Evaluation of Restoration Designs With Respect To Floodplain Regulations: A Holistic Perspective

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Abstract:

The goals of many stream restoration enhancement activities, including large wood placement, riparian plantings, bank stabilization, and fish passage design, are to improve the value and function of the adjacent floodplain. However many floodplain regulations generally do not take into consideration geomorphic processes and riparian function. As a result, many restoration activities are at odds with floodplain balance cut & fill and conveyance regulations, and vice versa.

This presentation, through specific case studies, will review several types of stream restoration activities and evaluate their design and performance with respect to floodplain regulations and concerns. Discussion topics will include: the placement of large wood with respect to channel conveyance, anchoring, and debris accumulation, riparian restoration plantings and its effect on floodplain conveyance and Mannings roughness coefficients, fish passage design and bank stabilization in regard to balance cut and fill requirements.

The presenter will discuss specific analytical tools used to evaluate floodplain impacts and address floodplain regulations during the planning and design process. The presenter will also evaluate the on-going performance and function of these restoration designs.

About the Presenter:

Adam Zucker is a civil engineer with 13 years of experience working on municipal infrastructure and natural resources restoration projects. Adam combines his strong background in biological and natural sciences with traditional civil and environmental skills to identify the most effective solutions to water resource projects. He has technical expertise in water quality and stormwater detention facility design, Underground Injection Control (UIC) facility closure, hydraulic and hydrologic modeling, utility layout, and roadway design. He also has a background in fluvial geomorphology and is qualified in fish passage design and permitting for the replacement and design of culverts and other in-stream structures. He has experience designing complex large woody debris structures throughout the Pacific Northwest.