

Conservation and Management of Endangered Species: Marine Mammals



MOHD LAZIM BIN MOHD SAIF
TURTLE AND MARINE ECOSYSTEM CENTER
(TUMEC)
RANTAU ABANG, 23050 DUNGUN,
TERENGGANU



INTRODUCTION

CONSERVATION

“ The management of human use of organisms or ecosystem to ensure such use is sustainable”

“Conservation includes protection, maintenance, rehabilitation, restoration, and enhancement of populations and ecosystems”

ENDANGERED SPECIES

“Any plant or animal species whose ability to survive and reproduce has been jeopardized by human activities”

Or

“A species whose population is so small that it is in danger of becoming extinct”

INTRODUCTION

- Species may become endangered due overexploitation, habitat alteration and destruction, and overpopulation by alien species and other factors
- Presently the Fisheries Regulation on the Control of Endangered Species of Fish 1999 under the Fisheries ACT 1985, protect the following marine species, - Dugong, six species of whales, thirteen species of dolphins, one species of whale shark, five reptiles (turtles and painted terrapin) and four species of giant clams



Legal Status and Management Arrangement

- All marine mammals in Malaysia are endangered or vulnerable
- The status of marine mammals in Malaysia is not adequately documented.
- There are 19 species of cetacean (dolphins & whales) and one species of sirenian group (Dugong) have been confirmed either to reside in or transit Malaysian territorial and Exclusive Economic Zone (EEZ) waters from a total of 120 species recorded in world.
- They are totally protected in Malaysia water and Federal laws apply within 200-nautical mile Exclusive Economic Zone (EEZ)
- Wildlife protection Act 1972
- Fisheries Act 1985
- Fisheries Regulation 1999 (Control of Endangered Species of Fish)
- Wildlife Protection Ordinance 1998 (Sarawak)
- Wildlife Conservation Enactment 1997 (Sabah)

FISHERIES ACT 1985

27. Aquatic mammals or turtles in Malaysia fisheries waters.

- **(1) No person shall fish for, disturb, harass, catch or take any aquatic mammals or turtle which is found beyond the jurisdiction of any State in Malaysia.**
- **(2) The provision of the relevant State law shall apply in respect of aquatic mammals and turtle which are found within such jurisdiction.**
- **(3) Where any aquatic mammals or turtle which is found beyond such jurisdiction is caught or taken unavoidably during fishing, such aquatic mammals or turtle shall, if it alive, be released immediately or, if it is dead, the catching or thereof shall be reported to a fisheries officer and the aquatic mammals or turtle shall be disposed of in accordance with his direction.**

■(4) Any person who contravenes subsection (1) or subsection (3) shall be guilty of an offence and shall be liable to fine not exceeding five thousand ringgit.

FISHERIES (CONTROL OF ENDANGERED SPECIES OF FISH) REGULATION 1999

Prohibition

(1) no person shall fish for, disturb, catch, kill, take, possess, sell, buy, export or transport any endangered species of fish specified in the Schedule except with the written permission of the Director General.

- **(2) The Director General may, in granting written permission referred to in subregulation (1), impose any condition as he think fit.**

- **(3) Where any endangered species of fish specified in the Schedule is caught or taken unavoidably during fishing, such endangered species of fish shall, if it alive, be released immediately or, if it dead, the catching or taking thereof shall be reported to a fisheries officer and the endangered species of fish shall be disposed of in accordance with his directions.**

- **Offence**

Any person who contravenes subregulation 2(1) or any of the condition imposed by the Director General under subregulation 2(2) commits an offence.

SPESIES MAMALIA MARIN TERANCAM DI MALAYSIA

Endangered Marine Mammals in Malaysia



Duyung/Dugong (Dugong)
Dugong dugon
Panjang maks./Max. length: 2.5 m



Porpois Ambu (Finless Porpoise)
Neophocaena phocaenoides
Panjang maks./Max. length: 1.9 m



Lumba-Lumba Biasa (Common Dolphin)
Delphinus delphis
Panjang maks./Max. length: 2.6 m



Lumba-Lumba Muncung Panjang
(Long-Snouted Spinner Dolphin)
Stenella longirostris
Panjang maks./Max. length: 2.1 m



Paus (Humpback Whale)
Megaptera novaeangliae
Panjang maks./Max. length: 16 m



Paus (Bryde's Whale)
Balaenoptera brydei
Panjang maks./Max. length: 15.6 m



Paus (Minke Whale)
Balaenoptera acutirostrata
Panjang maks./Max. length: 15.6 m



Lumba-Lumba Putih
(Indo-Pacific Hump-Backed Dolphin)
Sousa chinensis
Panjang maks./Max. length: 3.2 m



Paus Pembunuh (Killer Whale)
Orcinus orca
Panjang maks./Max. length: 9.8 m



Paus Hitam
(False Killer Whale)
Pseudorca crassidens
Panjang maks./Max. length: 5.9 m



Paus (Sei Whale)
Balaenoptera borealis
Panjang maks./Max. length: 18 m



Paus Biru (Blue Whale)
Balaenoptera musculus
Panjang maks./Max. length: 31 m



Lumba-Lumba Empesut
(Irrawady Dolphin)
Orcaella brevirostris
Panjang maks./Max. length: 2.7 m



Paus (Shortfinned Pilot Whale)
Globicephala macrorhynchus
Panjang maks./Max. length: 7.2 m



Paus Biru (Pygmy Sperm Whale)
Kogia breviceps
Panjang maks./Max. length: 3.3 m



Lumba-Lumba (Bottlenose Dolphin)
Tursiops truncatus
Panjang maks./Max. length: 4 m



Lumba-Lumba (Fraser's Dolphin)
Lagenodelphis hosei
Panjang maks./Max. length: 2.6 m



Lumba-Lumba
(Risso's Dolphin)
Grampus griseus
Panjang maks./Max. length: 3.8 m



Paus (Sperm Whale)
Physeter catodon (macrocephalus)
Panjang maks./Max. length: 18 m



Paus (Fin Whale)
Balaenoptera physalus
Panjang maks./Max. length: 26 m



Sebarang pertanyaan, sila hubungi:
Pusat Penyu dan Ekosistem Marin (TUMEC)
Jabatan Perikanan Malaysia, Rantau Abang
23050 Dungun, Terengganu
Tel: 09-8458169 E-mel: tumec_01@hotmail.com

Endangered Species

Whale Group

Balaenoptera edeni

Balaenoptera borealis

Balaenoptera musculus

Balaenoptera physalus

Balaenoptera acutorostrata

Megaptera novaeangliae

Endangered Species

Dolphin Group

Orcaella brevirostris

Sousa chinensis

Orcinus Orca

Tursiops truncatus

Lagenodelphis hosei

Stenella longirostris

Globicephala macrorhynchus

Endangered Species

Grampus griseus

Kogia breviceps

Neophocaena phocaenoides

Delphinus delphis

Pseudorca crassidens

Physeter catodon

Endangered Species

Dugong Group

Dugong dugon

Information on Marine Mammals Status

Research scope based on:

- Death/stranding
 - There have been numerous cases of marine mammals stranding and recorded over the years in Malaysia.
- Sighting
- Questionnaire survey

Dugong Distribution and Abundance

- Dugong are reported to have been seen occasionally in certain areas of Malaysian waters.
- Known only from incidental sighting, accidental catches, and the sighting reports of fishermen.
- Aerial surveys have resulted in a more comprehensive knowledge of dugong distributions in coastal waters of East Malaysia and northern Peninsular Malaysia.
- Interview survey done by Saifullah et al. in 1999 and 2000 along the coast of Sarawak indicated that small population of dugongs might still inhabit shallow waters of Lawas and Limbang, the decline was primarily due to decrease in seagrass abundance in the respective sites
- Aerial survey on 27 April 2001 by the Borneo Marine Research Institute reported 14 dugong sightings in the shallow waters of Brunei Bay
- Sighting and interview surveys conducted by the Malaysian Marine Mammals and Whale Shark Working Group in March 1997 reported dugong occurrences in Labuk located at the eastern coast of Sabah. This is supported by the seagrass beds found scattered in the Kaniogan area (Jaaman et al. 2000)

Dugong Distribution and Abundance

- The Borneo Marine Research Institute have also conducted aerial surveys in Sabah in May 2000 and reported dugong sightings in the shallow waters of Labuan and Kudat, both are on the western coast of Sabah

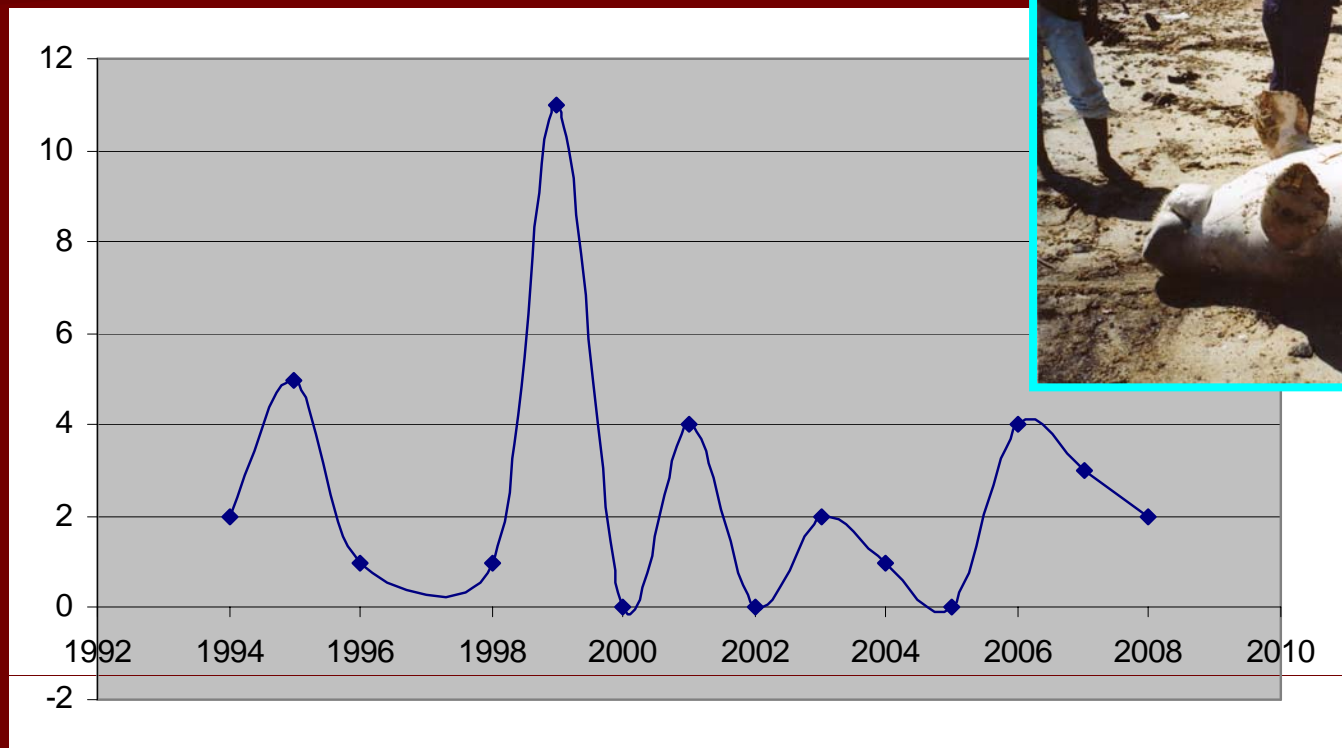


Dugong Distribution and Abundance

- From 1994, and up to this day, Johor is the only state in Malaysia that records dugong stranding cases and has initiated the national dugong conservation efforts. Johor is also believed to have the largest dugong habitat in Malaysia
- Three dugongs were sighted off Pasir Putih from an aerial survey done on 25 March 1999
- Aerial survey done by Department of Fisheries Malaysia in May 1999 reports of 20 dugongs in the eastern coast of Johor.
- The dugong sighting sites were Pulau Sibu, Pulau Tinggi, Pulau Besar, Pulau Tengah, Pulau Hujung and Pulau Rawa, where the areas from Pulau Hujung to Pulau Rawa is known to have a large stretch of seagrass bed in Peninsular Malaysia

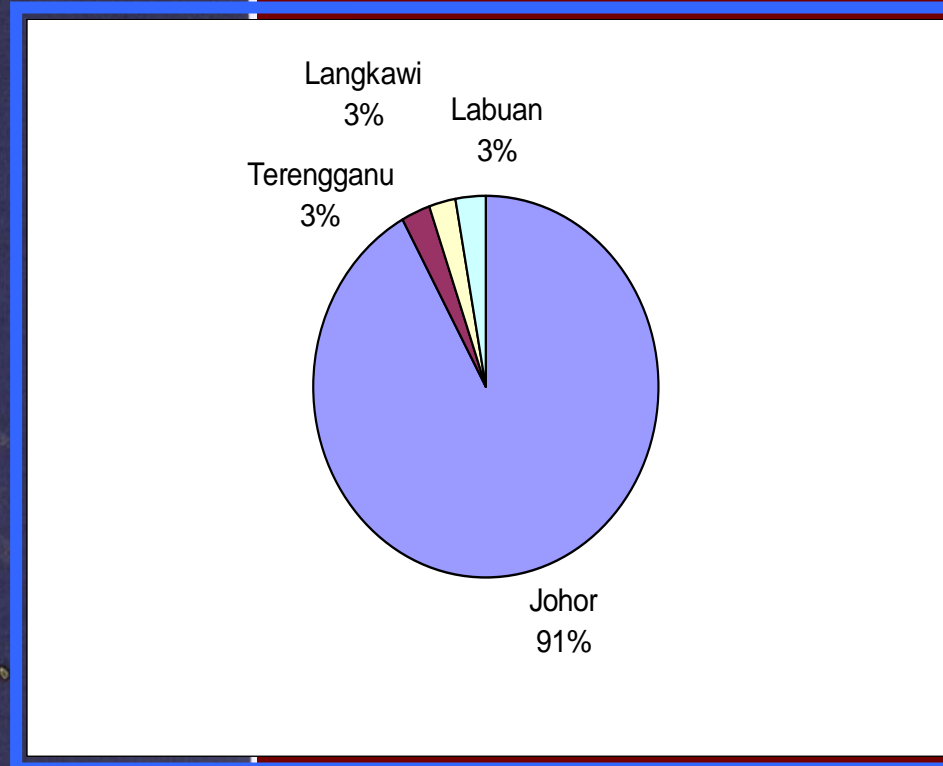
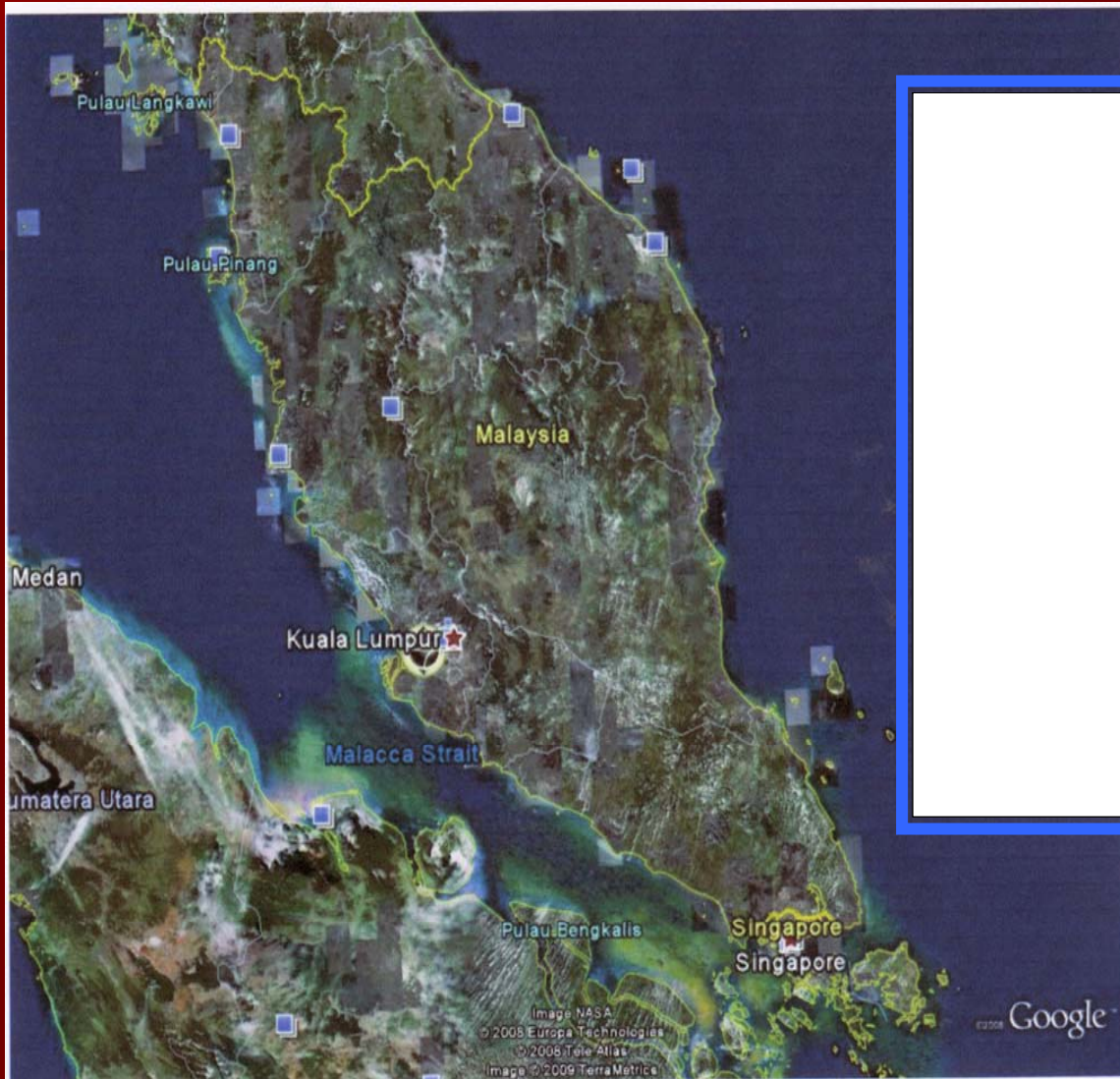


Historical data of Dugong Stranding

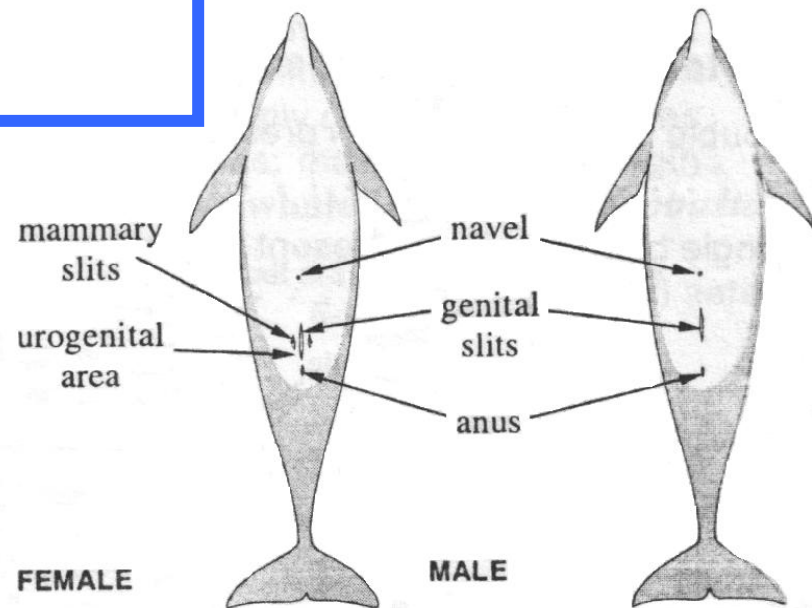
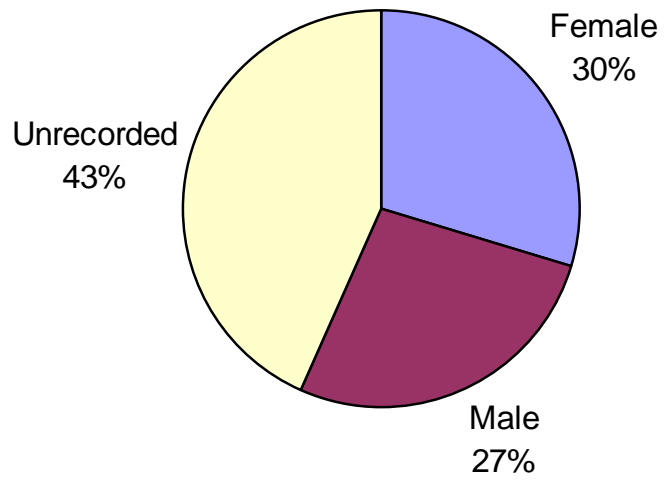


There were 36 dugong reported stranded/death from 1994 to 2008

<G:\Thailand\Table 1.doc>



91% stranded/death record in Johor (along Straits of Johor and District of Mersing).



DUGONG CARCASS



Tg. langsung



Labuan



Pasir Putih

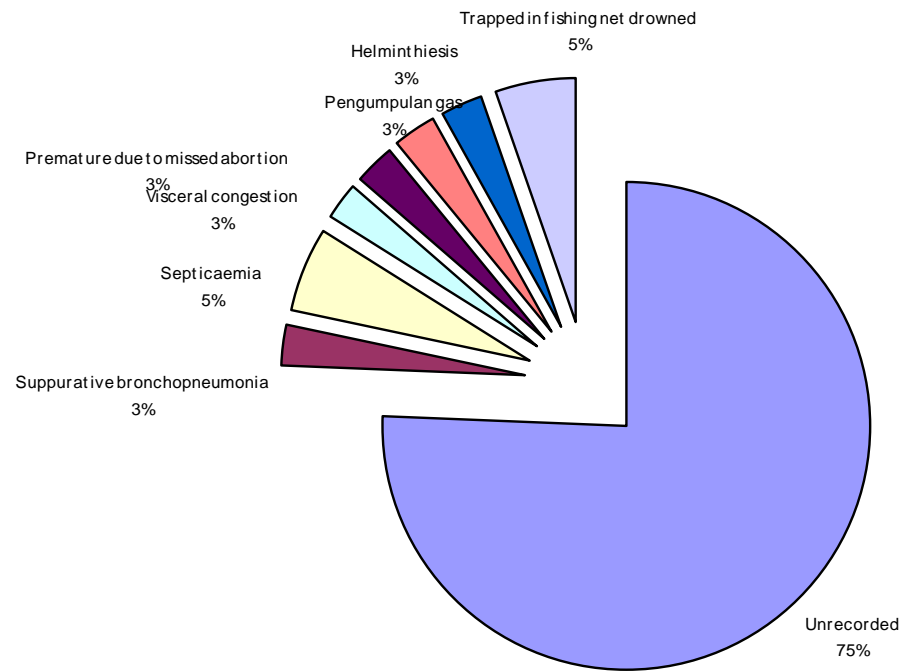


Gelang Patah

Cause of Death

- The cause of death in dugongs is very difficult to determine especially in the tropics as dugong decomposes quickly
- Most of the carcasses found were badly decomposed to determine the cause of deaths of these dugongs, thus postmortems done on these carcasses reveal no significant finding except for one calf carcass which died on 10 March, 1999 which was diagnosed with suppurative bronchopneumonia.
- Another dugong died of septicemia, one died of visceral congestion due to physical trauma, one fetus dies of missed abortion, and two dugongs drowned from entanglement in fishing nets.
- Heavy metals testing were also done on these carcasses, which also reveal no significant findings

Cause of Death



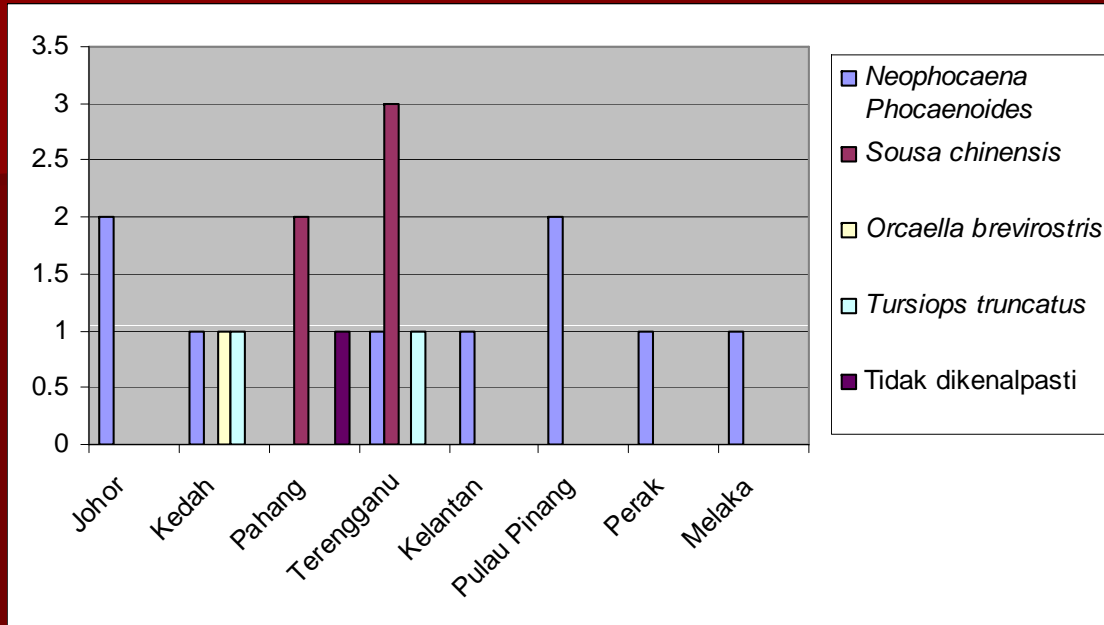
Record of Dolphin Deaths in Malaysian Waters

Year	Number	Species	Site
2004	3	a) <i>Neophocaena phocaenoides</i> (2 ekor) (Lumba-lumba Porpoise Ambu) b) <i>Sousa chinensis</i> (Lumba-lumba putih)	- Muar, Johor -- Langkawi, Kedah -- Cherating, Pahang
2005	3	a) <i>Tursiops truncatus</i> (Lumba-lumba Bottlenose) b) <i>Lumba-lumba</i> c) <i>Sousa chinensis</i> (Lumba-lumba putih)	-- Kemaman, Terengganu -- Cherating, Pahang -- Ma' Daerah, Terengganu
2006	8	a) <i>Neophocaena phocaenoides</i> (5 ekor) (Lumba-lumba Porpoise Ambu) b) <i>Sousa chinensis</i> (Lumba-lumba putih) (2 ekor) c) <i>Tursiops truncatus</i> (Lumba-lumba Bottlenose)	- Sekakap Mersing Johor - Tok Bali, Kelantan - Pulau Pinang - Marang, Terengganu - Pulau Pangkor, Perak - Cherating, Pahang - Kerteh, Terengganu - Kuala Ibai, Terengganu
2007	1	a) <i>Sousa chinensis</i> (Lumba-lumba putih)	- Kerteh, Terengganu
2008	4	a) <i>Neophocaena phocaenoides</i> (Lumba-lumba Porpoise Ambu)-(2 ekor) b) <i>Orcaella brevirostris</i> (Lumba-lumba Empesut) c) <i>Tursiops truncatus</i>	-- Pulau Pinang -- Melaka -- Yan, Kedah -- Padang Kota lama, Kedah

Cause of Death

- Entangled in the fishing gear – especially drift net
- Boat propellar





Finless porpoise *Neophocaena phocaenoides* mostly reported stranded, followed by Indo-pacific humpback dolphin *Sousa chinensis*.

Neophocaena phocaenoides



Tursiops truncatus



Orcaella brevirostris



Sousa chinensis



DOLPHIN CARCASS



Sousa chinensis



Neophocaene phocaenoides



Sousa chinensis



Tursiops truncatus

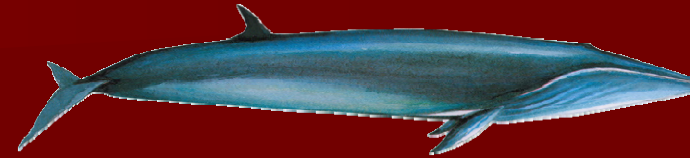
Record of Whale Deaths/Stranding in Malaysia Waters

Year	Number	Species	Site
2005	1	<i>Balaenoptera borealis</i>	Pulau Carey, Selangor
2006	1	<i>Balaenoptera edeni</i>	-Pulau Gaya, Sabah
2008	2	a) <i>Balaenoptera edeni</i> b) <i>Balaenoptera edeni</i>	Cherating Pahang Pekan, Pahang

Balaenoptera brydei



Balaenoptera borealis



Nama tempatan : Paus
 Nama saintifik : *Balaenoptera borealis*
 Nama inggeris : Sei Whale
 Panjang maks. : 18 m
 Berat maks. : 30 tan
 Diet : Kopepod, ikan dan sotong
 Habitat : Lautan terbuka, bergerak mengikut suhu dan arus laut

Local name : Paus
 Scientific name : *Balaenoptera borealis*
 English name : Sei Whale
 Max. Length : 18 m
 Max. Weight : 30 tonnes
 Diet : Copepods, fish and squids
 Habitat : Open ocean, follow oceanic temperature and current lines

TAKSONOMI

Kingdom : Animalia
 Filum : Chordata
 Kelas : Mammalia
 Order : Cetacea
 Suborder : Mysticeti
 Famili : Balaenopteridae
 Genus : Balaenoptera
 Spesies : *Balaenoptera borealis*

TAXONOMY

Kingdom : Animalia
 Phylum : Chordata
 Class : Mammalia
 Order : Cetacea
 Suborder : Mysticeti
 Family : Balaenopteridae
 Genus : Balaenoptera
 Species : *Balaenoptera borealis*

■ Taburan Paus *Balaenoptera borealis*

■ Distribution of Sei Whale *Balaenoptera borealis*

Nama tempatan : Paus
 Nama saintifik : *Balaenoptera brydei*
 Nama inggeris : Bryde's Whale
 Panjang maks. : 15.6 m
 Berat maks. : 25 tan
 Diet : Ikan
 Habitat : Lautan terbuka

Local name : Paus
 Scientific name : *Balaenoptera brydei*
 English name : Bryde's Whale
 Max. Length : 15.6 m
 Max. Weight : 25 tonnes
 Diet : Fish
 Habitat : Oceans

TAKSONOMI

Kingdom : Animalia
 Filum : Chordata
 Kelas : Mammalia
 Order : Cetacea
 Suborder : Mysticeti
 Famili : Balaenopteridae
 Genus : Balaenoptera
 Spesies : *Balaenoptera brydei*

TAXONOMY

Kingdom : Animalia
 Phylum : Chordata
 Class : Mammalia
 Order : Cetacea
 Suborder : Mysticeti
 Family : Balaenopteridae
 Genus : Balaenoptera
 Species : *Balaenoptera brydei*

■ Taburan Paus *Balaenoptera brydei*

■ Distribution of Bryde's Whale *Balaenoptera brydei*

Whale Carcass

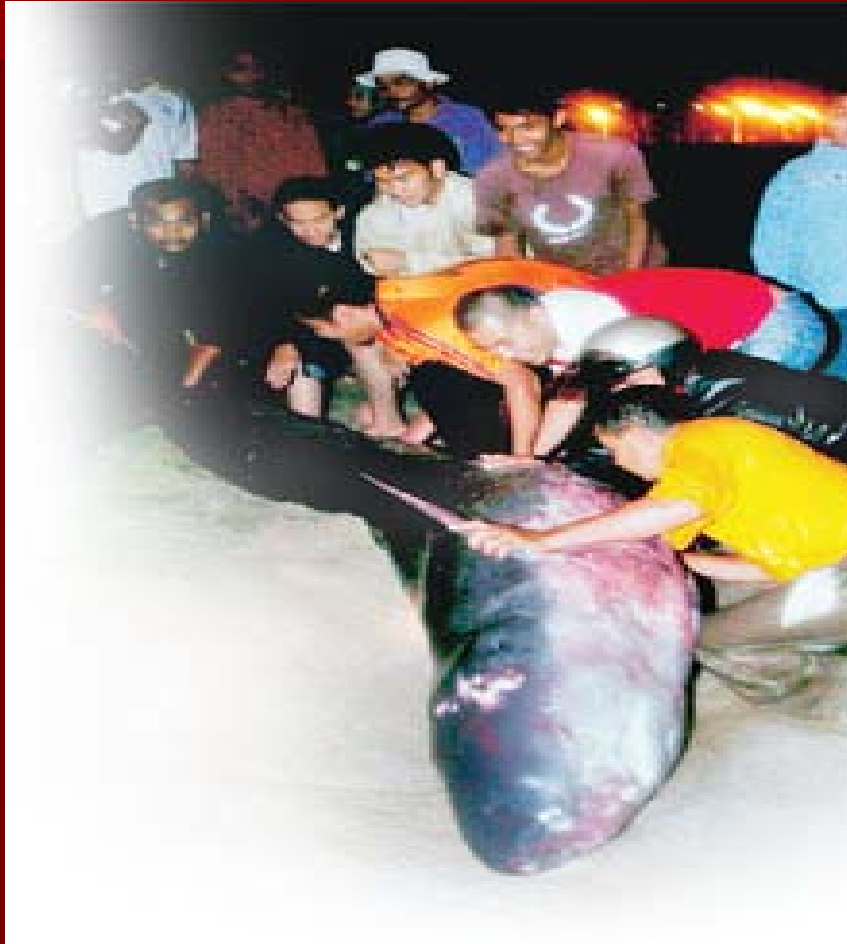


Pulau Carey (*Balaenoptera borealis*)



Nenasi, Pekan (*Balaenoptera edeni*)

Batu Buruk Whale



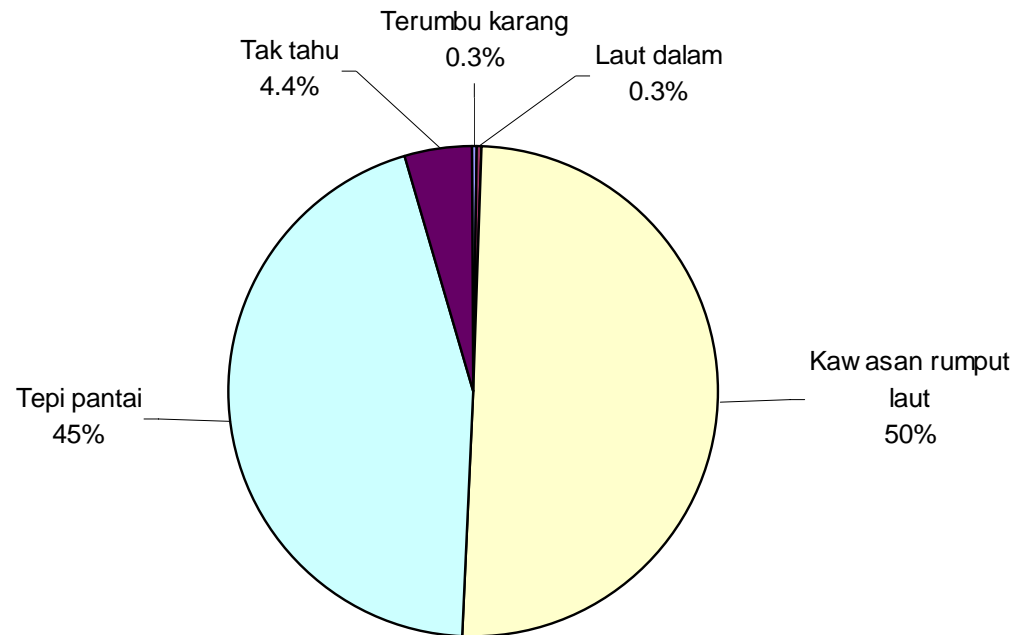
- Pygmy spermwhale - *Kogia breviceps*
- 20 Januari 2009
- 8.30 pm
- Cause of Death: Helminthiasis

Cause of Death: Whale



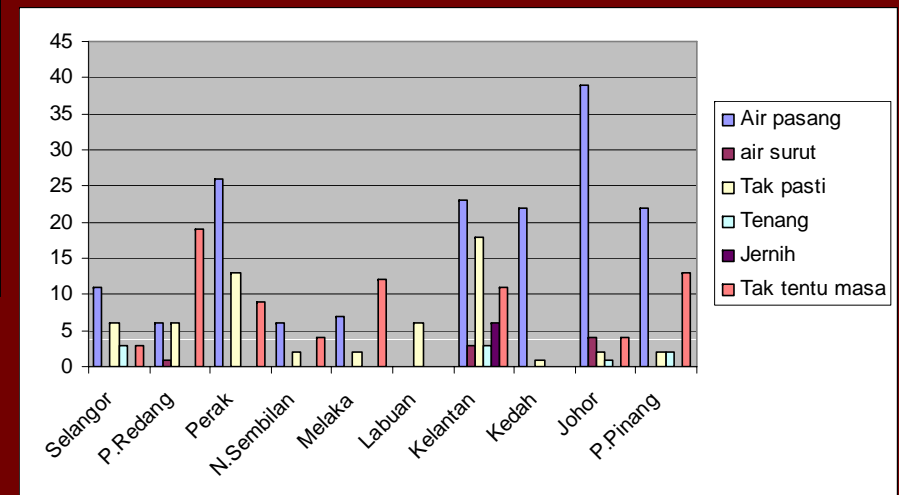
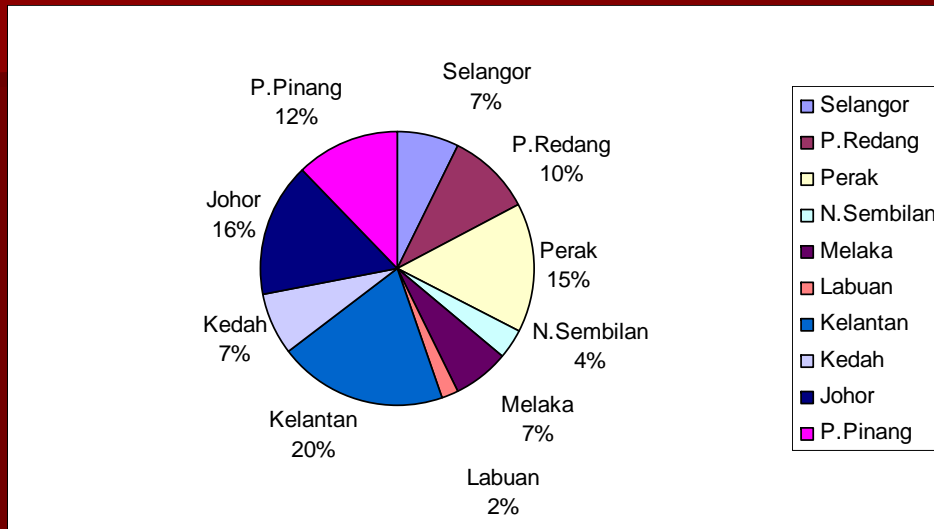
Digestion tract clogged by plastic bag, rope and bottle cap

Questionnaire Survey of Dugong



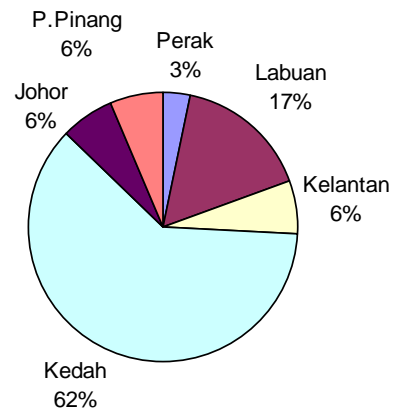
Majority of respondents states that the main habitat of dugong is by the coastlines as dugong were always sighted swimming by the area. However, 50% states that the seagrass beds are the main dugong habitat, and related the areas as the feeding area of dugong

Questionnaire Survey of Dolphin

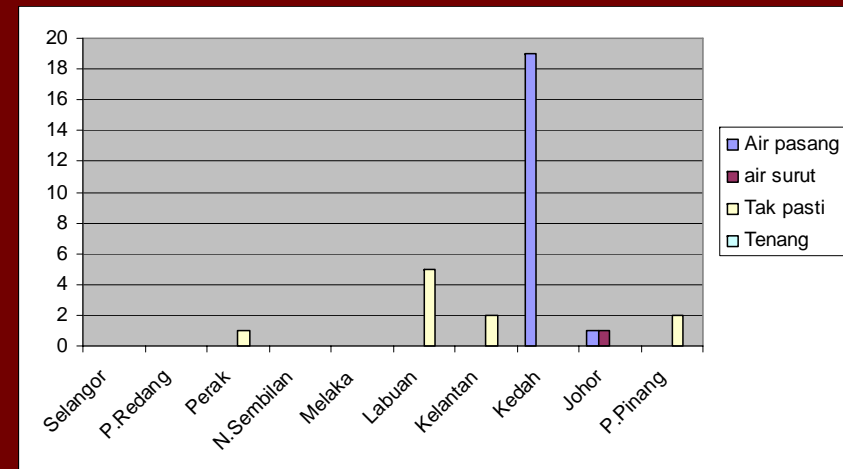


Out of 380 respondent, Only 318 respondent incidentally sighted dolphin at all location while fishing. Dolphin can be seen during high tide every month at the area near island

Questionnaire Survey of Whale



Out of 380 respondent, only 31 respondent sighted whale at all location while fishing. 69% respondent stated that whale can be seen during September to December especially at the high tide.



SIGHTING INFORMATION



- Irrawady dolphin
- 3 pair
- On 26 Oktober 2006
- 10.00 am
- Sea condition : calm
- Area : estuary, Kuala Lawas, Sarawak
- Activity : making a circle movement

SIGHTING INFORMATION



- Bottlenose dolphin
- 2 pairs
- On 20 Oktober 2008
- Redang Island, Terengganu
- 12.00 pm
- Sea condition: calm
- Activity: Following boat

SIGHTING INFORMATION



- Irrawaddy dolphin
- A pair
- 12 Julai 2009,
- Penyabung Mersing, Johor
- 6.00pm
- Sea condition: calm
- Area: Estuary
- Activity : making a circle

Threats

- Dugongs and small cetaceans are facing threats from by-catches in fisheries (fishing gear), declining fisheries resources, pollution, habitat loss and degradation of aquatic habitats (particularly of mangrove forest, coral reefs and seagrass bed), heavy vessel traffic and rapid urban and industrial development along Malaysian coastline.
- In Sabah, traditional hunting for meat, illegal trawling in near-shore, estuarine and riverine waters, and dynamite fishing are particularly detrimental to the species and may be reduced their significantly

Management

Rescue Center

1. Gelang Patah, Johor
2. Pengerang, Johor

Proposed

1. Rantau Abang, Terengganu
2. Manjung, Perak



Management

Public Education/Awareness

1. Establishment of 1 gallery
2. Joint efforts with various government agencies, NGOs and private companies
3. Volunteer programmed for the members of public
4. Exhibition road-show





Conservation Action

1. Study the status of marine mammals management in Malaysia
2. Identify hotspots for marine mammals distribution based on records of sightings and stranding reports.
3. Develop specific management plans for conservation
4. Recommend marine protected area for marine mammals based on updated information on species composition and distribution, create public awareness campaigns and other education tools
5. Initiate ecotourism marketing campaigns and
6. International coordination on management issues

A group of dolphins is captured in mid-leap from the water. The dolphins are dark grey on top and lighter on the bottom, with their dorsal fins clearly visible. They are moving from the water towards the viewer, creating large splashes of white water. The background is a deep blue sea under a clear sky.

Thank you

Question??