

One For You, Two For Me

OBJECTIVE

The students will be introduced to a *food chain*. Given objects to count and information on how much pinnipeds eat, students will be able to count and graphically demonstrate how much four different pinnipeds eat.

MATERIALS

per student:

- enlarged photocopies of California sea lion, harbor seal, Pacific walrus, and northern elephant seal illustrations (pages 6 and 7)
- blank paper
- glue
- 80 or more small dried beans

BACKGROUND

The term *food chain* helps describe the interaction between animals and plants—specifically, who eats whom. Pinnipeds feed on a wide variety of prey items. Walruses suck the meat from thousands of hard-shelled clams. Hawaiian monk seals crunch on spiny lobsters. Depending on an animal's size and activity level, food consumption may range from 4% to 9% of body weight.



ACTION

1. Define a food chain. Discuss with your students why food chains are important. Give an example of a food chain for a seal, sea lion, and a walrus. (See prey items on *Pinniped Picks* cards, pages 6 and 7.) Discuss how these animals find and eat their food.
2. Discuss with your students how much food a seal, sea lion, and walrus eat in one day. These are estimates of what an average adult pinniped eats each day.

California sea lion	12 kg (26 lb.)
harbor seal	6 kg (13 lb.)
Pacific walrus	27 kg (60 lb.)
northern elephant seal	34 kg (75 lb.)
3. Distribute dried beans to students. Tell students each dried bean is one fish that weighs 1 kilogram. (If you are using pounds, one bean equals a one-pound fish.) Students count out how much fish each animal would eat in one day.
4. Distribute paper and photocopies of pinnipeds. Have students glue illustrations to the paper, then glue the correct number of "fish" around each animal.

DEEPER DEPTHS

Have students count the "fish" for all four animals and glue them on a blue sheet of construction paper to represent an ocean full of fish.

Pinniped Picks

Use these cards to help your students get started exploring pinnipeds. Here are some ideas for ways to use these cards in your classroom:

- Use the facts on the cards to help you prepare lesson plans and lead discussions in class.
- Copy and cut apart the cards. Distribute a different card to each learning group. Visit the school library to learn more about the animals. Groups may even adopt that animal as their "mascot" while working on this unit.
- Copy and cut apart the cards. Distribute a complete set to each student or group of students. Students compare similarities and differences among various pinnipeds.
- Copy and cut apart the cards. Use the cards to sort endangered or threatened species from those that are not. Visit the library to find more species to add to your "endangered list." Do some of these animals live in your area?

California sea lion

Zalophus californianus californianus

size: Male to 2.4 m (7.9 ft.) and to 390 kg (860 lb.)
 Female to 2 m (6 ft.) and to 110 kg (240 lb.)

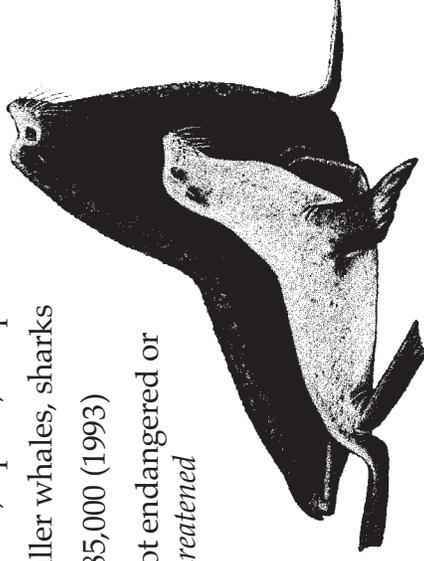
distribution: British Columbia to northern Mexico

prey: fishes, squids, octopuses

predators: killer whales, sharks

population: 185,000 (1993)

status: not endangered or threatened



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harbor seal

Phoca vitulina

size: Male about 1.9 m (6.2 ft.) and 70 to 159 kg (150–351 lb.)

Female about 1.7 m (5.6 ft.) and 60 to 110 kg (132–242 lb.)

distribution: Pacific (Arctic to Baja California, Mexico), Atlantic (Greenland to Florida), and European waters

prey: fishes, shrimps, squids, octopuses

predators: killer whales, sharks, and Steller sea lions. Coyotes and eagles eat juveniles.

population: 500,000 (1981)

status: not endangered or threatened



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Pacific walrus

Odobenus rosmarus divergens

size: Male to 3.6 m (11.8 ft.) and to 1,900 kg (4,189 lb.)

Female to 3 m (10 ft.) and to 1,200 kg (2,646 lb.)

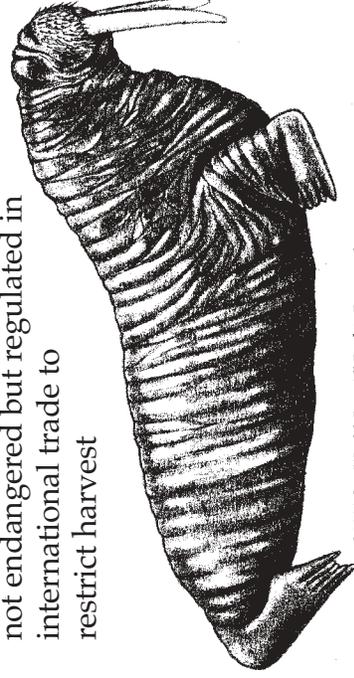
distribution: northeastern Pacific and Arctic oceans

prey: clams, mussels, fishes, snails, crabs, shrimps, and squids. Some eat seals and small whale carcasses.

predators: killer whales, polar bears

population: 240,000 (1980s)

status: not endangered but regulated in international trade to restrict harvest



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Steller sea lion
Eumetopias jubatus

size: Male 3.3 m (10.8 ft.); 1,000 kg (2,200 lb.)
Female 2.5 m (8.2 ft.); 270 kg (600 lb.)

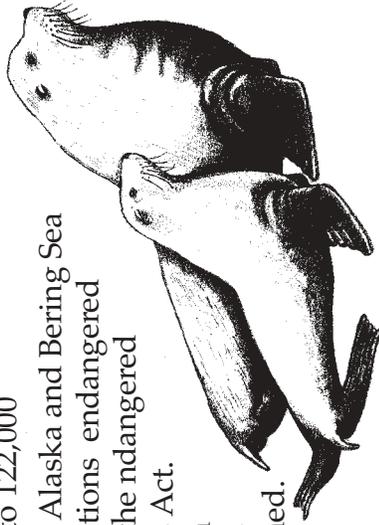
distribution: central California north to the Arctic and across to Japan

prey: fishes, squids, octopuses. Some eat seals.

predators: killer whales, sharks

population: 95,000 to 122,000

status: Gulf of Alaska and Bering Sea populations endangered under the Endangered Species Act. Eastern stock is threatened.



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northern elephant seal
Mirounga angustirostris

size: Male 4 m (13 ft.) 2,000 kg (4,410 lb.)
Female to 3 m (10 ft.); 600 kg (1,323 lb.)

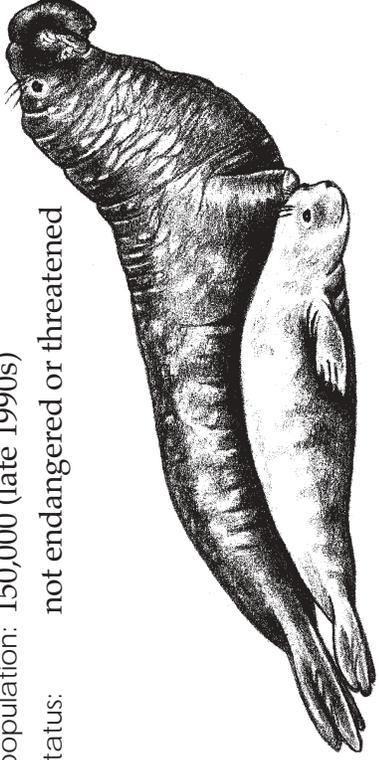
distribution: California to Baja California, Mexico

prey: squids, octopuses, deep-water fishes, small sharks and skates

predators: killer whales, sharks

population: 150,000 (late 1990s)

status: not endangered or threatened



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Guadalupe fur seal
Arctocephalus townsendi

size: Male to 1.9 m (6.2 ft.); to 170 kg (375 lb.)
Female to 1.4 m (4.6 ft.); to 55 kg (121 lb.)

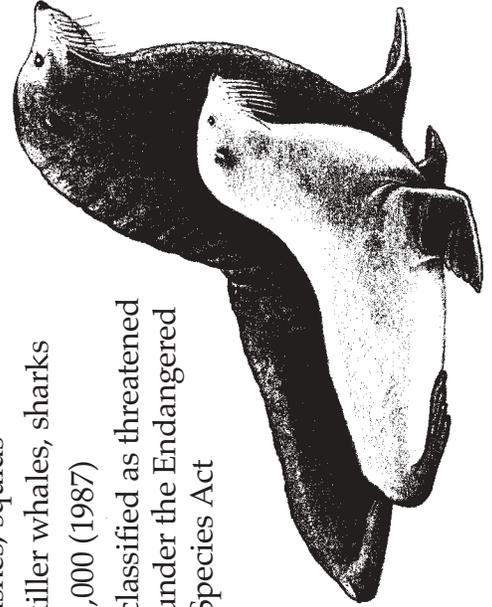
distribution: central California to Guadalupe Island, Mexico

prey: fishes, squids

predators: killer whales, sharks

population: 6,000 (1987)

status: classified as threatened under the Endangered Species Act



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Hawaiian monk seal
Monachus schauinslandi

size: to 2.4 m (8 ft.); 270 kg (600 lb.)
females slightly larger than males

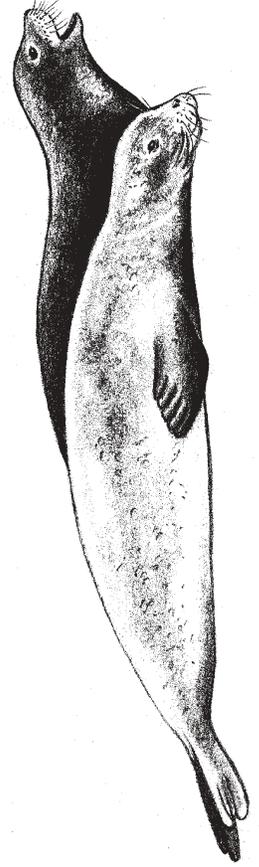
distribution: northwestern Hawaiian Islands (leeward chain)

prey: eels and other fishes, octopuses, lobsters

predators: sharks

population: about 1,500 (early 1990s)

status: classified as endangered under the Endangered Species Act



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