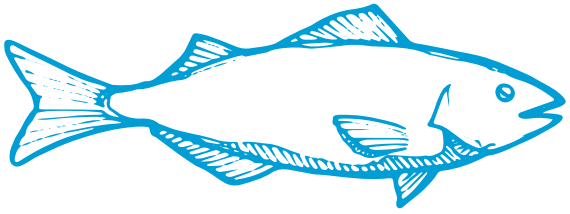
ACTIVITY 4: INVESTIGATING FOOD WEB DYNAMICS



The purpose of this activity is for students to explore the impact of invasive species on the food web dynamics crucial for whitefish survival in the Great Lakes ecosystem.

First, inform students that they will be investigating how the Great Lakes food web is impacted by invasive species, specifically how zebra mussels are affecting the whitefish population. Begin with a discussion to review food webs. Discuss the importance of a food web to an ecosystem like those found in the Great Lakes. Explain how organisms in a food web are interconnected through the transfer of energy by producers and consumers, predators and prey, in various relationships to each other.

Then, have them partner up with someone for the project. Direct them to begin their research by exploring the **Great Lakes Now Guide to Zebra Mussels**, which will introduce students to the good and bad of this lake invader. In the end, they will be creating an infographic that communicates their research on the impact that the invasive species has on the food web.

Next, further focus their research by assigning students to investigate:

- Key species in the food web (e.g., whitefish, zebra mussels, plankton, other predators).
- Interactions between these species (e.g., predator-prey relationships, competition for resources).
- The role of zebra mussels as invasive species and their impact on native species, especially whitefish.

Allow students time to conduct their research and gather information. Encourage students to use credible sources such as scientific journals, government publications, and reputable websites. They should collect data on population trends, ecological impacts, and any research findings related to zebra mussels and whitefish interactions.

Last, instruct students to create an infographic based on their research that visually represents the following:

- Structure of the Great Lakes food web, including different trophic levels (producers, consumers, decomposers).
- Specific interactions between zebra mussels and whitefish, with emphasis on how zebra mussels affect:
  - Food availability and competition.
  - Habitat alteration (e.g., filter feeding impacting plankton populations).
  - Potential indirect effects (e.g., changes in water clarity affecting fish spawning grounds).

The infographic should include:

- Visuals like icons, charts, or diagrams to illustrate relationships and data.
- Captions or annotations explaining each component of the food web and the impact of zebra mussels.
- Key statistics or findings from their research presented in a clear and organized manner.

Allow students to present their infographics to each other, comparing and connecting their research on the significance of food web dynamics in Great Lakes ecosystems.

Teaching Tip: If having students create a digital infographic, consider curating a set of templates for them to choose from ahead of time and make those available.