Fidalgo Bay Sediment Study
April, 2008

Executive Summary

Puget Sound is a unique ecosystem and an economically important natural resource for the state of Washington. Unfortunately, Puget Sound's ecosystem is in trouble. While its symptoms are not easily visible, the science is undeniable and impacts from pollution are getting worse. The state has recognized the need to protect and restore this national treasure. In 2006, legislation was approved that provides substantial funding for the Puget Sound Initiative for restoration and recovery by the year 2020. In response to this initiative, the Department of Ecology's Toxics Cleanup Program is focusing on in-water and upland sites within a half mile of Puget Sound for cleanup and restoration.

As part of the Puget Sound Initiative, Ecology identified Fidalgo Bay as a high priority area for cleanup and restoration because of its important habitat and valuable natural resources. It is one of seven priority bays Ecology is working on throughout Puget Sound, which also includes conducting bay wide sediment characterizations to inform cleanup and restoration decisions. The Fidalgo Bay Sediment Study was done to identify potential areas of sediment contamination and confirm the priority areas for cleanup in the Bay. Ecology designed this study to provide information on the overall quality of sediments, determine the general nature and extent of sediment contamination, and help develop protective cleanup levels.

The study area included Fidalgo Bay and a short section of the Anacortes waterfront along the Guemes Channel. We divided the Bay into four areas: Southern Fidalgo Bay (south of the Tommy Thompson Trail causeway), March Point (the area near the refinery piers), Northern Fidalgo Bay, and the area from the east side of Cap Sante west to the Guemes Island ferry landing.

Surface sediment samples to a depth of 10 centimeters were taken from 118 locations of which a representative portion has been analyzed for chemistry and biological toxicity. Subsurface sediment samples were taken up to a depth of 13 feet from 12 locations and archived for potential future analysis. Sediment samples were analyzed for the full suite of 47 Sediment Management Standards chemicals, plus tributyl tin, dioxin/furans and biological toxicity. Sediment Profile Imagery was used to understand the general biological condition of the sediments by viewing the benthic community and vegetation.

Fish and shellfish samples were taken for tissue chemistry analysis. The tissue samples have been analyzed for chemistry and are being used by the Washington State Department of Health to conduct a Health Consult to determine if new fish consumption advisories are necessary. Ecology will work with local health departments to evaluate these results and communicate potential health risks to Fidalgo Bay communities.

Based on the results of the initial sediment chemistry and bioassay data, the Northern Fidalgo Bay and Guemes Channel sediments have the highest degree of impact in general. Southern Fidalgo Bay was less impacted and the March Point area had minimal impact. The Bay is impacted by concentrations of mercury, phthalates, and polycyclic aromatic hydrocarbons above the Sediment Management Standards. Biological toxicity also exists in specific areas potentially due to organic enrichment. Dioxin was detected in all four areas of the Bay with the highest concentration in the Northern Fidalgo Bay area.

Results from this study complement and support Ecology's decision to focus cleanup and restoration efforts in the Northern Fidalgo Bay area; specifically, the northern area along the western shore. It is expected that Ecology's cleanup efforts in this area will greatly contribute to an overall reduction in risk these contaminants may pose. The results from this study also will help Ecology make decisions about further evaluation of the Guemes Channel area for cleanup and restoration.

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