Marine Mammals of the Sonoma Coast

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What is a Mammal?

• Species are grouped/separated by the degree to which they are thought to be related
  – Species = “kind” of animal

• Class Mammalia (>4,000 species)
  – Warm-blooded
  – Have hair
  – Females:
    • Give birth to live young
    • Have mammary glands that secrete milk
Marine Mammals

• Any mammal that makes the ocean its home for part OR all of its life.

• Often complex social structures
  – Communication, female groups, etc.

• Taxonomy
  – Order Cetacea (whales, dolphins, & porpoises)
    • Parvorder: Odontoceti - Toothed whales
    • Parvorder: Mysticeti - Baleen whales
  – Order Carnivora
    • Family: Mustelidae - Sea & Marine Otters
    • Family: Ursidae - Polar Bear
  – Suborder Pinnipedia
    • Family: Phocidae – True Seals
    • Family: Otariidae – Fur seals & sea lions
    • Family: Odobenidae – the Walrus
  – Order Sirenia (manatees & the Dugong)
Form Follows Function: Comparative Anatomy & Physiology

- **Morphology**: Relationships among structures
  - Specialized body forms
  - Modified appendages
  - Modified feeding structures (e.g., teeth)
- **Physiology**: Way in which a body part functions
  - Heat retention (fur/blubber)
  - Length of nursing period & milkfat content
  - Molt on land or at sea
  - Diving response (e.g., avoid decompression sickness)
  - Migratory behaviors
- **Cetaceans** *cetus* “large sea creature”
  - No hind limbs
  - Blowhole for breathing
- **Pinnipeds** *pinna* "fin" & *pes/pedis* "foot“ = “wing-footed” or “fin-footed”
  - ALL give birth and nurse on land
- **Sea otters** *mustela* “weasel”
  - rely on fur to keep warm (no blubber layer)
  - shallow coastal waters
Toothed whales & dolphins - *Odontoceti*

- Teeth: feed on fish, squid, mammals
- One blow hole
- Males larger than females
- Asymmetrical skull
- Biosonar
- 5 families & increasing

Photo Robert Pitman
Dolphins – *Delphinidae*
Beak
Curved dorsal fin
Conical teeth

Porpoises – *Phocoenidae*
Round head – no beak
Triangular dorsal fin
Spade shaped teeth

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Baleen whales - *Mysticeti*

- Baleen: forage on krill & fish
- Two blow holes
- Symmetrical skull
- 3 families
Rorquel - Family Balaenopteridae
- Median notch (Tail)
- Rorqual is Norwegian for “furrow”
- Long, sleek bodies
- Small dorsal fin
- 25-100 parallel, pleated throat grooves (ventral pleats) run from the tip of the lower jaw back to the belly area.

Blue Whale - *Balaenoptera musculus*
- Largest animal on earth
- Calf is >20 ft
- Baleen 3ft
- Feed on fish and krill

Humpback Whale - *Megaptera novaeangliae*
- Humpback- distinct arching back
- Large wing-like flippers
- Ballerinas of the sea
- Longest single migration of any animal
- True singing whales – last ½ hr and repeated for days
How do rorqual whales eat?
Pacific Gray Whale - *Eschrichtius robustus*

- Only species in the family Eschrichtiidae
- Bodega Head - Whale Watch!
- One of longest migrations
- Shortest baleen (cream-white in color)
- No dorsal fin
- Friendly whales
How do gray whales eat?

Toothed Whale Communication & Biosonar

Identify objects
360 ft – 10 miles

Sperm whales

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TED ED Why do whales sing? - Stephanie Sardelis
https://www.youtube.com/watch?v=7Xr9BYhIceA
Dual life – marine & terrestrial
Otariidae – Sea Lions & Fur Seals

California Sea Lion (Zalophus californianus)
Steller Sea lion (Eumetopias jubatus)
Northern Fur Seal (Callorhinus ursinus)
Guadalupe Fur Seal (Arctocephalus townsendi)

- External ear flap
- Articulated hips
- Long front & rear flipper
- Sexual dimorphism
Phocidae – True Seals

Northern Elephant Seal (*Mirounga angustirostris*)
Harbor Seal (*Phoca vitulina*)

- No external ear flap
- No articulated hips
- Short front flipper