

**GIBBONS CREEK FECAL COLIFORM TOTAL MAXIMUM DAILY LOAD:  
REPORT ON May 17, 2011 ADAPTIVE MANAGEMENT MEETING  
(July 08, 2011)**

**Participants**

Aaron Henderson, Clark County Public Health  
Will Noonan, City of Washougal Public Works  
Jeff Schnabel, Clark County Clean Water Program  
Brett Raunig, Department of Ecology  
Kim McKee, Department of Ecology

**Meeting Objectives**

- Discuss accomplishments since April 2009 relative to the Gibbons Creek Fecal Coliform Total Maximum Daily Load Detailed Implementation Plan.
- Discuss successful removal of Raccoon latrine.
- Discuss additional implementation measures and effectiveness monitoring scheduled for fall 2011.

**Background**

Gibbons Creek is located in eastern Clark County and flows into the Columbia River just east of the city of Washougal (Figure 1). Land use consists of small farms in the upper part of the watershed and subdivisions, a school, and a golf course in the lower part of the watershed. Many of the older homes in the Gibbons Creek basin have on-site disposal systems (septic systems). There are no known point sources of water pollution within the watershed.

Based on fecal coliform data collected at one location in Gibbons Creek during 1991 and 1992, the creek was included on the 1996 303(d) list, the first comprehensive listing of impaired surface waters in the state. In 1994 and 1995, Department of Ecology collected additional data at six locations on Gibbons Creek, Campen Creek and two unnamed tributaries to Gibbons Creek. Those data also showed fecal coliform impairments. Department of Ecology prepared and submitted a Total Maximum Daily Load (TMDL) report to the U.S. Environmental Protection Agency in August 2000 that calculates the amount of pollution reduction necessary to bring Gibbons Creek into compliance with water quality standards. The subsequent August 2005 Detailed Implementation Plan (DIP) outlines pollution control measures and reduction targets anticipated to improve water quality in the Gibbons Creek watershed. Control measures focus on 1) reducing the amount of animal waste entering the creek, and 2) locating and eliminating sources of human fecal coliform contamination.

The first adaptive management meeting for the TMDL was held on July 5, 2007 (see <http://www.ecy.wa.gov/programs/wq/tmdl/GibbonsCr/GibbonsCr070507mtgrpt.pdf>). Participants noted that although substantial progress has been made in terms of implementing activities described in the DIP, elevated fecal coliform levels persist in the watershed. The group agreed to meet again in spring 2008 to discuss accomplishments since the 2007 meeting and determine if implementation activities listed in the 2005 DIP are adequate.

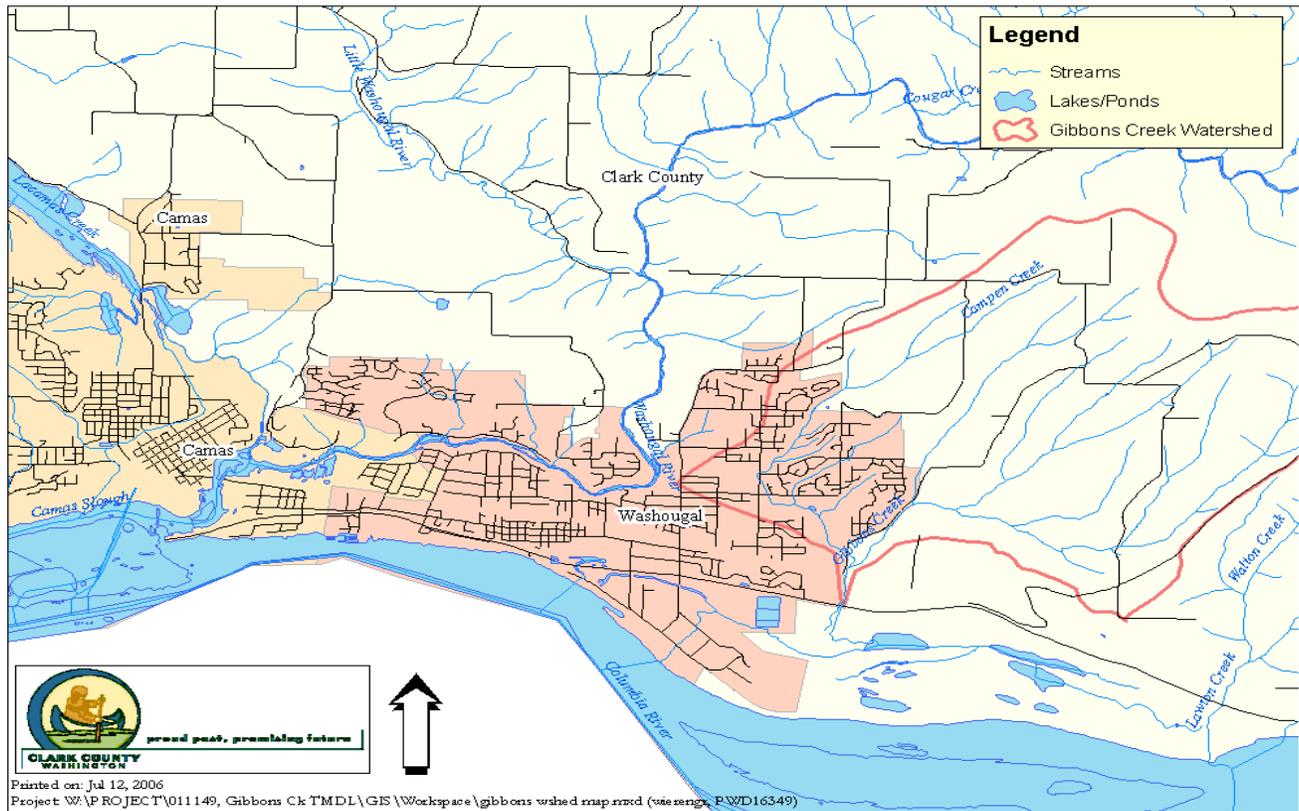


Figure 1. Map of Gibbons Creek watershed (courtesy of Clark County Clean Water Program).

The second adaptive management meeting was held on April 22, 2008 (see <http://www.ecy.wa.gov/programs/wq/tmdl/GibbonsCr/GibbonsCr042208mtgrpt.pdf>). Stakeholders described implementation activities completed since July 2007. During the year the City of Washougal established a stormwater utility and began implementing their Phase II National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater General Permit; Clark County Clean Water Program conducted a stormwater needs assessment in the portion of the watershed outside city limits, which included sampling outfalls for illicit discharges and in-stream reconnaissance to locate and characterize stormwater and stream health issues for approximately 4.5 miles of stream channel; Clark County Public Health initiated an on-site septic system inspection and maintenance program; and Clark Conservation District conducted a visual animal count in the watershed. Stakeholders agreed to collaborate in conducting stormwater outfall survey and sampling within the city of Washougal during the summer of 2008.

The third adaptive management meeting was held on April 15, 2009 (see <http://www.ecy.wa.gov/programs/wq/tmdl/GibbonsCr/GibbonsCr041509mtgrpt.pdf>). Outfall survey and sampling was conducted within the Washougal city limits in the summer of 2008. The sampling detected high fecal coliform concentrations in a branch of Campen Creek. Extensive stream monitoring, sewer system dye testing, and visual reconnaissance work during the fall showed that the source of pollution was a raccoon latrine (toilet) located in a low tree directly over the stream channel. In spring 2009, follow-up stream monitoring confirmed that the raccoon latrine was still in use and continuing to create water quality problems. During the April 2009 adaptive management meeting stakeholders discussed implementation activities in the watershed in the past year. They then developed a multi-tiered plan to try to address the raccoon fecal coliform issue. The first step included removing the latrine and enlisting the help of landowners near the creek to discourage raccoons from living in the neighborhood. Latrine

removal, education and outreach, and follow-up stream monitoring took place in the summer and fall of 2009.

### **Accomplishments from April 2009 through May 2011**

City of Washougal Public Works staff removed the raccoon latrine on Campen Creek in December 2009. The city then hired a pest management specialist in January of 2010 and the top 3-4 inches of soil around the tree and latrine was removed. Results from follow-up monitoring conducted in the summer of 2010 showed very low bacteria counts.

#### Additional Activities

The City of Washougal continued implementing its Phase II NPDES Municipal Stormwater Permit. The City of Washougal has developed a comprehensive Stormwater Management Plan (SWMP), outlining the City's efforts to prevent stormwater pollution and minimize runoff. Generally, the SWMP has five components: public education, public outreach and involvement, the formation of an illicit dumping elimination program, modified regulations for new and redevelopment and construction, as well as a pollution prevention program to be implemented within City operations. The city's Stormwater Management Plan and 2009 Annual Report are available at

[http://www.cityofwashougal.us/index.php?option=com\\_content&view=article&id=111&Itemid=186](http://www.cityofwashougal.us/index.php?option=com_content&view=article&id=111&Itemid=186).

#### Clark County Public Health

The Clark County Board of Health adopted Ordinance 24.17, On-Site Sewage (septic) System Rules and Regulations of Clark County Public Health, in October 2007 during a public hearing. The program requires inspections of all known septic systems within the county and the requirement varies from 1-3 years depending on the type of system. This information is then added to Clark County's GIS mapping system. The On-site Septic Program protects public health and the environment by preventing human exposure to sewage and the contamination of our groundwater by ensuring the proper placement, design, installation, and maintenance of on-site septic systems. Information about the program can be found at the following links:

<http://www.co.clark.wa.us/public-health/septic/index.html>

<http://www.co.clark.wa.us/public-health/septic/maps.html>

Clark County continued implementing programs and activities under its Phase I NPDES Municipal Stormwater Permit on a county-wide basis. Specific implementation activities in Gibbons Creek are described elsewhere in this document. The stormwater ordinance and manual were adopted in January 2009 and the ordinance went into effect on April 13, 2009. Information about Clark County's stormwater program and stormwater ordinance is available at <http://www.clark.wa.gov/water-resources/SWMP/stormwater%20public%20involvement.html>.

#### Clark Conservation District

Clark Conservation District (District) participated in the Rural Living for Clean Water Project through December 2010. This project was in partnership with Washington State University Extension, Clark County, Columbia Springs Environmental Education Center, and USDA Natural Resources Conservation Service (NRCS). The project was funded through the State of Washington Department of Ecology Clean Water Act Section 319 Nonpoint Source Fund and Centennial Clean Water Fund.

This project addressed the need for decreased temperature, fecal coliform, and turbidity levels in Gibbons Creek, as well as Salmon Creek and the East Fork Lewis River.. They provided landowners living in the project areas with water quality related conservation plans, cost-share, technical assistance, and educational opportunities. Activities for this project included revegetation of riparian areas,

educational water quality curriculum, and development of a guide aimed at people moving to or selling land in rural Clark County.

The district also provided 500 plants to two separate projects in the Washougal area. One project was coordinated by the Columbia Gorge Refuge Stewards, a local group of citizens that help with habitat restoration projects. Twenty two volunteers spent 62 hours in the planting effort. Campen Creek, a tributary of Gibbons creek which flows through the Orchard Hills Golf Course and Washougal's Kerr Park, received the streamside plants. The other project, also on Campen Creek, was through a neighborhood association with riparian and wetland space. The plantings will benefit fish habitat as well as water quality.

The Conservation District is also currently working on Project Water Education for Livestock Owners (WELL) which runs through December 2012. WELL will work with local streamside landowners to develop landowner agreements for implementing Best Management Practices (BMPs). Landowner will be educated on the use of riparian livestock exclusion fencing, planting native trees and shrubs along the stream, and off-channel watering BMPs. The implementation of these BMPs will reduce fecal coliform, nutrients, and sediment entering the watershed and improve fish habitat through decreased temperature, improved turbidity, and long term woody debris in the waterway.

Information about Clark Conservation District is available at the following link:

<http://www.clarkcd.org/>

The Stakeholders have completed most of the pollution control measures and their work has prompted effectiveness monitoring by Ecology's Environmental Assessment Program to happen this fall. If Water Quality Standards are still not being met, the results from the study will guide the Advisory Committee where to focus its efforts next.

#### **Implementation Activity Plans for May 2011 to May 2012**

- City of Washougal and Clark Conservation District will provide education and outreach to landowners near Campen Creek relative to fecal coliform contamination and other issues associated with living next to waterways.
- City of Washougal and Clark County will continue to implement their municipal stormwater programs.
- Clark County Public Health will continue to implement its septic system inspection and maintenance program.
- Department of Ecology will conduct effectiveness monitoring in 2011/2012

Table 1. Goals and Accomplishments Associated with Gibbons Creek Fecal Coliform Total Maximum Daily Load Detailed Implementation Plan. Details on previous accomplishments can be found in the July 2007, April 2008 and April 2009 meeting reports on the Gibbons Creek webpage at <http://www.ecy.wa.gov/programs/wq/tmdl/GibbonsCr/GibbonsCrTMDL.html>.

Agency/Organization	Goals	Accomplishments
<b>City of Washougal</b>	Reduce contribution from stormwater	<p>Ongoing inspection of stormwater system.</p> <p>Mapping of city stormwater system is complete and is in the Clark County GIS. Will be updated by city staff, as needed.</p> <p>A stormwater utility was established in late 2007; fees were imposed in January 2009.</p> <p>Continuing implementation of Phase II NPDES Municipal Stormwater Permit.</p>
	Eliminate septic system use and connect all residences/businesses to city sewer system	Ongoing maintenance and improvement of existing sewer lines.
	Educate septic system owners about inspection and operation of septic system and encourage connection to city sewer system	Has not been initiated.
	Conduct water quality monitoring	<p>Analyzed samples collected on Gibbons Creek by Clark County from April 2004 to August 2007.</p> <p>Analyzed samples collected on Campen Creek by Clark Conservation District and Department of Ecology in summer 2008.</p> <p>Conducted extensive stream and sewer system sampling in fall 2008 that narrowed the source area and led to ultimate discovery of the raccoon latrine as source of high fecal coliform concentrations in Campen Creek.</p>

		Participated in visual stream reconnaissance that located and confirmed presence of raccoon latrine
<b>Clark County Public Health</b>	Reduce fecal coliform input from on-site septic systems	<p>Between 2004 and 2006, surveyed 179 homeowners in the watershed about their septic systems, and added 60 properties to septic system database.</p> <p>County septic system regulations strengthened in October 2007 resulting in significant increase in number of inspections.</p> <p>Continuing implementation of On-site Septic System Inspection and Maintenance Program.</p>
	Educate septic system owners about inspection and operation of septic system	Between 2004 and 2006, conducted 3 workshops, distributed educational material to 810 homeowners, provided technical assistance to 184 homeowners, and sent 366 reminders for septic system operation and maintenance in the watershed.
<b>Clark County Clean Water Program</b>	Initiate a water quality monitoring program	Established a volunteer monitoring project that collected monthly water quality data from April 2004 to April 2006 and quarterly data from August 2004 through August 2007. Established and populated a monitoring database.
	Conduct source identification monitoring	<p>Provided equipment and training for outfall survey and sampling in Campen Creek by Ecology and CCD during summer 2008.</p> <p>Participated in visual stream reconnaissance that located and confirmed presence of raccoon latrine, and development of a plan to address fecal coliform contamination from raccoons in the creek.</p>

	Reduce contribution from stormwater	<p>In 2007, screened 131 stormwater outfalls outside city limits for illicit discharges; data indicated no illicit discharges in unincorporated Clark County. In 2008, conducted a features inventory to document potential stormwater-related issues outside the city.</p> <p>Continuing implementation of Phase I NPDES Municipal Stormwater Permit. Adopted ordinance and manual in January 2009; ordinance went into effect April 2009.</p>
<b>Clark Conservation District</b>	Conduct livestock survey	<p>Completed survey within city limits in 2006. In 2007, completed survey outside city limits and entered all data in a GIS database. In 2008, completed project report and GIS-based map.</p> <p>In June 2008, submitted proposal to Board of Commissioners for a special property assessment.</p> <p>In summer 2008, surveyed and sampled outfalls on Campen Creek.</p>
	Provide outreach and education to livestock owners	Ongoing
<b>Department of Ecology</b>	Conduct inspections of permitted and non-permitted activities	Ongoing
	Provide assistance to local interests in obtaining grant and loan funds	Ongoing
	Conduct source identification monitoring	Assisted with summer 2008 Campen Creek outfall survey and sampling, and development of a plan to address fecal coliform contamination from raccoons in the creek.
	Conduct effectiveness monitoring	Fall and spring 2011/2012