



Save Our Oceans --  
Don't Pollute!

- by Eve Simon  
Teacher, VSB

# Marine Mammals - To Be or Not to Be?

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## Your thoughts about whales in captivity

The class is going to be divided into 2 groups. One side will be FOR keeping whales in captivity, the other will be AGAINST keeping whales in captivity. There will be no participants 'sitting on the fence'. You will be placed in one group just before our class debate begins. However, you must read and understand both sides of this controversial issue before starting the debate, since you may be on a side that you do not really agree with.

This is an exercise that will help you to strengthen your public speaking, boost your confidence, and will let your voice be heard. Remember, everyone will have a chance to speak, but only those who have valid points to share will be chosen.

When reading the articles (PROS and CONS), be sure that you note down all of the key points that you find. This is how you will *justify* your opinion, which is very important in a debate. Use the chart below to record your findings. If you can think of more points for them on your own, please note them down as well.

\*We will review the Code of Courtesy and Rules about debating together.

PROS	CONS

## Having a whale of a time Arctic encounters in Vancouver

By KAREN SCHWARTZ -- Associated Press

VANCOUVER -- Call me Ishmael.

As I stood, transfixed by the white whale rushing towards me from the cold, blue depths, Melville's words echoed through my mind. The whale broke the surface and climbed higher into the air until her head touched my outstretched hand.



**BELUGA BUDDIES ...** You can get up close to beluga whales in the Vancouver Aquarium's "Arctic Encounter" program. (SUN file photo)

Yet, unlike Moby Dick, the vengeful sperm whale who splintered boats and pulled his nemesis, Captain

Ahab, beneath the waves, this was a gentle and intelligent beluga. And after touching my hand, she fell back into her pool with a thunderous splash. I knelt and gave her a fish while the crowd applauded wildly.

It was all part of the Vancouver Aquarium Marine Science Centre's "Arctic Encounter" program, in which visitors get a behind-the-scenes tour of the belugas' facility and even wade into the water to get up close.

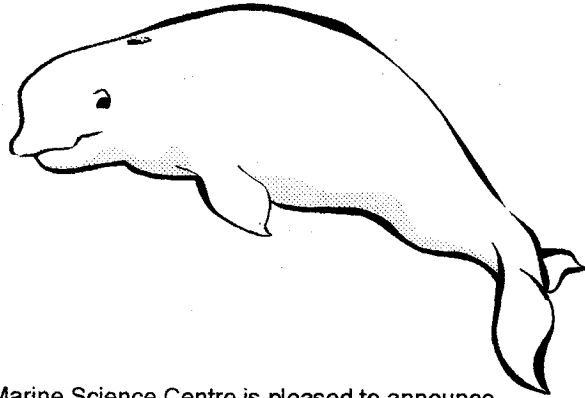
This arctic experience is the most popular (and at \$150 the most expensive) of four hands-on programs the aquarium began offering about two years ago. The others are an "Amazon Encounter," which includes cradling a snake, a "Tropical Encounter," which includes feeding blacktip reef sharks, and a "B.C. Waters Encounter," in which participants play with a Pacific octopus.

Then, as if to make sure I wouldn't forget this remarkable experience, the trainer had the whale repeat it a second time.

Finally, I was out of fish and out of time. Exhilarated, and with hands that would smell of fish for days, we left the pool. And like Ahab, I will never forget my first encounter with a white whale.

*(First featured: April 26, 2000)*

# Article B pros



MEDIA ADVISORY

## **Introducing ... Tuvaq**

### **Baby beluga now has a name**

Vancouver, BC: The Vancouver Aquarium Marine Science Centre is pleased to announce that a name has been chosen for its male beluga calf born earlier this summer.

Tuvaq (too-vak), which is the Inuktitut word for "sea ice", was suggested by 14-year old Clare McLennan of Vancouver, and was one of over 900 entries received in the Aquarium's Name The Baby Beluga Contest. Clare is the winner of a family membership to the Aquarium, as well as a special private visit with Tuvaq and his mother Aurora. The name Tuvaq was also submitted by several other contestants, but Clare's was the first such entry received. The other entrants will each receive Aquarium admission passes as runner-up prizes.

Tuvaq was born just after 6:30 pm on July 20, 2002. Since that time he has been growing at a rapid rate and has gone from 55 kg at birth to a whopping 122 kg, and 1.7 meters in length.

Tuvaq is the Aquarium's sixth beluga whale. He is currently sharing the Arctic Canada habitat with his 14-year-old mother Aurora. His sister Qila (who was born at the Aquarium in 1995) and the other four belugas are currently behind the scenes so that mother and baby can continue to establish their bond.

# Article C pros

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## Attractions - Vancouver Aquarium

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Vancouver wouldn't be half the city that it is without its extensive roster of parks and gardens. **Stanley Park** is the centrepiece, one of the largest parks in any urban centre in North America. The attractions within Stanley Park are numerous, and among the most popular is the **Vancouver Aquarium**, the largest in Canada. From Beluga whales to caiman, jellies to jacks, more than 8,000 creatures from the ends of the earth, and the depths of the sea, call the Vancouver Aquarium home. It's the best of both worlds...and it's where the wild things are!



Seagull's-eye view of Vancouver Aquarium

Wonder at the mesmerizing red-gilled sea slug and the bizarre face of a shy wolf-eel. Imagine yourself in Tropical Pacific waters surrounded by brightly coloured coral reef fishes. Search through dense jungle foliage to find the amazing red-eyed treefrog. Immerse yourself in the unexpected richness of the Canadian Arctic. Meet the Amazon's green anaconda and pink-toed tarantula. Delight in the astounding variety of B.C.'s spineless wonders, from giant Pacific octopi to red rock crabs. Plunge under the swamp bubble and glimpse a frog's eye view of wetland creatures. Discover the blacktip reef shark's hunting ground in the Micronesian lagoon exhibit.

**The Pacific Northwest:** See a playful sea otter busily clean his fur, while an octopus glides silently from crack to crevasse. In the North Pacific Habitat, scuba divers feed hungry halibut, and harvest fast-growing kelp.

**Arctic Canada:** The creak of ice and the eerie language of whales surround you as you submerge into this cold blue world. Come face-to-face with curious beluga whales or satisfy your own curiosity about our fragile northern environment with fascinating interactive exhibits.

**The Amazon Rainforest:** Scan the steamy jungle for the brilliant scarlet ibis and snoozi sloths. If the sky darkens and you feel the rumble of thunder, don't worry. It's just one of the hourly rainstorms that is created. Stand back and watch how the animals react as they sense the approaching storm.

**See Lions?** Yes, Steller sea lions at the Vancouver Aquarium. Put yourself in the shoes of a marine mammal researcher trying to solve the puzzle of the disappearing Steller sea lions. The boisterous sea lions at the Vancouver Aquarium are part of an international research project designed to uncover the answer to this challenging puzzle.

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The two-hour-long Arctic Encounter begins with a brief but detailed lesson covering the biology and anatomy of the beluga whale, their geographical range, and the environmental pressures affecting them. When the lecture ends, it's time to make the transition from student to participant.

After changing into waders and life vests, we headed down to the food preparation area, a white tile and stainless-steel kitchen that is entered only after cleaning one's shoes to avoid contaminating the room -- and endangering the whales' health.

We were told to reach into vats of bloody, half-frozen herring to weigh the appropriate snack for each of the three beluga whales to be put through their paces.

Hauling the coolers of herring, we trundled outside for the training session. Only this time, instead of watching from the dry side of the fence, two teenage boys, my husband and I were taken into the "staff only" area where two large, deep pools hold the aquarium's five belugas.

After dividing into groups, each with a trainer, we were told to kneel at the water's edge. Moving slowly so as not to startle the whale, we followed the trainer's instructions, putting the beluga through a series of manoeuvres that allows it to be examined up-close for signs of injury or illness.

The whale presented its tail, belly and each side in turn. We saw the blowhole, which the whale manipulates to change its sound, and the dorsal ridge. (Belugas, unlike other whales, don't have dorsal fins.)

Caught off guard

We were allowed to touch the "melon," the distinctive bump on the top of the head that is believed to be used for navigation. We were caught off guard when the whale wiggled it back and forth. We were even told to give the whale a scratch on the tongue.

Then came the grand finale. We were led to another part of the pool, where I stepped out on a platform above the water and was told to hold my arm straight out in front of me.

I was oblivious to the crowd. Instead, all of my attention was focused on the ton of white whale in the water beneath me. At the trainer's signal, the whale rocketed upwards, rising more than five feet out of the water until it touched my outstretched hand. Afterwards, I rewarded her with the requisite herring.

# Article A

cons

## Bjossa the orca is dead

UPDATE: Whitewings, who was Bjossa's companion for many years before she was moved to SeaWorld, has died in captivity at Vancouver Aquarium.

Bjossa the orca, moved from Vancouver Aquarium to Seaworld San Diego, is dead. Bjossa was featured extensively in CAPS Release magazine and on our website after CAPS Director Diane Westwood saw her when she visited Vancouver Aquarium in October 1999.

The following newspaper accounts were sent to CAPS by Annelise Sorg from Coalition for No Whales in Captivity, based in Vancouver.

### **Bjossa dies at SeaWorld after long illness** **Frank Luba, Vancouver Province** **Tuesday, October 09, 2001**

Changing her treatment yesterday wasn't enough to save Bjossa, the ailing killer whale relocated in April from the Vancouver Aquarium to San Diego's SeaWorld.



Performing at Vancouver Aquarium.  
© Dave Edwards/CAPS

The 25-year-old orca died late in the afternoon after what SeaWorld spokesman Bob Tucker called "a last ditch change in treatment."

Bjossa has been suffering from a chronic respiratory ailment during her last days in Vancouver. After seemingly adjusting to life in California, she had what Tucker termed "a near-death experience" Aug. 20 but survived. Then this weekend SeaWorld staff noticed a change in Bjossa's behaviour.

"She became more lethargic," said Tucker.

An autopsy was carried out last night but Tucker said the results won't be available for several weeks. Vancouver Aquarium spokeswoman Angela Nielsen sent out a short press release on the death yesterday. A press conference is planned for today.

"We're obviously deeply saddened by the news," said Nielsen.

But the news was what the Coalition For No Whales In Captivity had predicted. Longtime Coalition spokeswoman Annelise Sorg was too overcome with emotion to speak to the media. But Doug Imbeau, another Coalition spokesman, blasted the aquarium for its treatment of Bjossa.

"The Coalition and Annelise have said for quite some time that the aquarium was pawning Bjossa off on SeaWorld," said Imbeau.

The bad publicity of Bjossa's death is minimized because it happened at SeaWorld, which has nine other killer whales all named Shamu, said Imbeau.

continued

"A Shamu never dies, is what happens in San Diego," he said. "We've cut at least 50 years out of her life expectancy by stuffing her in a bathtub."

**Chronic lung infection claims killer whale**  
**Chris Nuttall-Smith, Vancouver Sun**  
**Tuesday, October 09, 2001**

Bjossa, the female killer whale who lived at the Vancouver Aquarium for 20 years before being transferred last April to SeaWorld in San Diego, has died.

The Vancouver Aquarium announced in a brief news release that Bjossa died late Monday afternoon. The statement said SeaWorld will conduct a post-mortem in the coming weeks to determine the exact cause of death, but Bjossa suffered a chronic lung infection for more than a year and a half.

SeaWorld spokesman Bob Tucker said the 2,500-kilogram orca died in a behind-the-scenes pool where she had been moved when her lung infection worsened in August.

"Over the weekend she became lethargic and her diet decreased and (Monday), despite our best efforts to try and turn her around, she took a turn for the worst and passed away," Tucker said. "She just went real quick and we don't think there was a whole lot of pain or anything. We're obviously very saddened and our hearts go out to the folks in Vancouver who had a longtime relationship with her."

The whale's transfer to Sea World ended an era for the Vancouver Aquarium, which until last spring had had a captive killer whale program for 30 years. Aquarium staff had tried to find a companion for Bjossa, but were prevented by park board rules from buying a whale caught in the wild.

Aquarium president John Nightingale said in an interview last August that several offers came in to buy the whale, whose economic value as a draw for aquarium visitors had been estimated at \$1 million Cdn. Nightingale said facilities in France, Japan and the U.S. were willing to pay for Bjossa, but her welfare came first, and each offer had drawbacks that made him uncomfortable enough to refuse. She was later given, not sold, to the San Diego facility.

Fred Jacobs, a SeaWorld spokesman, said at the time that Bjossa would take on the name "Shamu," and would perform tricks and join SeaWorld's breeding program. But by August, the whale was seriously ill. Trainers in San Diego alerted Vancouver Aquarium staff about Bjossa's poor health in early August, after a low-grade respiratory condition began to worsen. The aquarium's Monday news release said Bjossa's health had been improving recently.

"With the help of antibiotics and round-the-clock care, Bjossa's behaviour and appetite showed improvement over the past several weeks, but her overall chronic condition never improved," the statement said.

Doug Imbeau, a spokesman for the Coalition for No Whales in Captivity, said the move to San Diego was too traumatic for Bjossa, who had to share her new home with eight other whales and become accustomed to new trainers.

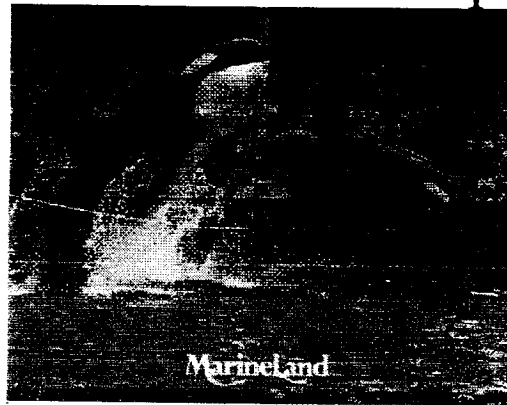
"Someone like Bjossa who should have lived certainly into her 70s or probably into her 90s in the wild is dead in her 20s, a very, very young victim of captivity," he said.

During her years in Vancouver, which began in 1980, Bjossa gave birth to three calves, all of whom died. The longest-lived was K'yosha, born in 1992, who lived 97 days.



# Article B cons

## Orcas Deceased In Captivity



### M

Name	Sex	Ca/Bo	Facility	Date	Time Captive	Cause of Death
	F	11/61	Marineland, Ca	11/61	1 Day	Pneumonia
Moby Doll	M	7/64	Vancouver, BC	10/64	3 Months	Drowning
Namu	M	6/65	Seattle, Wa	7/66	1 Year	Clostridium Perfringers, Drowning
Shamu	F	10/65	Sea World, Ca	8/71	6 Years	Pyometra, Septicemia
Skana	F	2/67	Vancouver, BC	10/80	13.5 Years	Mycotic Infection
Ramu	M	2/67	Sea World, Fl	1/82	15 Years	Cardiovascular Decompostion
Kilroy	M	2/67	Sea World, Ca	9/78	11 Years	Gangrenous Pneumonia
Katy	F	2/67	Seattle, Wa	5/67	3 Months	
Kandu	F	2/67	Sea World	6/71	4 Years	Liver Necrosis, Pneumonia
Orky	M	7/67	Marineland, Ca	7/69	2 Years	Pneumonia
Lupa	F	2/68	New York	9/68	7 Months	Resperatory Disorder
Hugo	M	2/68	Miami, Fl	3/80	12 Years	Aneurysim of the Brain
Natsidaila	F	4/68	Vancouver, BC	11/68	7 Months	Heart Failure
Hyak 2	M	4/68	Vancouver, BC	2/91	22 Years	Pnuemonia
Corky	F	4/68	Marineland, Ca	12/70	2.5 Years	Medistinal Abcess
Orky 2	M	4/68	Sea World, Ca	9/88	20 Years	Acute Pnuemonia, Chronic Wasting
Kianu	F	4/68	World Safari, Jap	6/80	12 Years	Gastrointestinal Disorder
Bonnie	F	4/68	Marineworld,	8/68	4 months	Stillbirth Complications
Tula	M	7/68	Dolfinarium, Hol	10/68	3 Months	External Fungus
Mamuk	M	10/68	Sea Arama, Tx	6/74	5.5 Years	
Ahab	M	10/68	US Navy	1974	5.5 Years	
Haida	M	10/68	Sealand, Can	10/82	14 Years	Airborne Staphylococcus

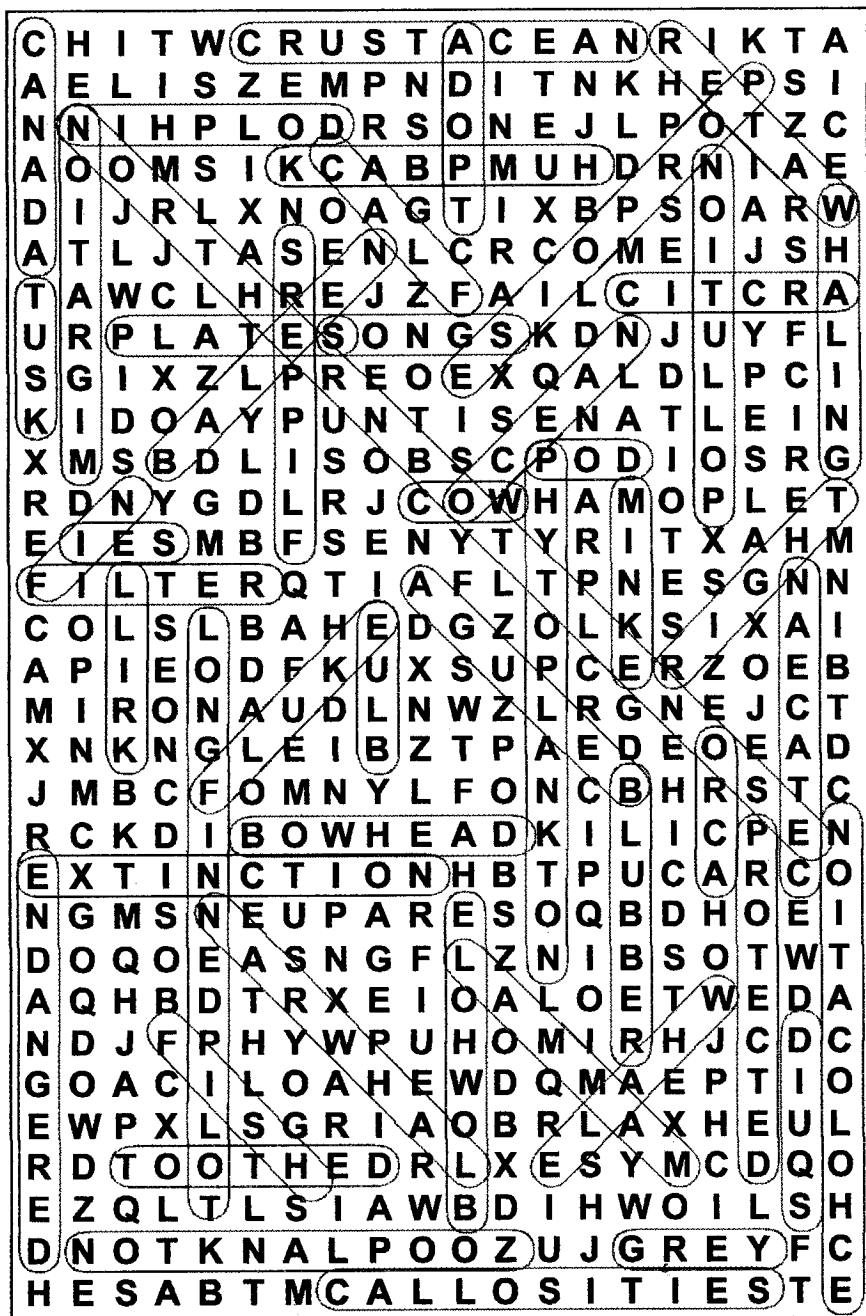
# Whale Word Search Challenge

Are You Ready for the Whale Word Search Challenge? – How many words can YOU find? Be sure to look up, down, across and diagonally! And when you're through, try out some of the other activities outlined on the next page! You're in for a *whale* of a time!

C H I T W C R U S T A C E A N R I K T A  
 A E L I S Z E M P N D I T N K H E P S I  
 N N I H P L O D R S O N E J L P O T Z C  
 A O O M S I K C A B P M U H D R N I A E  
 D I J R L X N O A G T I X B P S O A R W  
 A T L J T A S E N L C R C O M E I J S H  
 T A W C L H R E J Z F A I L C I T C R A  
 U R P L A T E S O N G S K D N J U Y F L  
 S G I X Z L P R E O E X Q A L D L P C I  
 K I D O A Y P U N T I S E N A T L E I N  
 X M S B D L I S O B S C P O D I O S R G  
 R D N Y G D L R J C O W H A M O P L E T  
 E I E S M B F S E N Y T Y R I T X A H M  
 F I L T E R Q T I A F L T P N E S G N N  
 C O L S L B A H E D G Z O L K S I X A I  
 A P I E O D F K U X S U P C E R Z O E B  
 M I R O N A U D L N W Z L R G N E J C T  
 X N K N G L E I B Z T P A E D E O E A D  
 J M B C F O M N Y L F O N C B H R S T C  
 R C K D I B O W H E A D K I L I C P E N  
 E X T I N C T I O N H B T P U C A R C O  
 N G M S N E U P A R E S O Q B D H O E I  
 D O Q O E A S N G F L Z N I B S O T W T  
 A Q H B D T R X E I O A L O E T W E D A  
 N D J F P H Y W P U H O M I R H J C D C  
 G O A C I L O A H E W D Q M A E P T I O  
 E W P X L S G R I A O B R L A X H E U L  
 R D T O O T H E D R L X E S Y M C D Q O  
 E Z Q L T L S I A W B D I H W O I L S H  
 D N O T K N A L P O O Z U J G R E Y F C  
 H E S A B T M C A L L O S I T I E S T E

- adopt
- arctic
- baleen
- beluga
- blowhole
- blubber
- blue
- bowhead
- calf
- callosities
- Canada
- cetacean
- cow
- crustacean
- dolphin
- echolocation
- endangered
- extinction
- filter
- fin
- fish
- flippers
- fluke
- grey
- humpback
- krill
- long-finned pilot
- mammal
- migration
- minke
- narwhal
- northern bottlenose
- ocean
- orca
- phytoplankton
- plates
- pod
- pollution
- porpoise
- protected
- right
- sei
- songs
- squid
- toothed
- tusk
- water
- whale
- whaling
- zooplankton

# Whale Word Search Challenge Answer Sheet



- adopt
- arctic
- baleen
- beluga
- blowhole
- blubber
- blue
- bowhead
- calf
- callosities
- Canada
- cetacean
- cow
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- protected
- right
- sei
- songs
- squid
- toothed
- tusk
- water
- whale
- whaling
- zooplankton

## Marine Mammals - Whale Words

-4-

This exercise will give you the opportunity to see how well you and your group members know their whale words! These can be long or short, whatever you think. The goal is to use your imagination! You might just trick your group into thinking one of your fake definitions is true! If you are successful, you will earn the most points in your group!

### Steps

- 1) Arrange yourself into a group of 4 students. Decide as a group which 6 words you will each be responsible for.
- 2) Your job is to write down the real dictionary definition of the word, and two other definitions that you think sound like reasonable definitions.
- 3) When recording the definitions, label each answer a, b, or c. Try to mix up the order so that it is not so easy a task for your group to make the correct choice. (The template for your definitions is on the next page.)
- 4) Once each of your 6 words have 3 definitions, you are ready to join back with your group and see who really knows their words about whales!

adopt arctic baleen beluga blowhole blubber bowhead blue-whale calf callosities  
cetacean cow crustacean dolphin echolocation endangered extinction filter fin fish  
flippers fluke grey-whale humpback-whale krill long-finned pilot mammal migration  
minke narwhal northern bottlenose ocean orca phytoplankton plates pod pollution  
porpoise protected right sei songs squid toothed tusk water whale whaling  
zooplankton

\*See Ms. Haveman for the rules and score sheets for *Word Challenge* before you begin.

Make sure you know what the right answers are for when it comes time to add up your group scores. Then, use this sheet when you start the game with your group.

1. \_\_\_\_\_

- a)
- b)
- c)

2. \_\_\_\_\_

- a)
- b)
- c)

3. \_\_\_\_\_

- a)
- b)
- c)

4. \_\_\_\_\_

- a)
- b)
- c)

5. \_\_\_\_\_

- a)
- b)
- c)

6. \_\_\_\_\_

- a)
- b)
- c)

## Marine Mammals - Characteristics

-1-

Read the passage about marine mammals. The chart below is divided into 3 categories: Carnivora, Sirenia, and Cetacea. Using the resources available in class, your library materials, or the Internet, choose any one mammal from each category to investigate.

In each box, record 2 important points about each topic that is listed on the left of the chart.

	<b>CARNIVORA</b>	<b>SIRENIA</b>	<b>CETACEA</b>
<b>PHYSICAL TRAITS</b>			
<b>DIET/FEEDING</b>			
<b>HABITAT</b>			
<b>REPRODUCTION</b>			
<b>SURVIVAL STRATEGIES</b>			



## Ocean Life: Mammals -Characteristics

Mammals are a group of vertebrates (animals that have a backbone). Certain characteristics separate them from all other animals: mammals breathe air through lungs, give birth to live young, produce milk for their young, are warm-blooded, and have hair or fur. They also have relatively large brains and a variety of tooth sizes and shapes.

Marine mammals have adapted to life in the ocean. More than 100 mammals depend on the ocean for most or all of their life needs. Marine mammals have all the characteristics of mammals, but they have different appearances and survival strategies.



A group of walrus surf themselves on a beach (courtesy of NOAA).



A manatee cow and calf (courtesy of NOAA).

Marine mammals are divided into three orders: Carnivora, Sirenia and Cetacea. Within the order Carnivora are the pinnipeds (seals, sea lions, walruses), the sea otter and the polar bear. Polar bears are closely related to bears like the grizzly, but are considered marine mammals since they have adopted a marine lifestyle. The order Sirenia is composed of manatees and dugongs (or sea cows), and the order Cetacea includes whales, dolphins, and porpoises.

On the right is a picture of a humpback whale breaching, or jumping out of the water. Actually, this animal is feeding and has just taken a mouthful of fish, probably herring in southeast Alaska. The water drains out of the back of the mouth, leaving the fish behind to be swallowed. Breaching allows gravity to help drain the water.





## Marine Mammals - Communication

-3-

### Echolocation

Cetaceans produce two types of sound: one is for communication with other cetaceans and the other is to help them explore their environment. Both are produced as air moves in and out of nasal sacs. The most famous use of sound for communication between cetaceans is the song of the humpback whale. Cetaceans explore their environment and objects in it through the use of echolocation.

Echolocation is done by sending out pulses of ultrasonic (the frequency is too high to be heard by humans) sound through the blowhole. When the sound waves bounce off objects in their path, a portion of the signal is reflected back. Features of the returning echo offer information about distance, size, shape, texture, and material composition of an object. This system of sensing the environment is an advantage in orientation, navigation, and capturing prey in dark or turbid waters.

Echolocation enables cetaceans to 'see' with their ears by listening for echoes. The 'clicks' are made by the nasal plugs located just inside the blowhole. The clicks pass through the melon (the rounded region of the forehead) to focus the sound waves in front of the animal. The returned sound waves come back in the form of an echo. The areas of sound reception are the fat-filled cavities of the lower jaw bones. Sounds are received and conducted through the lower jaw to the inner ear and then to the large specialized hearing centers in the brain where sound is interpreted.

Use the information above to help you summarize the information about echolocation into 3 main points. With a cetacean as your model, create a diagram below that illustrates these key steps.

