NAME OF SPECIES: Sea Lamprey (Petromyzon marinus)

A. CURRENT STATUS AND DISTRIBUTION	
1. In Wisconsin?	a. YES ☒ NO ☐
	b. Abundance: variable - due to numerous control efforts, numbers have greatly decreased from historic highs
	c. Geographic Range: Great Lakes, connected rivers
	d. Type of Waters Invaded (rivers, ponds, lakes, etc): lakes,, rivers (to spawn)
	e. Historical Status and Rate of Spread in Wisconsin: 1919 - Welland canal deepened for fishing and lamprey migrated in, in all Great Lakes by 1938
2. Invasive in Similar Climate Zones	YES ☒ NO ☐ Where: Great Lakes
3. Similar Habitat Invaded Elsewhere	YES ☒ NO ☐ Where:
4. In Surrounding States	YES ☒ NO ☐ Where:
5. Competitive Ability	High: Proven ability to thrive in Great Lakes system with abundant prey fish, numerous control efforts required to keep populations in check Low:
B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS	
1. Temperature:	Range: 5 - 20 deg. C
2. Spawning Temperature:	Range:
3. Number of Eggs:	Range: 35,000 - 100,000 eggs laid (parents die after spawning)
4. Preferred Spawning Substrate:	migrate upstream in rivers to spawn, larvae prefer soft sediment substrates in clear streams, eggs burried in spawning redds excavated in clean, hard bottoms
5. Hybridization Potential:	none found
6. Salinity Tolerance	Fresh: ☒ Marine: ☒ Brackish: ☒
7. Oxygen Regime	Range:
8. Water Hardness Tolerance	Range:

9. Easily confused for Native Species?	List: could be confused with other, non-parasitic lamprey
C. DAMAGE POTENTIAL	
1. Likelihood of Damage	a. Presence of Natural Enemies:
	b. How well introductory and expansion pathways can be described and quantified: 1919 - welland canal deepened for fishing and lamprey migrated in, in all Great Lakes by 1938, migrates between connected waters
2. Environmental Impacts	a. Alteration of ecosystem composition, structure and function: adult sea lamprey are parasitic feeders on large fish
	c. Damage to ecosystem resilience/sustainability: cisco, lake trout, and walleye populations declined dramatically in the Great Lakes following invasion (and before control began)
	d. Loss of biological diversity:
	e. Abiotic modifications (affects on turbidity, H2O chemistry, etc.):
	f. Biotic effects on other species (loss of cover, nesting sites, forage, changing competitive relationships: The alewife invaded the Great Lakes in the 1940s. Because sea lamprey had greatly decreased predator fish populations, alewife populations exploded and were then followed by massive die offs. Also, due to decimation of native predatory fish populations by the lamprey, a Great Lakes sport fishery was created with stocking of Chinook salmon in the 1960s.
D. NET SOCIO/ECONOMIC IMPACT	
1. Positive aspects of the species to the economy/society:	Effect: used for food - delicacy in parts of Europe
2. Direct and indirect effects of the invasive species:	Effect:
3. Type of damage caused by organism:	Effect: kills desirable fish species
Industries affected by invasive:	Effect: commercial and recreational fishing industries
4. Loss of aesthetic value affecting recreation and tourism:	Effect:
5. Increased cost to a sector (monitoring, inspection, control, public education, modifying practices, damage repair, lower yield, loss of export markets due to quarantine:	Effect:

6. Cost of prevention or control relative to cost of allowing invasion to occur (cost of prevention is borne by different groups than cost of control):	Effect: Control costs shared by US and Canada have allowed populations of desirable and economically important fish species in the Great Lakes, including lake trout, to rebound. Control efforts really took off in the 1950s when lampricide use began.
7. Cost at different levels of invasion:	Effect: As of 1991, it's estimated that the US and Canada were spending $8 million per year on lamprey control and $12 million per year on lake trout restoration.
E. CONTROL AND PREVENTION POTENTIAL	
1. Costs of Prevention (including Education):	
2. Responsiveness to Prevention Efforts:	
3. Detection Capability:	
4. Control Tactics Effective:	Mechanical: ☒ Biological: ☐ Chemical: ☒
5. Efficacy/Feasibility of Control (effort, # of staff):	Sea lamprey populations in the Great Lakes are kept in check by a combination of controls - lampricide application, barrier installation, sterile-male releases, and trapping
6. Cost of Control:	High: ☒ Medium: ☐ Low: ☐
7. Non-Target Effects of Control:	Lampricide TFM sometimes harmful to other fish as well as larvae of non-parasitic lamprey species
8. Threshold at which control would be attempted:	
9 Efficacy of Monitoring:	