

Author: Nancy Hummel	Subject/Topic: Biodiversity, Invasive Species and Population Issues
Grade Level: High School	
Lesson Summary: A series of activities for student inquiry into habitat problems, invasive species and changes in populations due to human intervention within the St. Lawrence River ecosystem.	
Objectives: Students will use New York State Living Environment Core Curriculum concepts, processes and skills to learn about biodiversity issues, population trends and habitat loss within the St. Lawrence River ecosystem.	
Assessment: <ol style="list-style-type: none">1. Read informational paragraph about Common tern. Graph populations for Ohio and New York over time to determine nesting population patterns.2. Develop St. Lawrence River aquatic food web and determine trophic relationships. Introduce invasive species and determine effect on aquatic ecosystem. Research invasive species, contact research scientist for information about invasive species and techniques used. Present findings to class.3. Simulate fishing muskellunge using NYS Fishing regulations for catch, keep and release. Graph populations of resulting muskellunge sizes. Simulate fishing using catch and release programs. Graph populations of resulting muskellunge sizes.	
Learning Standards: Living Environment: http://www.emsc.nysed.gov/ciai/mst/pub/livingen.pdf	

Lesson Activities

Activity 1. Students read material about Common tern habitat and nesting sites. Students graph Common tern population in New York and Ohio to determine patterns in population between 2 sites from chart. Students analyze graph and propose possible causes for population trends based upon reading. Student propose Common tern nesting site protection.

Activity 2. Students view a presentation concerning St. Lawrence River ecosystem native species and the effects of ship ballast water discharge of invasive species upon aquatic ecosystem. Students construct an aquatic species food web using information on species cards to determine trophic levels and relationships. Students introduce an invasive species to food web to determine which trophic levels are affected by invasive. Students research invasive species, its impact, the efforts to control the invasive, success of invasive species control and future effects and spread of invasive species. Students contact an invasive species research scientist to learn how scientist is learning about the species and what technology is employed. Students present information about invasive to classmates and demonstrate the effects of an invasive species on the St. Lawrence River ecosystem using the food web cards from initial experience..

Activity 3: Students simulate fishing for muskellunge using typical New York State fishing regulations regarding catch and release of different sized fish. Students graph the remaining different sized fish population in ecosystem. Student then simulate fishing suing catch and release programs recommended by Save The River. Students graph the remaining different sized fish in population in ecosystem. Students analyze the differences between the two types of fish treatment.

Preparation/Materials Needed:

Relevant materials are posted on the Save The River Teacher Resources website, including handouts, cards and rubrics.