A Multi-Agency Concept of the Marx-Whitaker Slough

Sarah Miller (miller.sarah@deq.state.or.us) and ***Heidi Nelson*** (nelson.heidi@deq.state.or.us)
(Oregon Department of Environmental Quality, Portland, OR, USA)
Rod Struck (City of Portland, Bureau of Environmental Services)
Sunny Simpkins (Multnomah County Drainage District)

Background/Objectives. The Marx-Whitaker Slough (Slough) is a sub-basin of the Columbia Slough in Portland, Oregon. Sediment sampling in the sub-basin indicate elevated concentration of pesticides, petroleum hydrocarbons, and PCBs. The sources of the contamination include stormwater drainage through outfalls into the Slough, from upland agricultural sites, urban road runoff and other unidentified sources. The contaminants detected in the sub-basin exceed human health and ecological acceptable risk levels. Specifically for fish tissue concentrations detected within the Slough, human exposure through fish consumption does not appear to be a concern in the sub-basin due to limited fishing access and type of fish inhabiting the Slough (primarily stickleback fish, which are generally not eaten). However, fish-eating birds may be adversely affected. The Slough experiences occasional minor flooding and is inundated with reed-canary grass. The presence of this aggressive species has further increased the accumulation of contaminated sediment within the Slough and reduced the water quality through increased temperature. The approach to prevent further degradation of the Slough includes controlling upland sources to the system, evaluating the removal of impacted sediment, and enhance the natural recovery process to restore habitat and the associated flood-risk.

Approach/Activities. The cleanup approach within the Marx-Whitaker Slough relies on a multi-agency approach between Oregon Department of Environmental Quality (DEQ), City of Portland, Bureau of Environmental Services (BES), and Multnomah County Drainage District (MCDD). The first step to achieve cleanup is controlling sources within the basin. Source control efforts are predominantly led by BES. BES is conducting targeted source control within two City drainage basins that discharge into the Slough. City improvements consist of installing street swales along the outfalls and working with farmers to improve soil erosion controls from the upland properties. The next step is to address the impacted sediment and water conveyance. MCDD sought DEQ approval for flood mitigation dredging in fall 2014. A 2017 dredging evaluation determined that removal of sediment in the culvert was sufficient to reduce flooding. DEQ will seek alternative funding to address the sediment remediation, because there is not a viable primary responsible party and DEQ's In the meantime, DEQ will develop a plan to conduct a pilot test for the Slough to provide additional information to evaluate the feasibility for other sediment remedial options for the Marx-Whitaker Slough.

Results/Lessons Learned. A coordinated multi-agency approach to sediment remediation is necessary because each agency has a slightly different, but complementary objectives. Larger-scale obstacles encountered include the available funding and also priority changes within each of the agencies as the project progressed. These obstacles increased the timeline to achieve environmental improvement within the Slough, however the agencies are committed to finding alternative solutions to improve the Marx-Whitaker Slough sediments.