Riverbed disturbances of spawning sea lampreys

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Sea lampreys impact rivers for months, perhaps years, due to their disturbance of streambeds when they spawn, say University of Maine researchers.

Robert Hogg, a master's graduate who participated in the study, writes in a journal article that sea lampreys (Petromyzon marinus) are ecosystem engineers.

The physical disturbance caused by their "nest-building activity was significant and persistent" and increased "habitat heterogeneity" and favored "pollution-sensitive benthic invertebrates and, possibly, drift-feeding fish," according to the researchers.

Sea lampreys increase the complexity of a streambed by "creating and juxtaposing shallow, swift, rocky habitat patches with deep, slow, sandy habitat patches," says the article. The effects are "similar to those of Pacific salmon."

As an adult, sea lampreys are parasitic fish that resemble eels. They use their circular mouths filled with circular rows of teeth to latch onto other fish and feed on their blood.

Hogg and the research team examined spawning sea lampreys in Sedgeunkedunk Stream, a tributary of the Penobscot River, in 2010 and 2011. The team says it conducted the study during "a modest run" of sea lampreys, since access to Sedgeunkedunk Stream had only recently been restored due to dam removal.

"The scale of this reported influence, therefore, is a fraction of the potential ecological impact that larger populations of sea lampreys may formerly have delivered to habitats throughout their native range," the scientists say.

The research team also included UMaine Associate Professor of Freshwater Fisheries Ecology Stephen Coghlan Jr., Joseph Zydlewski with the U.S. Geological Survey, Maine Cooperative Fish and Wildlife Research Unit, and Kevin Simon of the University of Auckland in New Zealand.

The team's research results are included in "Anadromous sea lampreys (Petromyzon marinus) are ecosystem engineers in a spawning tributary," which will be published in the June edition of *Freshwater Biology*.

More information: Hogg, R. S., Coghlan, S. M., Zydlewski, J. and Simon, K. S. (2014), "Anadromous sea lampreys (Petromyzon marinus) are ecosystem engineers in a spawning tributary." *Freshwater Biology*,

59: 1294–1307. doi: 10.1111/fwb.12349