

Status and community-based conservation of the Mahakam River dolphin in Indonesia

Webinar for Enhancing Conservation of River Dolphins through Sub Regional Cooperation

Date: 24 -25th, August 2020



By Danielle Krebs, Ph.D.

Yayasan Konservasi RASI

Rare Aquatic Species of Indonesia

<http://www.ykrasi.org>

Instagram: #YKRASI

Facebook group/page: Rare Aquatic Species of Indonesia

Species of Concern:

Local Name: Pesut Mahakam

English name: Irrawaddy dolphin

Latin name: *Orcaella brevirostris*

Protection status:

- ❖ Protected by Indonesian Law (UU. No 5, 1990)
- ❖ Critically Endangered (IUCN)
- ❖ CITES Appendix I
- ❖ Mascot of East Kalimantan Province

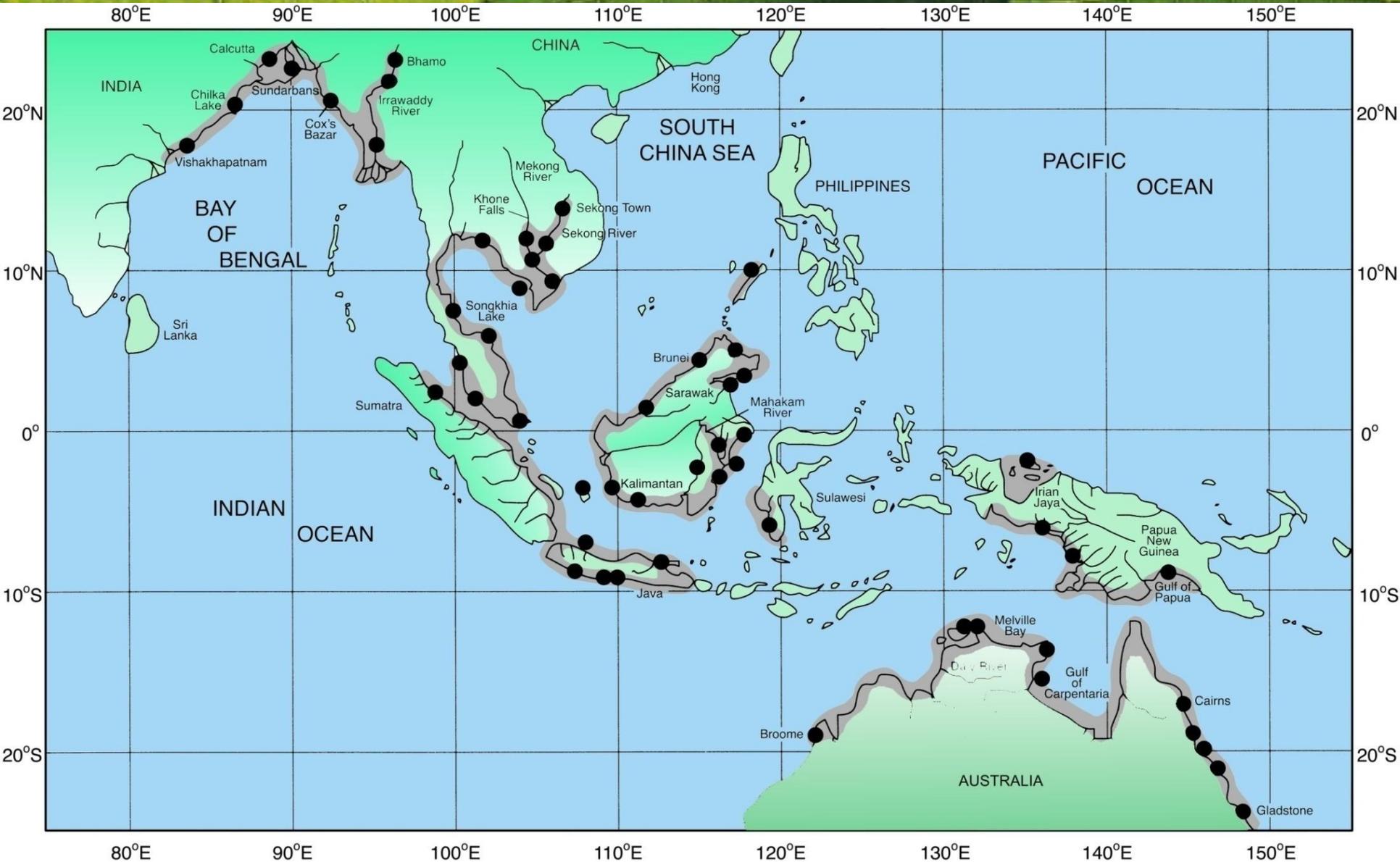


Location: Sungai Mahakam, East Kalimantan, Indonesia



- The Mahakam River measures 980 km from its origin

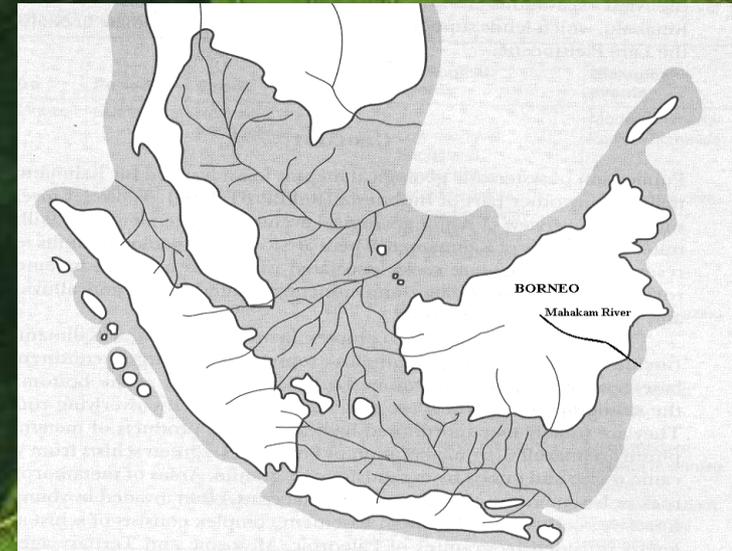
Distribution of Irrawaddy and Australian snubfin dolphins in South and Southeast Asia



DNA PESUT MAHAKAM

The Mahakam Population has 2 unique haplotypes.

Genetic distance among both haplotypes are small, i.e. 0,003 , whereas genetic distance of Mahakam haplotypes and other coastal or riverine populations (excluding Australia) are minimal 3x (Balikpapan Bay) up to 10x larger (Cambodia)



BIOLOGY OF PESUT MAHAKAM

- **Length / weight:** Length of adult dolphin between 2 - 2.7 m and weight between 90 - 150 kg, where the male is bigger than the female. Newborns are 90 cm - 1 m long and weigh 10-12 kg.
- **Reproduction:** From 8-9 years (female). 14 months pregnant, 1.5 years. 1 child every 2.5-3 years.
- **Swimming speed:** Pesut often swims at a speed of 5 km / h, but very rarely swims fast with a maximum speed of 20 km / h.
- **Social life:** Average group size under 10 but sometimes 30 individuals (when mating)

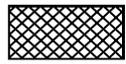
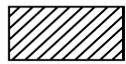




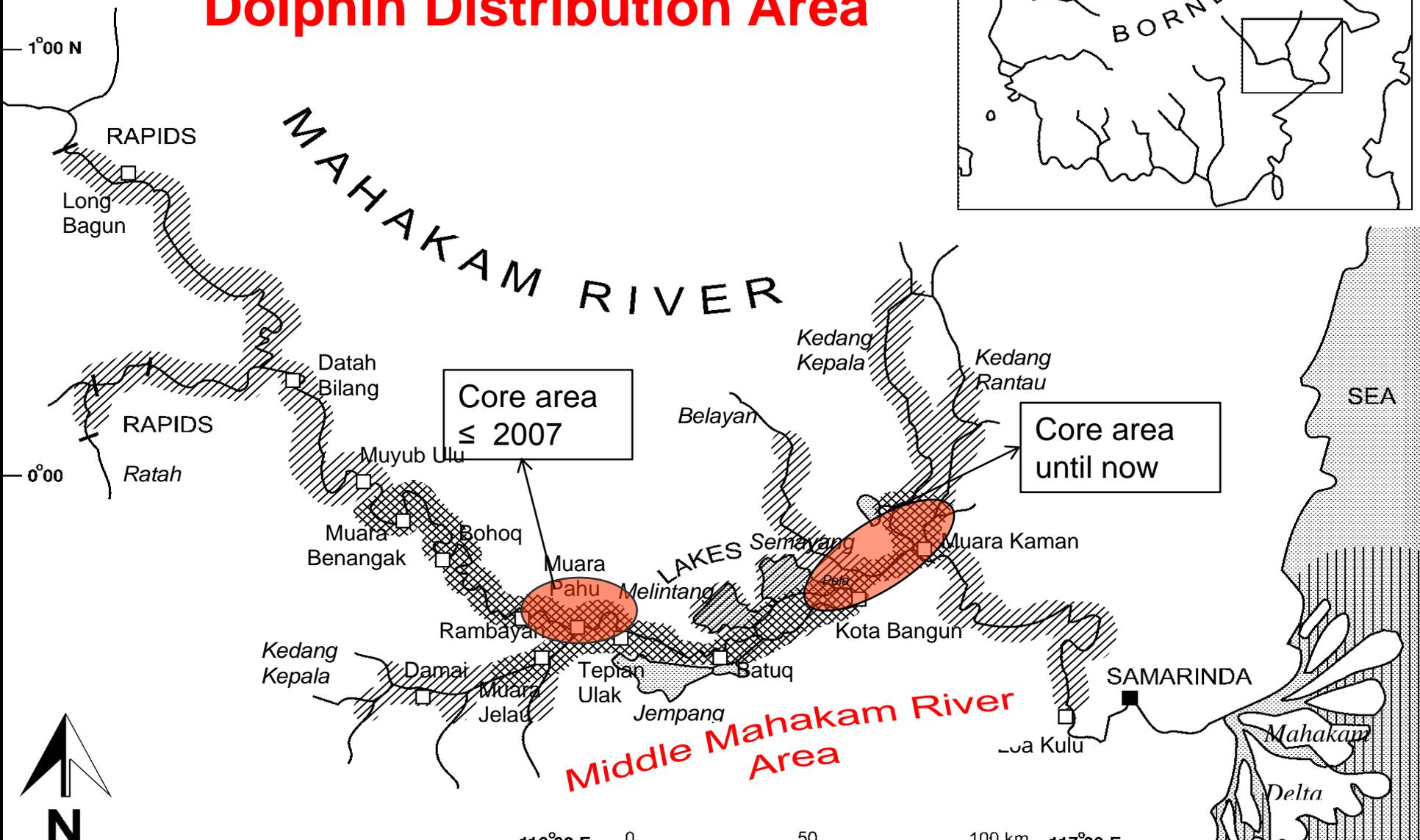
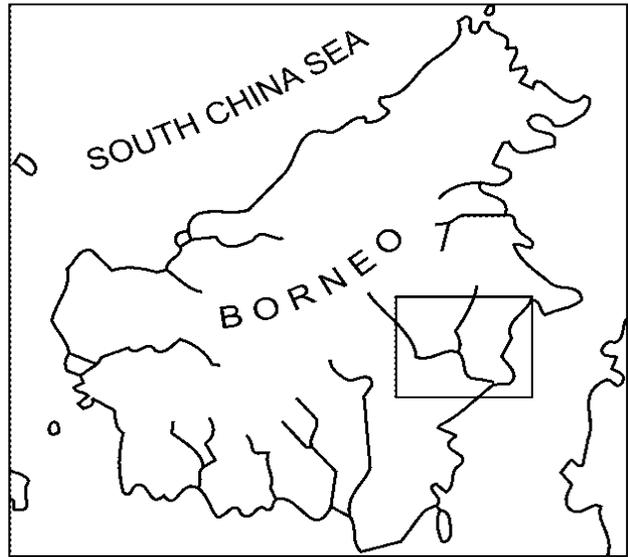
Unique pesut behaviors





-  Highest densities
-  Seasonal total distribution
-  Coastal Irrawaddy dolphins

Dolphin Distribution Area



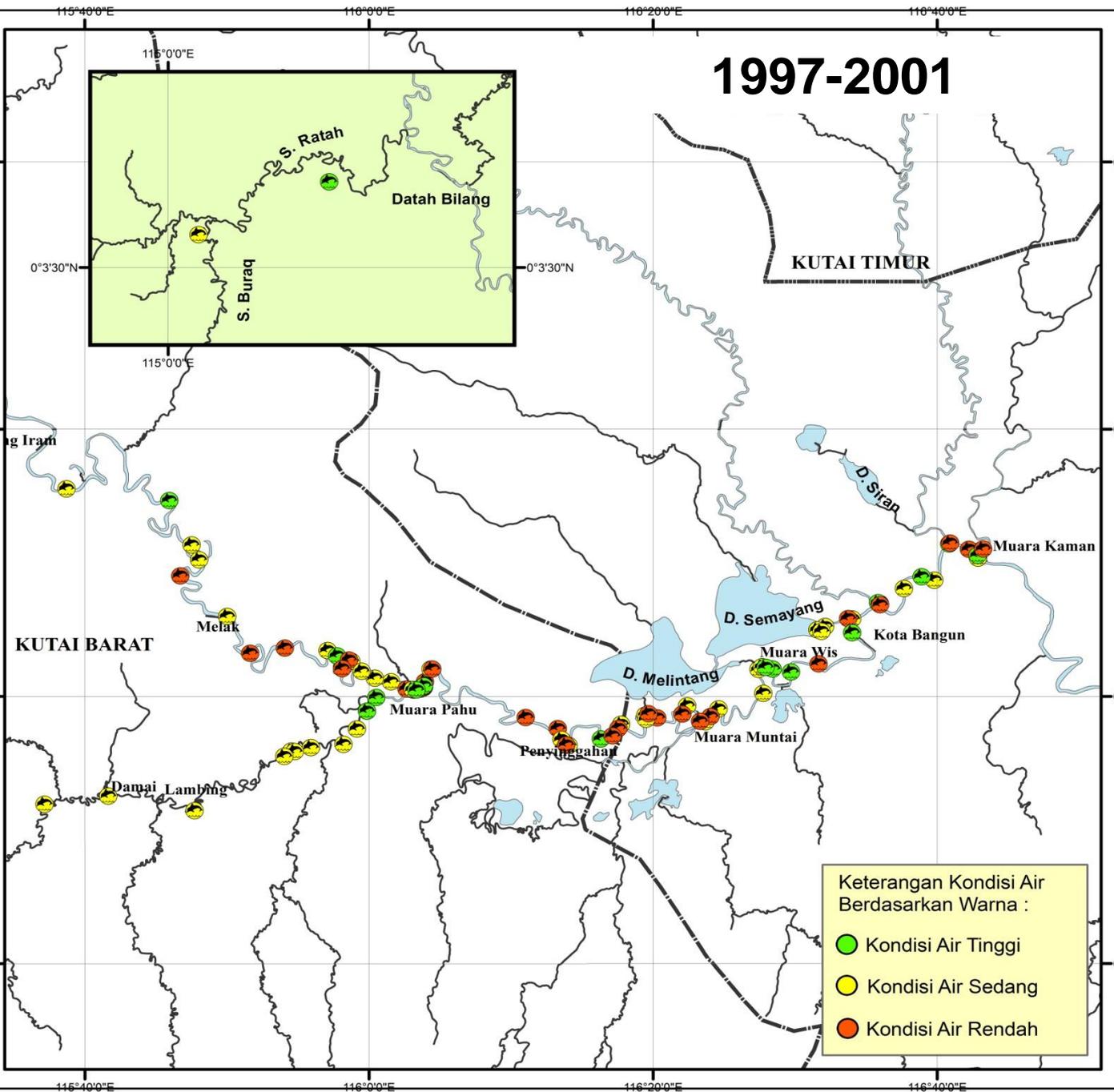
Importance of Middle Mahakam Area



- Three large lakes (10,000-15,000 ha each) & several minor lakes & (peat) swamps form a water-catchment area and river regulatory system
- Area of high socio-economic value for the local human settlements (mainly fisheries) with a population of c 80.000 people
- A crucial breeding and migration site for at least 298 identified bird species 147 species of freshwater fish, 24 mammal species (five primates) 27 reptile species & 300 tree species of which 14 fauna species listed as VU or worse
- Rich cultural heritage



1997-2001

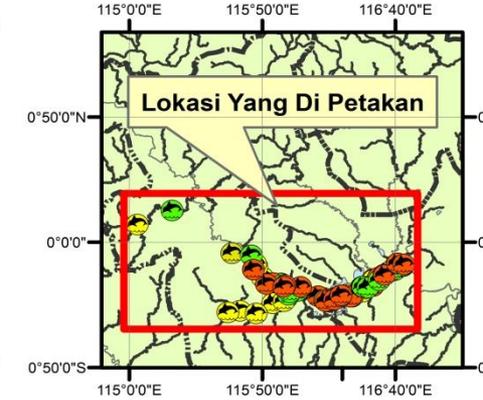


PETA PERTEMUAN KELOMPOK PESUT MAHAKAM PADA KONDISI KONDISI AIR BERBEDA TAHUN 1997-2001 DI WILAYAH KABUPATEN KUTAI KARTANEGARA DAN KUTAI BARAT PROVINSI KALIMANTAN TIMUR



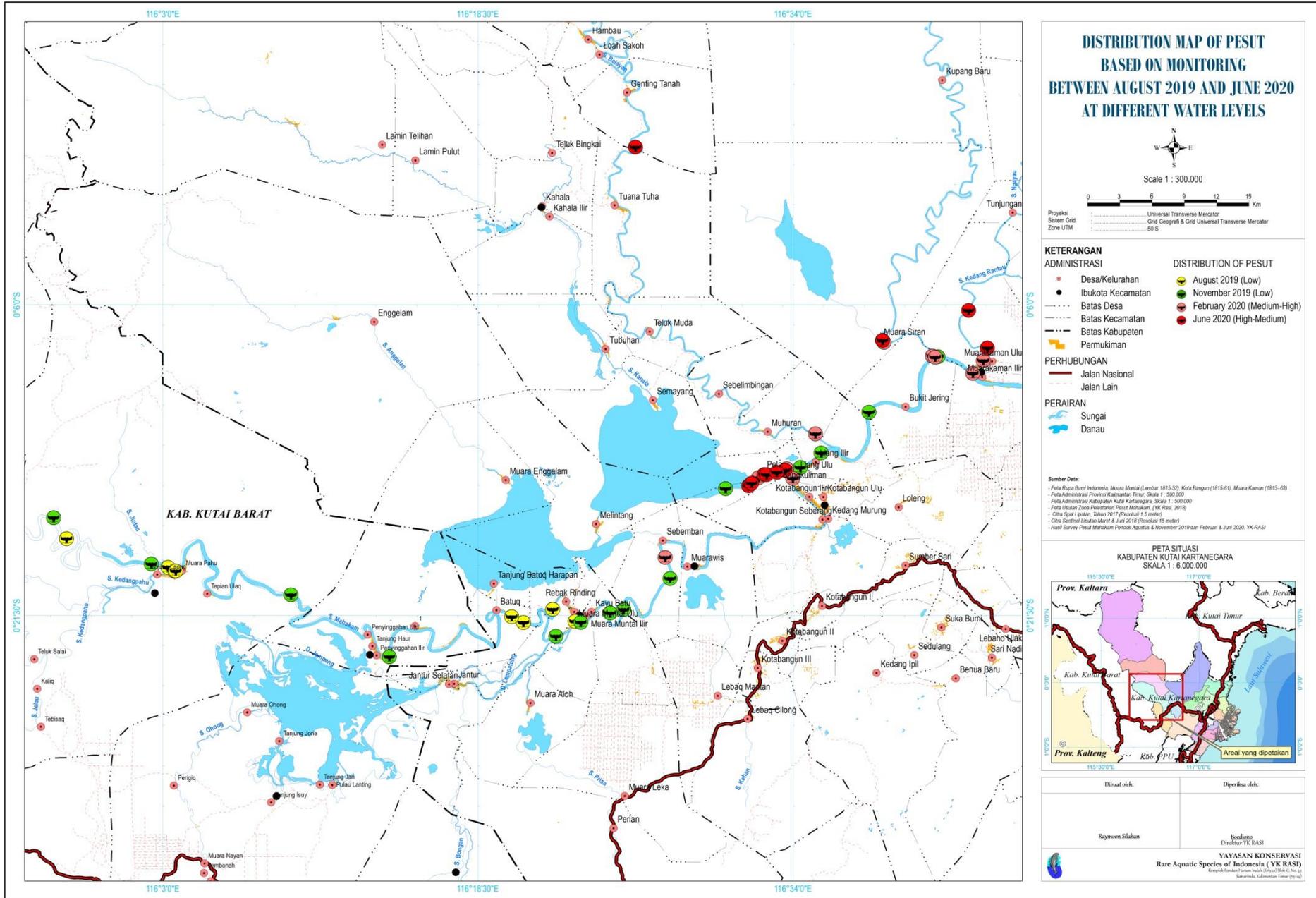
- ### Legenda
- Pesut Bulan Agustus 2001
 - Pesut Bulan Februari 2001
 - Pesut Bulan Mei 2000
 - Pesut Bulan Oktober 1999
 - Pesut Bulan April 1999
 - Pesut Bulan Februari 1999
 - Pesut Bulan Maret 1997

- ### Keterangan Kondisi Air Berdasarkan Warna :
- Kondisi Air Tinggi
 - Kondisi Air Sedang
 - Kondisi Air Rendah



SUMBER PETA :
- PETA BATAS ADMINISTRASI KUTAI KARTANEGARA DAN KUTAI BARAT
- DIBUAT OLEH YAYASAN KONSERVASI RASI

AUGUST 2019- JUNE 2020 (4 surveys separated 3 months in time)



DISTRIBUTION MAP OF PESUT BASED ON MONITORING BETWEEN AUGUST 2019 AND JUNE 2020 AT DIFFERENT WATER LEVELS

Scale 1 : 300.000

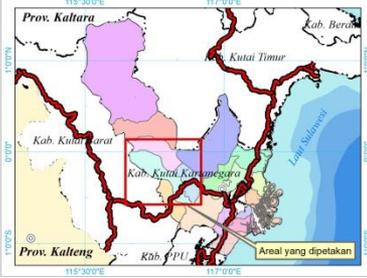
Proyeksi: Universal Transverse Mercator
Sistem Grid: Grid Geografi & Grid Universal Transverse Mercator
Zone UTM: 50 S

- KETERANGAN ADMINISTRASI**
- Desa/Kelurahan
 - Ibukota Kecamatan
 - Batas Desa
 - Batas Kecamatan
 - Batas Kabupaten
 - Permukiman
- PERHUBUNGAN**
- Jalan Nasional
 - Jalan Lain
- PERAIRAN**
- Sungai
 - Danau
- DISTRIBUTION OF PESUT**
- August 2019 (Low)
 - November 2019 (Low)
 - February 2020 (Medium-High)
 - June 2020 (High-Medium)

Sumber Data:

- Peta Rupa Bumi Indonesia, Muara Muntai (Lembar 1915-52), Kota Bangun (1915-81), Muara Kaman (1915-63)
- Peta Administrasi Provinsi Kalimantan Timur, Skala 1 : 500.000
- Peta Administrasi Kabupaten Kutai Kartanegara, Skala 1 : 500.000
- Peta Unsur Zona Perikanan Perairan Melayu, (YK-RAS) 2018
- Citra Spot Lpulan, Tahun 2017 (Resolusi 1,5 meter)
- Citra Sentinel Lpulan Maret & Juni 2019 (Resolusi 10 meter)
- Hasil Survei Pesut Melayu Perairan Apung & November 2019 dan Februari & Juni 2020, YK-RAS

PETA SITUASI KABUPATEN KUTAI KARTANEGARA SKALA 1 : 6.000.000



Dibuat oleh: **Raymond Sihaban**

Diperiksa oleh: **Redaone Director YK-RAS**

**YAYASAN KONSERVASI
Rare Aquatic Species of Indonesia (YK RASI)**
Kongkaf Fundasi Hewan Air (30/04) Blok C, No. 45
Samarinda Kalimantan Timur (YK-RAS)

Population abundance

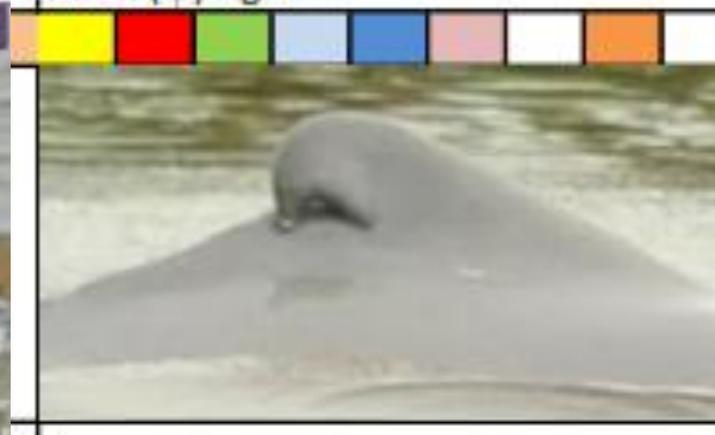
- Population abundance & distribution studies: 1997, 1999, 2001, 2005, 2007, 2010, 2012, 2013, 2014, 2015, 2016
- Most recent population estimate (2019): 81
- Population decreased from 88 in 2005



Jannah = ♀ breeding (9/2016)



Hook (♀) right





musmus

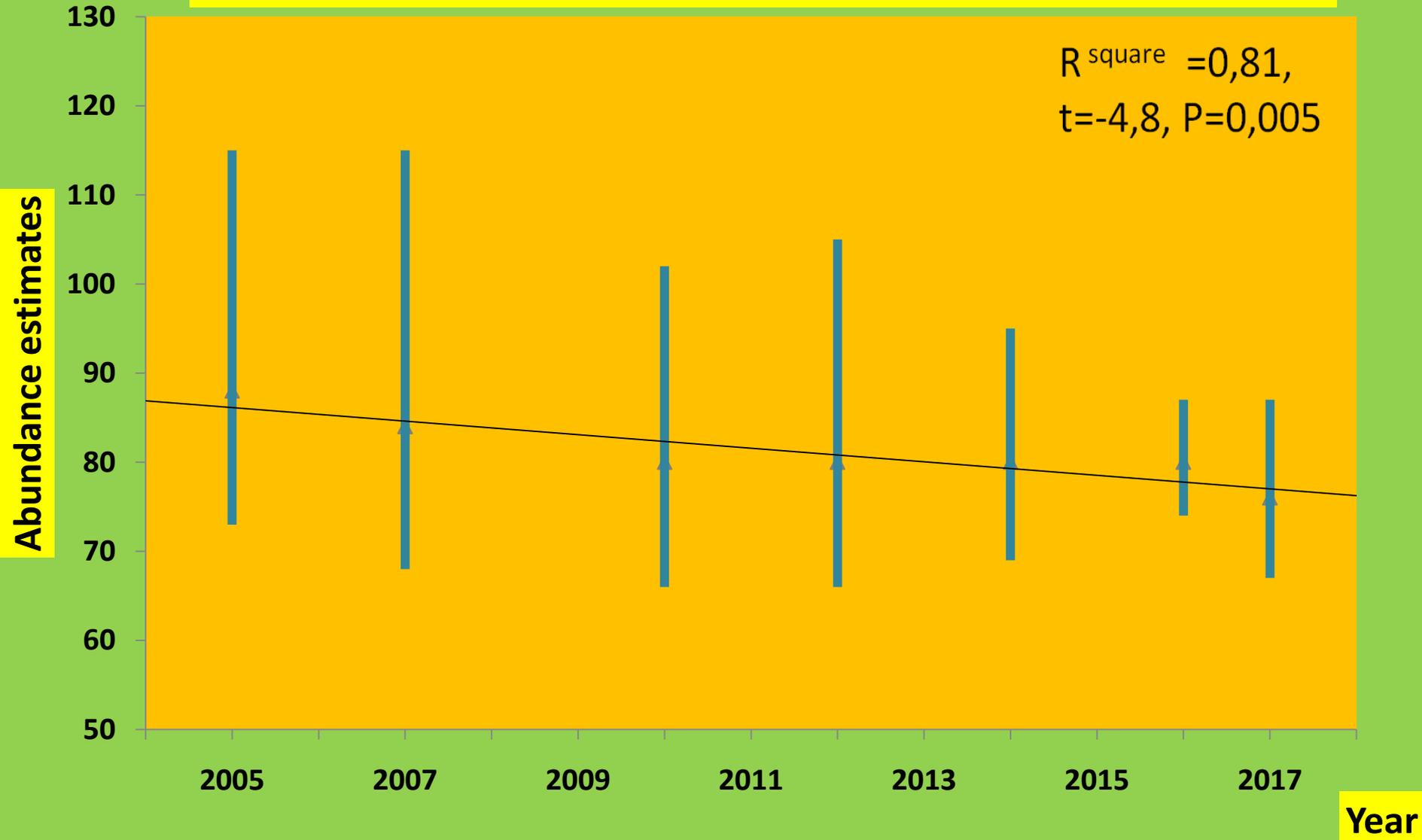


aji



fiona

Abundance of Mahakam River dolphin population based on Petersen's Mark recapture Analysis



Birth rate: 5-6 calves per year

July 2017-June 2018: 6 births

June 2018-May 2019: 5 births

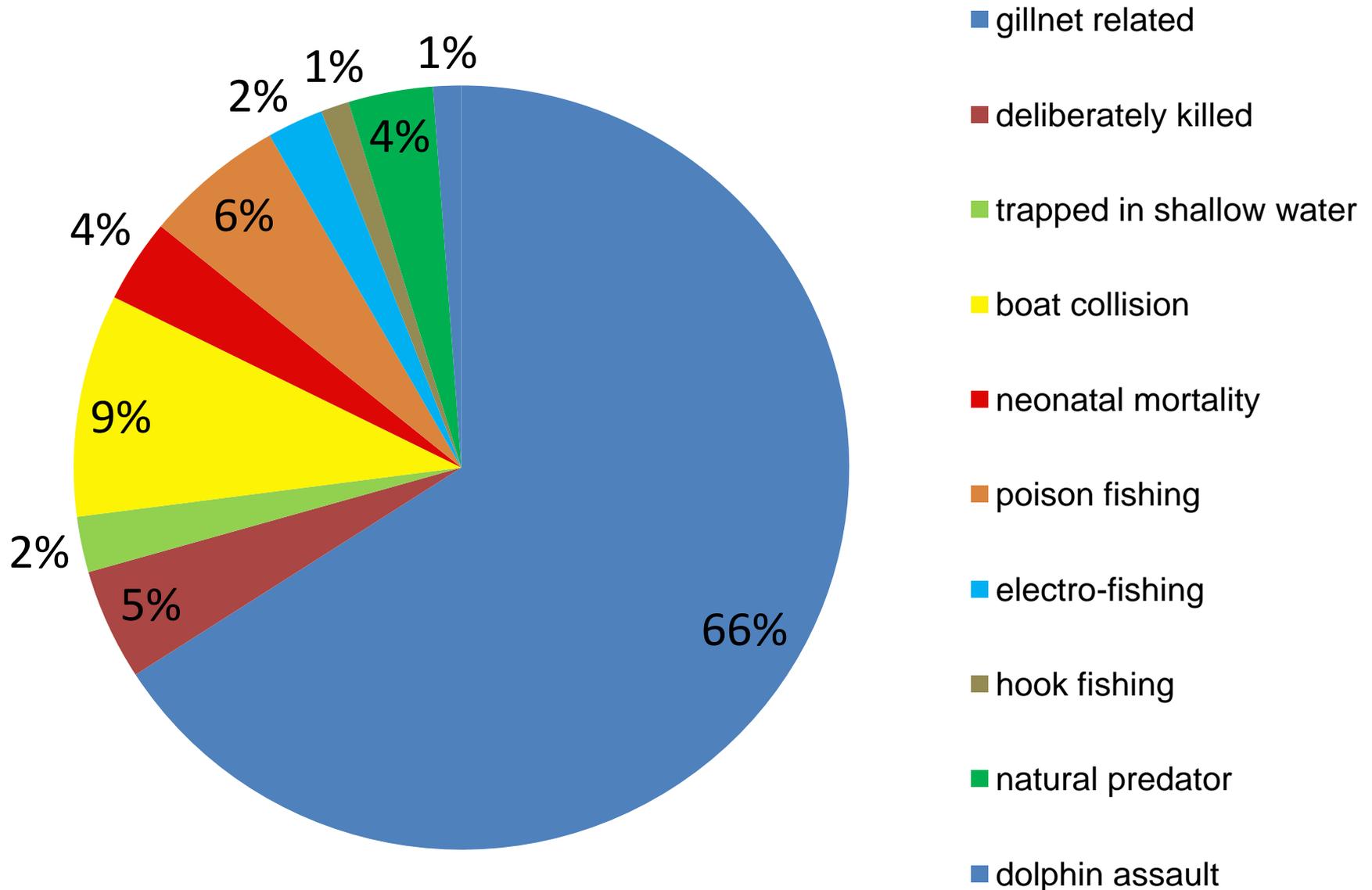


Mortality rates: 1995 -2018, on average 4 ekor dead/ year; 16% calves; 9 % juveniles, adults 75%.



Mortality	1995-2007	2007-2019
N deaths	62	45
Mean deaths/ year	5.0	3.6

Causes of death 1995-2019*



* Causes of death are unknown in 20% of all cases

Decreased mortality due to increased socialization with fishermen

- Since 2002 9 reports of safe disentanglements from gillnets by human action
- 2002 & 2009 & 2017 & 2019- 7 dolphins rescued from swamps





Conversion of swamps for oilpalm industry
 →
 sedimentation, pollution & loss of fish spawning area
 →
 Decreasing local fish resources

Threats



Unsustainable fishing methods



Noise pollution & boat collision



Chemical & plastic pollution



Cd Pb Cu

MAIN THREAT: DIRECT MORTALITY

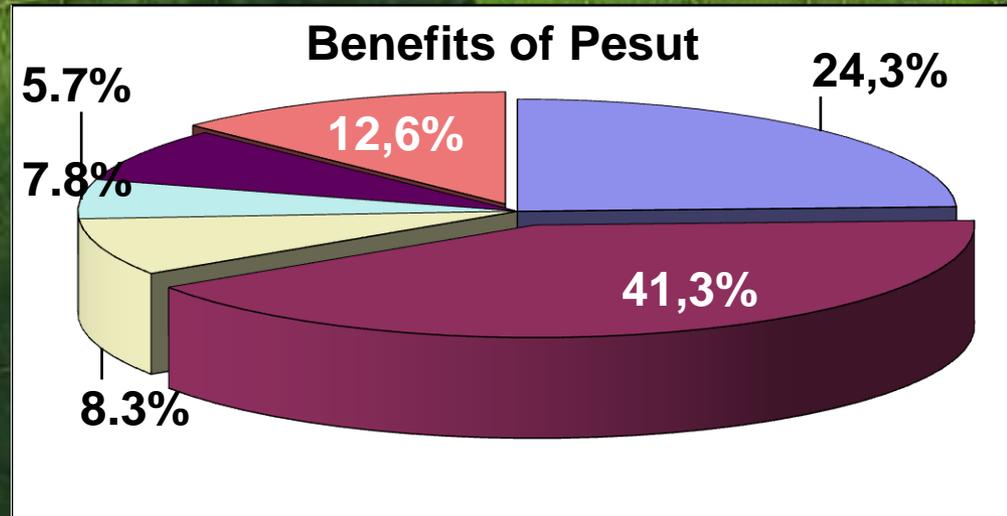




pesut calf



Interviews to identify the local knowledge & significance of pesut to local people (N=258)



- indicate fish location/ season
- entertainment
- indicate flood/ drought
- herd fish towards fishing net
- no specific use

- 80%- “Pesut brings luck”
- 99%- “Pesut should be protected”
- 97% - “Agree with dolphin conservation area”

YAYASAN KONSERVASI RASI – RARE AQUATIC SPECIES OF INDONESIA

ESTABLISHED: 2000

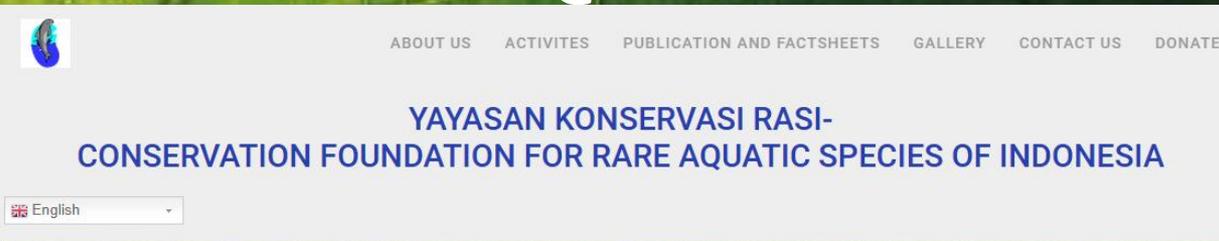
MAIN MISSION Protection of rare aquatic dependent species in Indonesia and their habitat & sustainable human livelihoods

CHECK OUT OUR WEBSITE: WWW.YKRASI.ORG

OR FOLLOW US ON FACEBOOK: Rare Aquatic Species of Indonesia

OR INSTAGRAM: YAYASAN_RASI # YKRASI

E-MAIL: YK.RASI@GMAIL.COM



RAISE LOCAL AWARENESS WITH LOCAL COMMUNITIES AND YOUTH



2008.02.18 11:47

2008.02.21 10:01

Awareness raising & involvement in proper plastic waste disposal

- Outreach & involvement targetted women & youth (120) as well as village heads- waste recycling & handycraft classes, shore cleaning by schools and targeted villages (competitions)
- Encouraging villages to establish a proper waste disposal-and collection system and/or regulations to forbid trashing in the river
- Handing 450 iron drums for burn waste to floating households



INVOLVING YOUTH THROUGH SOCIAL MEDIA

- Facebook group Save the Mahakam Dolphin (Selamatkan Pesut Mahakam dari Kepunahan) : 7,400 members



SUSTAINABLE AQUA-CULTURE PROJECT

- 80 sustainable fish farmers so far who have all signed & agreed to stop or not engage in illegal electrofishing or setting gillnets unsupervised!



SUSTAINABLE AQUA-CULTURE PILOT PROJECT – WOMEN INVOLVEMENT

• 4 women groups @ 20



RESCUE AND RESCUE TRAININGS



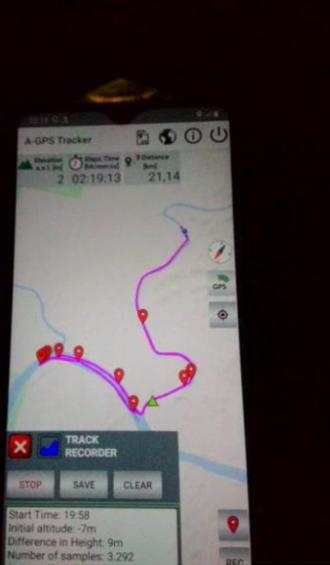
SUSTAINABLE & COMMUNITY-BASED ECOTOURISM & DOLPHIN WATCHING TRAINING



USING CULTURED FISH FOR INNOVATIVE FISH PRODUCTS MADE BY WOMEN GROUPS



PESUT AND ILLEGAL ACTIVITY MONITORING BY LOCAL PATROL TEAMS (5 TEAMS IN 4 SUB-DISTRICTS)



MONITORING OF PESUT POPULATION (VISUAL & ACOUSTICS) AND PINGER STUDIES



AQUATIC CONSERVATION AREA FOR PESUT MAHAKAM HABITAT

- 43,117 ha river, lakes swamps and riparian forest



ZONATION WITH THE PA

A 43,117 ha-large protected dolphin area has been established in 2020 in dolphin core habitat and includes c.:

- ❖ 1,000 ha core areas;
- ❖ 25,000 sustainable fisheries zone;
- ❖ 27,000 riparian/ swamp (forest) vegetation for rehabilitation and protection.



Goal

- Establishment of the Aquatic Conservation Area aims to secure the Mahakam Pesut (habitat), other biodiversity, the fisheries sector, food security and the welfare of the people living in the reserved area



Conservation prospects through PA establishment

- *Reduction of chemical, plastic and underwater noise pollution through awareness raising, regulations, law enforcement*

- *Gillnet regulations, poison & electro-fishing banning, controlling the speed & types of boats in tributaries & confluences*

Effective habitat protection

Reduced risk of death



- *Facilitating alternative livelihood resources such as environmental friendly aquaculture & community-based ecotourism*

Increased sustainable resource use

Protection of fish stock for present and fishermen

- *Protection of fish spawning areas, introduction of sustainable fishing techniques, alternative income generation, increased law enforcement of illegal fishing practices*

healthy ecosystem
=
healthy dolphins



Please provide your suggestions!