



SEYMOUR CENTER AT LONG MARINE LAB

## Ms. Blue's Measurements



Based on 100 ton weight projection for Ms. Blue

(Some information given on fin whales when same information for blue whales not available)

## Measurements

### General:

- **Length** 86 feet 10 inches
- **Weight** 100 tons (perhaps increasing to 150 tons at the end of the summer feeding season.)
- **Birth weight** 3 tons
- Length at birth 25 feet
- 18- decibel whistle of the blue whale is the **loudest recorded sound** made by an animal



### **Specific:**

- **Skeleton** weighed 17 tons
- **Tongue** weighs 5000 to 8000 pounds (as much as an adult elephant)
- **Tongue** extended the length of the mouth (~18 feet)
- **Tongue** palate and baleen are black
- **Baleen** weighed 400 pounds
- Water would enter the **mouth** at a rate of 5-20 tons per second
- **Blood** supply 5000 gallons
- **Brain** weighed 15.25 pounds
- **Blowhole** is 20-40 feet in diameter as well as 20-40 feet deep
- Blue whales have 6 inches thick **blubber**. The blubber is not uniformly thick on the whale
- **Trachea** is more than a foot in diameter
- **Pharynx and esophagus** diameter normally 4-5 inches, a blue whale can “probably” expand the esophagus to 10 inches
- **Lungs** weighs 2000 pounds
- **Diaphragm** horizontal to aid buoyancy, it extends forward to the sixth rib
- **Heart** weighs 1000 pounds
- Diameter of the **aorta** was 9 inches
- **Muscles** weighed 40 tons
- The **mandibles** of a blue whale are the largest single bones that have ever existed (the mandibles are 19 feet long in our blue whale).
- **Intestines** are 450-500 feet long
- **Liver** weighs 1 ton
- **Vibrissae** has 50-60 hairs
- 400 **nerves** are supplied to every hair
- **Bladder** of a fin whale holds 5.5 gallons of urine
- **Blubber** varied from less than 20% up to 35% of total weight (usually 20-35 tons)
- **Dorsal Blubber** is particularly thick with fat content, about 80%
- **Average Blubber** contains 60% fat



## **Swimming and Diving:**

- Maximum **swim speed** of 20-48 km/hr while being chased or harassed (12-30 mph)
- Normally make 10 – 20 **shallow dives** at 12 – 20 sec intervals followed by a **deep dive** of 10 – 30 min.
- **Lifts tail** higher than 10 feet when making a deep dive
- **Dive average** is 200 feet, occasionally to 600 feet
- Can stay down for up to 40 – 50 min.
- **Ribs** are one headed or floating after the 4<sup>th</sup> rib to allow great mobility during diving, when they are compressed
- **Swim speed** during migration is between 5-20 mph



## **Feeding:**

- When **feeding** eats about three tons of krill per day, equal to 2,750,000 calories, and gains about 90 pounds per day
- **Stomach** could hold over a ton of krill (some estimate two tons)
- Stomach has 3 sections
- In three to four hours, the krill ingested can be reduced to the consistency of a thin gruel
- There are 400 **fringe bristles** or “shafts” forming a semicircle in front of the palate, connecting the baleen rows on the left and right sides.
- Tongue turns inside out when the whale lunges during feeding
- Engulfs over 200 cubic feet of sea water (70 tons or 11' X 11' X 8' rooms)
- Vibrissae used to detect krill density and determine when to open mouth at feeding
- 270 – 395 plates of baleen per side
- Rorqual lunge-feeding has been described as the largest biomechanical event that has ever existed **on earth**
- **Swim speed of 1.2 – 4mph while feeding**
- In a feeding season of 120 days, a blue whale takes some 480 tons





## **Reproduction/Growth:**

- **Birth weight** 3 tons
- **Length** at birth 25 feet
- Doubled weight in first week of life
- **Weaned** at seven months in the Pacific far off the California coast
- **Sexually mature** at 4.5 to 6 years old at 79 feet in length
- Produced 15 – 20 calves (one calf every two to three years)
- Produce up to 25 – 50 gallons of milk per day
- Milk is up to 50 % fat
- Milk 12 % protein
- Pregnant cows have the thickest blubber and lactating cows the thinnest

## **Whale History:**

- Thinnest whale ever described was a 65-foot fin whale female, which stranded in 1944. Its blubber was only 1.25 inches thick, Fat content was 1.7-3.5%
- In the 1950s, given the price for oil, 1 average whale might be worth \$4000
- In 1976, prices of the Japanese value of the meat alone in a large specimen might be \$150,000