in Mahakam to search for food in these distant parts of the river. Often these dolphins become trapped and cannot return to the areas they came from and may develop into sub-populations.

Keywords: *Orcaella brevirostris*, search for food, Mahakam River, trapped

1. Introduction
Biological change or one of its component include habitat is a focus in one monitoring programm. We need to know well to differentiate and to select which component or element should be monitored and be learned its change. Also with Dolphin (Pesut) monitoring a long the river of Mahakam to see and know its distribution in spezial within Kedang Kepala, Kedang Rantau, Belayan and Pela river. We choose some points or places to find more pesut in Mahakam, i.e. in estuaries.
Dolphin monitoring in East Kalimantan is still seldom and obviously not consistence by conducting. Monitoring needs consistency and regulary conducting to measure with the same methodology which are developt. Probably many researchs from university or NGO could be used as monitoring data to see one or more biological changed. More monitoring perhaps more for abiotic components such as water quality, air and or land erosion. While monitoring we estimated also the number of Dolphin a long Mahakam river as well.

2. Methodology
Parallel tracking survey was conducted in this research, i.e. we divided into three survey team and work together at the same time. Every day we conduct three times tracking survey: in the morning (7:00-10:00 am), in daylights (11:00-14:00 am) and in the afternoon (15:00-18:00 pm).
Every team have a leader and one assistence and motorist. Firstime monitoring done in three months for every month we needs 6 days field survey. Every team has binocular, DSLR camera and 300 mm lens and others. All important moment will be saved and also the moment we find Dolphin which is useful to see the fin to individual identify.

3. Result
The Estimation of Dolphin Number
There are three or four estuaries were established for watching and observation i.e Pela estuary, Belayan estuary, Kedang Kepala estuary and Kedang rantau estuary. Each day the three team covered three places (estuary), stay and moved among one the estuary only. The distance from Pela to Kedang Kepala or Kedang Rantau was little bit far, more than one hour speed travel. Kedang Rantau and Kedang Kepala is only 5-10 minute in distance, these is the last station for observation Dolphin in this research. Belayan estuary is around 20-30 minutes with speedboat from Pela estuary and located in the way to Kedang Kepala. Every day the three team start to Pela estuary but only one team stay there. The second team travel to Belayan estuary to stay and observe there and the third team went to the next point Kedang Kepala and or Kedang Rantau. On the way back from Kedang Kepala we always stay in Pela estuary for a while because fast always finding Dolphin which have also the same destination and use estuary before they escaped to Semayang Lake.
In the first day the three team have seen the Dolphin, the number of Dolhin finding is 3-4 individual at Pela river (team one), 1-2 individual trapp at Sangkuliman swamp (team one). 8-11 individual at Belayan estuaries (team two) and 4-6 individual at Kedang Kepala estuary (team three), so total number of Dolphin seen is 16-23 individual. Could be more than these number, because of not all Dolphin raise up to the out of water. If we assumed that there are the number of Dolphin not raise up and not seen by researcher, the number double it, total number is 48-69 individual.
Based on time and venue of Dolphin number finding and estimation we calculated how many Dolphin in fact in

Mahakam river within Pela, Belayan and Kedang Kepala or Kedang Rantau each day. We use the high calculation of Dolphin as estimation number of them in Mahakam river. Following is the notification of Dolphin from the days of monitoring.

Table 1: Time and venue Observation of Dolphin in Mahakam for three months in the year 2017

Time & Venue	Morning	Daylight	Afternoon	Number
February	4-6 individual (Pela)	8-11 individual (Belayan)	4-6 individual (Kedang Kepala)	16-23 individual
February	3-4 individual (Pela)	16-23 individual (Kedang Kepala)	1-2 individual (Pela)	20-29 individual
March,	Not seen	Not seen	8 -12 individual (Kedang Rantau)	8- 12 individual
March,	Not seen	12 –16 individual (Belayan)	8-12 individual (Kedang Kepala) 4 – 8 individual (Pela)	20-28 individual
April,	2-6 individual (pela)	Not seen	Not seen	2-6 individual
April,	4- 8 individual (pela)	1 individual (Mahakam)	8-16 indi at Kedang kepala 3-4 individual (Kedang Rantau)	13-24 individual
April,	Not seen	2-4 Individual (Kedang Kepala)	2-4 individual (Kedang rantau)	4-8 individual
May,	Not seen	Not seen	Not seen	Not seen

Automatically the first and second days data of Dolphin sight could and should be used for estimating number of Dolphin within Pela river, Belayan, Kedang Kepala and Kedang Rantau without no one knows its sex ratio. The estimation of Dolphin population was crude and controversial, however we assumed in this method that every team saw the different individual of Dolphin. Not all team find the Dolphin in the same day, but at least two team find them. Unfortunately all team did not find Dolphin. The next assumption is that the number of Dolphin not raise up as well the number of Dolphin raise or double it. The time of Dolphin raise up the water is only 2-3 second, suggestion they are in a big number, there should be 15-30 individual, if we find only 2-3 individual raise up at the same time. Lower than this is indicate the low number of individual (3-4 Individual) (Budiono, personal communication).

What is interesting in Dolphin observation, is seeing the individual of Dolphin (probably feminine one) swimming together with small pesut (probably its child) at Kedang Kepala estuary. The observation also used to know Dolphin distribution to the upstream specially when es big flood in Mahakam river. Following pictures shows Dolphin in Mahakam river.

Fig 1: How Dolphin reach the water up. These figure is very often that Dolphin like investigate the situation around him. Dolphin Albino (The white one)

4. Disscussion

As we estimated and learned from available literature and many indications that easier to find Dolphin Mahakam is in estuaries. Estuaries areas is a rich from food for Dolphin such as small fish and shrimp. Anyway we can find them also in the river flows such Mahakam, Belayan or along the Pela rivers. Based on these observation and many theories of animals population, we build some scenario about Dolphin population.

First Scenario

Dolphin using area of Pela river as a place for breeding or comfortable area for resting in the night (personal information). These is proved that we saw Dolphin and its young child and we observed also some group of Dolphin back to this area in the afternoon. Fast in the afternoon we find some Dolphin play and feed at Pela estuary on April, 30. The number of Dolphin increase double from 4-6 to 6 – 8 individual. We suggest that Dolphin coming back again to the pela estuary in the afternoon before dark, anyway some of them are not come back during this flood (could be a week). At these situation to find Dolphin is more difficult, except we wait on route back at Pela estuary like above.

In the morning Dolphin goes to look for feeding at the estuary of Pela, Belayan, Kedang Kepala and Kedang Rantau estuaries. Fast every day Monitoring team stay at Pela estuaries and fast always also found Dolphin went and back to this places.

If we found no Dolphin in Belayan estuary, it is not there is no Dolphin there, could be they are in another estuaries. Information from another team survey is very important that they are not seen Dolphin in another estuaries in the same time. On the contrast we find pesut 4-6 individual in a daylight at Kedang Kepala and not in Kedang Ratau. In the afternoon Dolphin came into kedang rantau, however is coming from Kedang Kepala estuary. At the same time we did not noted anything in Pela, except Dolphin that was trap in swamp at the back Sangkuliman village name is Fiona (Budiono information). Fiona was pregnant while trapping (march 2017) and give birth on April 2017. Also we noted the number of Dolphin (10-12 Individual) at Belayan Estuary. So Dolphin distribution is already prediction, i.e. Pela river, Belayan, Kedang Kepala and Kedang Rantau. There was no number of Dolphin seen at Siran lake which fast 90% covered from weeds (Eceng gondok and others). We suggest that Dolphin did not use anymore Siran lake for feeding. However, noted around 6-11 individual of Dolphin at Kedang Kepala circa April 2017 and back or escape to the headstream of Kedang Kepala river but not on the way to danau Siran. Water lake is be come dark is maybe the reason why Dolphin avoid this lake.

Any news about one deadly Dolphin cause of rengge or traditional trapping. The skin was exfoliate and his body swollen at March, 26 2017 and alredy burried at Rantau Hempang and it take some sample for research.

Second Scenario

From the following monitoring and pursuits Dolphin was April, 28 – May, 1 2017 while flood in Mahakam and also tide of sea water. Some individual of Dolphin was move to the upstream way to Sabintulungan, Mangkuliding even untill hilt of Sedulang (4-5 hour speedboat) These information is coming from the people who seen some Dolphin move up to headwater.

Dolphin distributed along the river of Mahakam. These hypotheses based on information of WWF researcher that they found Dolphin untill West Kutai, such as Penyinggahan and event more far to Kedang Pahu river. If high waters (flood and tide water) the big number of Dolphin move together to headwaters. These argument will be strongly as we found the number of Dolphin in the front of hotel in Mahakam river moved out from Pela estuary to the headwaters.

During high waters more and more Dolphin moved up and faraway to the headwates and stay there for long time, normally a week. There are some problem for Dolphin that they trapp in swamp or small river. Some of them build the community as sub population that temporarily separate from population that we known. During floods not all Dolphin move to the headwaters, however fast in two days team can not find them. The distribution of Dolphin depend from flood in Mahakam river, some move up untill headwaters of Kedang Rantau, reach Sedulang and Sabintulungan.

Third Scenario

Population of Dolphin distributes within Mahakam delta to upstream of Mahakam river with individual and population temporarily separate between each other. Third scenario build based on many references from existing or arise up of Dolphin in Delta and Mahakam river. We predicted that population of Dolphin from the ocean is the sources of the population/subpopulation in Mahakam river. These argument will be support that we found Dolphin also in Balikpapan Bay or another places such as Sesayap river and also in South Kalimantan, event in sungai Irawadi India. Zona estuaries between Mahakam river and the sea (point meeting of fresh and salt water) is not more suitable for living of Dolphin because of high polution. The number of Dolphin which have trapp in to Mahakam river was high, it was indicate by raise the head of Dolphin or people have in sight of Dolphin around Samarinda in the year 1990. High traffic of Mahakam pressured Dolphin moved into headstream of Mahakam river and to three Lakes Jempang, Melintang and Semayang and at present is more Dolphin for faraway since the water lake is already shallow (from sedimentation) because of erosion and occupying of uncontroled weeds. It must be noted that Mahakam river and its three lakes could be used as a good habitat for long period of time. It is proven that its population is always increase, it guess now was 84 individual (Krebs and Budiono, 2016) that was counting Dolphin since 25 years ago with differentiate each individual by its fin.

5. Conclusion

Easier to find Dolphin in Mahakam river specially at Kedang Kepala estuaries indicate that they are not disturb from high trafic of ship and high counting of water turbidity. It will be predicted that the impact is seriously to the food when es escape from this habitat. Generally food is available in estuaries where Dolphin is more to find its food. The big problem for Dolphin is by flooding and tide water, they move up to headstream and sometimes could not back to the origin area. High water in Mahakam (tide) give the oppotunities for Dolphin to move faraway to upstream. Decrease of Dolphin population is more by falling the trap (rengge) and fall in to swamp area when the water is receding.

6. Recomendation

Information about security food help Dolphin to be survive. Long time Dolphin and people have work together (symbiosis mutualism) to find small fish as food, anyway man said that is not more enough food for man and Dolphin. Mahakam flood could be long time and create the nature distribution of Dolphin in Mahakam river, so far event to smaller tributaries. It is need help from stakeholder to make trapping Dolphin free at less water condition.

7. References

1. Gordon J, Moscrop A. The Conservation of Whales and Dolphins, Edited by Simmonds MP, Hutchinson JD, Chichester (England): John Wiley & Sons, 1996.
2. Kreb D. Conservation of the Pesut, *Orcaella brevirostris* in the Mahakam River and Lakes, East Kalimantan, Indonesia. Quarterly Progress Report Results of Dry Season September-December. LIPI. Samarinda, 1999.
3. Kreb D. Konservasi dan Biologi Pesut *Orcaella brevirostris* di Sungai Mahakam, Danau dan Pesisir Pantai Kalimantan Timur. Summary Reportuntuk LIPI. Samarinda, 2000.
4. Kreb D, Rahadi KD. Living under an aquatic freeway: effects of boats on Irrawaddy dolphins (*Orcaella brevirostris*) in a coastal and riverine environment in Indonesia. AquaticMammals. 2004; 30:363-375.
5. Kreb D. Facultative river dophins: Conservation and social ecology of freshwater and coastal Irrawaddy dolphins in Indonesia. PhD thesis, University of Amsterdam. 2004,1-230.
6. Kreb D, Budiono. Conservation management of small core areas: key to survival of a Critically Endangered population of Irrawaddy river dolphins *Orcaella brevirostris* in Indonesia, Oryx. 2005; 39:(2)1-11.
7. Kreb, D, Noor IY, Budiono, Syachraini (2012). Pesut Mahakam Conservation Program. Technical report: Abundance and threats monitoring surveys during low levels, July and September, 2012.
8. Kreb D. Budiono 2014. Pesut Mahakam Conservation Program. Technical report: Abundance and threats monitoring surveys during low levels, August and September, 2014.