RELATIONSHIP BETWEEN ENERGETIC STATUS AND MIGRATORY BEHAVIOR AND SUCCESS IN PACIFIC LAMPREY: PRELIMINARY RESULTS

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ABSTRACT

Little is known about the migratory ecology of Pacific Lamprey, *Lampetra tridentata*. Notably, lamprey have a high lipid content compared to bony fishes and are thought to be more flexible in their migration behavior than anadromous salmonids. The objectives of this study were to determine whether lipid content of lampreys can be non-invasively determined with a Distell Fatmeter, determine the associations between lipid content and other fish traits, and to examine the relationship between initial lipid content as a measure of energetic status and lamprey migratory behavior and success.

In 2008, tissue from 20 lamprey were sampled for proximate biochemical analysis to determine the ability of Fatmeter to successfully estimate tissue lipid content. The Fatmeter estimates were significantly associated with tissue lipid level, though the strength of this relationship was not as strong as previously observed for adult salmon. Using a Distell fat meter, a estimate of tissue lipid content was obtained during tagging for radio tagged fish at Bonneville Dam in 2007 and 2008 and HD PIT-tagged lampreys in 2008.

Preliminary study results will include comparison of the mean and variability in lipid content in the sample population, associations of lipid content with length, girth, mass and condition factor, seasonal pattern of lipid content during the run season, and an examination of the relationships between initial lipid content and migration behaviors including migration success to lower Columbia River dams and total migration distance. Increased knowledge of initial condition and migratory behavior may facilitate development of appropriate management and restoration plans for Pacific Lamprey in the Columbia River Basin.