

# BLUE WHALE TRAINING 2018 SUMMER SEASON

SAN DIEGO NATURAL HISTORY MUSEUM WHALERS



# Steering Committee 2018-2019

- President – **Stefanie Curtis**
- Vice President – **Sue Emerson**
- Former Presidents – **Jim Clevenger & Leslie Rapp**
- Technical Committee – **Leslie Rapp**
- Science Advisor – **Uli Burgin**
- Special Project Coordinator – **Kathy Eure**
- Special Events Coordinator – **Marilyn Wells**
- Interview Chair – **Kaylyn Waisbrot**
- Training Co-Chairs – **Leigh Anne Gibbons & Stefanie Curtis**
- Mentor Chair – **Dolores Keyes**
- Members at Large – **Mike Stewart** (seasoned) & **Robert Seipel** (newest class)



# SDNHM Whalers Sightings Data 2017 Season

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SOURCE: WHALERS SIGHTINGS LOG

AUTHOR: LESLIE RAPP

# December Sightings 2015 vs. 2016

December	2015	2016
Gray – Juveniles	4	2
Grays – Adults	116	55
Gray Mom/Calf	2	3
Humpback	0	4
PWS	112	2055
Common	253	3851
Rissos	0	5
Bottlenose	25	33
Cruises Cancelled	12	8

\*\*Dec 2016 Cruises canceled: 16<sup>th</sup>, 17<sup>th</sup>, 24<sup>th</sup> & 25<sup>th</sup>

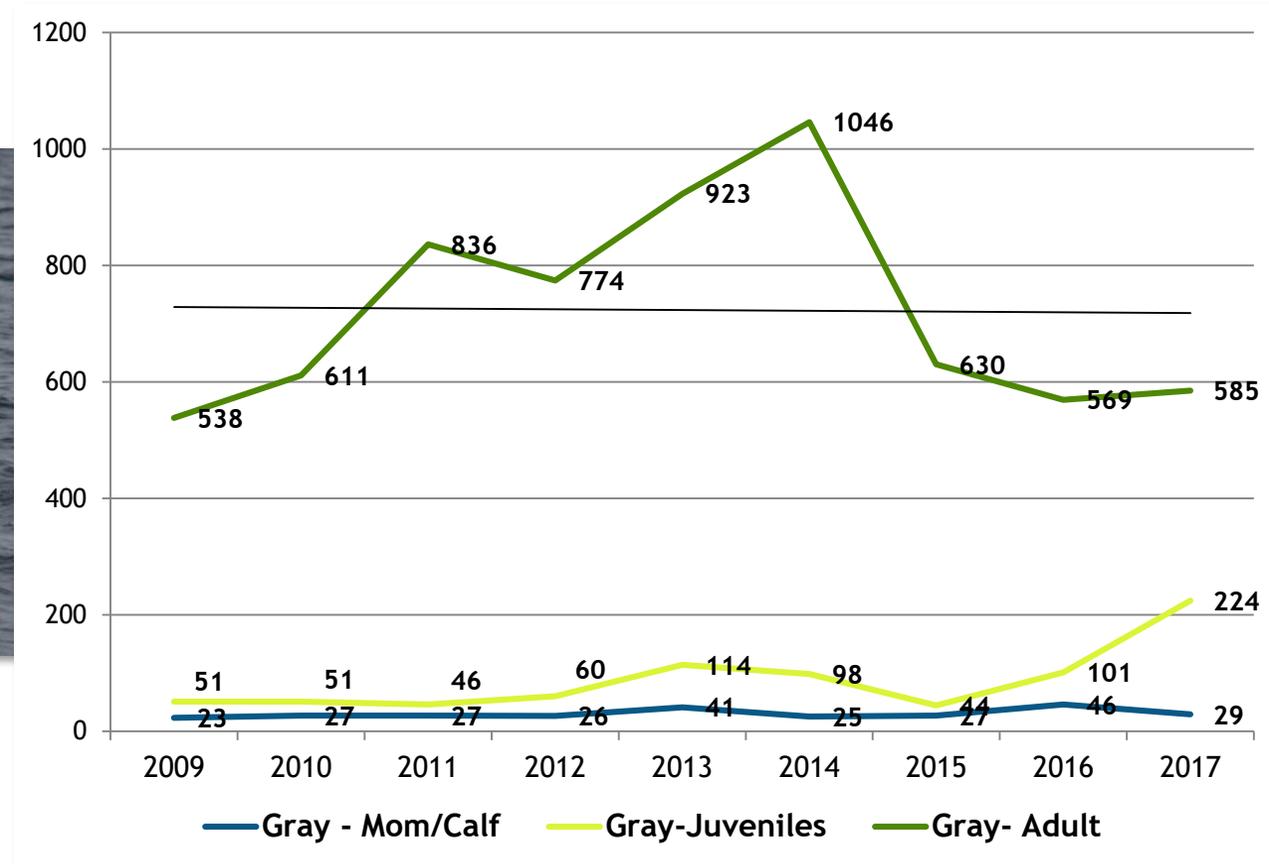
# Whale Sightings Statistics

	2009	2010	2011	2012	2013*	2014	2015	2016	2017
Gray - Mom/Calf	23	27	27	26	41	25	27	46	29
Gray-Juveniles	51	51	46	60	114	98	44	101	224
Gray- Adult	538	611	836	774	923	1046	630	569	585
Humpback	15	51	21	18	6	31	42	22	9
Fin	133	149	128	53	36	63	20	19	6
Minke	2	9	10	0	17	3	2	1	0
Blue	0	0	0	16	1	0	10	0	1
Mola Molas	8	35	23	12	16	7	4	9	2
PWS	3191	28	602	4725	1141	1578	569	5096	6696
Rissos	1326	470	449	25	879	1289	200	140	177
Bottlenose	476	334	1042	1373	1674	387	183	99	157
Common	25123	84920	37371	126836	24957	17875	12384	32740	28565
Cruises Cancelled	40	27	24	16	14	19	41	36	27

\*2013 is missing entries

\*2014-15 season – April data not included

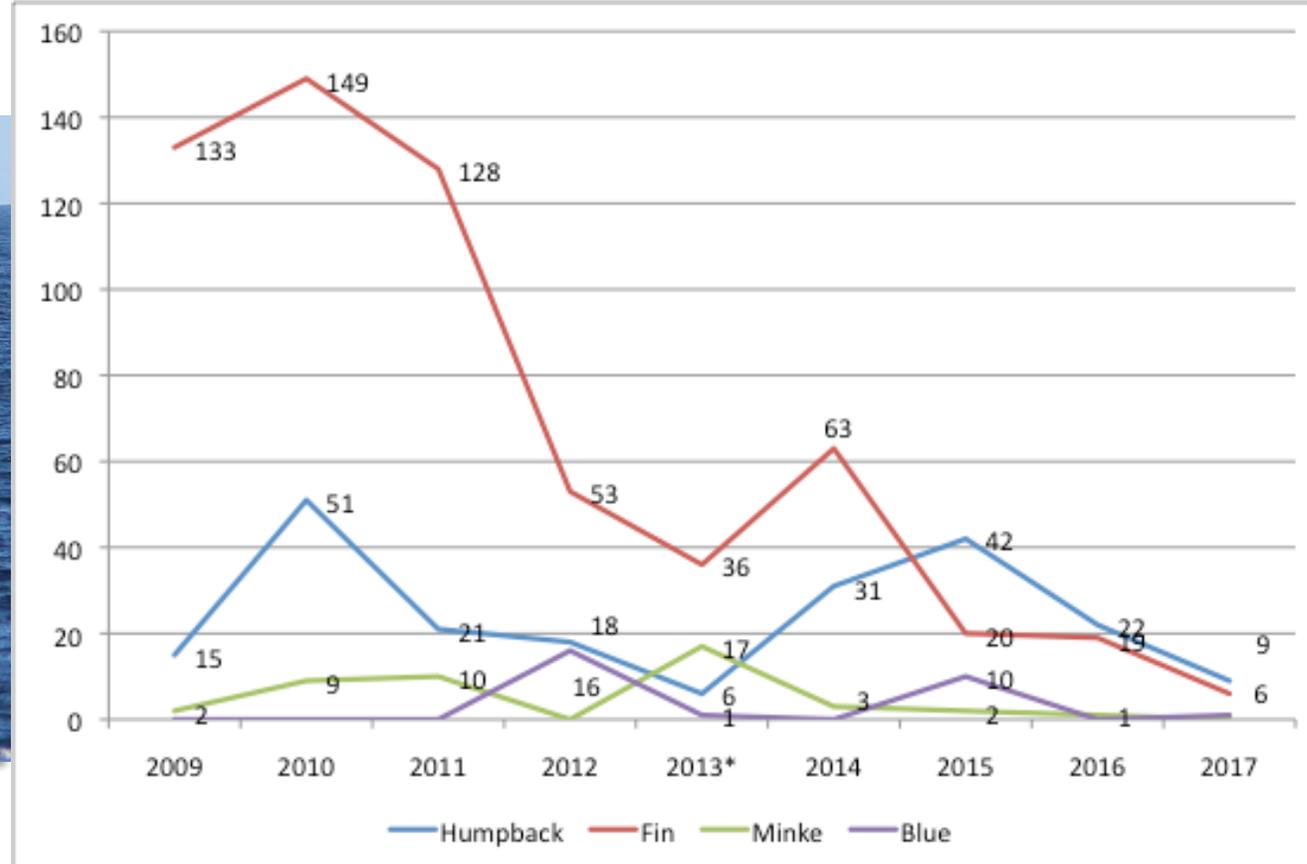
# Gray Whale Sightings



\*2013 is missing entries

\*2014-15 season – April data not included

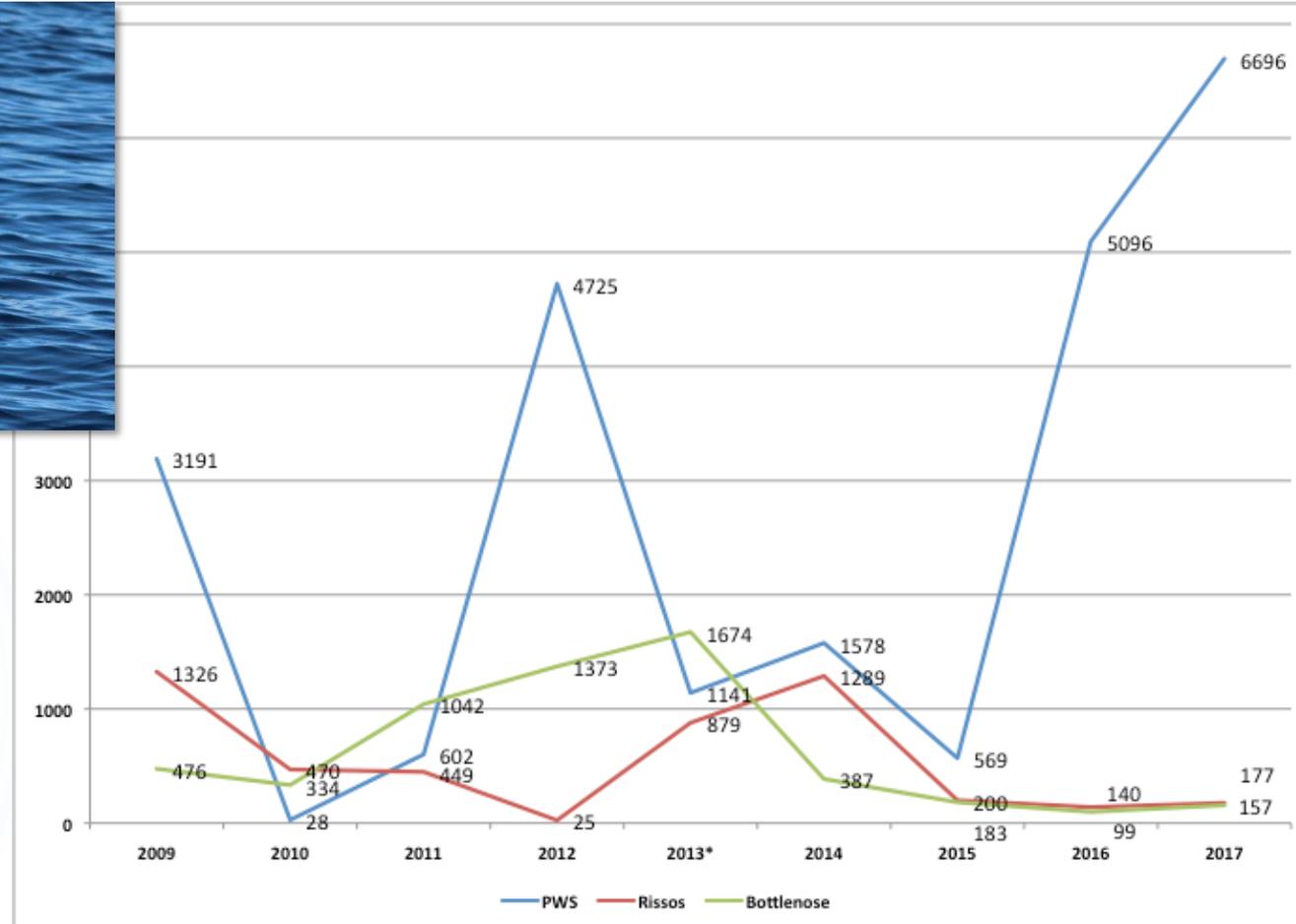
# Other Cetacean Sightings



\*2013 is missing entries

\*2014-15 season – April data not included

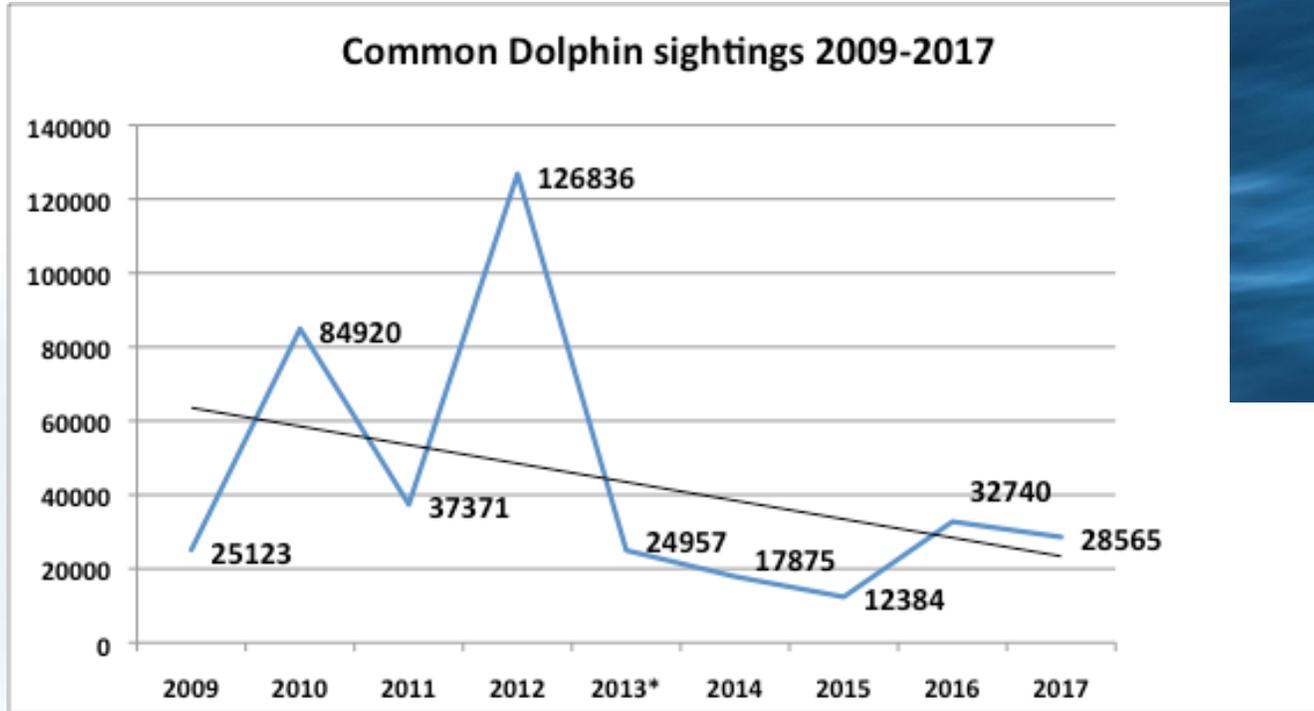
# Dolphin Sightings



\*2013 is missing entries

\*2014-15 season – April data not included

# Common Dolphin Sightings



\*2013 is missing entries

\*2014-15 season – April data not included

... Until Dec 2018....





# **Protocols for Summer 2018 Season**

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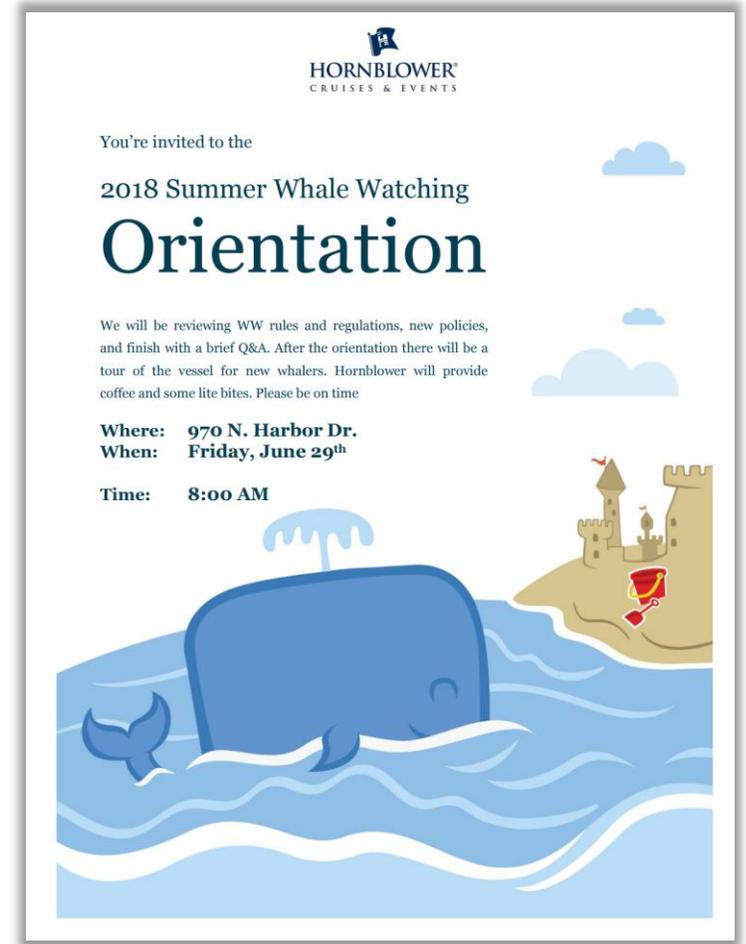
# Sign-Ups for Cruises

- After today's training, everyone may sign up for **2 cruises**
- Starting, **Wednesday, June 27<sup>th</sup>**, everyone may sign up for 2 additional cruises
- **Once announced**, everyone can sign up for as many remaining cruises available

2018 JUNE						
SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19 Sign up for 2 cruises	20	21	22	23
24	25	26	27 Sign up for 2 more	28	29 Orientation	30

# Summer Season Orientation Cruise

- You are invited to take the initial **Friday, June 29** cruise as a guest of Hornblower (optional)
- Boarding starts at 8 AM
- Complimentary coffee & pastries will be provided
- If you go on this trip, it will not count as one of your scheduled cruises **unless** you signed up for it as a volunteer



# Whaler's Presentations

- As during our winter season, whalers are expected to give a brief presentation (no more than **10 minutes**) to interested passengers toward the end of each cruise
- The following topics should be discussed:
  1. **Baleen/feeding** (use gray whale baleen; krill)
  2. **Vertebrae** (use gray whale vertebrae)
  3. **Blue Whale Protection** (previously blue whale conservation)
  4. **Ocean Conservation** (new message from gray season)

# The Biofacts & Other Materials

- The same biofacts and other materials we have available for the winter season will be in the same boxes and they will be stored in the same places



# Vertebrae Blue Whale vs. Gray Whale

- **Gray whales** have **56 vertebrae** (vs. 33 vertebrae in humans)
- **Blue whales** have **63-65 vertebrae**
- Our gray whale juvenile vertebra, with the processes extending upwards and to the sides, is 19" high (48cm) and 20" wide (51cm)
- The size of the blue whale vertebrae would depend on the size & age of the whale
- **For the presentation**, you can hold up the gray whale vertebra next to the human model and say something like this:
  - *"This is a vertebra from the middle back of a juvenile gray whale, and a model of a human vertebra. You can see that the gray whale vertebra is huge compared to the human one. As you can imagine, the vertebra of a blue whale would be even much larger than this!"*
  - *A juvenile gray whale measures about 25 - 30' in length, a fully grown blue whale (in the northern hemisphere) 75 – 90', that is three times as long. So a blue whale vertebra could be about three times the size of this one."*
- You can demonstrate this by **spreading out your arms**

# Volgistics

- You can now remove yourself the **night before** a cruise
- Links to important information can be found on the home page
- **Don't forget to log your hours!!!**

The screenshot shows a web browser window displaying the volunteer portal for Stefanie Curtis at the San Diego Natural History Museum. The page features a navigation menu with links for Home, Mail, My Profile, My Schedule, My Service History, Time Sheet, and Account. On the left side, there are buttons for 'Check your schedule', 'Post your hours', 'Check messages', and 'Sign-up'. Below these buttons, there is a list of links for 'Museum Whaler Cruise', 'Museum Whaler Meeting / Continuing Education', and 'Museum Whaler Program Support'. A 'Museum Information' box contains links for 'Strategy Roadmap 2017', 'Museum Contacts', and 'Emergency Procedures'. A green 'Exit' button is located at the bottom left. On the right side, there is a section for 'Museum Whaler Information' with links for 'By Laws', 'Museum Script and Job Descriptions', 'Blue Whale Facts', and 'Conservation Message'. Below this is a 'Docent Programs' section with links for 'School and program information', 'Group Admissions June 11-15', 'Group Admissions June 18-22', and 'Docent Outreach Calendar June 15'. A red box highlights the 'Museum Whaler Information' section. At the bottom right, there are links for 'Close This Window' and 'Privacy Policy'.

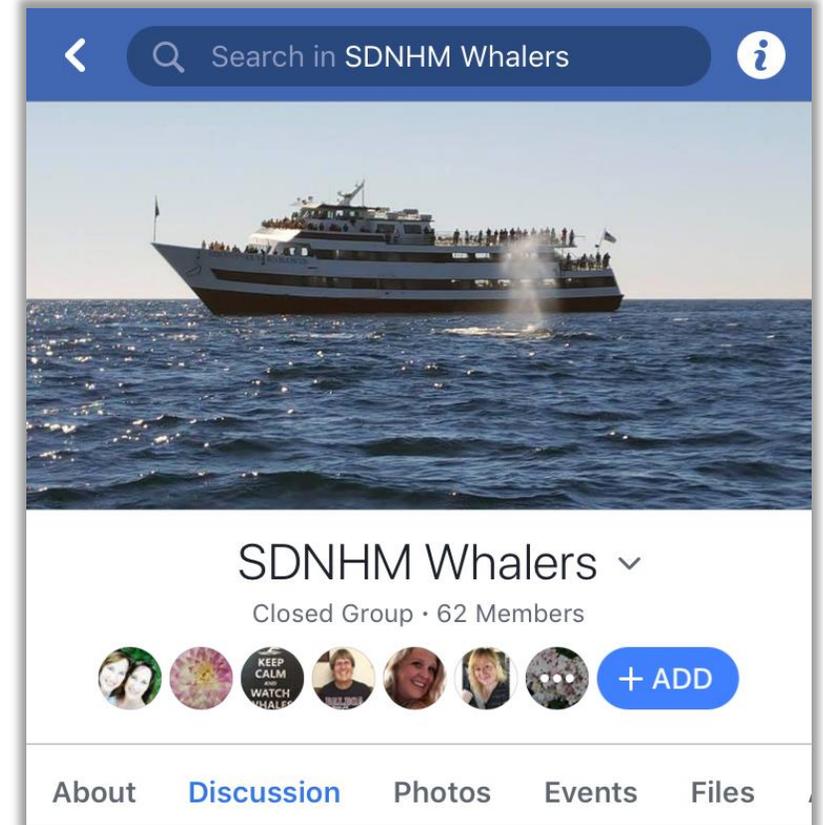
# SDNHM Intranet

- Remember, this is a great resource!
- [www.sdnhm.org/sdnatvolunteers](https://www.sdnhm.org/sdnatvolunteers)
- Janet includes the link in her newsletters

The screenshot shows the SDNHM Intranet website at <https://www.sdnhm.org/sdnatvolunteers>. The page features a dark header with the "intranatvolunteers" logo and social media icons. Below the header is an orange navigation bar with links for Home, Volunteer Events, Gallery, Reference Materials (highlighted with a red box), and Volunteer Benefits. The main content area is titled "Volunteers at theNAT" and contains two articles: "June Volunteer News" (dated May 29, 2018) and "Science in Action: Nazca Booby found" (dated May 18, 2018). A "Read More" link is visible under the second article. On the right side, there is a "Volgistics" section with a "Log in" button (highlighted with a red box) and a "Contact Us" section listing Janet M. Morris, Director of Volunteer/Intern Services, with contact information: 619.255.0245 and [jmorris@sdnhm.org](mailto:jmorris@sdnhm.org). A red arrow points from the "Log in" button down to the "Contact Us" section.

# Miscellaneous Stuff

- Whalers should record the day's sightings
- The log book will be in the usual place
- Hornblower has requested that we report to **Rebecca Milkey** and **Patricia Schick** on each cruise's sightings as we do in the winter. Report forms will be available in the log book
- Reminder! The Whalers' page on Facebook is **SDNHM Whalers**. It has lots of photos and some other info



# Miscellaneous Stuff (continued)

- If you have issues with letters peeling on your jacket, please contact **Kathy Eure**
- **SAVE THE DATE!** We will have a picnic **Saturday, September 29<sup>th</sup>** to celebrate the end of the season and welcome the new whalers (more details to come)



# Blue Whale Facts

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CONTENT COMPILED BY: JIM CLEVINGER

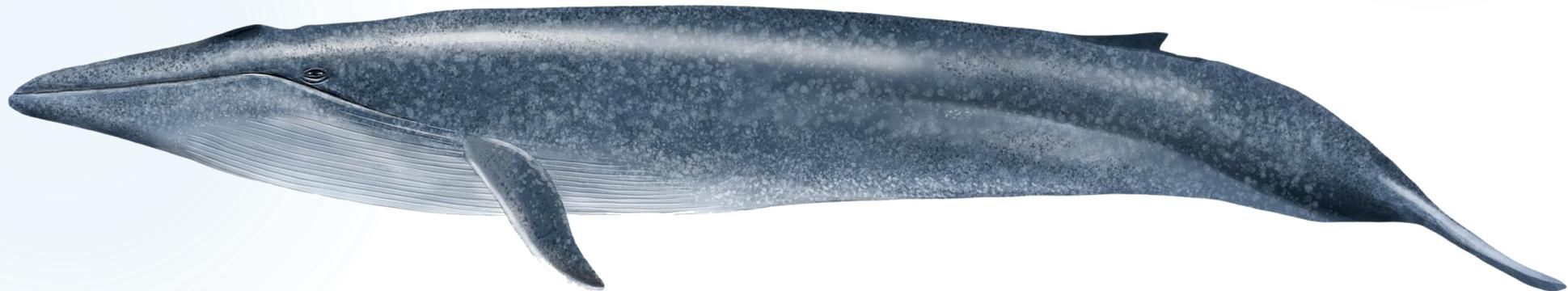


# Blue Whale Facts

- The information on the following slides is provided to insure we all present a **common body of knowledge** to passengers
- If you wish to add to your knowledge base, there are several excellent sources available online, including the American Cetacean Society and NOAA
- However, please do NOT provide any information to passengers that contradicts the info on your fact sheet

# Size and Appearance

- The blue whale is believed to be the **largest animal** ever to live on the Earth
- Blue whales can grow:
  - up to **90 feet** in the **Northern Hemisphere**
  - up to **100 feet** long in the **Southern Hemisphere**
- Blue whales can weigh up to **200 tons**, though most weigh much less than that (**100-150 tons**)



# Size and Appearance (continued)

- Blue whales have **long, tapered, streamlined, smooth bodies**, with a very small dorsal fin situated well back toward the tail.
- They are **bluish-gray** in color, often with **lighter gray mottling** on the skin. They appear to be aquamarine in color when seen under the surface of the water.
- Whalers referred to blue whales as “**sulfur bottoms**” because their undersides often have a **yellowish tinge** caused by the presence of microscopic animals called diatoms.

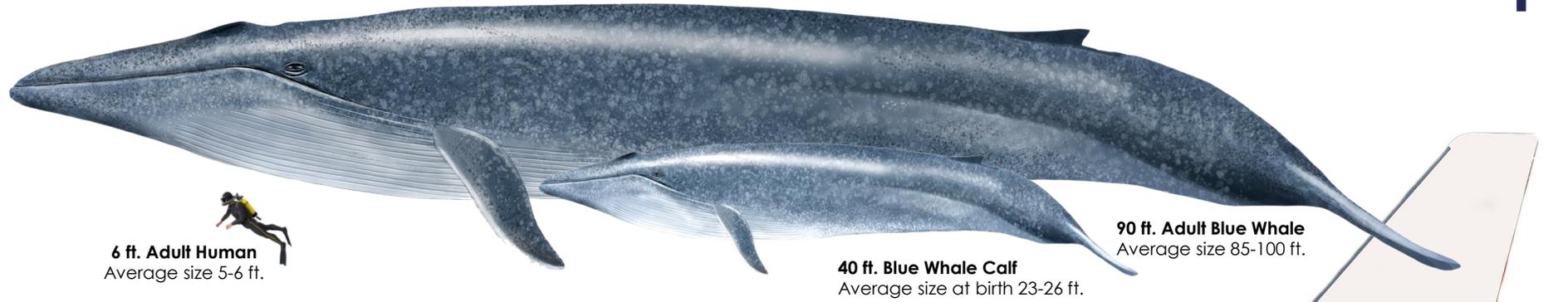
# Size and Appearance (continued)

## A blue whale's...

- **Tongue** weighs up to **three tons**
- **Heart** is as big as a small car
- **Aorta** is large enough for a **small child to crawl through**
- **Tail fluke** is **25 feet** wide
- **Spout** or “blow” can reach **30 feet** in height (is narrow and columnar)



# Size Comparison



**6 ft. Adult Human**  
Average size 5-6 ft.

**40 ft. Blue Whale Calf**  
Average size at birth 23-26 ft.

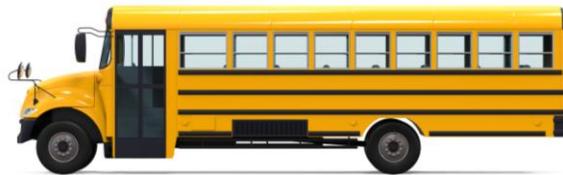
**90 ft. Adult Blue Whale**  
Average size 85-100 ft.



**100 ft. Mid-Sized Airplane**  
Average Boeing 737 102-138 ft.



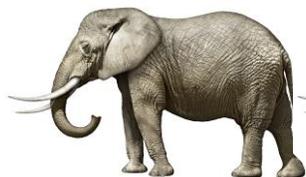
**30 ft. School Bus**  
Average size 12-40 ft.



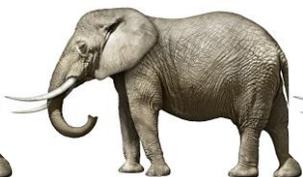
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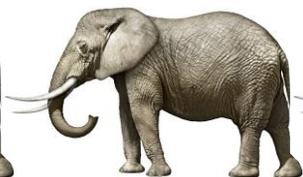
**30 ft. School Bus**  
Average size 12-40 ft.



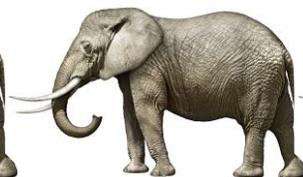
**15 ft. African Elephant**  
Average size 12-22 ft.



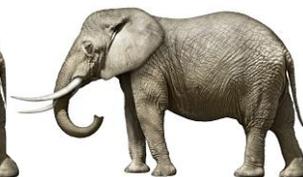
**15 ft. African Elephant**  
Average size 12-22 ft.



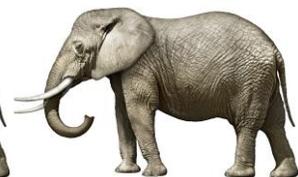
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**15 ft. African Elephant**  
Average size 12-22 ft.



**15 ft. African Elephant**  
Average size 12-22 ft.



**15 ft. African Elephant**  
Average size 12-22 ft.

# Feeding

- Blue whales are **baleen whales**. The baleen of blue whales is normally **black** in color and **20-40 inches** long
- They have **260-400** baleen plates on each side of their upper jaw
- Blue whales are rorqual whales, which means they have **several dozen throat pleats** that allow them to expand their throats to take in many tons of seawater as they feed
- They then expel the water and their prey is trapped on the baleen and swallowed

# Feeding (continued)

- Blue whales eat mostly **krill**, small shrimp-like animals, which they catch by **lunge feeding**
- They can consume up to **four tons of krill per day (= 40 million krill)**
- They feed by diving down (sounding) several hundred feet, then swimming up in the water column
- A sounding blue whale can stay submerged for up to **20 minutes**, but a more typical time is around **10 minutes**



Living krill

# Lifespan and Reproduction

- Blue whales have an estimated **lifespan** of up to **90 years**
- Blue whales reach **sexual maturity** at **5-15 years**
- A female blue whale's **gestation** period is **11-12 months**
- Females bear a **calf** every **2-3 years**

# Blue Whale Calves

- **Weighs** about **three tons at birth** and is **23-26 feet** long
- **Drink** about **100 gallons of milk per day** and can gain as much as **200 pounds per day**
- Are **weaned at 6-8 months**

# Speed and Sound

- Blue whales' **cruising speed** is about **12 miles per hour**, but they can reach **30 miles per hour** in **short bursts**
- Blue whales are the **loudest animals** in the ocean
- Their calls can travel **hundreds of miles** through the water



# Range

- Blue whales are found **throughout the world's oceans**. However, the **largest concentration** of these whales can be found off the **coast of California**—an estimated **2,000-3,000**
- Blue whales typically **feed in the lower latitudes** (= cooler water) and **mate and give birth in the higher latitudes** (= warmer water)
- It is believed that the California population of blue whales may **winter off the Pacific coast of Central America**, in an area of warm water known as the **Costa Rica Dome**

# Status and Conservation

- Blue whales are an **endangered species**, having been **hunted nearly to extinction** in the early 20<sup>th</sup> century
- Although blue whales have been protected from whaling since 1966, their population has not made as rapid a recovery as some other whale species. Their **current global population** is estimated to be about **10,000**
- Blue whales have **few natural enemies**, primarily killer whales. However, they face **threats from ship strikes, habitat degradation, anthropogenic noise, pollution, and climate change**



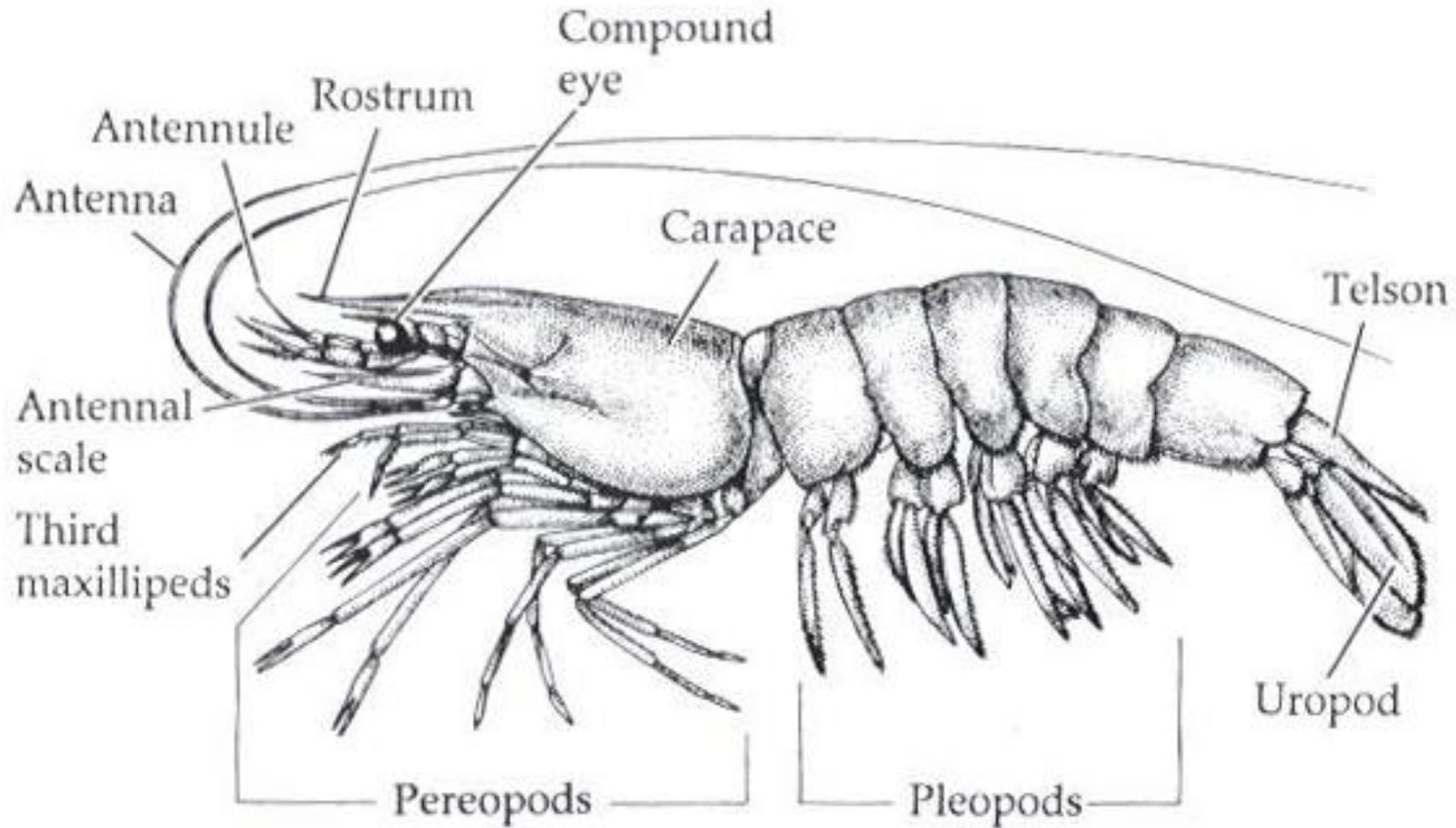
# License to “Krill”

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CONTENT PREPARED BY: ULI BURGIN

TITLE BY: STEFANIE CURTIS

# Krill Anatomy





[www.youtube.com/watch?v=OcSUGhZmycM](https://www.youtube.com/watch?v=OcSUGhZmycM)



[www.youtube.com/watch?v=OPMQaP\\_Yj1Y](http://www.youtube.com/watch?v=OPMQaP_Yj1Y)



[www.youtube.com/watch?v=J7SU\\_4Orym4](https://www.youtube.com/watch?v=J7SU_4Orym4)

5:38 min mark



[www.youtube.com/watch?v=YARe1etnNZE](https://www.youtube.com/watch?v=YARe1etnNZE)

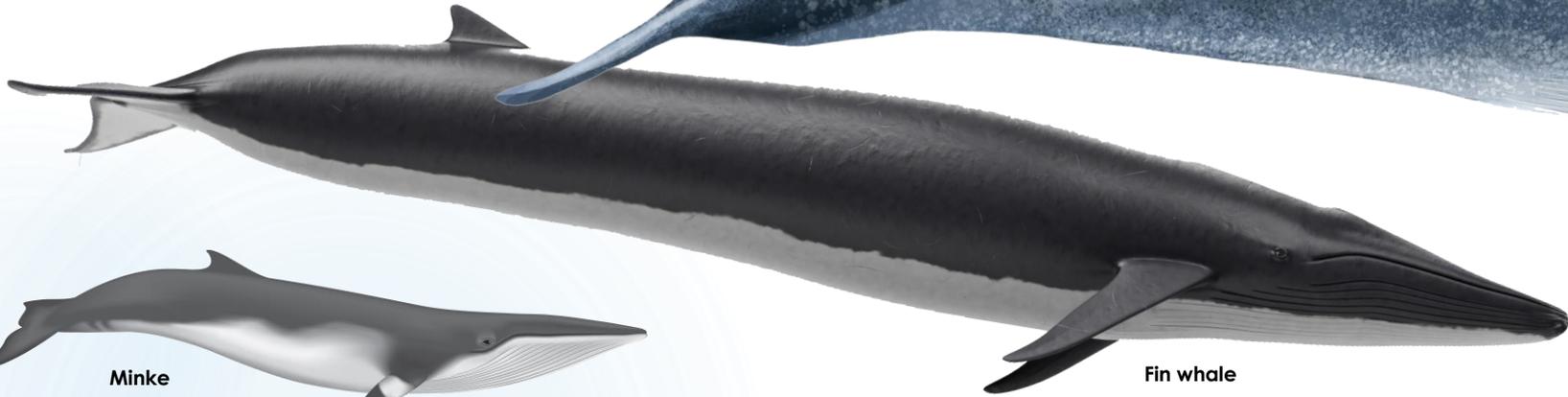
# Other Whales of San Diego

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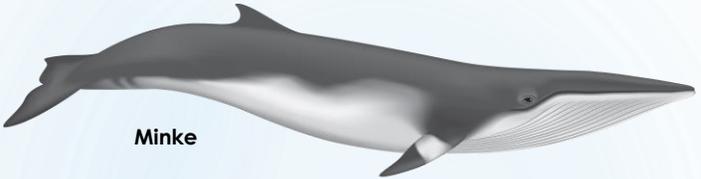
# Whales of San Diego



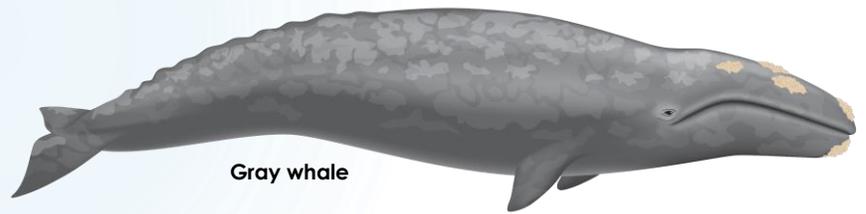
Blue whale



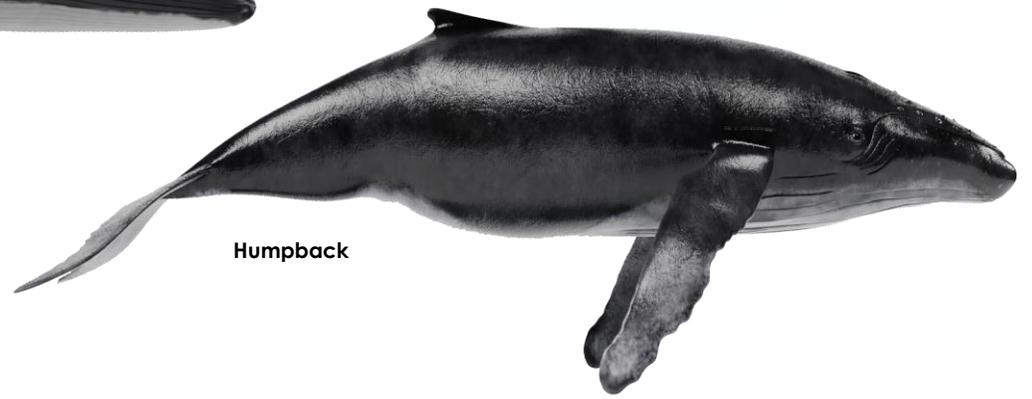
Fin whale



Minke



Gray whale



Humpback

	Blue Whale	Fin Whale	Humpback	Minke	Gray
Adult Length	Northern hemisphere 85' Southern hemisphere 100'	78-85'	40-48'	26-35'	45-46'
Adult Weight	120-150 tons	50-70 tons	25-40 tons	10 tons	30-40 tons
Blow	30'	20'	15' bushy	May not be visible	Up to 15'
Fluke	25'	25' (rarely seen)	18'	5-6' (rarely flukes)	10-12'
Throat Grooves	55-68	50-100	14-24	50-70	N/A
Baleen	260-400 per side Usually black Length 20-40"	260-470 per side Blue-gray on left; White on right Length 36"	270-400 per side Black Length 30"	280-300 per side Yellowish Length 11"	130-180 per side Off white
Lunge Feeding	Lunge feed Krill Up to 4 tons/day (40 million krill)	Lunge feed Krill & schooling fish 2 tons/day	Lunge feed & Bubble net Krill, fish Up to 1.5 tons/day	Lunge feed Krill, fish	Bottom feed on amphipods
Gestation	11-12 mo. Nurse 7-8 months	11-12 months Nurse 6-8 months	12 months Nurse 1 year	10-11 months Nurse 6 months	12-30 months
Calf Length Weight	23' 3 tons	14-20' 2 tons	10-15' One ton	10' 1,000 lbs	15' 1,000-1,500 lbs
Speed	Usually 12 mph (can do bursts up to 30 mph)	Up to 23 mph (greyhound of the sea)	Slow moving	16-20 mph	3-5 mph
Population	2-3000 (in Northern Hemisphere)	N/A	30-40,000	> 1 million	~ 18,000

# Questions

