

**Title:** Environmental DNA (eDNA) Identification of Steelhead and Coho Salmon Redds in the Hoh River, WA

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Fisheries managers rely on accurate redd counts to assess the population status and trends of Pacific Salmonid species (*Oncorhynchus* spp.). Salmon and Steelhead (*Oncorhynchus mykiss*) sometimes spawn in the same place and time, making identification of the species responsible for the red difficult. In these cases, identifying redds to species is typically accomplished through a combination of redd morphology and date, which can be prone to error. Environmental DNA has recently been shown to be a promising tool to aid in the identification of Salmon redds (Strobel et al. 2017). Here we investigated if eDNA could distinguish the redds of Coho Salmon (*O. kisutch*) redds and Steelhead (*O. mykiss*) in tributaries to the Hoh River, WA. Our goals were twofold, 1) to determine the accuracy to which we can utilize eDNA to determine the species of a redd, and 2) to determine the change in eDNA concentration in a redd over time, so as to better determine the optimal time after redd development to sample for eDNA. We sampled 21 suspected steelhead redds, and 15 suspected Coho salmon redds. eDNA was sampled from the interstitial gravel of the redd, and adjacent water column. We found that in general, the mean concentration of eDNA was highest in each respective species redd. Additionally, it appears as if the common trend in eDNA concentration is a general decrease through time. In conclusion, utilizing eDNA to determine the species of Salmon redds, is a promising new tool in Salmon conservation and management. This study provides direction on how to improve our sample collection and laboratory analyses for future studies.