Exploring Trophic Cascades

Species that interact with one another in a **community** ecosystem and can have positive or negative effects. These direct and indirect effects of starfish, sea otters, and other so-called **keystone** species describe a phenomenon known as a **trophic cascade.** Trophic cascades refer to impacts that reach beyond adjacent trophic levels. In this interactive, you will walk you through the consequences of ecosystem changes in four case studies. The case studies demonstrate how indirect effects mediated by changes in one species can broadly alter many aspects of community function.

Website: https://media.hhmi.org/biointeractive/click/trophiccascades/

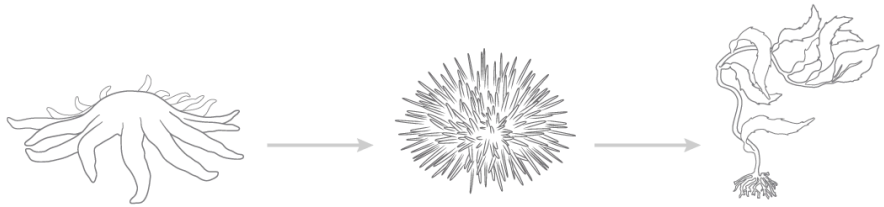
Start: *Click "Launch Interactive" the blue button above the picture. A new window should open. Click on "Introduction". Skip the "Introduction" and "Kelp Example" tabs at the top and click on "Case Studies".* Complete all 4 case studies. Write the names of the organisms and include (+) or (-) to show if it has a positive or negative effect and solid/dash lines to show the DIRECT and INDIRECT effect at each level.

Ecosystem	**Species Interactions** (*you do not need to draw organisms, just write the name. Sketch on a separate paper and paste into each box)*	**Explain**
1. Arctic Tundra		What effect did the addition of foxes have on the ecosystem? Explain in your own words.
2. Midwestern Lake		How does the bass fish affect the physical and chemical environment?

3. African Savanna		What was the result of the rinderpest vaccination program?
4. Venezuelan Jungle		What did the loss of predators do to the ecosystem?

Sea Star Effect on the Kelp Forest:

Go to https://tinyurl.com/y2z3q9vc (first link has a video!) and/or https://tinyurl.com/y3pdxbop and read about sea stars. Complete the diagram of sea star, sea urchin, and kelp. *(if you are unable to edit the image below, you can complete it on a separate paper and attach it to this document).* Do sea stars have an (indirect) positive or negative effect on the kelp forest? Draw it in.



What is causing the sea star wasting syndrome? Where did it come from? What do we know about it? How does this disrupt the ecosystem (use your model above to explain.

What is “The Blob”?