



Pacific Lamprey *Entosphenus tridentatus*

June 2016

Field Notes

As we waded in the Smith River this past weekend, small fish seemed to appear out of the gravel right below our feet. We excitedly identified these as juvenile lampreys, although we could not determine the species.

General Description

Lampreys are a primitive fish that date back 450 million years. They have no true jaw, paired fins, or scales, and have breathing holes instead of gills. While not related, they look similar to eels (their similarity gave the Eel River in Northern CA its name due to large lamprey populations). In marine environments, the Pacific lamprey has black to green backs, and are brown in freshwater. As larvae, they are nearly indistinguishable from the western brook and river lampreys. Adults can be distinguished by their three large anterior teeth and several smaller posterior teeth. They can reach 30 inches in length. Their name comes from the Latin word *lampreda* which means “stone licker”.



Photo: Pacific lamprey mouth. FISHBIO (<http://fishbio.com/field-notes/wildlife-ecology/designed-to-suck>)

Life History

Similar to salmon and steelhead, lampreys are anadromous, reproducing in freshwater, but

feeding as adults in the marine ecosystem.

Spawning males and females use their mouths to move sediments to construct nests in gravel. After thousands of eggs are deposited and covered with sand and gravel, the adults die. Within 30 days the nearly immobile ammocoetes (larvae) hatch and live buried in the stream bottom for up to 7 years; they move to coarser substrate as they mature. Ammocoetes are filter feeders and primarily eat suspended algae, diatoms, and detritus.



Photo: Lamprey ammocoetes. USGS (<http://or.water.usgs.gov/proj/lampreys/>)

As ammocoetes transform to juveniles, they undergo multiple changes, including the development of eyes and teeth, and they become free swimming. As juveniles move to the ocean, they weigh less than an ounce. When they mature to adults, they become parasitic and feed on a variety of fish by latching on and feeding on blood and other body fluids. After 1-3 years in the ocean, they can weigh up to 2 pound. They return to freshwater to eventually spawn; feeding does not occur during this migration.

Habitat and Distribution

Pacific lampreys have been detected in Japan and from Alaska to Mexico. In freshwater, they have similar requirements to salmon; they need cold and clear water, with sections of slow moving water with fine sediments.

Ecological and Cultural Significance

The Pacific lamprey is an important food source to other fish, birds, and mammals. When lampreys are abundant, the predation on this species reduces the predation on young salmon and steelhead. Numbers of Pacific lamprey have declined in recent decades for a variety of reasons including loss of habitat, migration barriers, poor water quality, and predation from introduced species. Not surprisingly, these are some of the same reasons that their fellow anadromous species are threatened. The lamprey is an important fish for Native Americans. Before its decline, it was a significant food source, especially in the months when salmon was not available; it was also used for medicinal and ceremonial purposes.

Where Found in the Klamath Network

This species is found in Redwood National and State Parks. It may also occur in Whiskeytown NRA.



Photo: Adult lamprey by Jeremy Monroe, Freshwaters Illustrated, USFWS.

More Reading

<http://oregonstate.edu/terra/2014/01/survivors-from-the-depths-of-time/>
<http://www.fws.gov/Pacific/fisheries/phabcon/lamprey/index.cfm>