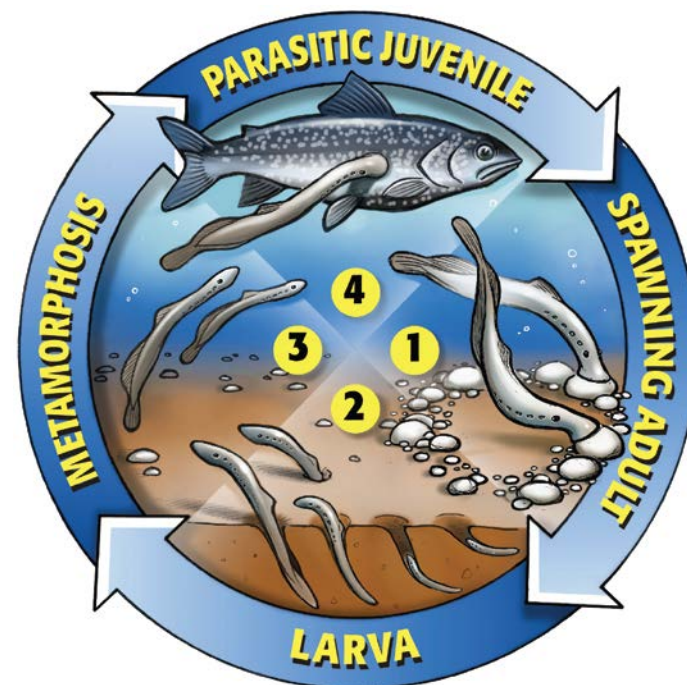


	Population Ecology	Behavioral Ecology	Toxicology	Physiology	Genetics	Chemosensory Communications	Experimental Control Methods	Non-Theme
Population Ecology	Better understand drivers of population abundance at various sea lamprey life stages	Density-dependent behavioral responses	Population-level sublethal effects of lampricide treatment	Climate-induced changes in growth & condition	Quantitative assessment of sea lamprey abundance using genetic techniques (e.g., eDNA)	Role of larval pheromones in spawner stream selection	Novel control strategies for each sea lamprey life stage	
	Behavioral Ecology	Identify aspects of sea lamprey behavior vulnerable to manipulation to improve sea lamprey control strategies	Avoidance behavior and possible contribution to lampricide resistance	Physiological drivers of behavior	Heritable basis for sea lamprey movement and behavior	Manipulating sea lamprey behavior using pheromones	Electrical guidance to improve trapping for control	
		Toxicology	Improve understanding of sea lamprey sensitivity to toxicants	Metabolism of lampricides	Use genomic data to inform next-generation lampricides	Olfactory inhibition from contaminants	Next-generation lampricides	
			Physiology	Increase understanding of physiological processes of sea lamprey	Gene silencing as a control mechanism	Olfactory perception of chemosensory cues	Push-pull strategies	
Genetics	Use genetic and molecular techniques to develop novel sea lamprey control strategies	RNA interference of chemosensory function		Genetic-based control methods (e.g., RNA interference)				
	Chemosensory Communications	Promote biological understanding of chemosensory communication to develop novel sea lamprey control strategies	Integrate chemosensory communication with novel control strategies (i.e., pheromone baited traps)					
Experimental Control Methods		Highlight current control methods for sea lamprey and identify experimental control strategies						

Sea Lamprey Research Program

This table highlights broad examples of the cross-cutting concepts that fit within the research themes of the Great Lakes Fishery Commission's Sea Lamprey Research Program. Each broad concept has an overarching goal presented in the grey boxes. Investigators are encouraged to use these examples as inspiration to develop research project ideas but should also consult the research theme papers and research priorities of the Sea Lamprey Control Board (see links below) to explore how their proposed research projects address one or more research themes.



Please visit the Great Lakes Fishery Commission website for additional resources: Research theme papers: <http://www.glfsc.org/research/SRra.php>; Sea Lamprey Control Board's research priorities: http://www.glfsc.org/research/SLCB_research_priorities.pdf; GLFC Strategic Vision: <http://www.glfsc.int/pubs/SpecialPubs/StrategicVision2012.pdf>.