SCENARIO 1: Freshwater Lake Fish

Rainbow smelt are a freshwater fish that can survive in a wide range of lake environments. When rainbow smelt were introduced to Crystal Lake in northern Wisconsin, they quickly changed ecological interactions in the lake. For example, they ate up much of the food preferred by other fish. They have nearly eliminated the yellow perch, another type of fish.

SCENARIO 2: Marine Worms and Ocean Temperatures

A kind of scaleworm lives on sea stars in shallow ocean waters of the Pacific northwestern U.S. The population of the worms increases when water temperatures drop in winter, and then the population decreases as water temperatures rise through the summer.

SCENARIO 3: Insects in Fields and Orchards

Insects are a pest in crop fields, orchards, and other farmland. Evidence suggests that the introduction of a parasitic wasp can cause the populations of certain insect pests in farm fields to decline.

SCENARIO 4: Phosphorus and Algae Growth

Phosphorus is an abiotic substance needed by plants and algae to grow. When phosphorus levels in water rise due to sewage waste, the population of algae increases.

SCENARIO 5: Canadian Lynx and Snowshoe Hare

The Canada lynx is a member of the cat family, not much larger than a house cat. In northern Canada, the lynx prefers to eat snowshoe hare. When the snowshoe hare population decreases, the lynx kittens are often unable to survive.

SCENARIO 6: Oxygen and Fish Populations

Investigations of a fish population in a lake showed that it was able to survive some decrease in oxygen. But as oxygen levels continued to drop, the fish population decreased rapidly.

Source: Elaborate: Analyzing Patterns in Ecosystems Activity 1.5 Disruptions in Ecosystems