



Does small-scale suction dredge mining alter river bedland lamprey habitat?



Lamprey larvae range in size. Some are so small and translucent they are hard to see and others are multiple inches in length.



Suction dredging impact assessment within an experimental stretch of the Entiat River, Washington.



Survey transects were established downstream and monitored for impacts to water quality and sediment composition. Transects were mapped for direct changes to the channel bed.

Pacific lamprey (*Entosphenus tridentatus*) are a native, anadromous fish that has been identified as a species of importance for Washington State. Acting as an ecosystem indicator for aquatic health, a predation buffer for salmonids, and an important cultural resource, lamprey are essential towards proper functioning ecosystems of the state. Lamprey within the region generally spawn in late spring to early summer. After hatching, ammocoetes (lamprey larvae) disperse downstream to burrow in shallow substrate for approximately 3-8 years. Current regulations within Washington State are minimal in regard to small-scale suction dredge mining. WDNR is responsible for the management of state-owned aquatic lands and therefore has taken steps towards identifying how this activity alters river bedland habitat for lamprey and salmonids.

AAMT has collaborated with Central Washington University to quantify impacts of a single dredge within a survey site in the Entiat River, a state-owned aquatic system located in the Eastern Cascades. The Entiat River was chosen due to the documented presence of Pacific lamprey within the channel, the river as previously being state-managed, and the lack of dredge mining occurring for an accurate pre- and post- impact assessment.

Downstream transects were monitored for effects to water quality and sediment grain size distribution while transects directly within the dredged region were mapped for morphological changes in the channel bed. Preliminary results indicate that river systems of this size experience significant impacts within the localized region surrounding the dredging activity. Large amounts of substrate are destabilized and removed, having the potential to significantly impact Pacific lamprey through entrainment of eggs and larvae, as well as destabilizing and altering the sediment distribution of important spawning and rearing habitat. Although significant impacts may occur to the localized dredge region, water quality monitoring has shown rivers of this scale are sufficiently adapted to dilute effects of a dredge down river.