

How Much Room Does a River Need? Approaches From Floodplain Restoration in the Pacific Northwest

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Over the past decade, stream restoration practitioners have increasingly emphasized floodplain reconnection to address the encroachment and disruption of natural floodplain processes by historic development. By giving the river space, floodplain restoration creates room for the river to move and build habitat through time. More space also brings forth benefits to people experiencing increasing flood risk, especially as levees age and climate change impacts compound. These restoration and management efforts beg the question: how much room (floodplain) does a river need? The answer(s) to this question are multi-faceted, just like the benefits from connected floodplains and the dependencies of people on rivers. This presentation will review existing tools and emerging methods we have developed to evaluate this question of space, while considering both floodplain habitats and reduced hazards to people and infrastructure from stream dynamics. We present on our reach-scale evaluation methods that consider habitat area, flood potential, erosion potential, and lateral migration of dynamic streams within the Pacific Northwest. Our approaches emphasize relative (incremental) benefits of floodplain expansion, to address complex decisions needed for restoration in and around built floodplain environments. We intend to generate discussion about how stream restoration and floodplain management communities can develop more comprehensive planning approaches that apply to broad geographies and river systems, thereby achieving greater balance for people and ecosystems.

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