First of its Kind: Subaqueous Restoration Using In-Lieu Fee Mitigation Funds at Paradise Creek on the Elizabeth River in Portsmouth, Virginia

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Background/Objectives. The highly industrialized Elizabeth River in southeastern Virginia is identified as a toxic region of concern by the multi-state Chesapeake Bay Program. Legacy contaminants identified in the sediment of Paradise Creek, a tributary of the Elizabeth River, will be remediated using in-lieu fee mitigation funds. On April 30, 2018 the Living River Restoration Trust (LRRT) was awarded 16 advanced sediment restoration and rehabilitation mitigation credits. The advanced sediment mitigation credits will be available to permit applicants as an option to off-set unavoidable permitted impacts to submerged river bottom sediment. LRRT, working in consultation with Anchor QEA - O'Brien & Gere Joint Venture, developed a scalable project in Paradise Creek that provides an acceptable and suitable sediment restoration approach that can be implemented through the Compensatory Mitigation process and is funded through the sale of advanced mitigation credits.

Approach/Activities. The Paradise Creek mitigation site spans a total of 25 acres, of which 10 acres are proposed for mitigation. Data collected from 67 sediment cores indicate Paradise Creek sediment is impacted with polychlorinated biphenyls (PCBs), polynuclear aromatic hydrocarbons (PAHs) and heavy metals. In evaluating the potential for sediment toxicity, effects range-median quotients (ERMQ) were developed. Based on the results of the ERQM analysis, sediment PCB concentrations appear to be the main driver influencing the ERMQ values. The mitigation site is comprised of five sub-areas with varying degrees of sediment impact. Eight advanced sediment restoration credits (one quarter acre each) covering a total of two acres are available. Mitigation will consist of one of the following two methods: 1) restoration will involve dredging 1-foot of impacted sediment followed by placement of a direct amendment of activated carbon over the newly exposed sediment followed by placement of clean sand backfill to the approximate pre-existing surface elevation, or 2) restoration will consist of applying a thin layer direct amendment of activated carbon over the existing surficial sediment as a form of in situ treatment.

Results/Lessons Learned. The regulatory Inter-agency Review Team (IRT) has approved Paradise Creek as a suitable and appropriate mitigation site. LRRT is currently submitting a Paradise Creek Site Development Plan for IRT review and approval. Estimated cost for each sediment mitigation credit is approximately $370,000. Details of the mitigation credit and remediation approach will be discussed during this presentation.