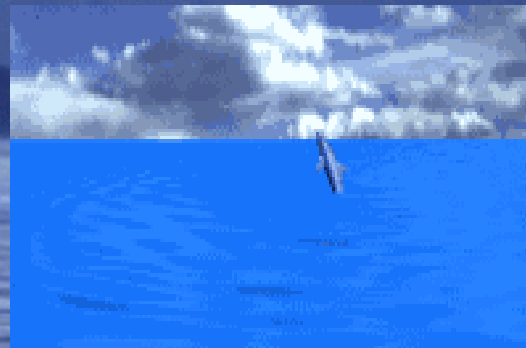


Whales and Dolphins in Arabian Sea:

Arabian Sea Survey (2007-2008)



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Main Topics:

- **Introduction about Cetaceans:**

(Cetacean world wide; cetacean in Arabian Sea,....etc)

- **Material and Methods:**

(Collecting of data of Arabian Sea Survey)

- **Results:**

(Humpback whales, Sperm whales and killer whales; Common Dolphins and Spinner Dolphins)

- **Discussion:** (comparing this survey by previous study or survey)

- **Conclusion and Recommendation**





Main Objectives of This presentation:

- **Give an Overview about the Cetacean in Oman**
- **Presenting the Arabian Sea Survey Data**

Acknowledgments:

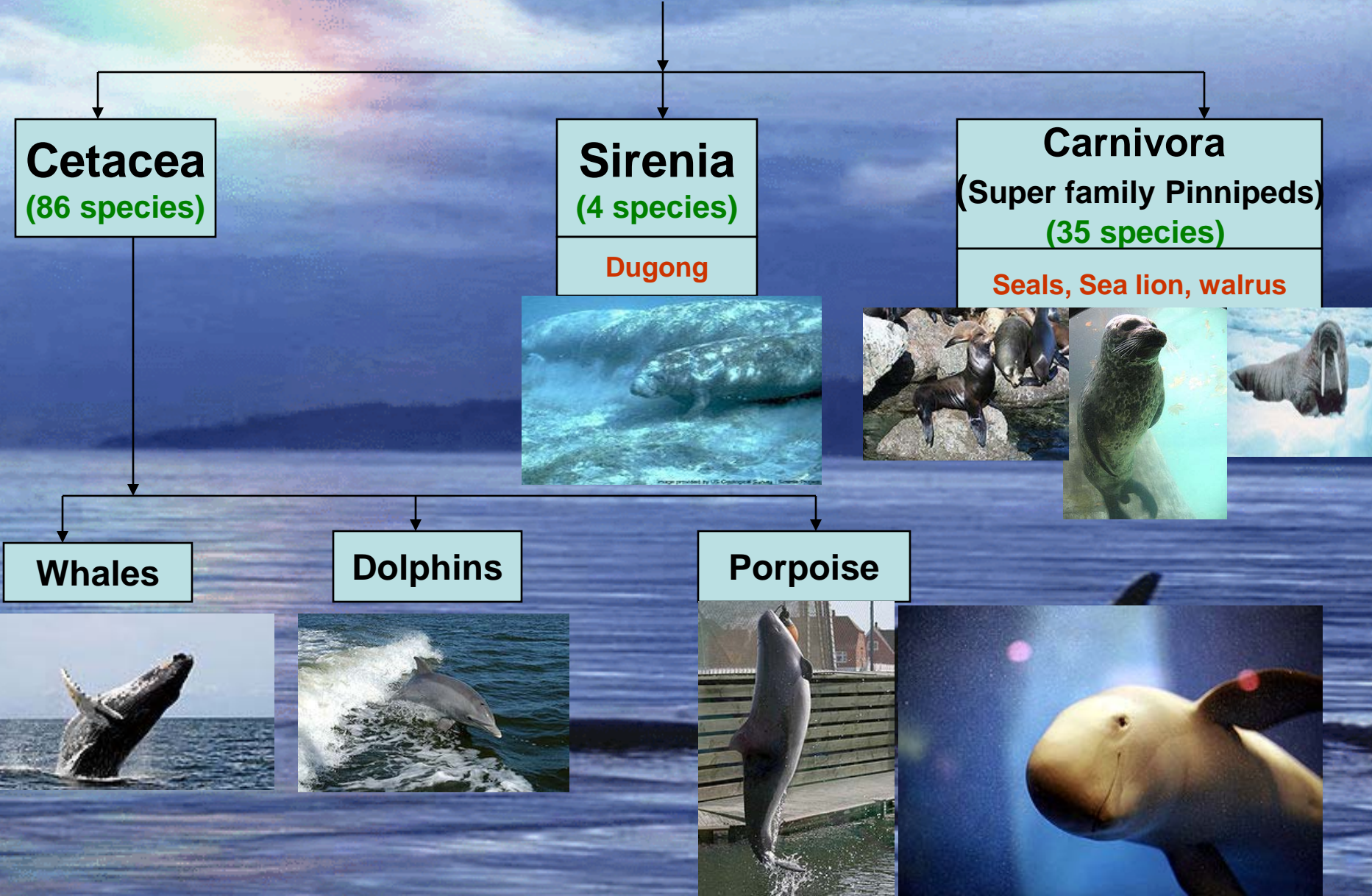
*Mr. Hilal AlShaqsi and Saoud AlBousaidi highly acknowledgment for assistant of preparing whales and dolphins sighting maps.

- The project was funded by **Ministry of Fisheries Wealth**
- Information in the introduction and discussion were obtained mainly from **Baldwin, 2002**, Baldwin et al., unpublished and Minton et al., unpublished., whales Oman Group site.
- Images were from Whales and Dolphins Omani group, Ministry of Environment and Climate affairs (Bader Alblushi); and Google site



Introduction:

Marine Mammals



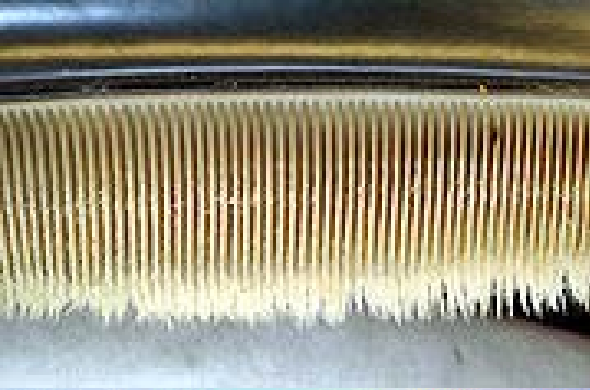
Introduction:

Classifying cetaceans*

Kingdom	Animalia	
Phylum	Chordata	
Subphylum	Vertebrata	
Class	Mammalia	
Order	Cetacea	
Suborder	Mysticeti	Odonticeti
Family		
Genus		
Species		

Introduction:

Classifying cetaceans*



Cetacea

Mysticeti

Odonticeti

having baleen plate for filtering food from water, rather than having teeth

- Two Blowhole
- all large cetacean

the suborder is characterized by having teeth, rather than baleen

- Single Blowhole
- include all large and small cetacean



Introduction:

- There are a total of 86 different species of cetaceans in the world (14 families, 40 genera) only 12-14 from Mysticetes suborder*
- The 21 Cetaceans found in Arabian Sea
- Arabian Sea waters therefore boast over a **quarter of all cetaceans***

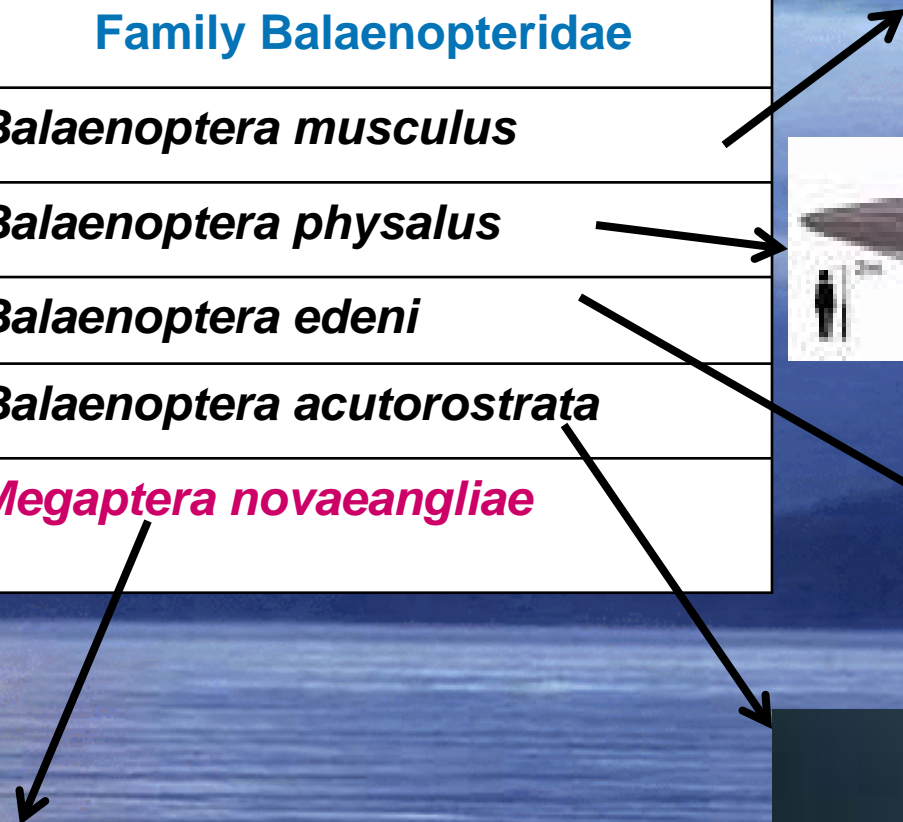
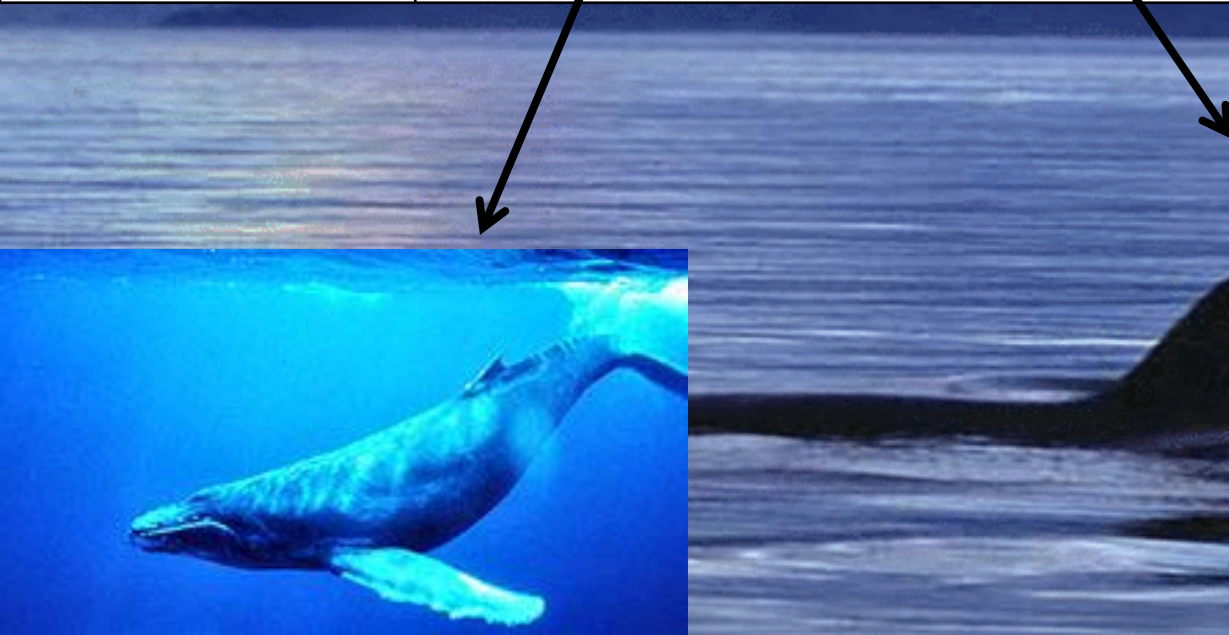


Introduction:

Classifying cetaceans*

Suborder Mysticeti: Baleen whales

Common Name	Family Balaenopteridae
Blue whale	<i>Balaenoptera musculus</i>
Fin whale	<i>Balaenoptera physalus</i>
Bryde's whale	<i>Balaenoptera edeni</i>
Minke whale	<i>Balaenoptera acutorostrata</i>
Humpback whale	<i>Megaptera novaeangliae</i>





Introduction:

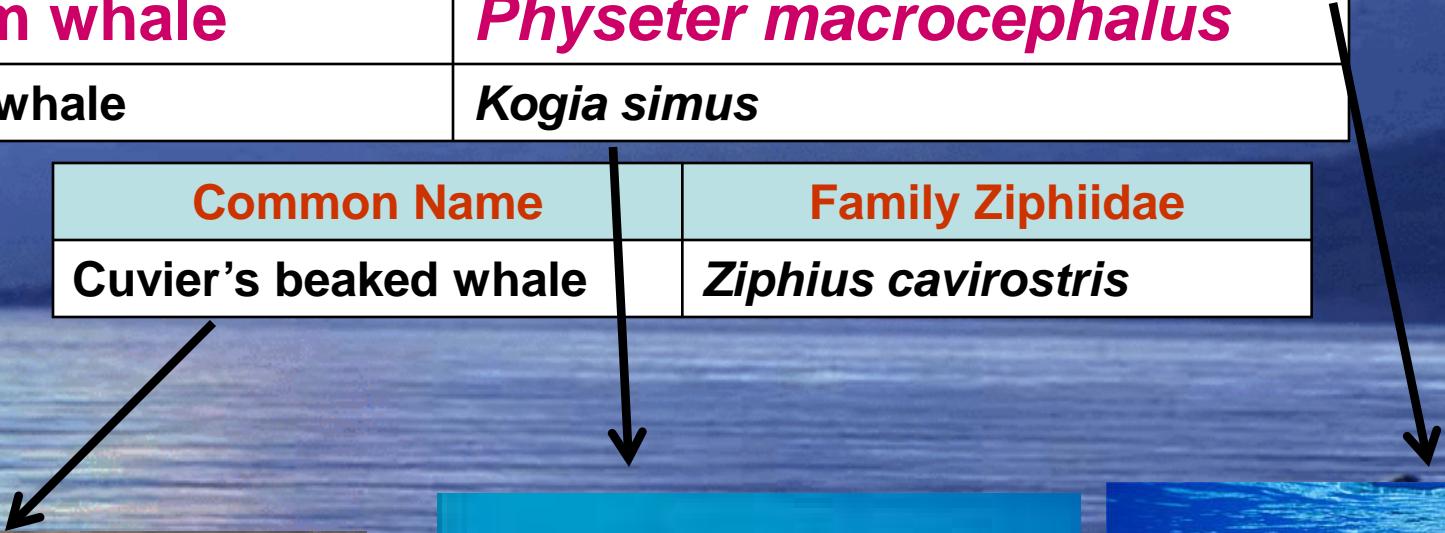
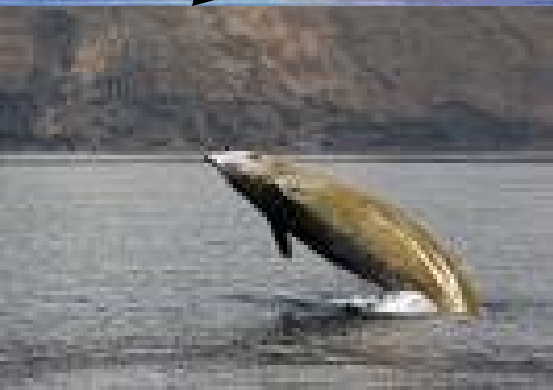
Classifying cetaceans*



Suborder Odontoceti: Toothed whales and dolphins

Common Name	Family Physeteridae
Sperm whale	<i>Physeter macrocephalus</i>
Dwarf whale	<i>Kogia simus</i>

Common Name	Family Ziphiidae
Cuvier's beaked whale	<i>Ziphius cavirostris</i>



Introduction:

Classifying cetaceans*

Suborder Odontoceti: Toothed whales and dolphins

Common Name

Family Delphinidae

Melon-headed whale

Peponocephala electra

Pygmy killer whale

Feresa attenuata

False killer whale

Pseudorca crassidens

Killer whale

Orcinus orca

Rough-toothed dolphin

Steno bredanensis

Indo-Pacific humpback dolphin

Sousa chinensis

Common dolphin

Delphinus delphis cf tropicalis

Bottlenose dolphin

Tursiops truncatus

Risso's dolphin

Grampus griseus

Spotted dolphin

Stenella attenuata

Striped dolphin

Stenella coeruleoalba

Spinner dolphin

Stenella longirostris



Introduction:

Classifying cetaceans*

Suborder Odontoceti: Toothed whales and dolphins

The **finless porpoise** (*Neophocaena phocaenoides*) occurs in the Arabian Gulf and may stray into waters around the Musandam peninsula. The **sei whale** (*Balaenoptera borealis*) and the **pilot whale** (*Globicephala* sp.) are additionally reported off Oman, but their occurrence in Arabian waters remains unconfirmed. **Fraser's dolphin** (*Lagenodelphis hosei*) is known from the skeletal remains of one individual found recently near Quriyat.



Introduction:

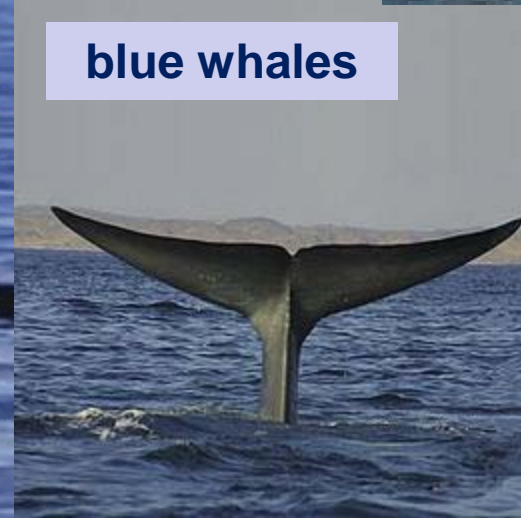
Classifying cetaceans*

Killer whales

Humpback whales



blue whales



Introduction:

cetaceans communication

- Have strong eyes
- smell and taste are limited
- hearing limited
- have long-distance transmission of sound

(To produce sound most mammals are equipped with vocal cords in the larynx that can vibrate as air passes across them. Baleen whales are capable of producing very loud and very low frequency sounds, which may persist over hundreds of kilometers)



Introduction:

lifespan, breeding, maturation and migration cetaceans

- The lifespan of cetacean is determined by many factors, but longevity is partly reflected by size.
The smallest Odontoceti have a lifespan of as little as 15 years increasing to 50 years for larger species and up to 70 years for sperm whales. Large baleen whale may live 100 years or more.
- All odontocetes have a breeding and calving season, which varies both within and between species. The interval between calving is also variable and is usually several years. The gestation period of larger species is partly responsible for this as it can be as long as 17 or 18 months, such as in the case of the killer whale and sperm whale. For smaller species may be reduced to 10 months.
- Mature five to six years for small odontocetes,
• up to 20 years for males of larger species.
- The distance covered on migration each year amounts to thousands of kilometers. Some humpback whales have been known to feed and breed in areas separated by a one way distance of 8,000 kilometers or more; the longest known migration of any mammals

Introduction:

Whaling

Streaming through the bab-al-Mandam strait into the Gulf of Aden, the first of two Soviet fleet began its hunt in November 1963 using 25 catcher vessels supported by the factory ship the slova and subsequently one of the largest factory ships ever commissioned, the Sovetskaya Ukraina. The final tally from the Arabian Sea was 3,339 whales, including 1,294 blue whales, 954 sperm whales, 849 bryde whales and 242 humpback whales. As result, the operations were kept quiet and it was not until 1996 that the truth was revealed. At the same time it became clear that Soviet whales had falsified catch statistics of their other whaling operations. Over 130,000 more whales had been caught around the world than had been officially disclosed, most of which were below the legal size, were lactating females or had been caught in restricted area and seasons (Baldwin, 2003; Mikhalev, 2000).



Introduction:

Humpback whales (*Megaptera novaeangliae*)

Length: 9.5-15m

Distribution: Coastal waters of Arabian Sea, Oman Sea; Rarely recorded in Red Sea And Arabian Gulf

Diet: Mostly small, schooling fishes and krill

Breeding: in Arabian Sea

Conservation status: Insufficiency known

- Most humpback whales in Arabia have been seen in **water depth of less than 50 m either singly or in pair.**
- Mating season is relatively short, beginning in early **January and continuing until late May** and hence calving can be Expected to peak in **early February.**
- Results provide additional evidence that the population of humpback whales In this part of Arabian Sea is relatively small, possibly numbering only **few hundred individuals.**



Introduction:

Sperm whales (*Physeter macrocephalus*)

Length: 8.5-15.5m

Distribution: Deep water of Arabian Sea, Gulf of Aden, Oman Sea and Arabian Gulf

Diet: Deep water squids and Large fishes

Breeding: in Arabian Sea

Conservation status: Insufficiency known

- The Sperm whales is the species most likely to be encountered in **deep, offshore waters of the region.**
- The sperm whale is by far **largest of toothed cetaceans,** comparable in size to some of the baleen whales.
- Males sperm whales in the region may reach length of nearly 16meters and considerably by larger than females which average less than 10meters in length and reach a maximum of 11.5meters.



Introduction:

Killer whale (*Orcinus orca*)

Length: up to 10m

Distribution: Mostly offshore waters of the region

Diet: Fishes, squid, other cetaceans, birds and turtles

Breeding status: breeding in the region

Conservation status: Insufficiently known



Introduction:

Long-beaked common dolphin (*Delphinus delphis cf tropicalis*)

Length: up to 2.7m

Distribution: coastal water throughout the region

Diet: small fishes and cephalopods

Breeding status: breeds in the region

Conservation status: Insufficiency known;
locally abundant

• Could be subspecies of the long-beaked common dolphin, namely *D. C. tropicalis*

* occur in continental shelf waters group of 1,800 individuals; more commonly in group of 30-500.

* Leaping nearly **four meters** above the water surface.



Introduction:

Spinner dolphin (*Stenella longirostris*)

Length: up to 2.6m

Distribution: Mostly offshore waters of the region, with exception of the Arabian Gulf

Diet: fish and cephalopods

Breeding status: unknown

Conservation status: Insufficiency known

- The habit of leaping up to three meters in the air and spinning

like a barrel, before slapping back down into the water, sets them apart from all other species and give this dolphin its common name.

- Large schools of spinner dolphins, containing up to 1800 individuals have been observed in the region. Schools of up to 300 individuals are more common.



Materials and Methods:

* The primary **goal** of the survey reported in this document is to **provide estimates of the fishable biomass of principal demersal, small pelagic and mesopelagic fish species off the Arabian Sea coast of Oman** for ongoing stock assessment of Omani fisheries, to guide development and investment decisions.

*The area surveyed included the territorial waters and EEZ of the Sultanate of Oman between **Ra's Al Hadd and the Oman-Yemen border between depths of 20 m and 250 m**. In addition, survey activities for mesopelagic resources and exploratory sampling on the **continental slope extended to deeper waters up to 100 nm offshore** **Five seasonal surveys with an average duration of 47 days** were completed in the project period using the ***RV Al Mustaqila 1***. The surveys were timed to ensure coverage of the main seasons, with an overlap of one season, **between August 2007 and September 2008**. During the **5 surveys we completed a total of 238 days at sea**.



RV Al Mustaqila



Materials and Methods:

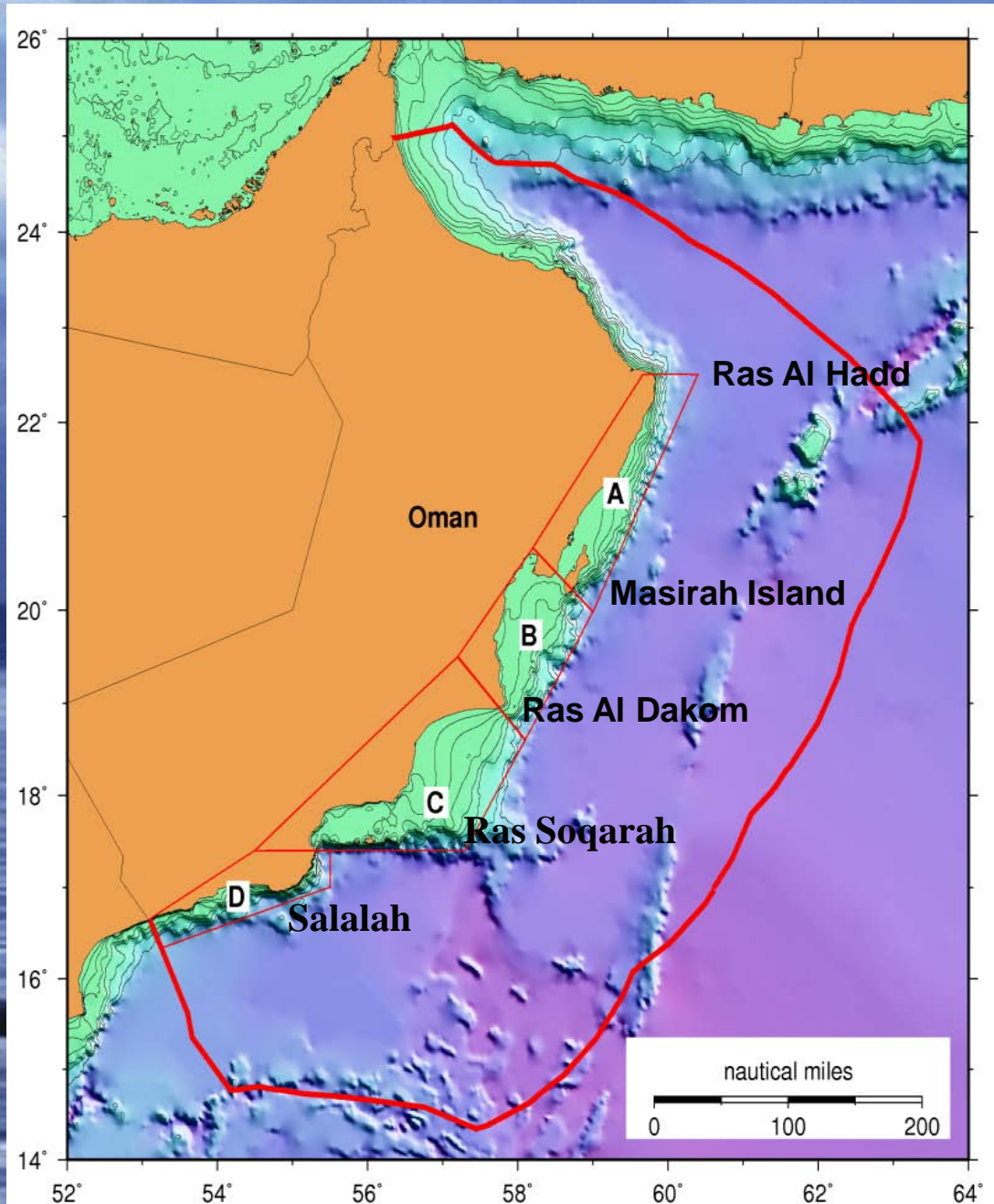
Survey 1 **Late**
SW monsoon to inter-
monsoon period
12 August 2007 – 27 September
2007

Survey 2 **NE monsoon**
period
1 November 2007 – 17 December
2007

Survey 3 **Spring inter-**
monsoon period
27 January 2008 – 13 March 2008

Survey 4 **Pre SW**
monsoon period
20 April 2008 – 5 June 2008

Survey 5 **Late SW**
monsoon to inter-monsoon
period
3 August 2008 – 18 September
2008



Materials and Methods:

During the survey, certain sheet were filled with data related to Whales and dolphins species abundant, including:

- Location (Latitude and longitude);
- date and time;
- species;
- Number of individuals;
- Direction;
- Weather condition
- Behaviour;
- Depth;
- Distance from boat;
- Associated organisms, such as other marine mammals, birds...etc

Whale and Dolphin Sighting Reporting Form

Date: 6/8/8 Time of day: 0535

Species (supported by description of features on which identification is based):

WHALES - HUMBAC

Location (including distance offshore and latitude-longitude reading, if possible):

22 07.7 059 49.7

Direction of travel (if swimming in a definite direction):

≈ 192° T.

Number of individuals, including any young:

6

Estimated depth of water:

115m

Distance from boat/observer:

100m

Weather/sea conditions:

sea - smooth wind - nil

Behaviour and notes (e.g. speed, breaching, spinning, bowriding, unapproachable, feeding, length of time underwater, duration of sighting):

Slowing swimming

Associated species (e.g. sea birds, other species of whales or dolphins, sardines, tuna, jack):

nil

Observer's name and contact address:

D M PARKINSON
NIMA. P.O. BOX 109695 Newmarket AUCKLAND
NEW ZEALAND

Phone number:

76493752090

E-mail address:

d.parkinson@nima.co.nz

Date:

6/8/8

Signature:



Results: Whales:

Humpback whales:

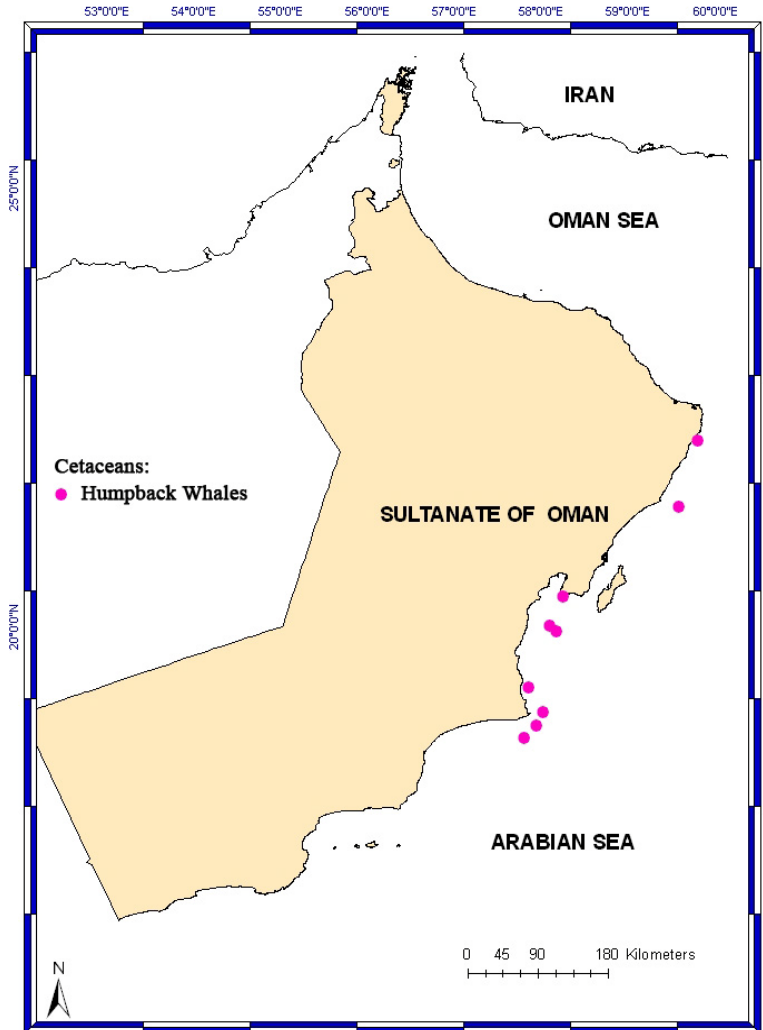
Species	English Name	Date	Time of Day	Location Latitude-longitude	Direction of travel	Number of individuals	Estimated depth of water (m)	Distance from boat (m)	weather	Behaviors and notes
<i>Megaptera novaeangliae</i>	Humpback whale	6/8/2008	05:35	22 07.7 059 47.7	192° T	6	115	100	Sea smooth, no wind	Slow swimming
		7/10/2008	12:29	19 01 33 57 59 76	045+225	2 large	90	500	calm	traveling
		23/9/2007	15:00	19 57 04 58 09 44	180°	2	20-30	400	calm	In amongst of surface baitfish
		14/03/2008	13:37	19 18 45 57 50 15	-	1	32	300	calm	dived
		6/2/2008	16:59	20 20 43 58 14 10	-	1	21.6	600	moderate	Splashing with fin on surfaces ; tail and fin slaps
		13/11/2007	17:30	18 44 07 57 47 07	-	1		4 km	calm	Breaching
		17/11/2007	08:00	20 00 16 58 04 46	stationary	1	20	8	Fine	Entangled in fishing set net
		28/11/2007	11:20	18 52 05 57 56 03	North east	2	180	200	Wind 15kts N 0.5m swell, 0.5m wave	Swimming steadily
		25/4/2008	09:40	21 21 75 59 34 34	350°	1	230	10	flat	breaching
		25/4/2008	12:40	21 20 42 59 33 40	-	1	300	50	Flat, no swell,	Breaching Slapping flippers on surface, slapping tail on surface

Results: Whales:

Humpback whales:



- Ten times of Humpback whales recorded during the survey.
- All were recorded between Ras Al Hadd and Ras Madrasah; 80% between Masirah to Ras Madrasah).
- Season of sighting: (August to November; 60%) (February to April; 40%)
No whales were recorded between May to July
- * Number of individuals in each sighting 1-6 individuals; 90%.
- 80% were recorded in depth 20-200 meters.
- * One entangled whales were found



Results: Whales:

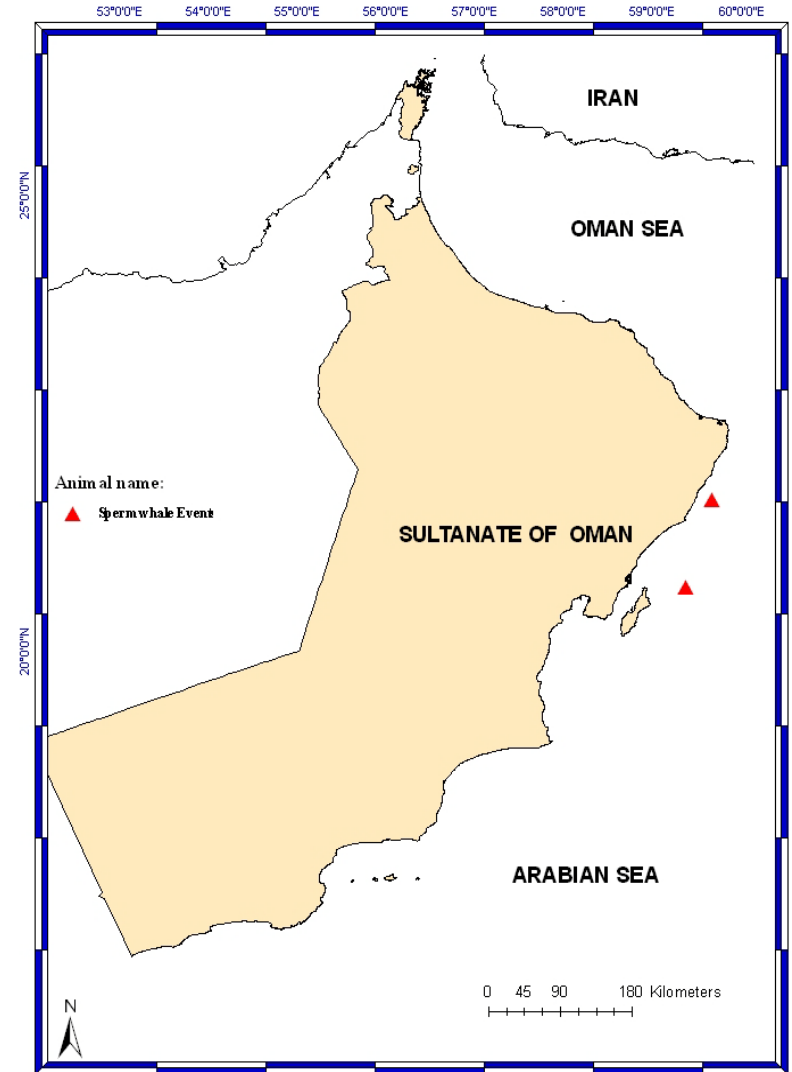
Sperm whales:

Species	English Name	Date	Time of Day	Location Latitude-longitude	Direction of travel	Number of individuals	Estimate d depth of water (m)	Distance from boat (m)	weather	Behaviors and notes
<i>Physeter macrocephalus</i>	Sperm whale	19/ 9/ 2007	13:45	21 38 26 59 34 83	-	4	63	200-800	moderate	Moving,; birds above 2 whales
		8/7/2008	09:45	21 39 56 54 39 50	north	2	172	100	calm	dive
		15/5/2008	16:40	20 41 73 59 21 40	-	<u>80-100</u>	1000	50-300	14 knots SW	Swimming beside boat, sticking head out of water looking at boat

Results: Whales:

Sperm whales:

- All recorded were found between Ras Al Hadd and Masirah.
- Three times of Sperm whales recorded during the survey.
- Season of sighting: (May, July and September)
- * Number of individuals in each sighting 1 and 2 and once 80-100 individuals were recorded
- * Whales were recorded in 63, 172 and 1000 meters were recorded in
- * One entangled whales were found



Results: Whales:

Killer whales:

Species	English Name	Date	Time of Day	Location Latitude-longitude	Direction of travel	Number of individuals	Estimate depth of water (m)	Distance from boat (m)	weather	Behaviors and notes
<i>Orcinus orca</i>	Killer whale	-	14:30	16 08 81	53 43 40	4 (1 large , 1 small, 2 medium)	2435	200	calm	On surface, swimming



Results: Whales:

Killer whales:

- Four killer whales were found near Salalah in 2435 m depth



Results: Whales:

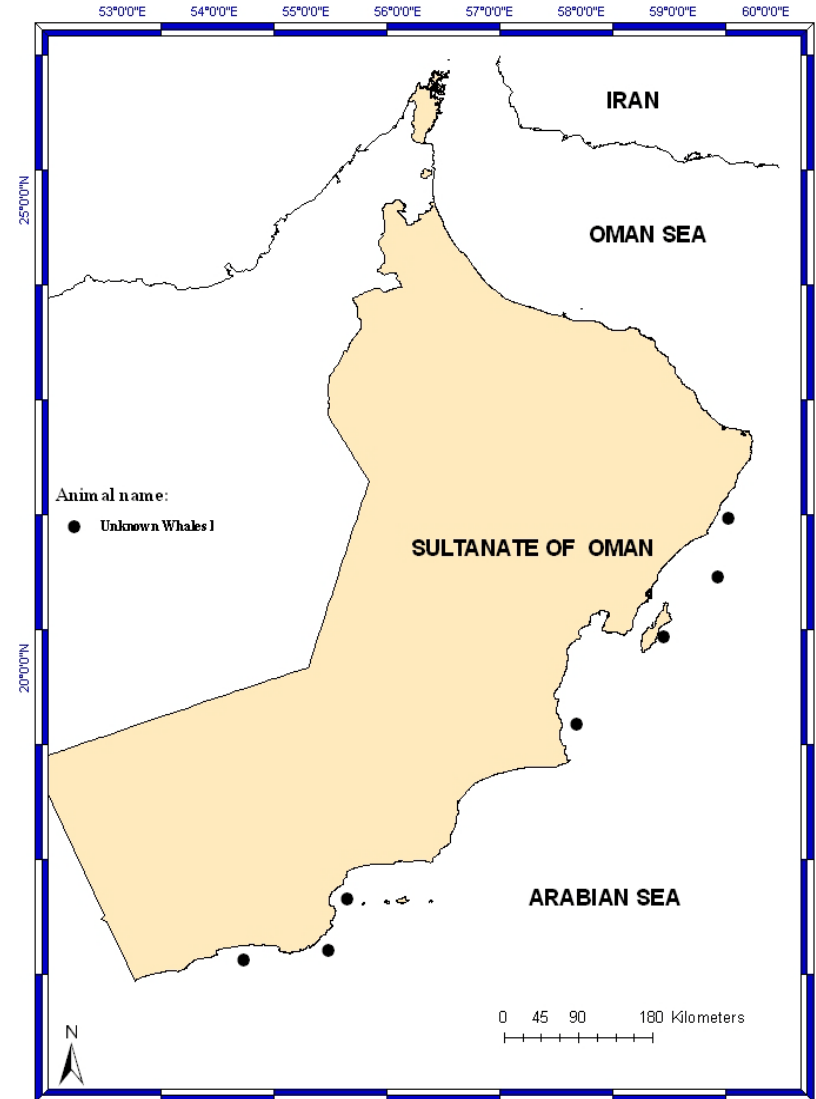
unknown whales:

Species	Date	Time of Day	Location Latitude-longitude	Direction of travel	Number of individuals	Estimated depth of water (m)	Distance from boat (m)	weather	Behaviors and notes
<i>Unidentified whale</i>	7/10/2007		18 84 04 57 55 39	090°	1	105	1 km	calm	At surface
	8/6/2008	08:15	21 36 12 59 34 81	-	1	54	200	6 knots SW wind	At surface, breaching beside Dhow
	30/5/2008	07: 59	16 51 92 54 18 24	-	3	800	300	7 knots SW	Sports visible
	28/5/2008	07:30	17 58	-	More than 2	111	200	1 meter SW swell, 6 knot wind	Whale sports 2 in distance
	26/05/2008	09:43	17 30 99 55 25 66	-	2	63	1.8km	Sea calm, 14knot	Two sports only seen in distance
	15/5/2008	18:25	20 57 80 59 27 64	-	2	272	600	calm	Sporting in distance
	15/5/2008	10:47	20 19 63 50 51 98	-	2	64	100-200	Flat, 13knot SW	Cruising at surface
	8/9/2008	13:30	16 57 91 55 14 01	340	1	1500	1.8km	calm	

Results: Whales:

unknown whales:

- All recorded were found between Ras Al Hadd to Salalah.
- Eight times of Unknown whales were recorded during the survey.
- Season of sighting: (May to June; 70%)
- * Number of individuals in each sighting 1 and 3 individuals were recorded
- Whales were recorded in depth 50-200meters, but could found at depth reached to 1500meters.



Results: Dolphins:

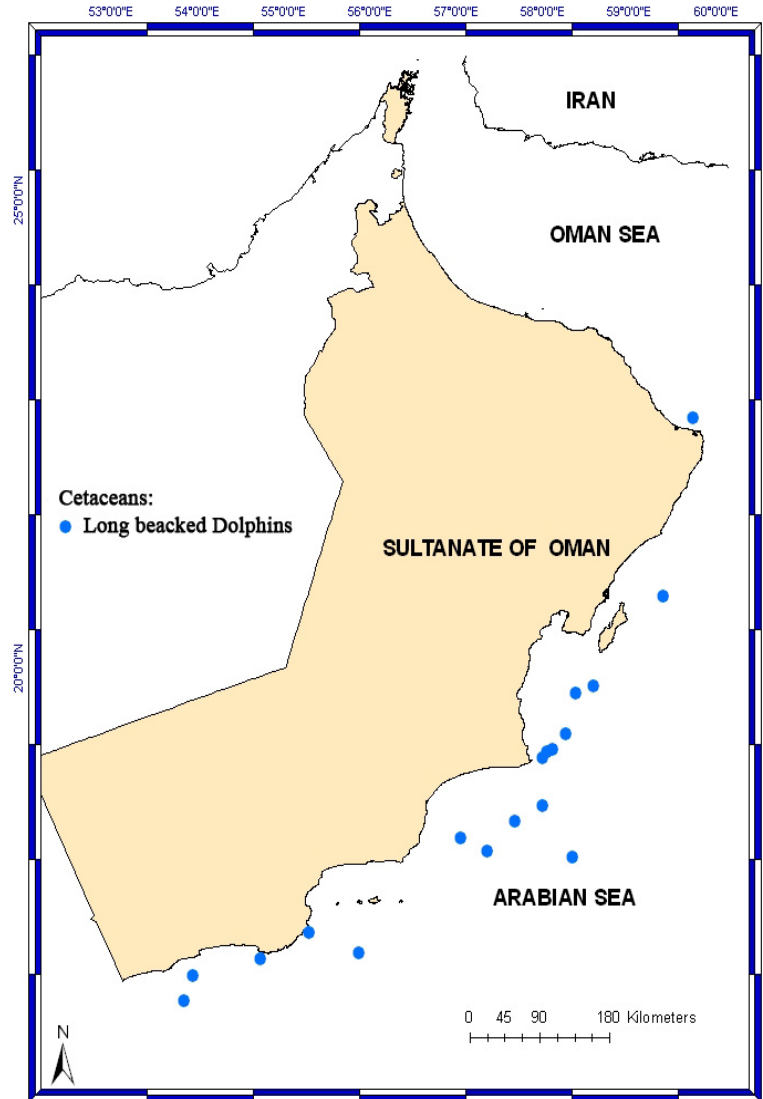
Long-beaked Common Dolphins:

Species	English name	Date	Time of Day	Location Latitude-longitude	Direction of travel	Number of individuals	Estimated depth of water (m)	Distance from boat (m)	weather	Behaviors and notes
<i>Delphinus capensis</i>	Long-beaked common dolphin	8/10/2007	06:05	19 05 45 58 02 06	To vessel	30	94	30	Calm, 6knots	Came to vessel briefly
		13/3/08	12:05	16 25 55 53 49 41	North East	100	2000	300	Flat, calm	Traveling and jumping
		11/3/2008	14:30	16 42 07 53 55 88	South East	100-150	250	-	Calm, 8 knots	Traveling, come to ship and jumping
		3/3/2008	15:38	19 17 49 58 15 20	-	Several thousand	941	20	Calm, 4.9knots	Over wide area, feeding, show little interest in ship (associated with few small birds)
		22/9/2007	07:10	20 46 17 59 21 81	various	≈15	154	400	Calm, 5.5knots	Appear to be feeding, some came to boat rode bow wave for a short time
		3/11/2007	14:45	18 31 32 57 58 67	100°T	≈ 100	168	5-200	Calm, sunny, 0.5m swell	Speed, breaching spinning, tail bashing
		27/11/2007	16:30	19 07 40 58 06 09	30°T	≈ 150	113	Around the boat	Wind 7 knots, 0.5 swell	Breaching, spinning, tail slapping
		28/11/2007	08:10	19 01 52 57 58 46	North East	250	100	Around the boat	Wind 18knots, 0.5m swell , 0.5m wave	Breaching, playing in waves
		29/5/2008	14:20	16 53 26 54 43 10	-	≈ 100	1500	20- 200	10 knots South West, 1m swell	Jumping
		28/5/2008	10:00	17 10 27 55 17 11	-	200	100	All around the boat	1m SW swell, 5 knots, SW wind	swimming fast
		16/5/2008	10:22	22 28 07 59 43 39	220°	50	750	100-200	5knots, 78°, sea calm	Traveling at pace, out from beach
		14/5/2008	15:50	18 21 29 57 39 41	-	50	380	-	Calm, slight swell	Swimming, breaching
29/5/2008	11:15	16 56 46 51 51 17	248°	≈100	603.9	100	8knots	Jumping traveling		
		11/5/2008	6:44	17 58 10 58 18 89	Around the boat	200	196	-	10knots SW, 0.2m SW swell	Swimming quickly
		1/5/2008	13:15	19 48 00 58 34 00	210°	50	330	100	Calm, sunny	Bow riding, breaching, swimming
		20/08/2008	7:11	18 02 04 57 20 47	From NE to SW	500	200.39	20 and more	Moderate sea	Passing at speed
		15/11/2007	16:00	19 43 39 58 21 75	250°	200-300	96	50-800	Calm, no wind	Traveling in speed
		5/11/2007	08:35	18 10 33 57 02 30	280°	30 or more	50	100	flat	breaching

Results: Dolphins:

Long-beaked Common Dolphins:

- 18 sightings of Common Dolphins were recorded.
- Season of sighting: 3 in March; 7 in May; 5 in November.
- 60% were found between Masirah and Demaniat Island.
- 70% (14) less than 200 individuals. Thousands were once recorded.



Results: Dolphins:

Spinner Dolphins:

Species	English name	Date	Time of Day	Location Latitude-longitude	Direction of travel	Number of individuals	Estimate depth of water (m)	Distance from boat (m)	weather	Behaviors and notes
<i>Stenella longirostris</i>	Spinner dolphin	2/11/2007	08:15	21 13 98 59 22 11	110°	More than 50	60	300	Calm, 1 m swell	Swimming, leaping, spinning, breaching
		7/9/2009	11:00	17 20 25 56 29 52	All directions	20 adults	2800	50-100		Feeding

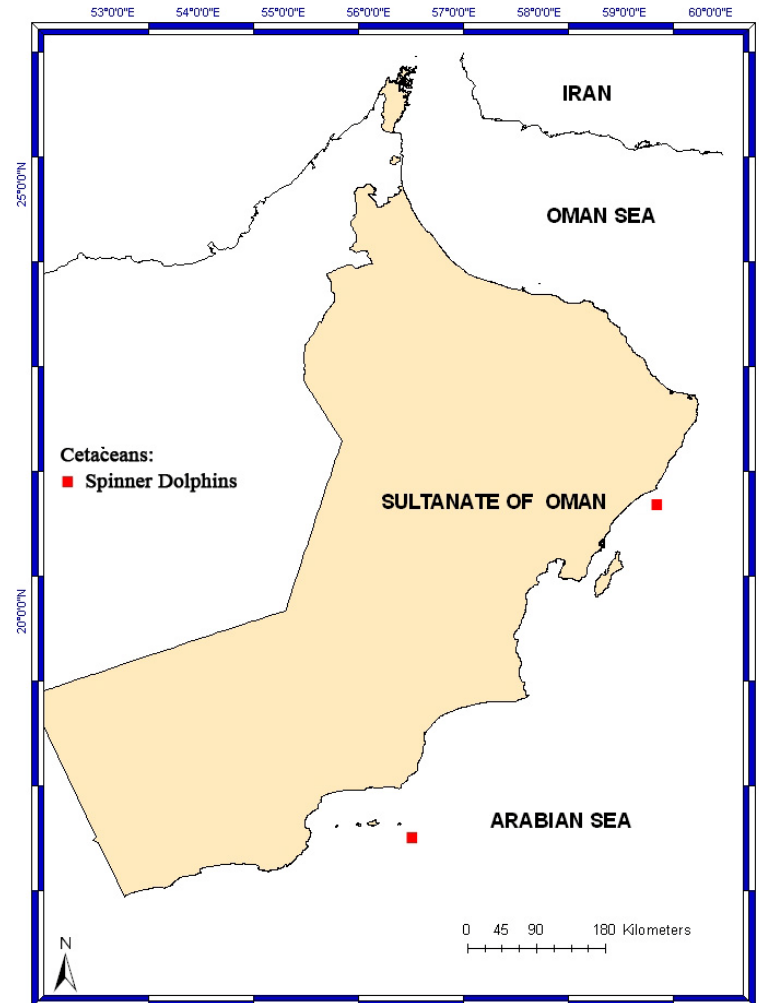


Results: Dolphins:

Spinner Dolphins:



- Two sightings were recorded. One near al ashkarah and one close to Demaniat Island.
- One recorded in Sept. and one in Nov.
- Number of individuals 50 and 20 individuals.
- depth of on sighting was 60m and the second was 2800m.



Results: Dolphins:

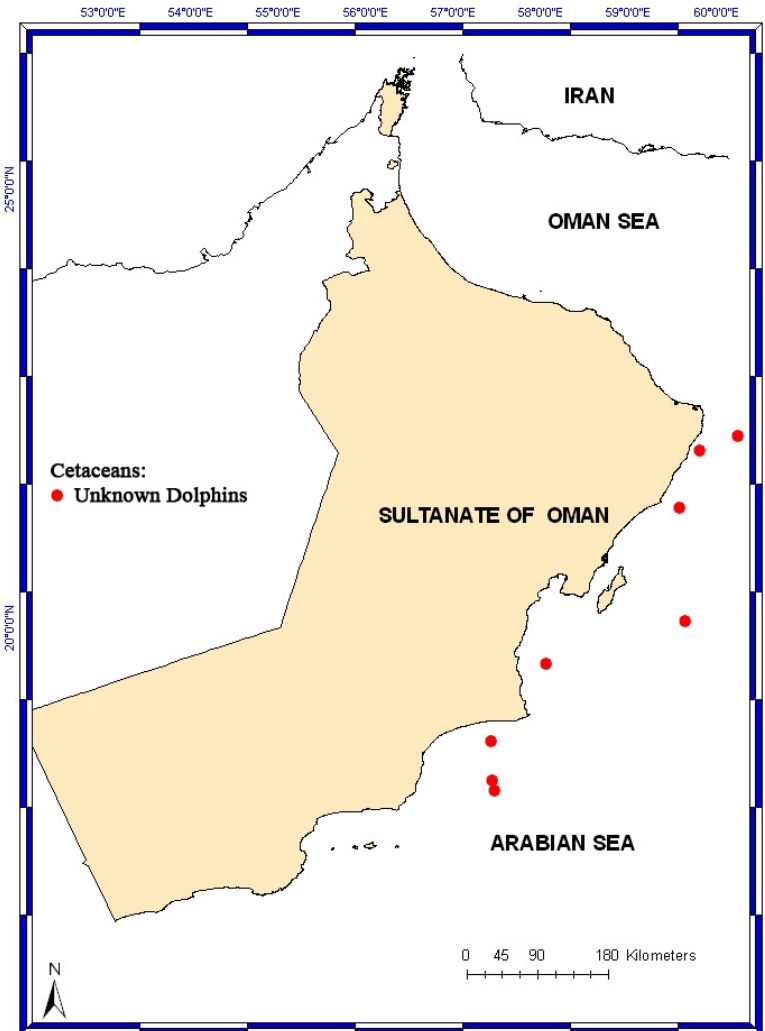
Unknown Dolphins:

Species	English name	Date	Time of Day	Location Latitude-longitude	Direction of travel	Number of individuals	Estimate d depth of water (m)	Distance from boat (m)	weather	Behaviors and notes
Unknown Dolphin species		6/2/2008	13:18	20 03 71 59 38 23	60°	150	81	100	Rough	Moving quickly, jumping
		9/2/2008	17:50	19 35 01 58 03 00		1	20	-	NE 13kns , swell 1m NE	
		17/2/2008	15:40	18 15 05 57 25 74	270°	50	180	400	calm	
		21/2/2008	09:10	18 07 71 57 26 78	30°	50-100	276	500	calm	In transit, leading dolphin jumping
		28/2/2008	13:00	22 10 83 60 13 90		4-5	2500	200	calm	traveling
		25/4/2008	09:37	21 21 85 59 34 30	290°	30	175	50		Swimming moderate speed
		9/5/2008	08:39	18 42 31 57 24 80		30	61	10	flat	Jumping out of the water, moving quickly
		14/9/2008	21:00	-	-	2-3	131	-	calm	Appeared to be communicating with each other
		11/10/2008	06:00	22 01 26 59 47 78	270°	80	74	200	calm	Feeding orcas

Results: Dolphins:

Unknown Dolphins:

- 9 sightings of Unknown Dolphins were recorded.
- 5 were recorded in February. One in April, one in May, one in Sept., and one in October.
- Sightings were between Ras Al Hadd to Ras Soqarah.
- All recorded were from 1-100 individuals.
- 80% were recorded at depth less than 200m.



Discussion:

Humpback whales

	Present Survey	Previous survey
Population	Could only small population	Few hundreds individuals (Baldwin 2002)
Season of sighting	August to November; Few in February to April	Greatest number in November, March and May (Reeses et al. 1991; Salm et al. 1997; 1998; Mikhalev, 1997; Baldwin, 2002)
Depth of sighting	Between 20-300m	Less than 50m (Baldwin 2002)
Number of individuals each sighting	One or two	One or two (Baldwin 2002)



Discussion:

Sperm whales

	Present Survey	Previous survey
Population	Few, but could find in high population	21 sighting in Omani waters (Balance et al., 1996)
Season of sighting	May, July and September	March to July (Baldwin et al., unpublished) All months except February and August.
Depth of sighting	63, 172 and 1000m	More than 100; mostly in depth (500-1750m) Baldwin et al., unpublished; Minton et al., unpublished).
Number of individuals each sighting	2, 4, 80-100	Common single or two to 6 (could find 20-50) (Baldwin 1995; Gallagher, 1991; salm 1993).



Discussion:

Killer whales

	Present Survey	Previous survey
Population	Few	Few records but could be wide distribution
Season of sighting	-	- Summer months
Depth of sighting	2435	-
Number of individuals each sighting	4	8 , 7 (Baldwin 1997; Leatherwood et al 1991).



Discussion:

Long-beaked common dolphins

	Present Survey	Previous survey
Population	Most common cetacean	Second common species in Omani water (Minton et al.,)
Season of sighting	Common in May and November	March (Minton et al., ...)
Depth of sighting	Common in depth 50-500m	Common in depth 200-1000
Number of individuals each sighting	Common from 15-200 could reached to several thousands	30-500 Could be 1800 (Baldwin et al., 2002)



Discussion:

Spinner Dolphins

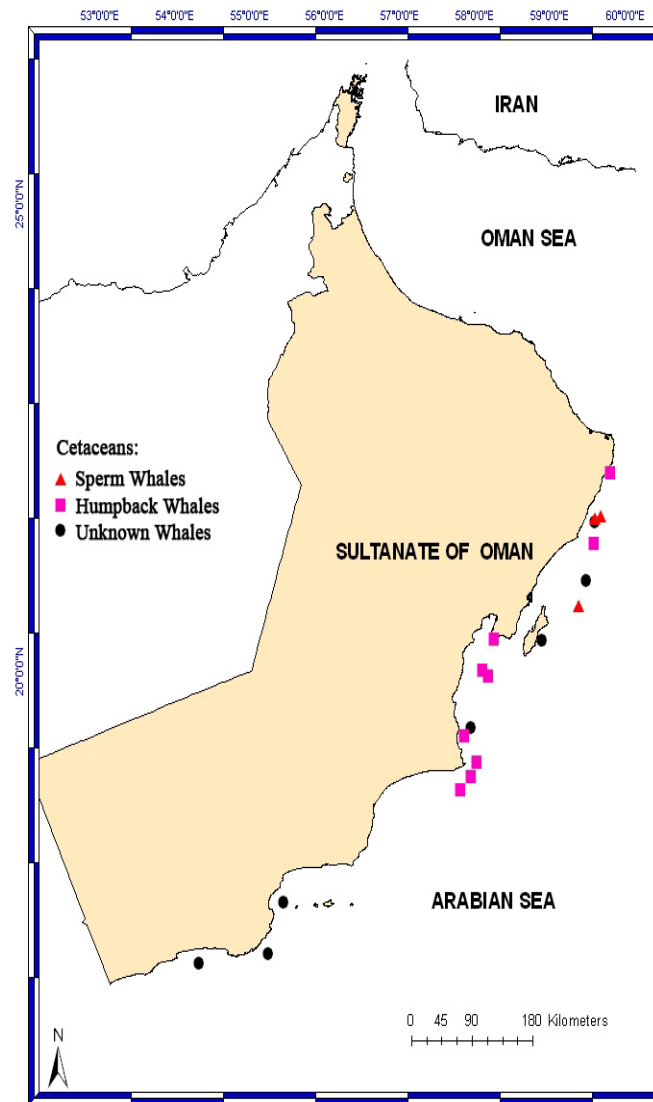
	Present Survey	Previous survey
Population	Few individuals	21,000 in group of 1-800 in Oman Sea (Baldwin et al.,;Minton et al)
Season of sighting	September and November	February and October (Minton et al.,)
Depth of sighting	60 and 2800	Deep water (Minton et al.,)
Number of individuals each sighting	20-50	20 to 700 (Minton et al.,)



Conclusion

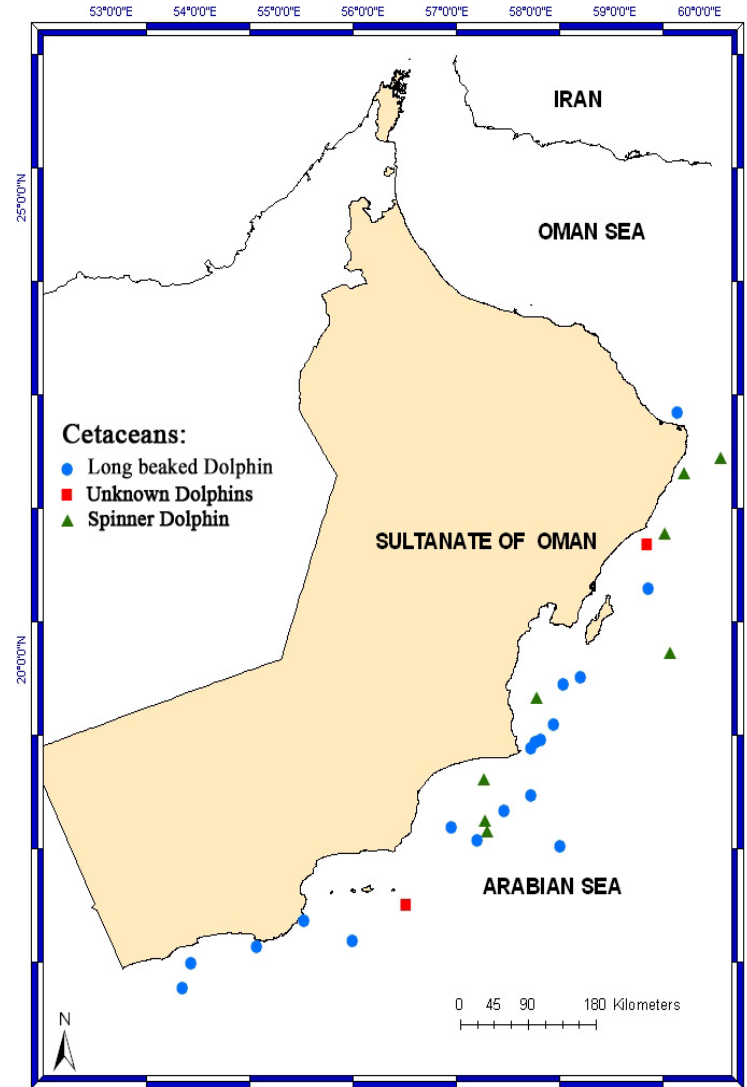
whales:

- Three species of whales were recorded during the survey: Humpback whales (10 records), Sperm whales (3 records) and killer whales (1 record); unknown species were recorded 8 times.
- Most whales were found between Ras Al Hadd to Ras Madrakah (85%).
- 1-6 individuals were common; once 80-100 (Sperm whales) were recorded.
- most of whales were recorded between April to May and between September to November 80%. (Jan, March and Dec. no whales were recorded).
- Most recorded in depth between 20-200meters; 70%)
- One humpback whale were recorded entangled in fishermen net



Conclusion: Dolphins:

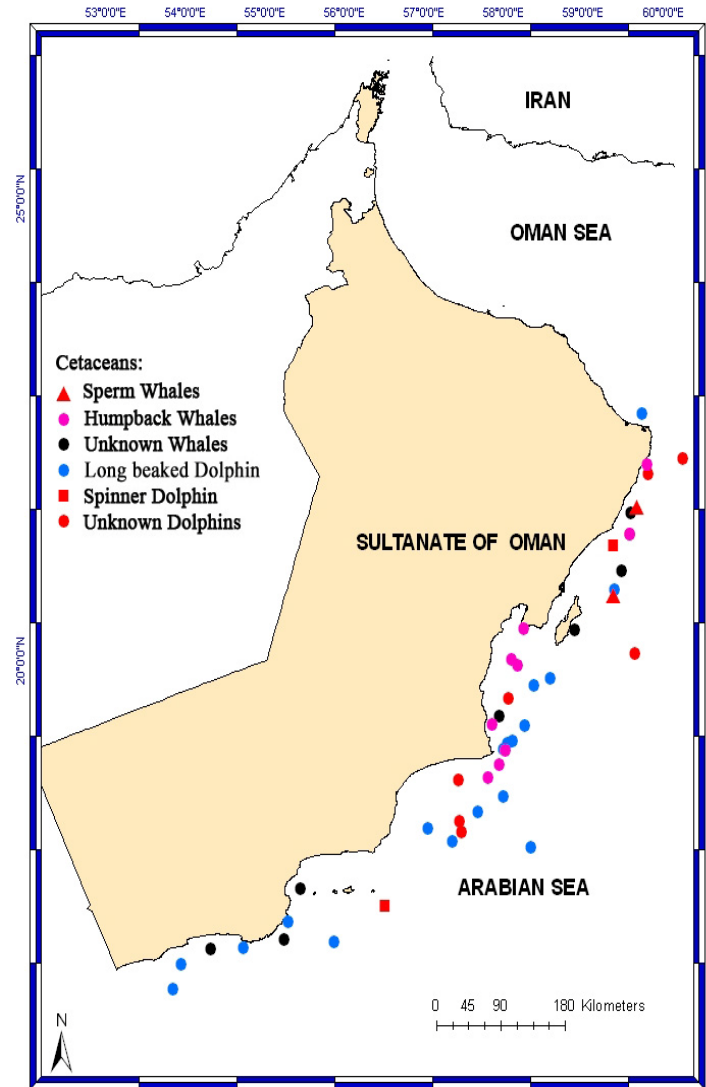
- Two species of dolphins were recorded in the survey: common recorded species were Long-beaked common dolphins (18 recorded), two recorded of Spinner dolphins (2 records); unknown dolphins (9 recorded).
- Season of sighting: February and May (17). : Sept. and Nov. (11).
- 70% less than 100 individuals were recorded.
- 70% were less than 200m depth.
- 70% were recorded between Ras Al Hadd and Ras Soqarah.



Conclusion: Whales and Dolphins:

All Whales and Dolphins:

- 80% (36 from 51) were sighting between Ras Al Hadd to Ras soqarah.
- 90% (45 from 50) were sighting in two season:
 - Feb. to May (50%; 26 records).
 - Sept. to Nov. (45%; 19 records).



Conclusions:

- Population estimates of cetaceans in the region are lacking and the status of most species remains poorly known.
- increased human activity, fisheries activities, pollution, shipping traffic and general habitat degradation and loss as a result of coastal and offshore development in the region have been identified as threats to cetaceans, coastal species are most in risk.
- Hydrocarbon pollution, poisoning caused by toxins originating from phytoplankton (Red tide); possible cause of mortality in some cases.

Recommendations:

- More extensive surveys of Oman coastal and offshore waters are required to obtain more representative seasonal coverage and to include regions that not accessible during previous surveys.
- Collaboration between different organizations nationally and regionally need to study and protect these cetacean.
- Extensive baseline data, management strategies may need to be able to protect possibly isolated and unique populations from increasing threats.





Thanks for attend and sharing information and experiences

