

Maintaining Effective Sea Lamprey Control on the Grand River

Sea Lamprey Control in Lake Michigan and the Grand River is Essential

Lake Michigan supports robust recreational, commercial, and tribal fisheries. The annual value of the fishery to the four border states (IL, IN, MI, and WI) is estimated to be at least \$2.55 billion. Invasive sea lampreys, which prey directly on most desirable species of fish, are the greatest threat to the health and sustainability of the fishery. Sea lamprey control has been successfully conducted in the Great Lakes basin since the mid-1950s and has reduced sea lamprey populations by 90% in most areas. Maintaining an effective control program is essential to sustain and improve the fishery and protect the economic benefits it generates. Widespread escapement of sea lamprey in the Grand River upstream of the 6th Street Dam in Grand Rapids would cause great harm to the fishery and ecosystem and result in significant economic damage to the Great Lakes region.

The 6th Street Dam is an Effective and Necessary Sea Lamprey Barrier

- 6 tributaries downstream of the 6th Street Dam are irregularly infested with sea lamprey and can produce more than 40,000 larvae every 3 years (figure 1).
- These tributaries, comprising 85 miles of habitat, have been treated with lampricide on an as-needed basis (Crockery & Norris Creeks in 2017; Sand Creek in 2007; Bass River in 2014; and Buck & Rush Creeks in 1965) with a treatment cost for all six tributaries of ~\$311,000.
- Larval sea lamprey were detected upstream of 6th Street Dam in the Rogue River in 2006. This breach was attributed to temporary modifications to the fishway at 6th Street; the Rogue River was treated with lampricide in 2009 at a cost of ~\$112,000 and since then, no other populations of sea lamprey have been documented upstream of Grand Rapids.
- Regular assessments requiring 30 staff days (~\$23,100) per lampricide treatment cycle are conducted on the Grand River system to determine the status of existing adult and larval sea lamprey populations, inspect barriers to migration, and identify the potential for new infestations.
- Several barriers upstream of the 6th Street Dam have been proposed for removal, including Hubbardston Dam on Fish Creek and the Webber Dam on the Grand River, would need to be modified, repaired, or replaced to prevent further infestation at a cost of ~\$16 million.

What is at Stake if 6th Street Dam is Not Replaced?

- 56 tributaries upstream of the 6th Street Dam, comprising 1,961 stream miles of habitat, could become infested with sea lampreys and produce 6.16 million larvae every 3 years (figure 2), which would require lampricide treatments every 3–4 years at an estimated cost of \$6.8 million (not including staff time).
- Treating the Grand River watershed for sea lampreys would require at least 3,350 staff days (\$3.4 million) per treatment, which is 56% of the total staff time allocated for lampricide treatments in the entire Great Lakes basin.
- Assessment efforts to monitor the status of adult and larval sea lamprey populations would require an estimated 560 staff days (~\$431,200) per lampricide treatment cycle.
- Several upstream barriers, such as the Hubbardston Dam on Fish Creek and the Webber Dam on the Grand River, would need to be modified, repaired, or replaced to prevent further infestation at a cost of ~\$16 million.
- An escapement event upstream of Grand Rapids could produce 135,000–200,000 parasitic adult sea lamprey that could kill 1.4–2.0 million fish (figure 3), with an estimated market value of \$39–\$58 million (figure 4). This would cause significant damage to the Lake Michigan fishery and the required treatment effort would lead to negative consequences in the rest of the Great Lakes.
- Any alternative located upstream of 6th Street would result in increased assessment and treatment costs, as well as require additional infrastructure investments.

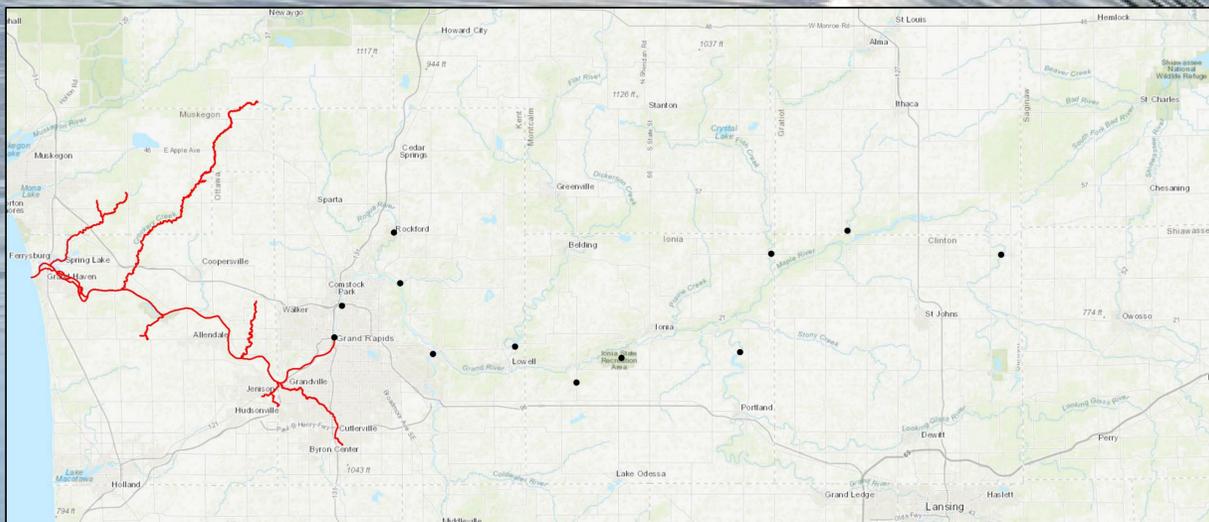


Figure 1. Current infestation extent of Sea Lamprey within the Grand River watershed.

● Barrier important to blocking sea lamprey

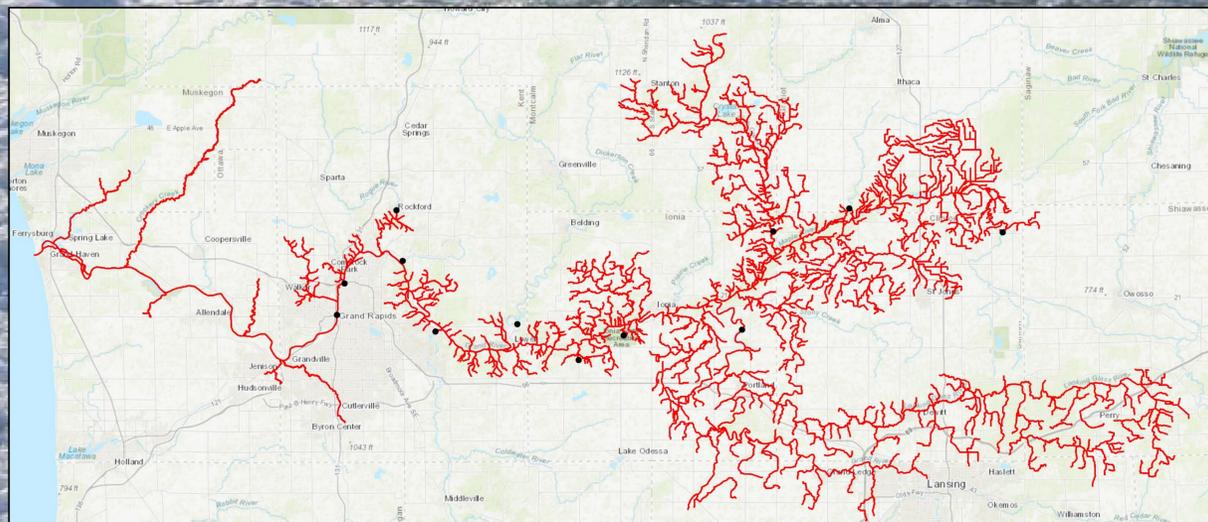


Figure 2. Potential infestation extent of sea lamprey within the Grand River watershed.

● Barrier important to blocking sea lamprey



Working together to control the invasive sea lamprey and to protect the Great Lakes fishery resources

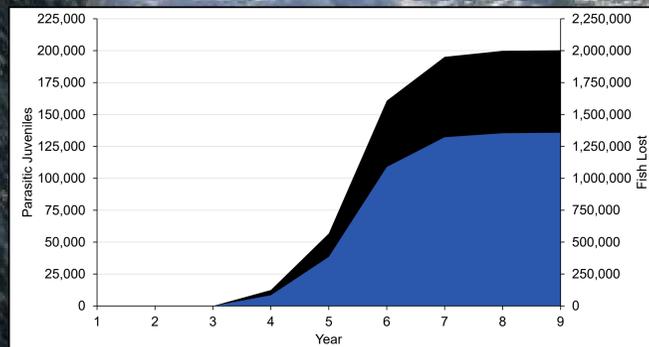


Figure 3. Cumulative parasitic juvenile sea lamprey contributed to Lake Michigan (left axis) and estimated number of fish lost (right axis) from a hypothetical escapement event upstream of 6th Street Dam. The horizontal axis indicates the years following the escapement event. Dark shading is the additional contribution from Fish Creek upstream of Hubbardston Dam.

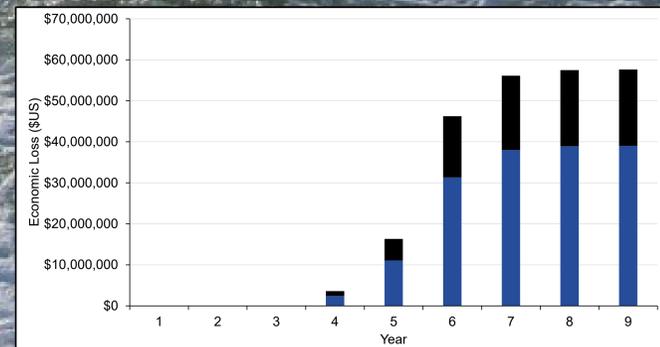


Figure 4. Cumulative economic loss from fish lost to sea lamprey from a hypothetical escapement event upstream of the project site. The horizontal axis indicates the years following the escapement event. Dark shading is the economic loss attributed to sea lamprey from Fish Creek above Hubbardston Dam.