**Sea Lamprey Sampler Presentations Note Sheet**

Note: Each section has some of the key ideas for each topic. More detailed information is available in the “Sea Lamprey Sampler Teacher Resource Document”.

**Provide 3 or more unique things you learned from each category.**

| **Anatomy and Physiology**(i.e., body structures and their function for survival)* All lamprey
	+ Eel like, no scales, sucking disk mouth, no jaw
	+ Classification: Member of the “superclass” *Agnatha* (jawless fish)
	+ Simple nervous system
* Sea lamprey
	+ 1st and 2nd dorsal fins separated
	+ Close together, bicuspid teeth
	+ Rasping tongue
	+ Papilla on mouth help stick to fish body
	+ Brain has beginning parts of complex vertebrate brain
* Produce large amounts of offspring each season (high fecundity)
* Survive in substrate away from predators during larval stage
* Low feeding during larval stage
* Very tolerant to changes in the environment
 | **Native Range** (including ecosystem niche/role, e.g., evolutionary relationships such as predator-prey or parasitism)* Live in marine and freshwater environments
* Spawn in rivers
* Native to Atlantic coast of Labrador, Gulf of Mexico, Florida, Atlantic coast of Europe and the Mediterranean Sea
* Endangered in some native areas because of dams, overfishing, pollution and habitat loss
* In their native habitat they are naturally kept in control by other native species
* No natural predators to keep them in control in the Great Lakes
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| **History in the Great Lakes*** First sighting in 1800s
* First found in Lake Ontario
* Moved to other Great Lakes using connecting streams, rivers and fish
* Found in all Great Lakes in the 1940’s
* Currently found in all Great Lakes
* Early entrance to the Great Lakes system assisted by human construction of shipping canals.
 | **Life Cycle*** 2 phases of life cycle:sedentary (larval) phase and parasitic (free-swimming) phase
* Larval stages live in freshwater
	+ Larval stage: ammocoetes
	+ Lasts 3-4 years sometimes up to 10
	+ Not parasitic
* Migrate to large bodies of water as juveniles
	+ Transformation starts when the eyes and disk mouth develop
* Parasitic (juvenile) stage occurs in lakes and oceans
	+ Lasts from 12-20 months
	+ Parasitise fish
	+ Sea lamprey in the Great Lakes do not migrate to the ocean
* Adults breed in streams and lakes
	+ Return to their natal stream/lake for spawning
	+ Spawn once and die
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| **Impact on Great Lakes Ecosystems** * During parasitic phase sea lampreys kill up to 40 pounds of fish
	+ Sea lamprey prey fish can die from malnutrition or an infection from the wound left by the lamprey
* Lack of natural predators
* Native fish have no natural defenses against sea lamprey
* Great Lakes fish species are smaller and have smaller population sizes than marine fish so sea lamprey effects are greater
 | **Impact on Great Lakes Economies*** Negatively impacts fishing industry surrounding lake trout
* Lake trout help maintain the food web
* Caused a decline in fisheries; decline in fish
* Sea lamprey provide no economic benefit
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| **Methods of Control**(Include how each method controls the population.)* Lampricides–most used and most effective
	+ TFM: targets sea lampreys as larvae; kills them before they form a parasitic mouth; doesn’t affect native sea lamprey; doesn’t affect chemical make-up of stream.
	+ Bayluscide: used in slow-moving or deep water; could be used with TFM or on its own; less expensive than TFM
* Barriers–walls that block migration of adult sea lampreys
	+ Reduces access to spawning streams
	+ Allow other native fishes to jump but not sea lamprey
* Pheromones and alarm cues–natural chemicals released into water by sea lampreys and other organisms.
	+ Detract sea lampreys from suitable spawning habitats
	+ Used to lure adults to unsuitable spawning areas or
	+ Raise an alarm to keep away from their natural spawning area
* Traps–not very successful as a control but allows scientists to study populations spawning in certain streams; often used in conjunction with barriers.
 | **Career Pathways Associated with Sea Lamprey Study and Control*** Provide job opportunities to fisheries and wildlife biologists
* Sea lamprey control teams identify areas where control is needed, monitor controlled areas and put control methods in place
* Chemists produce and test chemical treatments
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