

Supplemental Environmental Project (SEP) Report Card		Research on Removal of Trace Organic Compounds at Discovery Bay Pilot Wetlands
Regional Water Board	Region 5S - Sacramento	<b>OUTCOMES:</b> <input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
Total Project Cost	\$34,500	
SEP Funding	\$34,500	
Approval Date	9/13/2013	
Project Category	Pollution Reduction	

### Summary

For their SEP, the Town of Discovery Bay funded Samantha Beardsley's graduate research at UC Berkeley. The research is an ongoing effort to better define the mechanisms through which trace organic contaminants (e.g., pharmaceuticals and personal care products) are removed when municipal wastewater effluent is subject to additional treatment in constructed wetlands. Samples from the Discovery Bay pilot-scale wetland systems were monitored throughout the project at a frequency of approximately twice per month.

Laboratory experiments were also conducted to assess contaminant removal processes and the relationship between removal rates and the nature of the microbial community present in the wetland. As part of this research, water and vegetation samples from the Discovery Bay pilot-scale wetlands, amended with trace organic contaminants were incubated under well-controlled laboratory conditions. Studies conducted in the presence and absence of oxygen and carrying amounts of decaying wetland plants suggest that both oxygen- and nitrate-reducing bacteria play important roles in the transformation process.

### Location Map



### Discovery Bay Wetlands



### Water Quality Outcomes

- The constructed wetlands research indicates that the wetlands are capable of removing many of the compounds that are commonly detected in wastewater effluent but that some compounds are not removed to an appreciable degree.
- Tracer tests conducted with rhodamine dye indicate that non-ideal flow conditions reduce the residence time of the water in the wetland.