# Lab 7 Response: Trophic Cascades and Ecosystem Services

## Part 1: Revealing Trophic Cascades in a Salt Marsh

1. Describe how curiosity is important to a scientist. Include parts of the scientific process that you saw highlighted in this interactive.
2. Are observations and data that contradict your expectations or understanding of science wrong or useless? Explain, listing points made in this interactive.
3. Where are salt marshes found? What are some of the benefits of salt marshes to people and to the areas in which they occur?
4. Define top-down and bottom-up controls in an ecosystem. Explain which one was thought to control salt marshes and how.
5. What plant dominates the salt marsh? How do tides affect this plant? Consider short-term (daily) and long-term (yearly) effects.
6. What nutrient limits plant growth in the salt marsh?
7. Stop the second video clip linked in Step 5 of the instructions at 0:22 seconds. Draw and label the 4 different types of experimental plots.
8. What organism(s) were observed and measured for their response to these treatments?
9. What were the responses to fertilizer? How did snails influence the response?
10. What did these experiments reveal in terms of bottom-up vs. top-down control of the salt marsh?
11. What surprising information was discovered about what snails were eating? How were the plants affected?
12. Name the predator and describe its effect on snails. Briefly describe the experiment showing that it caused these effects on snails.
13. Describe the direct and indirect effects of the predator on this ecosystem.

## Part 2: Restoring a Salt Marsh Ecosystem and its Services

1. What is a delta? Where is this delta and what river helps form it?
2. Describe the ways in which humans and natural events altered this delta area.
3. Why was there a need to restore the delta area? Describe two different structural changes used to restore the delta marshes.
4. Some different organisms are featured in the videos. Which ones have been introduced? Look up and describe the effects of these introduced organisms on the salt marsh ecosystem. Would you consider them to generally have a positive, neutral, or negative impact on the ecosystem? Cite your sources.