

Sharing the Sea

OBJECTIVE

The student will investigate the inter-relationships of predator and prey and the diversity of food items in the sea.

MATERIALS

per student:

- copy of *Sharing the Sea* funsheet on page 17
- copy of *Pinniped Picks* cards on pages 6 and 7
- pen or pencil

BACKGROUND

Many animals eat similar food items, depending on the location and availability of prey. People also eat some of the same animals as pinnipeds. To ease competition, animals may feed at different times of the day (nocturnal versus diurnal feeders) or may catch different sizes of prey (young larval stages versus full-grown adults).



ACTION

1. Distribute *Sharing the Sea* funsheet and *Pinniped Picks* animal cards.
2. Working in groups, students read the prey item portion of the *Pinniped Picks* cards. On the funsheet, they checkmark what food items each species eats. Students also checkmark the food items that people might eat.
3. In their groups, students look for species that share the most food items.
4. As a class discuss how competing species could share ocean resources. How can humans share resources with pinnipeds?

DEEPER DEPTHS

Have students research some of the commercial fisheries that have declined or collapsed. For example, the cod fishery in the northwestern Atlantic, the anchovy fishery off the Pacific coast of South America, and the salmon fishery in the northeastern Pacific.

How does overfishing by humans affect the animal populations that also prey on these items? The November 1995 issue of *National Geographic* has an excellent article, "Diminishing Returns. Exploiting the Ocean's Bounty," that addresses some of these concerns.

Name _____

Sharing the Sea

food items	harbor seal	California sea lion	Guadalupe fur seal	Steller sea lion	northern elephant seal	people
Crustaceans						
shrimps						
lobsters						
crabs						
Molluscs						
squids						
octopuses						
clams						
snails						
mussels						
Fishes						
skates						
sharks						
deepwater fishes						
eels						
Mammals						
seals						
whale carcasses						

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 cooperative 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: M to 2.4 m (7.9 ft.)
to 390 kg (860 lb.)
F to 2 m (6 ft.)
to 110 kg (240 lb.)

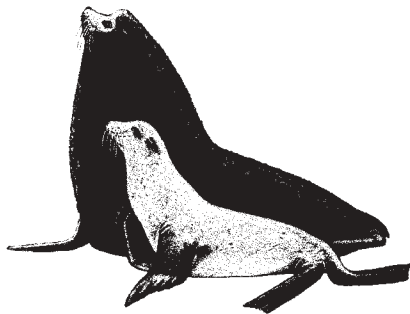
distribution: British Columbia to northern Mexico

prey: fishes, squids, octopuses

predators: killer whales, sharks

population: 185,000 (1993)

status: not endangered or *threatened*



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Pacific walrus

Odobenus rosmarus divergens

size: M 2.7 to 3.6 m (9–11.8 ft.)
800 to 1,900 kg (1,760–4,189 lb.)
F 2.3 to 3 m (7.5–10 ft.)
400 to 1,200 kg (880–2,646 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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harbor seal

Phoca vitulina

size: M about 1.9 m (6.2 ft.)
70 to 159 kg (150–351 lb.)
F about 1.7 m (5.6 ft.)
60 to 110 kg (132–242 lb.)

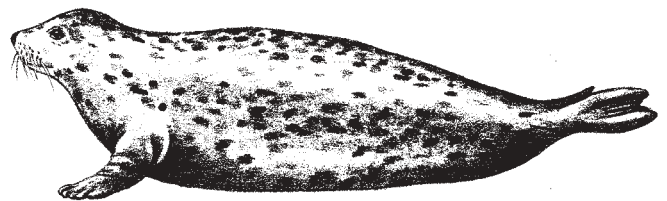
distribution: Pacific (Arctic to Baja California, Mexico), Atlantic (Greenland to Florida), and European waters

prey: fishes, shrimps, squids, octopuses

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

population: 500,000 (1981)

status: not endangered or threatened

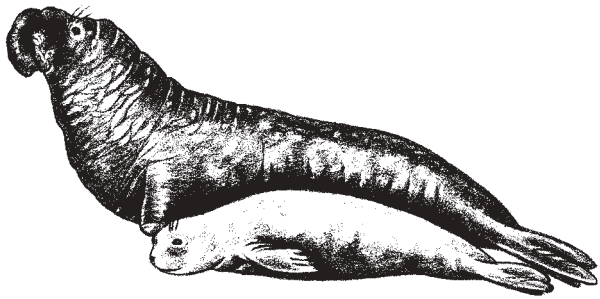


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northern elephant seal

Mirounga angustirostris

- size: M 4 m (13 ft.); 2,000 kg (4,410 lb.)
F 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

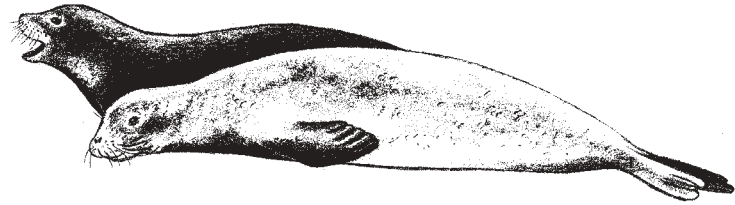


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Hawaiian monk seal

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

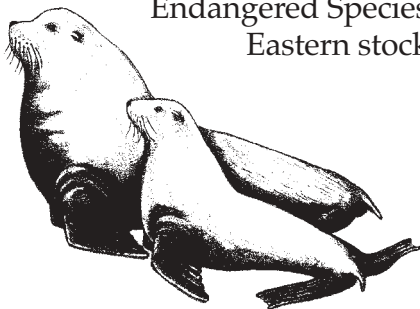


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Steller sea lion

Eumetopias jubatus

- size: M 3.3 m (10.8 ft.); 1,000 kg (2,200 lb.)
F 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.

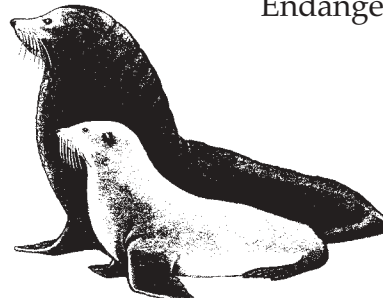


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Guadalupe fur seal

Arctocephalus townsendi

- size: M 1.8 to 1.9 m (5.9–6.2 ft.); 160 to 170 kg (353–375 lb.)
F 1.2 to 1.4 m (3.9–4.6 ft.); 45 to 55 kg (99–121 lb.)
- distribution: central California south 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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