**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 |
| **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 |
| **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 |