**Mapping the Spread Teacher Key: Sea Lamprey**

Directions: Choose an invasive species in your region and research how and where it was introduced into North America and the Great Lakes basin. Use a map to follow the path of how it spread throughout the Great Lakes region.

1. What is the species? (Include both common name and *scientific name*.)

Sea lamprey, *Petromyzon marinus*

1. Where is the species’ native range?

Found in the Atlantic Ocean on the United States eastern coast and the Western coast of Europe.

1. Why is the species a problem in the Great Lakes region?

Sea lamprey harm and kill many native species in the Great Lakes. The lamprey attach to the side a fish and drain the host of its bodily fluids, usually leaving an open wound. Lake trout, salmonids, and lake sturgeon are some common victims, all of which play a vital role in the food web of the Great Lakes region.

1. How does the species expand its range (move to new locations)?

Since sea lamprey migrate from open water to streams throughout the region, if canals or passageways between these bodies of water arise, sea lamprey can migrate to new spawning (releasing/depositing eggs) grounds and expand their range.

1. If not originally from North America, where was the species introduced into North America? **(Mark this location on the map)**

Sea lamprey were first recorded in Lake Ontario

1. How was the species first introduced in the Great Lakes region?

Sea lamprey were introduced to the Great Lakes when the Welland canal was constructed in 1833. The canal connected Lake Ontario to Lake Erie bypassing the natural barrier, Niagara Falls.

1. Where and when was the species first documented in the Great Lakes Region? **(Mark this location on the map)**

1835 in Lake Ontario

1. Where and when was the species first documented in Michigan? **(Mark this location on the map)**

Lake Erie in 1919

1. List all the other places in Michigan this invasive species has spread in-order of year it was found. **(Mark these locations on the map.)**
* Welland Canal & Lake Erie (1924)
* Lake Michigan (1936)
* Lake Huron (1937)
* Lake Superior (1938)
1. What patterns did you notice in the spread of this invasive species?

Answers will vary. Some examples are:

* the population spread very quickly
* the population moved North as they spread across Michigan
* the population was mostly spread through canals connecting bodies of water

1. What might be the cause of the patterns you noticed?

Answers may vary. Some examples are:

* Sea lamprey like colder waters and may be moving North towards cooler bodies of water
* Sea lamprey have no natural predators in the Great Lakes

1. What could have stopped or slowed the spread of this invasive species?

 Not creating a connection between Lake Ontario and Lake Erie through the canal, or by creating barriers or traps through that canal to monitor what enters and exits thereby stopping the sea lampreys invasion. Control methods have been employed to control the populations in the region. Some control methods are: Chemical, physical, and use of pheromones and alarm cues to push and pull the sea lamprey in desired locations. The chemicals are typically in the form of lampricides which target the young larval lamprey embedded in the sediment, physical berries and traps target migrating adults, as well as the pheromones and alarm cues.





