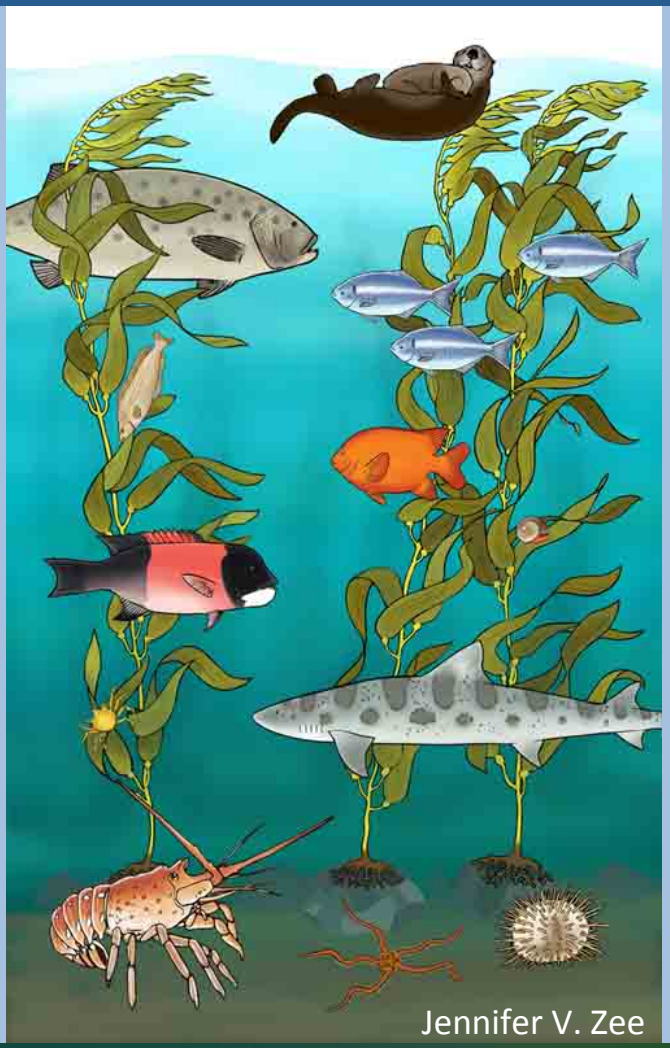
COMMUNITY ECOLOGY

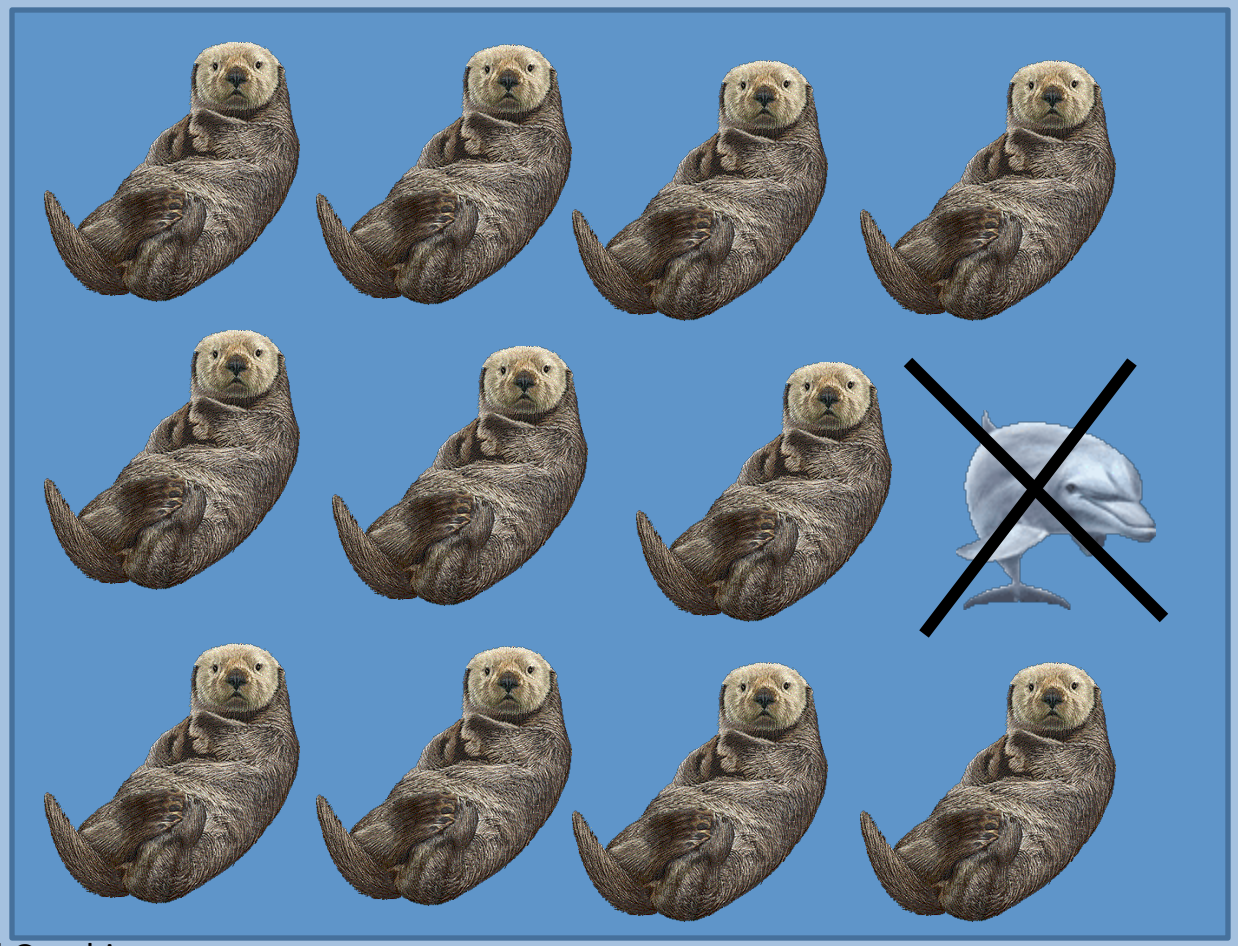
Steve Lonhart / NOAA MBNMS



Jennifer V. Zee

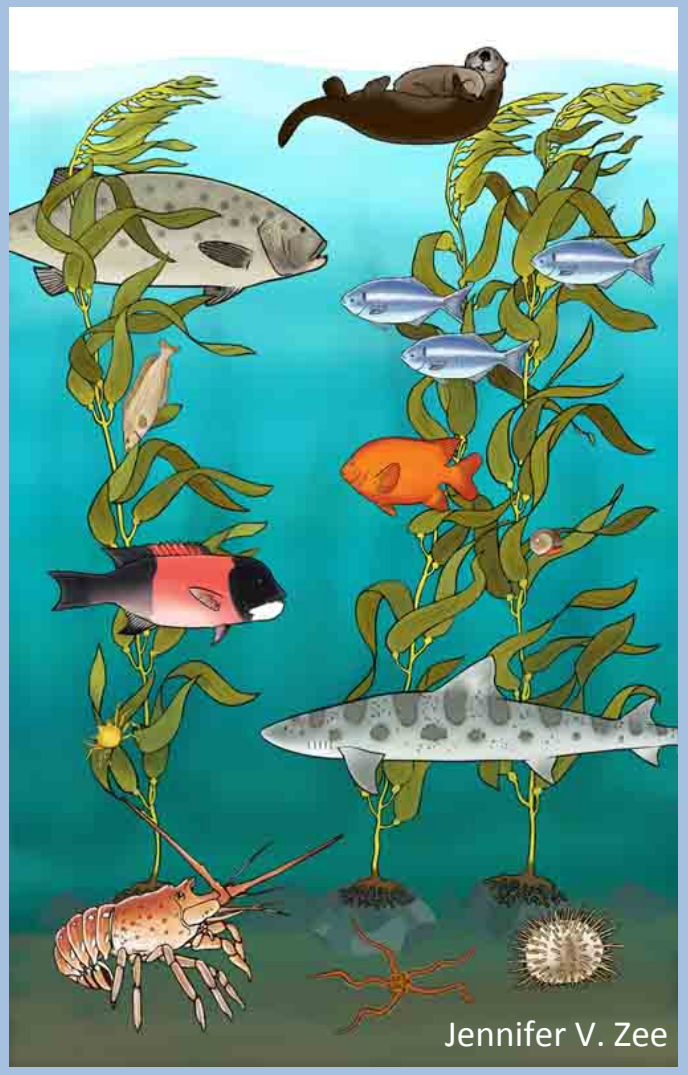
LEVELS OF ECOLOGY

- Population = all the individuals of a species that live in the same area



LEVELS OF ECOLOGY

- Population
- Community = all the organisms living in a certain area



SUCCESSION

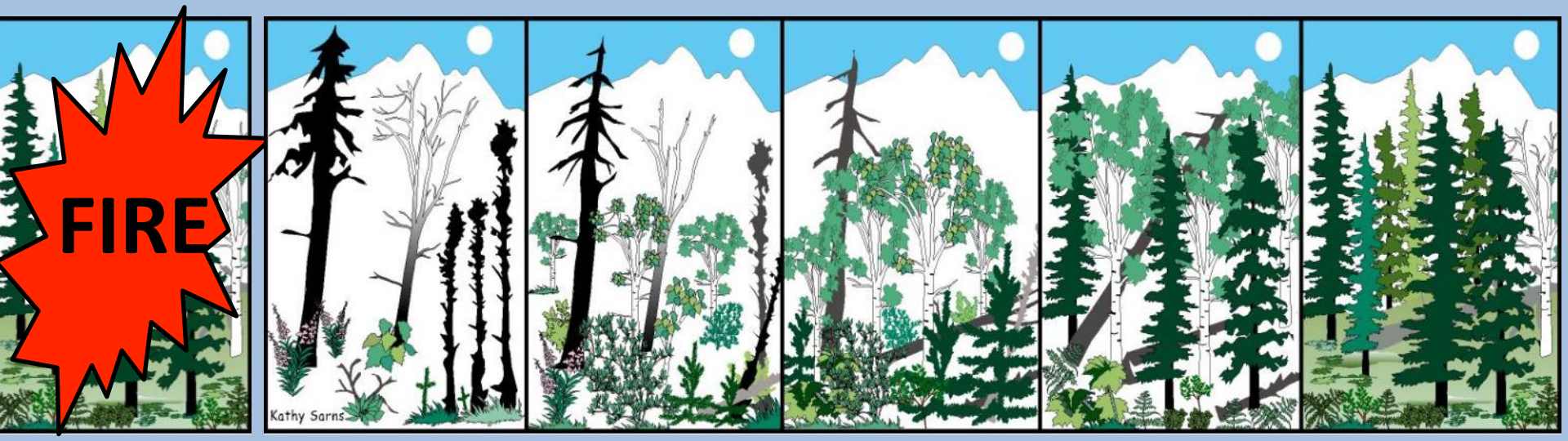
= gradual process of change in an ecological community after a disturbance

Kathy Sarns, Alaska FWS

SUCCESSION

= gradual process of change in an ecological community after a disturbance

SECONDARY SUCCESSION – where there has been previous growth




Sue Sweeney


Jason Church / NPS

Kathy Sarns, Alaska FWS

N, P, K

SUCCESSION

= gradual process of change in an ecological community after a disturbance

PRIMARY SUCCESSION – where life has not existed before


Preston Filbert / NPS


Eric Moll / NPS


Kay White / NPS


Eric Moll / NPS


Kay White / NPS


Ron Niebrugge / NPS

SUCCESSION

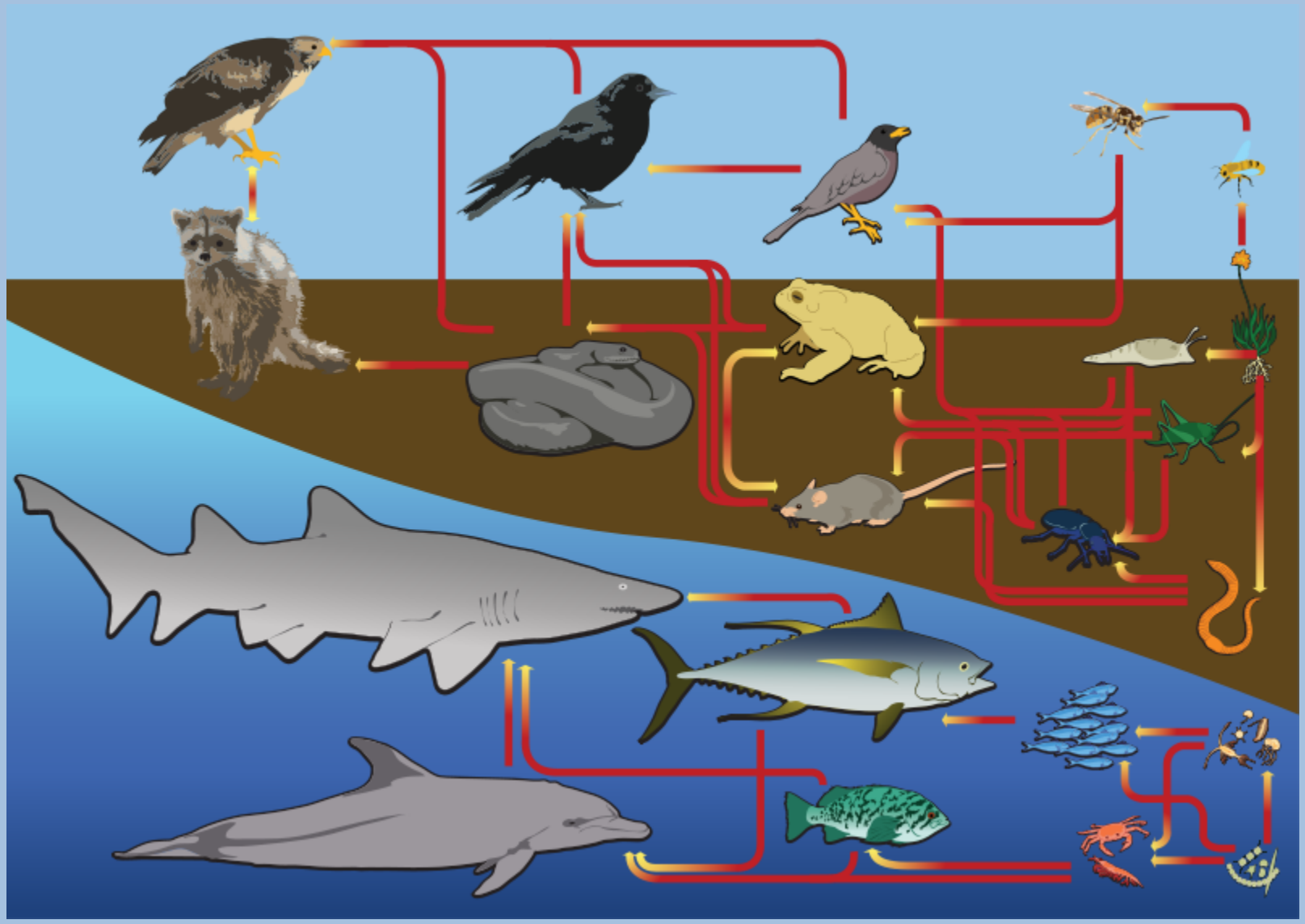
- What kinds of disturbances could cause primary succession in the kelp forest community?

- What kinds of disturbances could cause secondary succession in the kelp forest community?

FOOD CHAINS

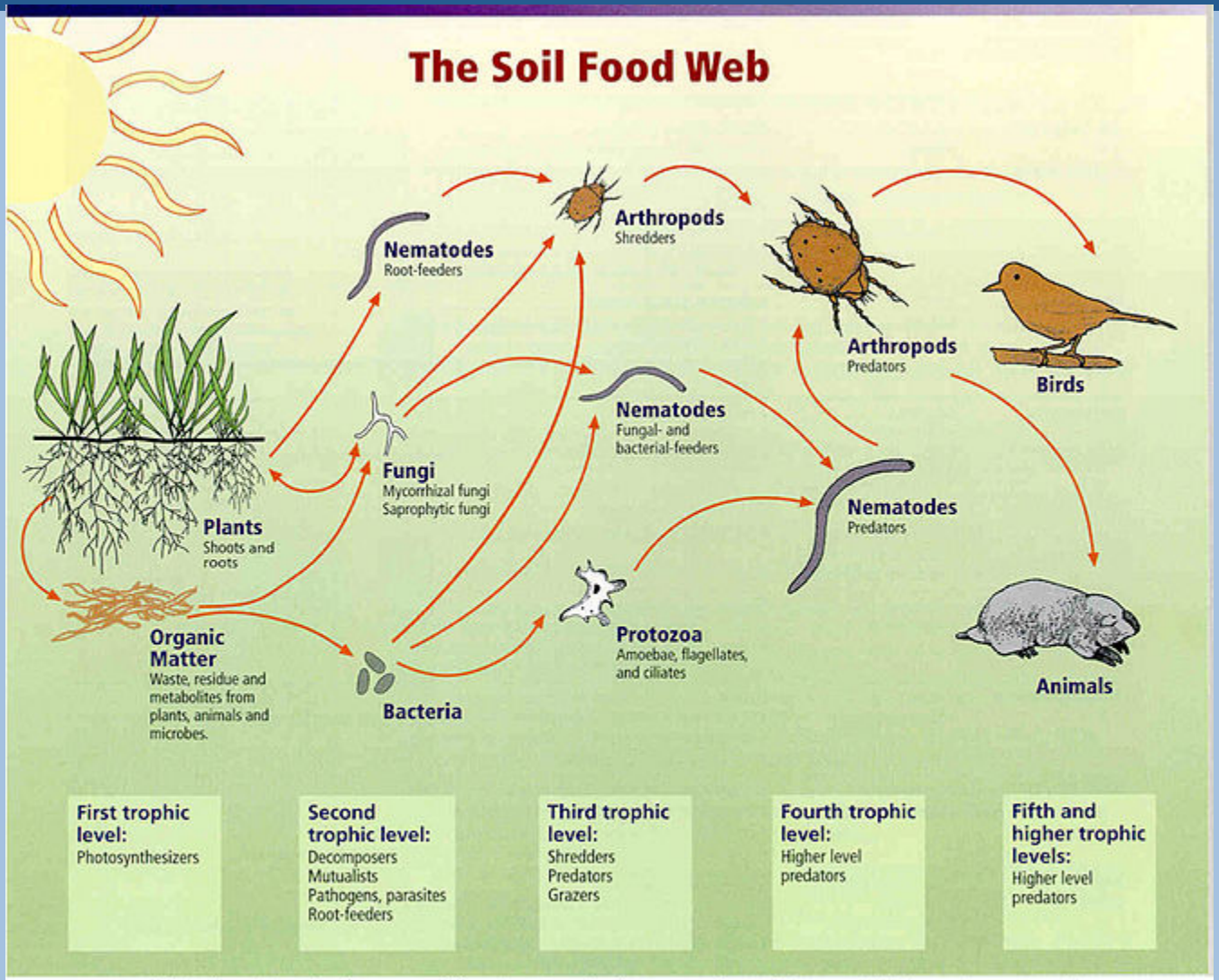
LadyofHats
Wikimedia

FOOD WEB



LadyofHats
Wikimedia

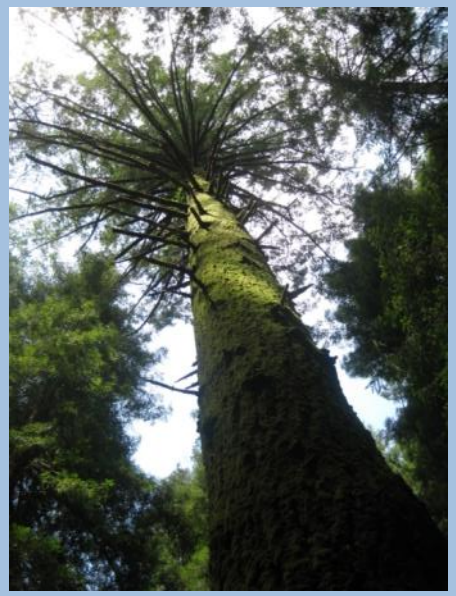
SOIL FOOD WEB



Relationships between soil food web, plants, organic matter, and birds and mammals
Image courtesy of USDA Natural Resources Conservation Service
http://soils.usda.gov/sqi/soil_quality/soil_biology/soil_food_web.html.

PRODUCERS

= Organisms that make their food using light energy from the sun

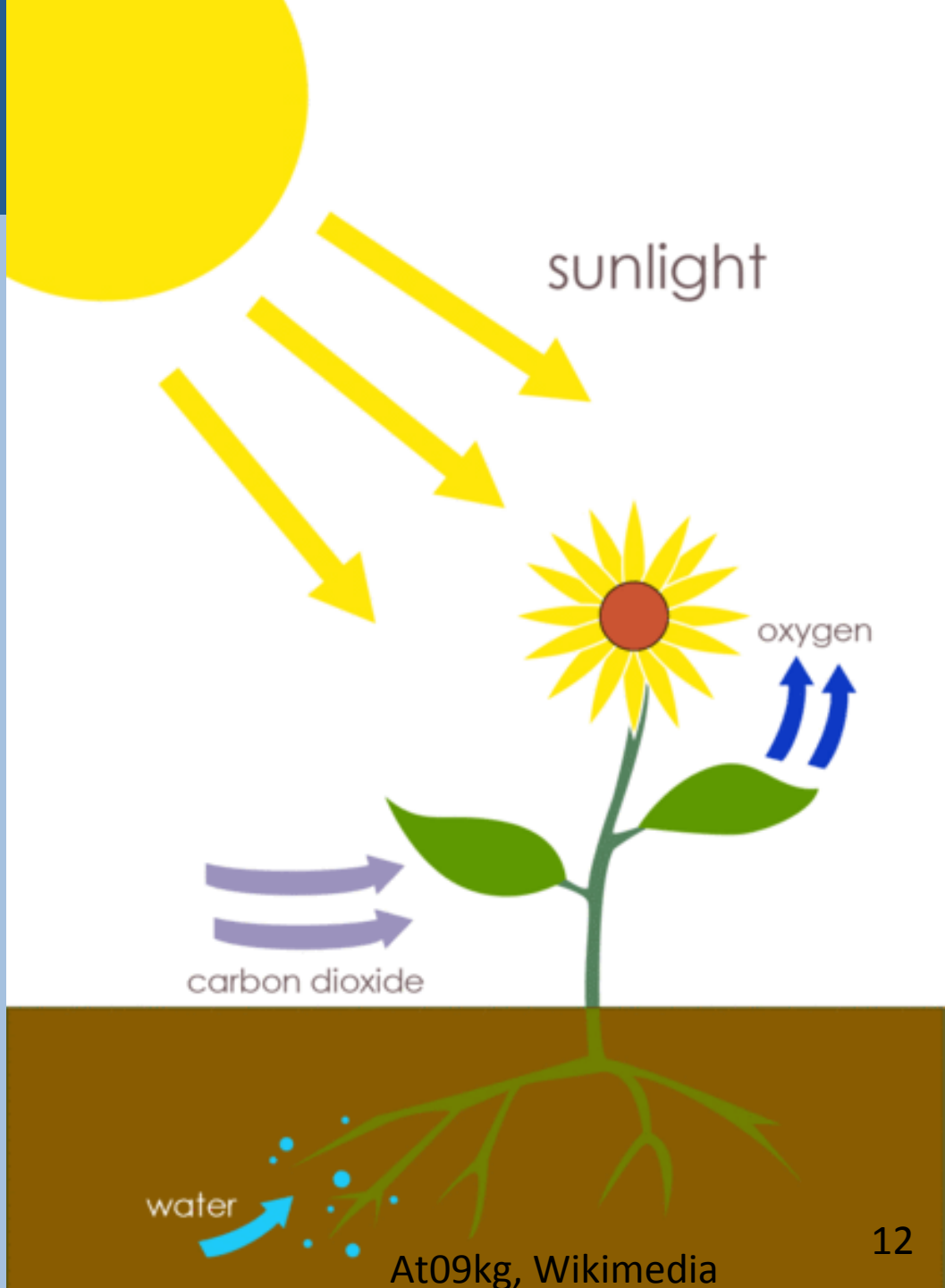


Common marine phytoplankton

Photos by: Kristin McCully
NOAA

PRODUCERS

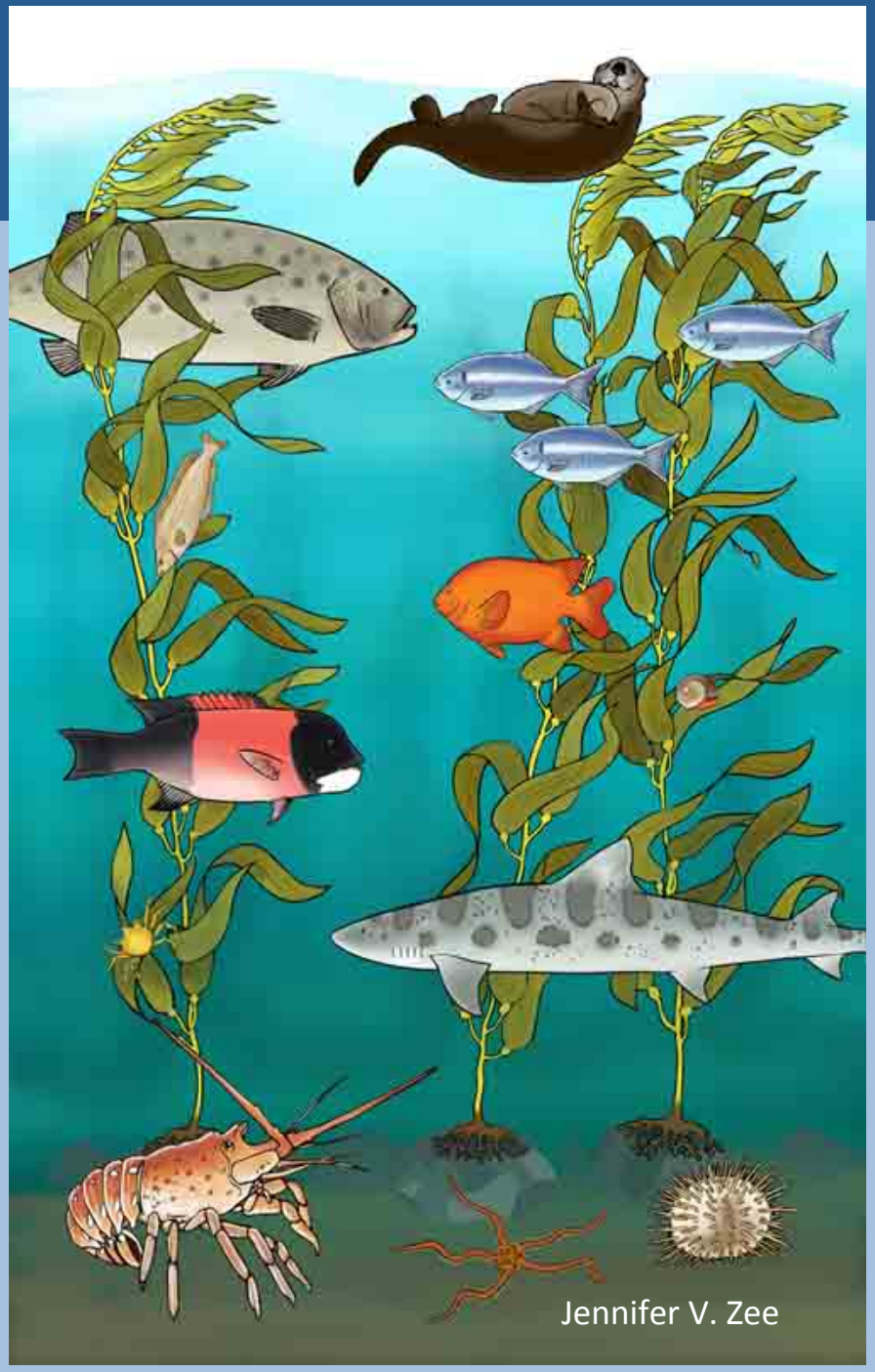
PHOTOSYNTHESIS



At09kg, Wikimedia

PRODUCERS

Common marine phytoplankton



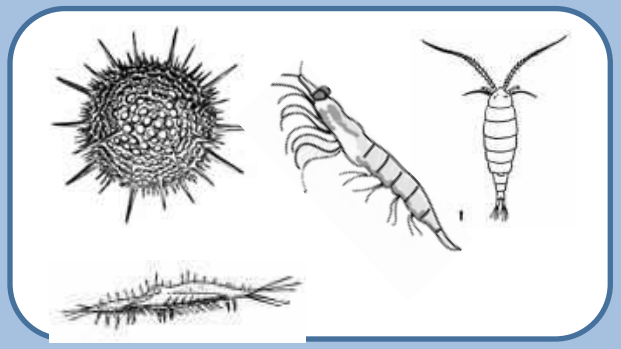
CONSUMERS

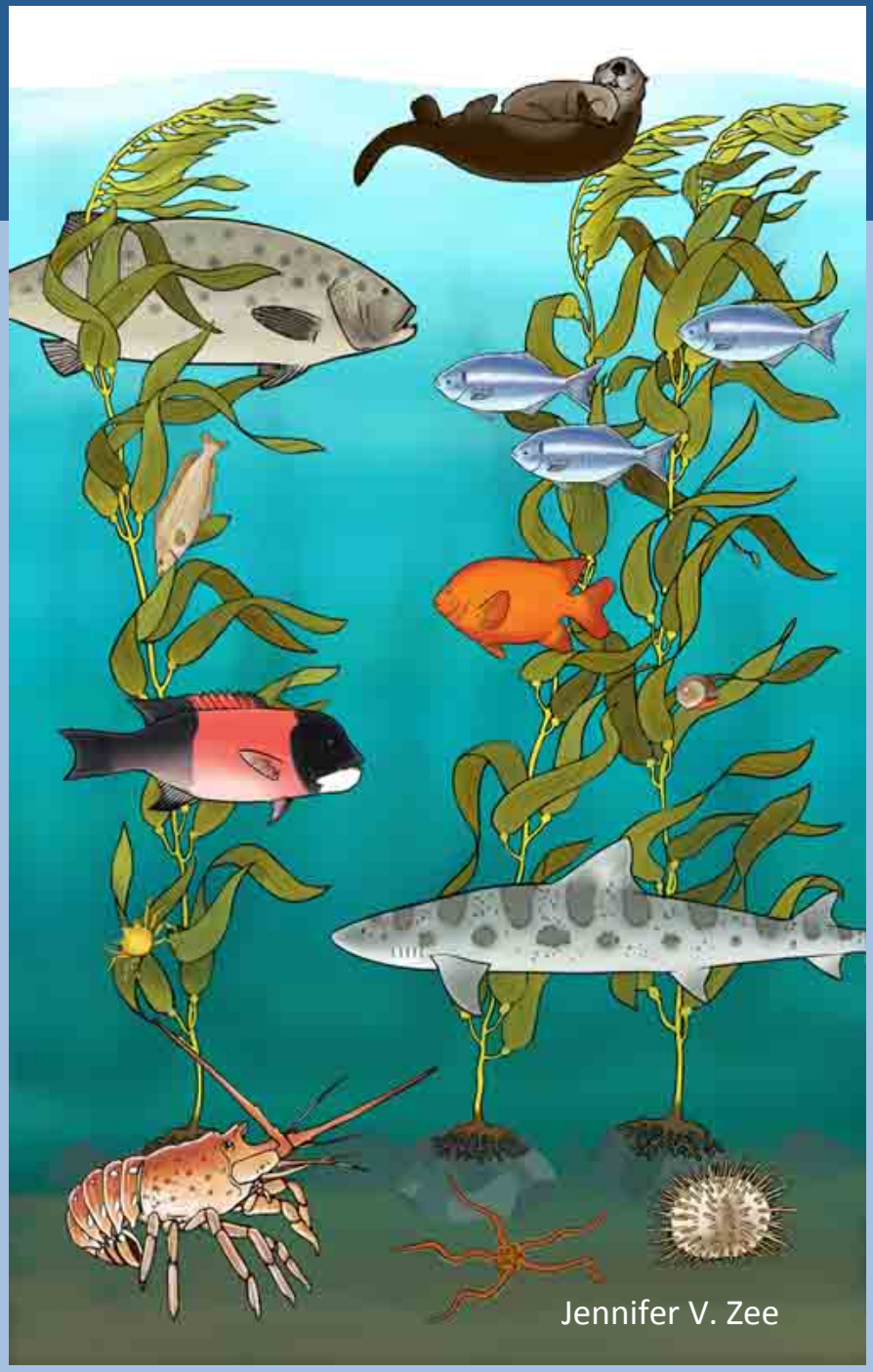
= Organisms that feed on other organisms

- Primary = eats producers (herbivore)
- Secondary = eats consumers (carnivore)

Photos by: Kristin McCully

CONSUMERS

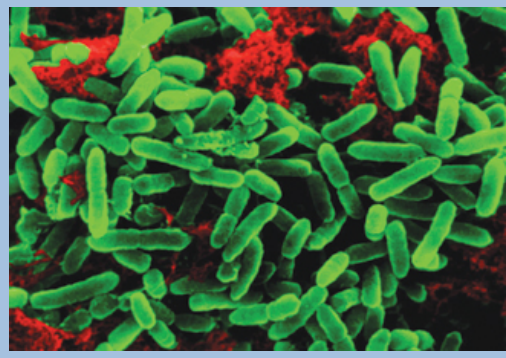




DECOMPOSERS

= Consumers that feed on dead plants and animals

Important in nutrient cycles



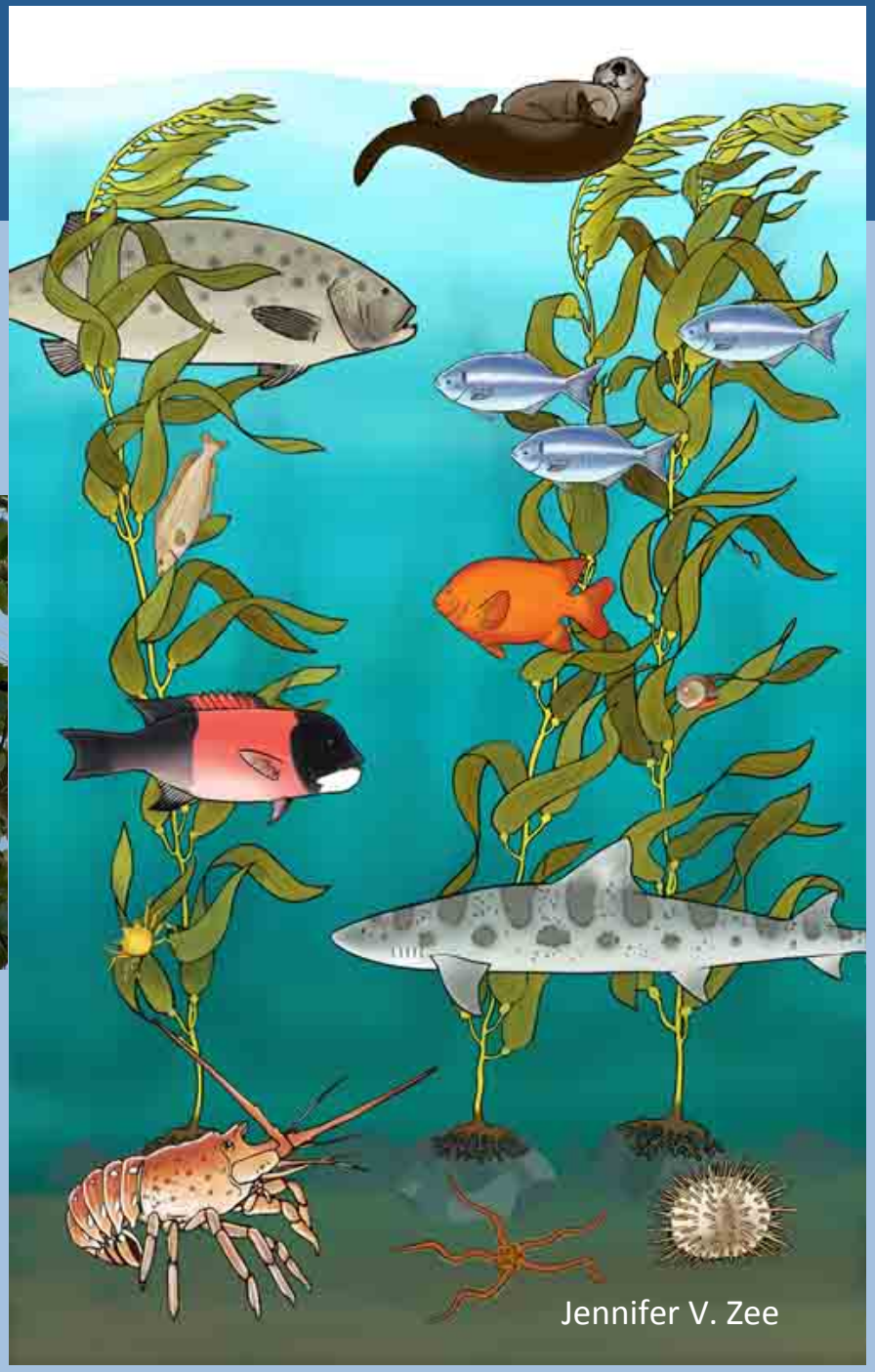
Photos by: Kristin McCully

DECOMPOSERS


Steve Lonhart / MBNMS


Steve Hillebrand / FWS


Steve Lonhart / MBNMS


Jennifer V. Zee

ACTIVITY

- Label each organism as a producer, primary consumer, secondary consumer, or decomposer.
- Create a food web with all of the organisms!

KELP FOREST CREATURES

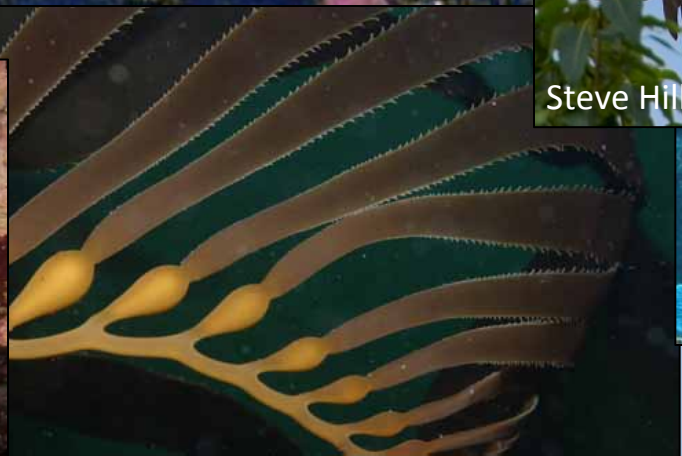







Steve Hillebrand / FWS

MBAquarium

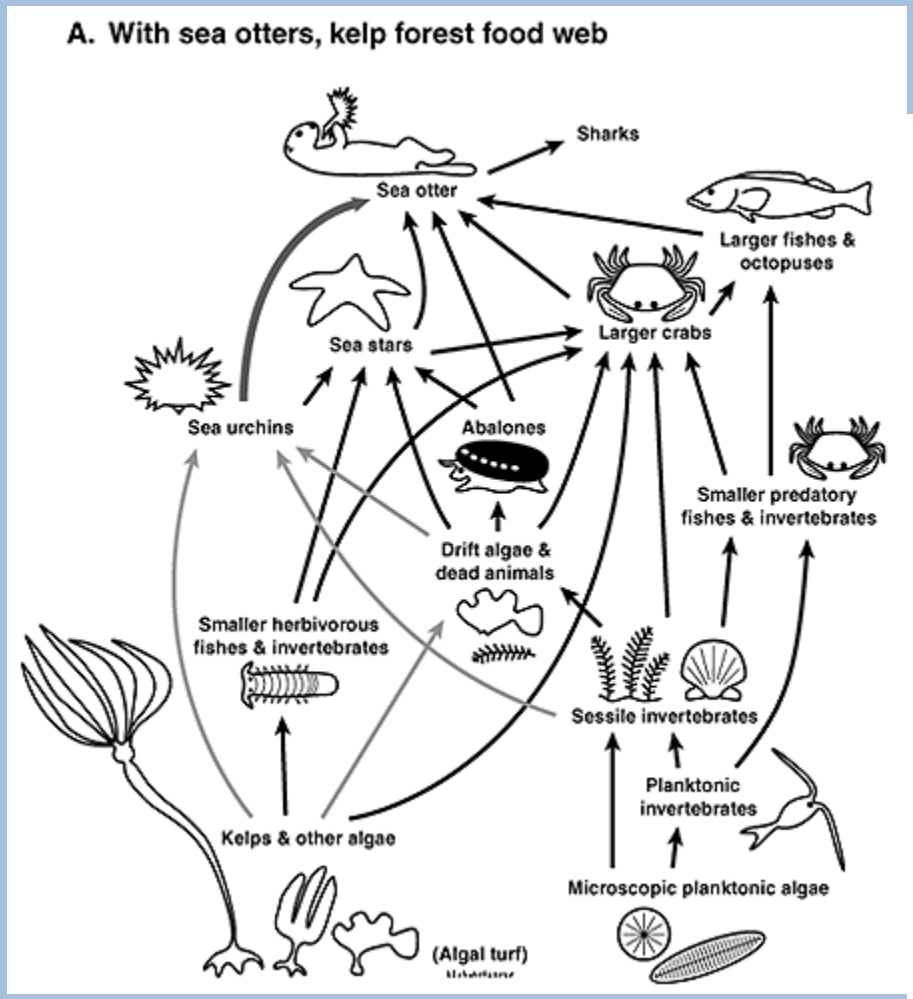


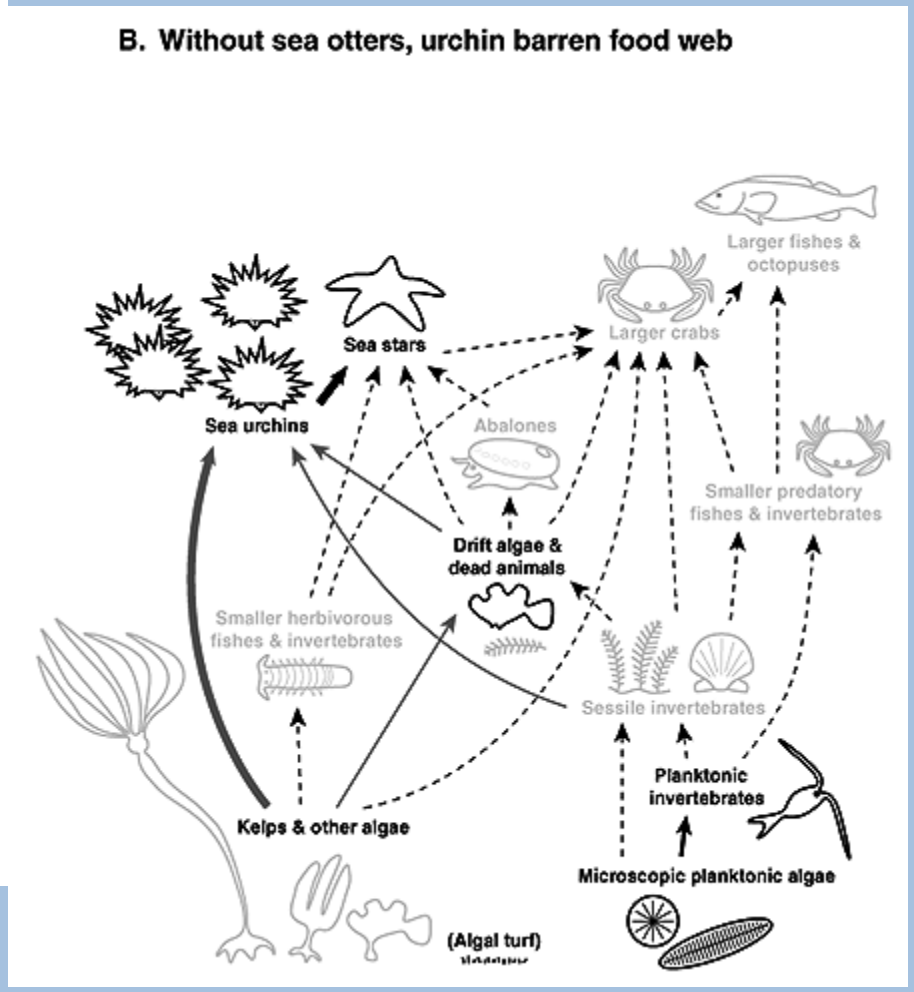

All photos by Steve Lonhart / MBNMS unless otherwise indicated

REVIEW FOOD WEB ACTIVITY

Figure 1 from:
Estes, J.A., M. T. Tinker, T. M. Williams, and D. F. Doak. 1998. Killer Whale Predation on Sea Otters Linking Oceanic and Nearshore Ecosystems. Science 282:473-475.
http://bio.research.ucsc.edu/people/doaklab/publications/1998estes_tinker_williams.pdf

REVIEW FOOD WEB ACTIVITY

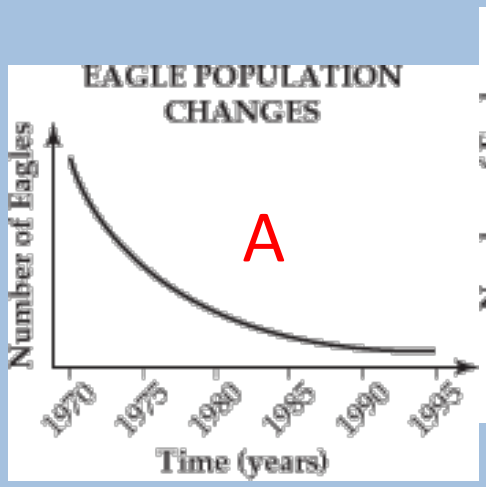


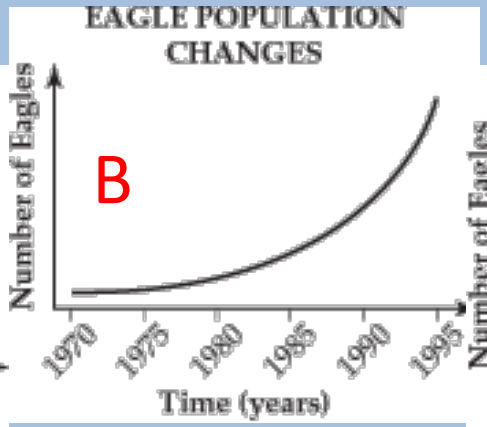


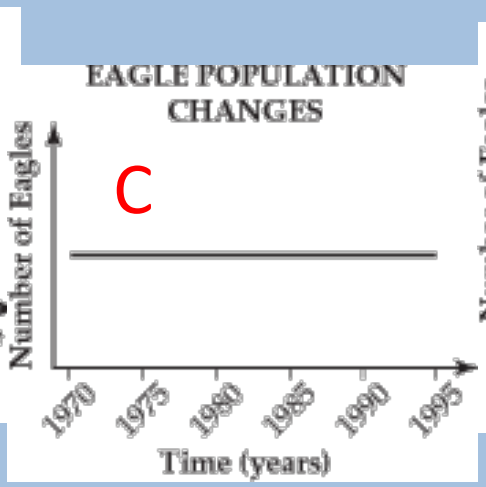
REVIEW FOOD WEB ACTIVITY

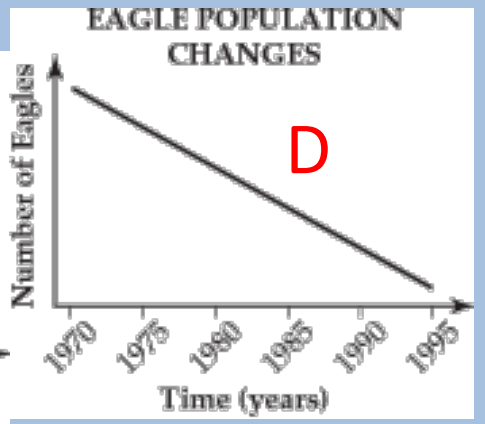
The pesticide DDT was used to kill mosquitoes for many years. DDT entered bodies of water, moved up the food chain, and built up in the tissues of fish. When female bald eagles ate these fish, they produced eggs with very thin shells. The eggs broke when the eagles sat on their nests. The U.S. government banned the use of DDT in 1972.

Which of these graphs <u>most likely</u> shows how the ban of DDT affected the bald eagle population?

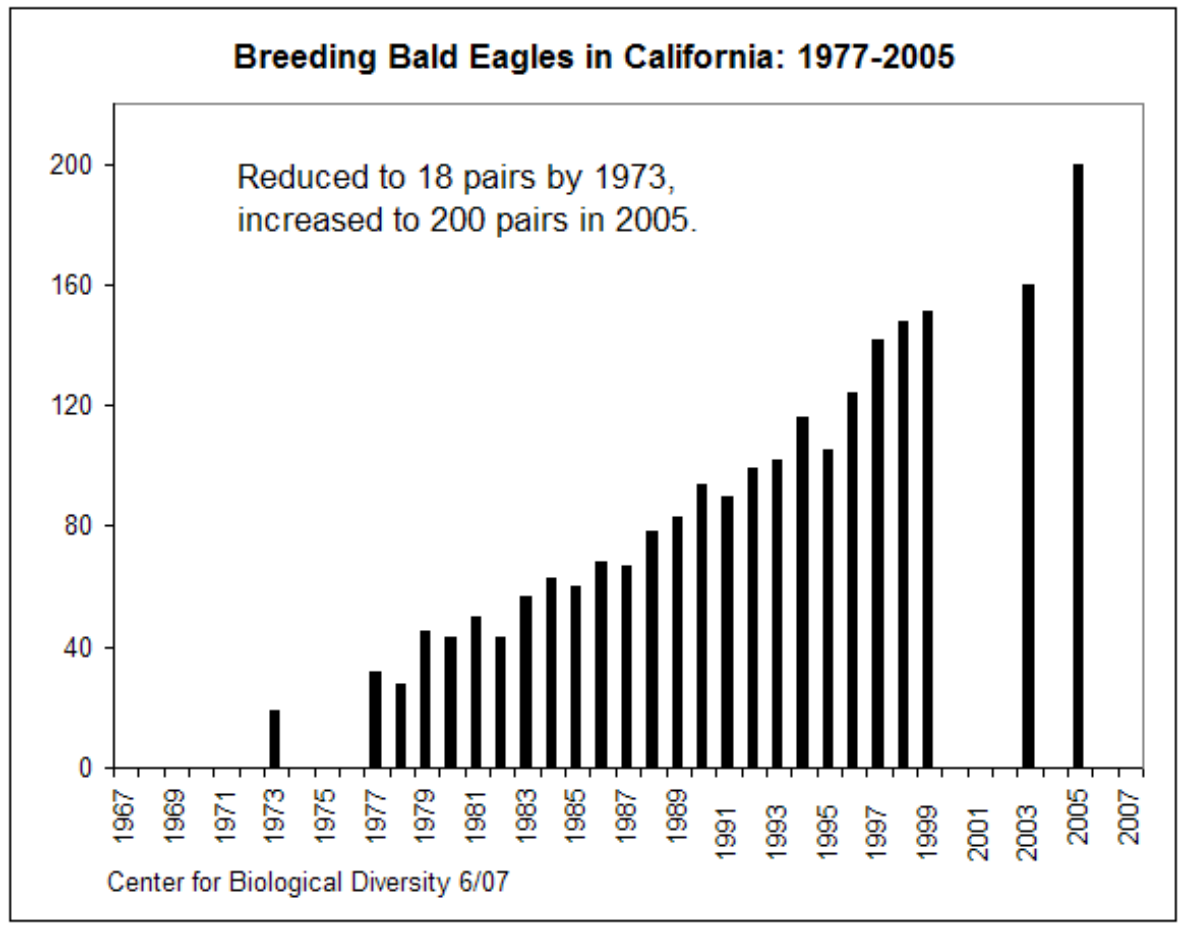








REVIEW FOOD WEB ACTIVITY



Source: Center for Biological Diversity
http://www.biologicaldiversity.org/species/birds/bald_eagle/report/index.html