Title : Development and Maintenance of Riparian Buffers for Salmonid Bearing Rivers and Streams of the Olympic Peninsula

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Major : Environmental Science

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ABSTRACT

Riparian buffers serve as a critical natural infrastructure for maintaining water quality and ecosystem health, particularly in riparian areas that are frequented by endangered salmonids. This study examines the efficacy of riparian buffers in improving water quality for anadromous fish, with a specific focus on the Olympic Peninsula in Washington State. Given the region's ecological significance, particularly for salmon populations, enhancing water quality is paramount for salmon habitat restoration and conservation efforts.

This research evaluates various riparian buffer configurations, including vegetation type and buffer width and length, to determine their effectiveness in mitigating pollutants and supporting salmonid populations. Additionally, this study investigates broader salmon habitat quality improvements associated with riparian buffers, such as their role in regulating stream temperature, flow speed, bank erosion, and food sources, all critical factors for salmon survival. Data collection involves sampling historic fishery data and active water quality monitoring across multiple sites, with comparative analysis to assess buffer performance under different conditions.

Preliminary findings indicate that well-established riparian buffers significantly enhance water quality and contribute to improved thermal regulation and oxygenation in stream ecosystems. These results underscore the importance of riparian restoration initiatives in pasture-dominated watersheds and provide actionable insights for land managers and policymakers seeking to enhance salmon habitat resilience. This research highlights the necessity of integrating riparian buffer strategies into broader watershed management plans to support long-term ecological sustainability in the Olympic Peninsula.

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