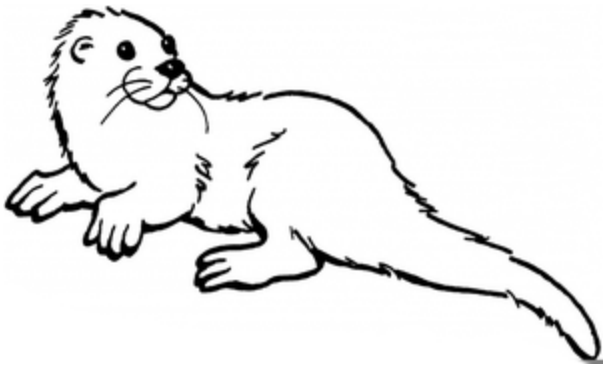
Name:_____

Trophic Cascades Click and Learn

http://www.hhmi.org/biointeractive/exploring-trophic-cascades



1. What is a “trophic cascade”?

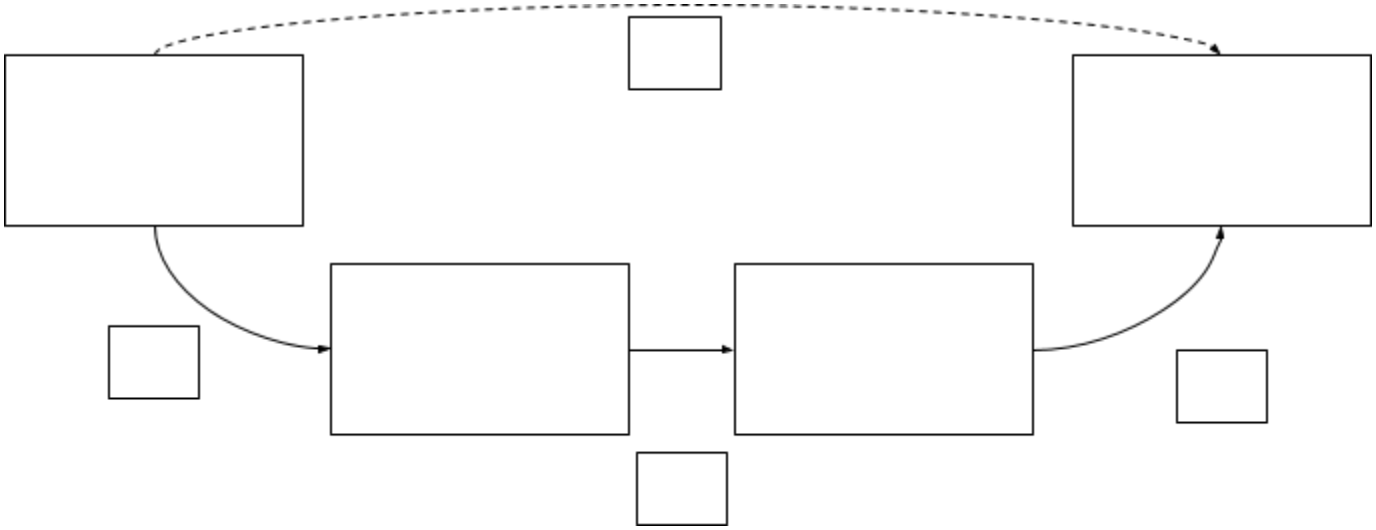
2. How is a trophic cascade (top down regulation) different from the traditional trophic pyramid (bottom up regulation)?

3. Describe the use of the symbols + and - when characterizing a trophic cascade.

4. Using the glaucous winged gull or the bald eagle as an example, explain how the diet of each is affected by the otter’s disappearance.

Case Study #1: Arctic Tundra

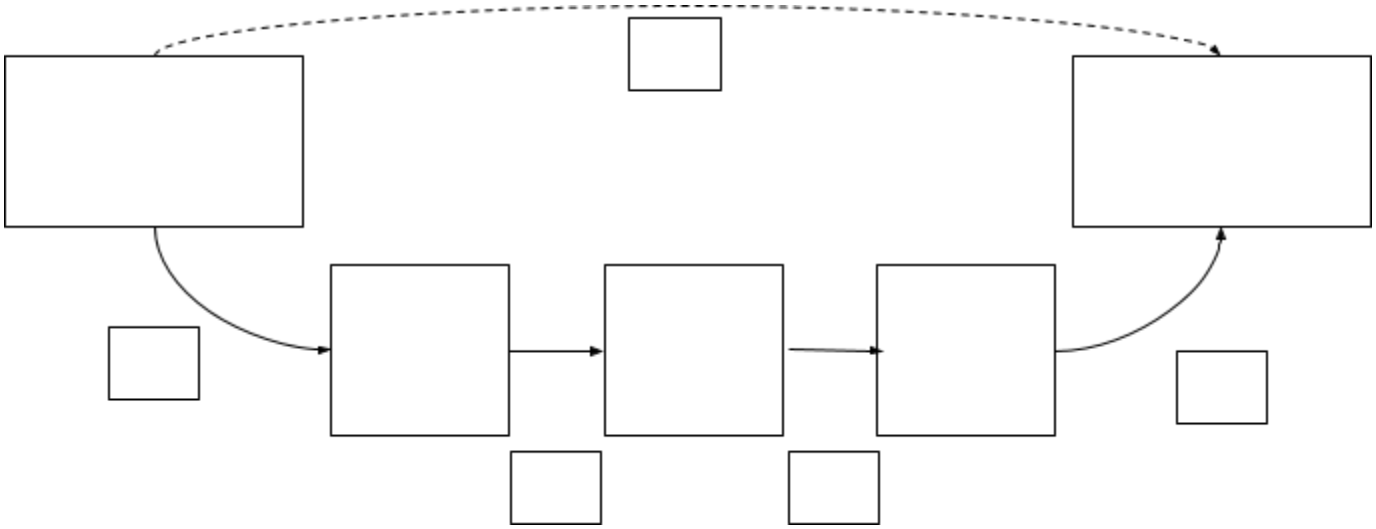
5. Use the pattern below to describe the trophic cascade. Use the drawing below to either type or write in the boxes the resulting trophic cascade.



6. What indirect effect does the predator have on the soil nutrients in the ecosystem? How does this affect the landscape?

Case Study #2: Midwestern lake

7. Use the pattern below to describe the trophic cascade. Use the drawing below to either type or write in the boxes the resulting trophic cascade.



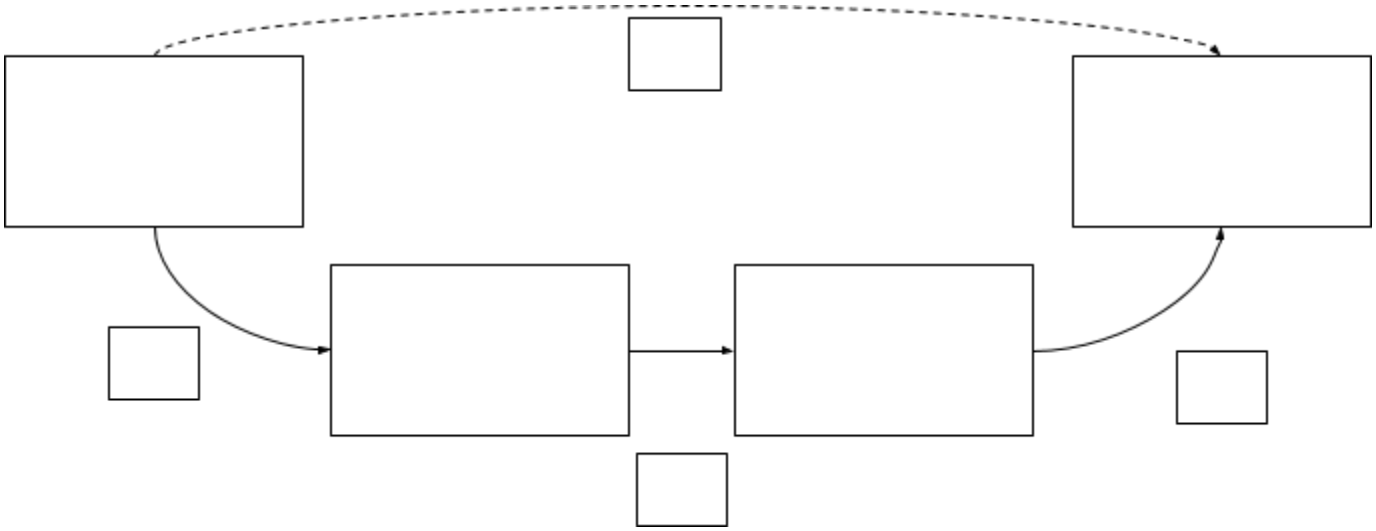
8. How does the bass predator control the amount of carbon dioxide dissolved in the lake?

9. Speculate on how an increase of carbon dioxide and a decrease of oxygen might affect the pond ecosystem.

10. How would adding a predator of the bass alter the trophic cascade? Draw your own model below. If using a digital copy, click Insert then Drawing.

Case Study #3: African Savanna

11. Use the pattern below to describe the trophic cascade. Use the drawing below to either type or write in the boxes the resulting trophic cascade.

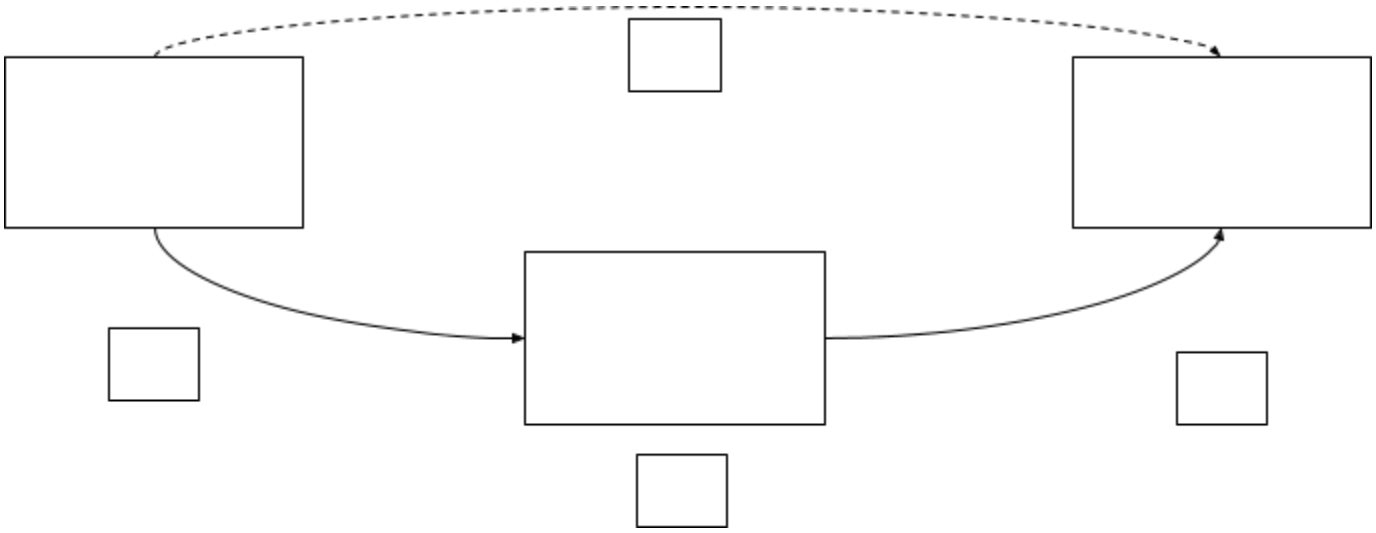


12. Describe in your own words how the trophic cascade is regulated by the direct and indirect control of Rinderpest.

13. Why would fire frequency be changed is Rinderpest was eradicated through vaccination?

Case Study #4: Venezuelan Jungle

a. Use the pattern below to describe the trophic cascade. Use the drawing below to either type or write in the boxes the resulting trophic cascade.



14. How would the loss of predators contribute to deforestation in the jungle?

15. How would you design an experiment to test the effects of this trophic cascade? Your design should include a control and a manipulated variable as well as how you would measure your results.

Keystone Species

16. In the models above, are there any examples of organisms considered to be a **keystone species**? If so, justify your choices.