

# Clean Streams for Clean Shellfish

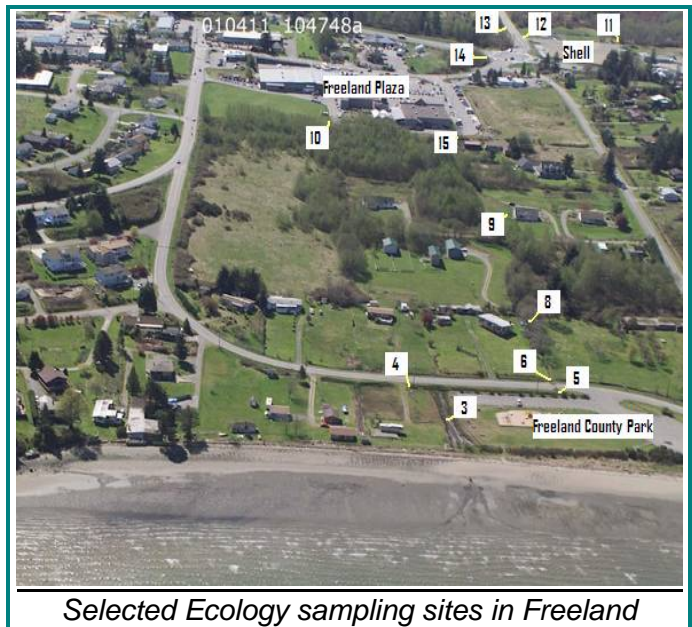
## Stream Cleanup by Looking Around

### Introduction

When Ecology-financed water quality studies identify stream pollution, we are obligated to do something about it. This was the case in Freeland on Whidbey Island in 2003-2004. An Ecology grant to the Island County Public Works Department funded several studies by Herrera Environmental Consultants concerning a proposed stormwater diversion and outfall structure on Freeland Creek.

### Problem

Freeland Creek flows through commercial and residential areas of Freeland and into Holmes Harbor at Freeland County Park. The Herrera studies found high levels of bacteria in the majority of stormwater and non-stormwater samples collected from Freeland Creek. In 2005, the final project report for the Freeland Water Quality Improvement Project recommended controlling bacteria pollution by focusing on pet wastes and septic systems.



*Selected Ecology sampling sites in Freeland*

In addition to the Herrera studies, the Washington State Department of Health BEACH (Beach Environmental Assessment, Communication and Health) Program sampled marine water near the mouth of Freeland Creek in 2004, and again in August 2005. They verified that the highest bacteria concentrations in Holmes Harbor were at Freeland Park near the mouth of Freeland Creek. In March 2006, the Washington State Department of Health (DOH) conducted a shoreline survey of Holmes Harbor and found that Freeland Creek provided some of the most contaminated inputs to Holmes Harbor. The Holmes Harbor beach in front of Freeland County Park, a public recreational shellfish harvest area, was posted for several years until DOH officially closed the site on August 11, 2006.



*Freeland Plaza drainfield failure  
April 2006*

### Observation and more sampling yields more clues

Based on the results of the Herrera and BEACH studies, Ecology's Northwest Regional Office conducted a reconnaissance bacteria water quality survey in the Freeland area on April 11, 2006. Ecology sampling surveys involve collecting samples upstream and downstream of potential pollution sources in order to identify their relative contribution of contaminants to the stream. Ecology staff collected fifteen surface water samples between the Shell service station and car wash at SR 525 and Fish Road and Freeland County Park on Holmes Harbor.



The survey revealed a serious drainfield failure at the Freeland Plaza Shopping Center on-site sewage system leading to pollution to Freeland Creek and Holmes Harbor.

Part of the reason for the drainfield failure was the high local water table. Drainfields with high water levels prevent sewage effluent from receiving adequate treatment in the soil and increase the likelihood of sewage surfacing and polluting nearby surface water. At Freeland Plaza, the high water table became especially evident in December 2006 when the buried Plaza surge tank floated out of the ground. Now the surge tank is in an elevated mound.

The highest sample result collected by Ecology was 5,000 colony-forming units (cfu)/100 milliliters (mL) at the downstream edge of the Freeland Plaza on-site system drainfield. The target average rate for bacteria is 50 cfu/100 mL. The ground around the downstream edge of the Freeland Plaza drainfield was saturated and had a sewage odor. The wet area at the drainfield was connected to standing water in an alder woodland immediately north of the shopping center, which joined several small tributaries in the woodland and ultimately flowed into Freeland Creek.



*Surge tank in elevated mound*



*Freeland Plaza surge tank*



*Zep red car wash soap in ditch*

The Ecology survey revealed a second source of bacterial pollution to Holmes Harbor near the Shell station car wash on Fish Road. A three-foot diameter concrete well, next to the Shell car wash driveway, contained grayish-colored water with a septic odor. The well or cistern also appeared to have overflowed from plumbed discharges to the well or from rain entering the unsecured well lid. We saw similar water with a gray cast in a roadside ditch next to the well. Water samples from the ditch yielded a fecal count of 2,500 cfu/100 mL. Staff noticed red Zep soap wastewater from the car wash during a March 2007 follow-up inspection of the ditch.

Ecology staff found a third contamination source during a visual inspection of the stormwater drainage swale for the Freeland Plaza parking lot. The drainage swale contained a sewage seep with *Sphaerotilus* bacteria which apparently came from beneath the Plaza parking lot opposite a storm drain.

## **Project goals**

The ultimate goals of Ecology's Northwest Region were to clean up Freeland Creek to meet state water quality standards and to improve water quality in Holmes Harbor so that it is safe for recreation and shellfish harvesting. The first step toward this goal was the Freeland sampling survey to identify any sources of bacteria pollution that could be corrected. Once the Freeland Plaza problem was identified, the next steps were to correct that problem and identify any others that may be draining to Freeland Creek or to Holmes Harbor. Coordination with state and local health departments to do whatever was necessary to correct the pollution sources was an important part of this process.

## **Project highlights**

Ecology's sampling survey triggered renewed interest in pollution sources to Freeland Creek and Holmes Harbor and helped accelerate action to correct them. State and county health departments and Island

County Commissioners formed the Holmes Harbor Shellfish Protection District and held the first public meeting on March 5, 2007.

The Island County Health Department is correcting the Freeland Plaza on-site system and Shell septic well system. They are also investigating the illicit wastewater connection at Freeland Plaza. They will correct the connection as soon as they obtain the drainage drawings for the shopping center parking lot. These actions, along with efforts associated with the newly-formed Holmes Harbor Shellfish Protection District, should help clean up known existing pollution sources in Freeland Basin and may help find additional sources for correction.

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Freeland Plaza stormwater  
treatment swale