

# Penguins in the U.S.A.



## Objective

Given information about the natural history of a species of marine animal, the student will design a zoological environment.

## Materials

- graph paper
- pencils or pens
- Husbandry Hints** sheets

## Action

1. Students may work alone or in learning groups. Have students choose an animal from the Husbandry Hints cards on pages 8–10. Allow students time to research and discuss their animal's habitat and natural behavior.
2. Students design an exhibit that is as close to their animal's natural habitat as possible. Remind them to consider husbandry parameters, including...
  - substrate (ground surface)
  - air
  - water
  - temperature
  - food
  - habitat cleaning
  - caring for the animals
  - breeding
  - research
  - training
3. Finally, students diagram their plan and describe it in an essay.

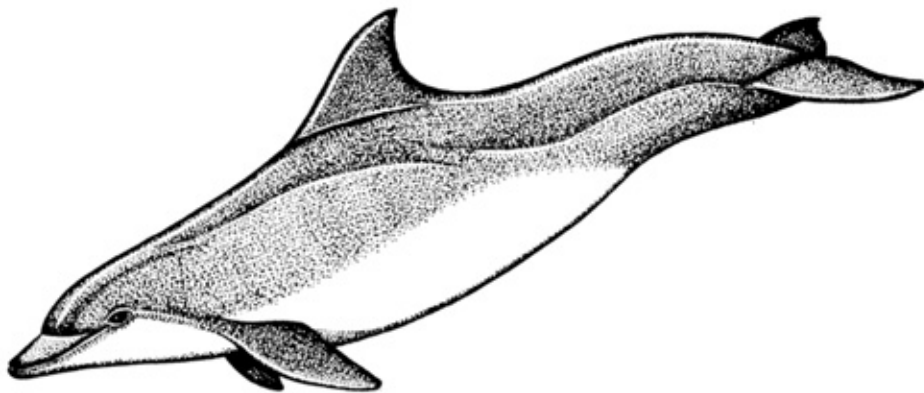
## Deeper Depths

Visit a zoological park or aquarium and compare the animal habitats there to the students' designs.

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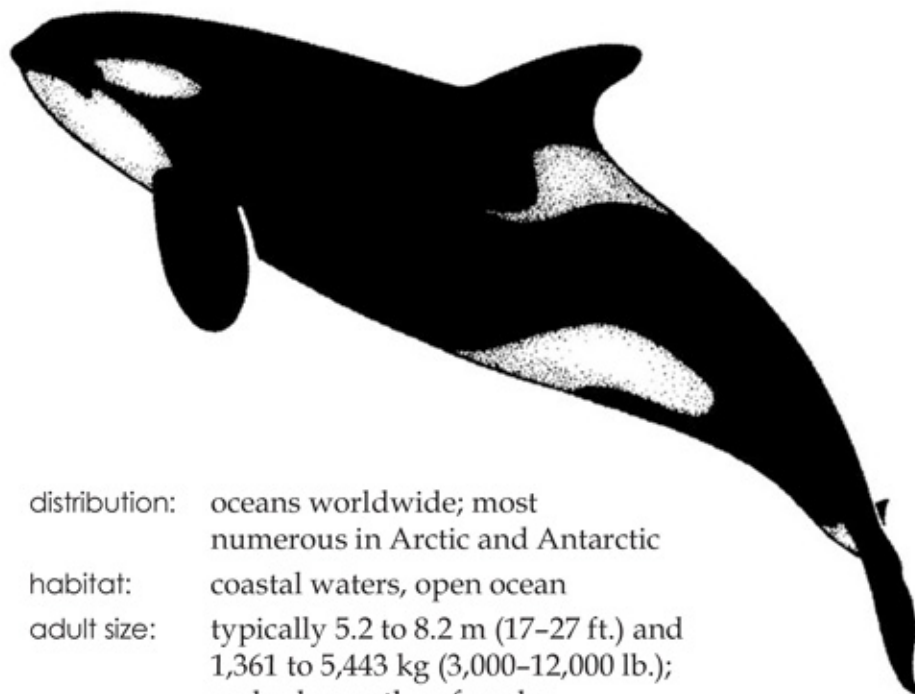


**bottlenose dolphin**  
*Tursiops truncatus*



- distribution: temperate to tropical waters worldwide
- habitat: coastal waters, open ocean, harbors, bays, lagoons, gulfs, estuaries
- adult size: typically 2.5 to 3 m (8-10 ft.) and 136 to 295 kg (300-650 lb.); males may be slightly larger than females
- calf size: about 98 to 126 cm (39-50 in.) and 11.5 to 18 kg (25-40 lb.)
- diet: At SeaWorld, adult bottlenose dolphins eat fish and squid, about 9 to 13.6 kg (20-30 lb.) each day. Bottlenose dolphin calves may nurse for 12 to 18 months. A calf takes a few fish between three and four months, when its teeth begin to erupt.
- facility: Bottlenose dolphins are cared for at several facilities in the SeaWorld parks. They are exhibited in dolphin habitats, trained for marinelife shows, and housed in behind-the-scenes research and breeding pools. Ozone (O<sub>3</sub>) purifies the water in this and other SeaWorld habitats by destroying harmful organisms and compounds due to its powerful oxidizing ability.

**killer whale**  
*Orcinus orca*



- distribution: oceans worldwide; most numerous in Arctic and Antarctic
- habitat: coastal waters, open ocean
- adult size: typically 5.2 to 8.2 m (17-27 ft.) and 1,361 to 5,443 kg (3,000-12,000 lb.); males larger than females
- calf size: about 2.4 m (8 ft.) and 136 to 181 kg (300-400 lb.)
- diet: At SeaWorld, adult killer whales eat fish and squid, about 57 to 102 kg (125-225 lb.) each day. Killer whale calves may nurse for 12 months. A calf takes a few fish between three and four months. By the age of one year, killer whale calves at SeaWorld eat 23 to 27 kg (50-60 lb.) of fish and squid each day.
- facility: Shamu Stadium is the world's most advanced marine mammal facility. SeaWorld killer whale habitats, specifically designed for breeding and research as well as marinelife shows, each hold 19 million liters (5 million gallons) or more of chilled, filtered seawater. The entire volume recirculates about every three hours.

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## emperor penguin

*Aptenodytes forsteri*

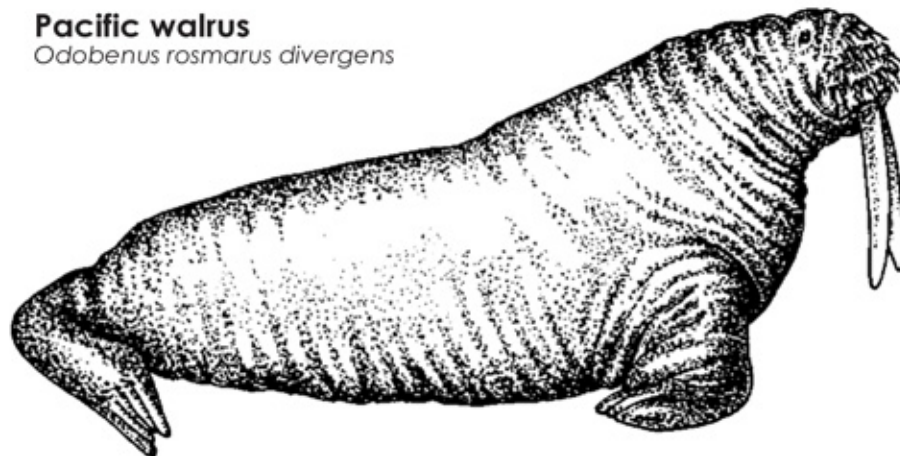
- distribution: Antarctic; Southern Oceans
- habitat: cold, nutrient-rich ocean currents; sea ice
- adult size: typically 112 cm (44 in.) and 27 to 41 kg (60-90 lb.); largest of all living penguins
- chick size: about 284 grams (10 oz.)
- diet: At SeaWorld, adult emperor penguins eat 1 to 1.4 kg (2-3 lb.) of herring (a type of fish) each day. Penguin parents feed their chicks regurgitated food.
- facility: The simulated antarctic environment in SeaWorld's Penguin Encounter™ houses emperors and other antarctic penguins.



The habitat's seawater is about 4°C (42°F). Fresh ice is manufactured daily as a substrate (ground surface) for the penguins. Lighting is altered throughout the year to duplicate the austral (Southern Hemisphere) seasons. Here, scientists may conduct studies that were once near-impossible because of the extreme danger and high cost of working in polar regions.

## Pacific walrus

*Odobenus rosmarus divergens*



- distribution: Bering, Chukchi, and Laptev Seas
- habitat: arctic waters not deeper than about 80 m (262 ft.); sea ice and small rocky islands
- adult size: typically 2.3 to 3.6 m (7.5-12 ft.) and 400 to 1,700 kg (882-3,748 lb.); males larger than females
- calf size: about 95 to 123 cm (37-48 in.) and 45 to 75 kg (99-165 lb.)
- diet: At SeaWorld, adult Pacific walruses eat clams, squid and fish, about 27 to 50 kg (60-110 lb.) each day. Calves may nurse for two years. Milk is supplemented with solid pieces of food as early as six months.
- facility: In their SeaWorld habitats, walruses can swim in pools or haul out. Pacific walruses also are trained for marinelife shows. At show stadiums, the animals move from backstage areas or pools to the main stage area or pool, and back again, depending on show segments. The animals learn to feel comfortable in every area or pool, alone or with other animal combinations. Each day, trainers plan which animals will perform in which show, and in what combinations. This gives the animals daily variety.

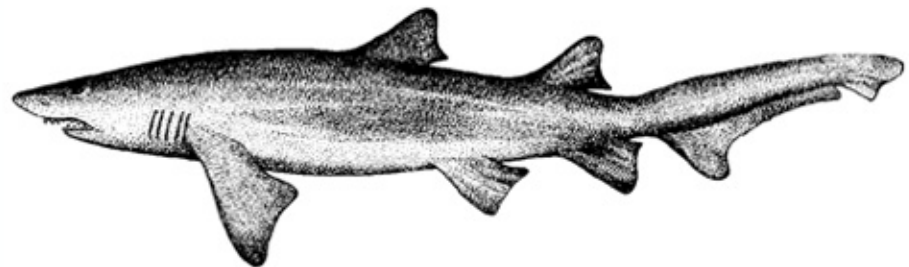
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California sea lion  
*Zalophus californianus*



- distribution:** southern British Columbia to northern Mexico and around the Galápagos Islands
- habitat:** rocky and sandy beaches of coastal islands and mainland shorelines
- adult size:** typically 1.5 to 2.5 m (5–8 ft.) and 50 to 400 kg (110–882 lb.); males larger than females
- pup size:** about 75 cm (29.5 in.) and 6 kg (13 lb.)
- diet:** At SeaWorld, adult California sea lions eat fish and squid, about 7 to 18 kg (15–40 lb.) each day. Sea lion pups may nurse for as long as 12 months; however, they are usually weaned at about six months.
- facility:** SeaWorld sea lion habitats recreate the California rocky shoreline and exhibit sea lions in groups such as they would form in the wild. Sea lions also are trained for marinelife shows. Additionally, a behind-the-scenes rehabilitation facility treats and shelters sea lions that have *stranded* due to illness, injury, or abandonment. Here, scientists can examine aspects of sea lion biology that are difficult or impossible to study in the wild. Once healthy, the sea lions are released back into the wild.

sandtiger shark  
*Carcharias taurus*



- distribution:** Atlantic Ocean, western Indian Ocean, western Pacific Ocean
- habitat:** temperate and tropical waters, surf zone, shallow bays, coral and rocky reefs
- adult size:** typically 2.2 to 3 m (7–10 ft.)
- pup size:** about 95 to 105 cm (37–41 in.)
- diet:** At SeaWorld, adult sandtiger sharks eat fish, squid, and shrimp, about 10% of their body weight each week. Shark pups have sharp, functional teeth at birth and may feed immediately.
- facility:** SeaWorld shark habitats house dozens of warm-water sharks and fishes in various-sized pools. The seawater is mechanically filtered through sand and gravel filters, then treated with ozone (O<sub>3</sub>) to remove microorganisms. Biological filtration keeps water ammonia levels in check. Pools are solar heated and average 24.4°C (76°F). A 17.4-meter (57-foot) acrylic tube allows guests to pass through the center of the sharks' habitat.