

Ecosystem Management and Restoration Research Program (EMRRP) Technical Report

Title: Evaluating Ecological Effects of Sustainable Sediment Release

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Abstract: Sediment management at reservoirs is becoming an increasingly urgent issue, as sediment accumulation affects operational capacities for water conveyance and mitigating flood risk. Sediment management via bypass may provide opportunities for improving sediment continuity, restoring geomorphic and ecosystem functions; as well as potentially reducing maintenance costs. However, there are concerns about ecological impacts downstream. This research effort investigates the ecological effects of sediment release, including developing tools such as paired sediment transport and ecosystem modeling and a Web Application collating case studies and analysis techniques. The objective of this ongoing research effort is to develop tools to inform decision-making and planning for innovations in sediment management.

Darixa Hernández-Abrams Bio:

Darixa Hernández-Abrams is a Research Ecologist with the U.S. Army Engineer Research and Development Center (USACE-ERDC) Environmental Laboratory (EL). Her work focuses on integrating ecological modeling in restoration and planning work, improving ecological modeling practices, and assessing environmental effects of Corps projects. Prior to joining ERDC, Hernández-Abrams earned a B.S. degree in Biology from the University of Puerto Rico, Mayagüez and completed an M.S. in Conservation Ecology and Sustainable Development at the University of Georgia. Her M.S. thesis focused on hydrological disturbances in tropical stream ecology in Costa Rica, where she spent a year studying perennial and intermittent streams, as well as monitoring water quality throughout the Bellbird Biological Corridor. Darixa is currently a ERDC Long-Term Training participant, studying a PhD in Water and Soil Sciences from the UGA Warnell School of Forestry and Natural Resources.

Aubrey Harris Bio:

Aubrey Harris is a research civil engineer in the Environmental Lab. She works at the nexus of civil engineering, ecology, and local knowledge. She acquired her Doctorate in Civil Engineering at the University of New Mexico and has a minor in Community and Regional Planning. She received her Master's at West Virginia University and Bachelors in Biological and Agricultural Engineering at Texas A&M. She sits at the USACE District in Albuquerque, NM.