

Science and the Sea



Ecological Dominos

Those terrifying and menacing predators of the sea. Let's get rid of them all!

Not so fast! Predators actually play a very important role in the balance of animal communities. Let's imagine the consequences of removing predators.

Predators can be voracious. This may seem bad, especially if their prey are valued sport fishes. But left unchecked, a prey population can grow fast enough to harm itself. As a population grows, more individuals compete for limited supplies of food and other vital resources.

This competition eventually limits the growth of individuals so that they mature later or breed at a smaller size. Maturing later increases the chances that the prey will die before they breed, and breeding at a smaller size often results in fewer eggs. Either way, fewer young are produced for the next generation.

There are also much broader effects on the entire ecosystem. For example, ecologically speaking, fur trappers were a major predator of sea otters in Alaska. In 1911, a treaty effectively removed that human predation and sea otters flourished. Since sea otters consume sea

urchins, the large populations of otters kept sea urchin populations down, which allowed kelp, the sea urchins' food supply, to thrive. But there's a recent twist to this story. Killer whales began to feed on the otters, reducing the population of otters by 25% each year. Within 10 years, sea urchin populations increased eight-fold, causing the luxuriant underwater kelp forest to collapse. These kelp forests were important nursery areas for fishes.

Ecosystems are like a network of dominos. Moving just one can start a cascade through the entire system.

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