

The Beneficial Reuse of Dredged Sediments to Construct Ecotone Levees: Challenges and Results from Lower Novato Creek

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There is a much increased awareness in recent years of the importance of beneficial reuse of dredged sediments to prepare for sea level rise (so called “sediment capital”). Across many vulnerable areas around the Bay there is almost certainly a deficit of sediment to raise shoreline elevations and construct ecotone levees for habitat and sea level rise. However, in practice this goal has been very difficult to achieve given a number of technical, economic and permitting challenges. In Fall 2016, Marin County Flood Control District #1 performed their quadrennial creek dredge from Middle and Lower Novato Creek. Instead of hauling the dredged sediments to the landfill or uplands as typically done in the past, the District worked closely with the RWQCB (especially Christina Toms) as well as other permitting agencies to place these sediments along the alignment of future sea level rise ecotone levees within jurisdictional wetlands in order to prepare these areas for restoration to full tidal conditions. The Districts goal was to place these sediments cost-effectively and without mitigation. The District completed the project construction in November 2016 and placed several thousand yards of dredged sediments both for the levee core as well as the ecotone levee slope.

The challenges and results of this design and permitting process will be show along with the results of several approaches to slurring and hydraulically placing dredged sediments transported by truck to the placement area and a discussion of constructability. This talk will present a very straightforward presentation of the practical obstacles to beneficial sediment reuse from the perspective of a practitioner in local government.

Keywords: sea level rise, dredged sediment, beneficial reuse

Session Title: Science Innovations for Sea Level Rise Adaptation

Speaker Biography: Roger Leventhal, P.E. is a Senior Engineer with the Marin County Public Works Flood Control Division. He has a MS from U.C. Berkeley in Hydraulics and Coastal Engineering and worked for over 24 years as a private engineering consultant specializing in creek/tidal wetlands restoration prior to coming to Marin County. He has particular expertise in the beneficial reuse of dredged sediments by leading the Montezuma Wetlands project and as a technical advisor to the USACE on the Hamilton Wetlands project. He has helped design and build several innovative projects that use natural systems to provide flood protection with habitat; especially tidal wetlands and coarse-grained bay beach systems. He is currently working closely with County planning staff to develop sea level rise adaptation alternatives that use both these “soft” engineering approaches to flood protection, such as wetlands and beaches, with more traditional “hard” engineering measures.