

**GIBBONS CREEK FECAL COLIFORM TOTAL MAXIMUM DAILY LOAD:
REPORT ON JULY 5, 2007 ADAPTIVE MANAGEMENT MEETING
(September 7, 2007)**

Participants

Scott Sawyer, P.E., City of Washougal Public Works
Jonnie Hyde, Clark County Public Health
Randy Phillips, Clark County Public Health
Jeff Schnabel, Clark County Water Resources
Denise Smee, Clark Conservation District
Kim McKee, Department of Ecology
Tonnie Cummings, Department of Ecology

Meeting Objectives

- Discuss progress in completing implementation activities listed in the 2005 Gibbons Creek Fecal Coliform Total Maximum Daily Load (TMDL) Detailed Implementation Plan.
- Identify barriers to completing activities and brainstorm resources needed to overcome those barriers.
- Determine format and content of, and timeline for, adaptive management meeting report(s).
- Agree on frequency of future adaptive management meetings.

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 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 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.

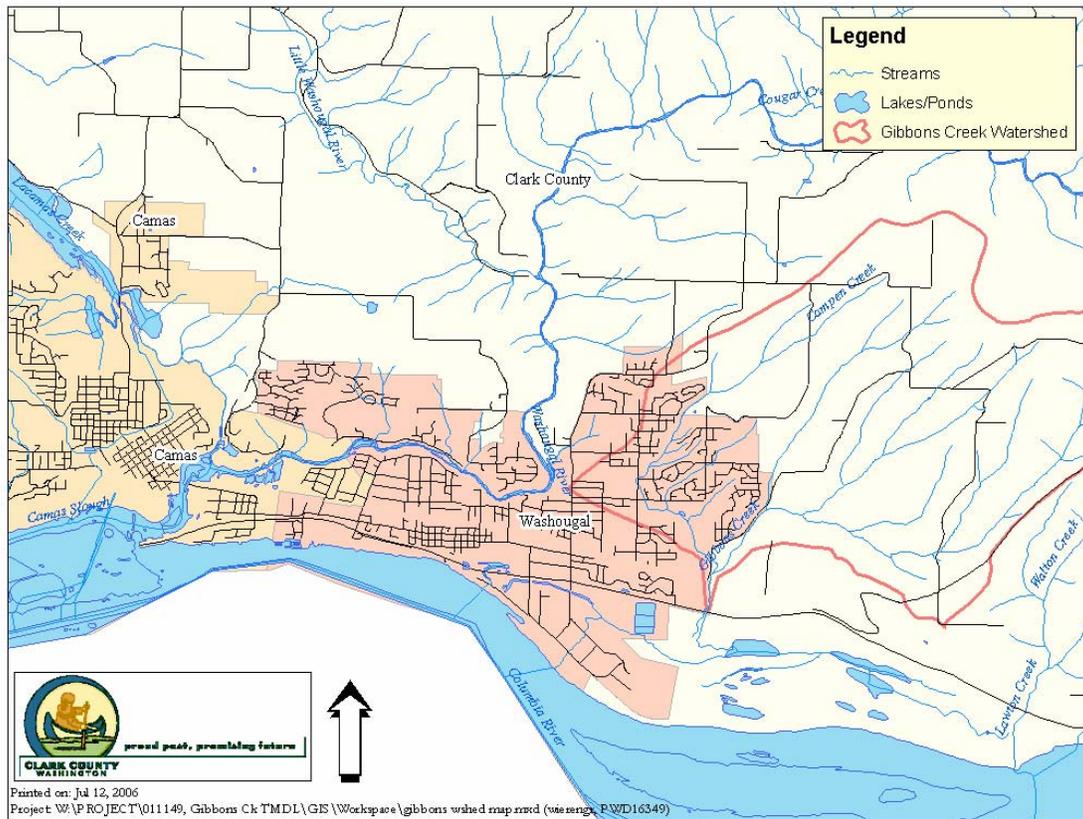


Figure 1. Map of Gibbons Creek watershed (courtesy of Clark County Water Resources).

Accomplishments to Date and Planned Activities through Spring 2008

City of Washougal Public Works:

- Ongoing maintenance and improvement of existing sewer lines.
- To prepare to implement the Western Washington Phase II National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit,
 - completed mapping of the stormwater system within city limits.
 - ongoing inspections of the stormwater system within city limits.
 - proposed tightening of stormwater regulations, including a request that the City Council impose a stormwater fee.
- Analyzed water samples collected by Clark County Water Resources in the Gibbons Creek watershed from April 2004 to August 2007.

Clark County Public Health:

- Proposed revision and implementation of new Washington State Administrative Code (WAC) requirements related to on-site septic systems, including
 - mapping of all septic systems in the county over a 4-year period.
 - more frequent inspection and maintenance of systems.
 - operation and maintenance inspections and pumping of septic systems will be submitted electronically to facilitate reporting to the Public Health database.

- Successfully competed for 3-year Department of Ecology grant and loan projects (G0500041 and L0500004, respectively) focused on reducing fecal coliform input from on-site septic systems in the Gibbons Creek watershed, including
 - conducted 3 workshops on on-site septic system operation and maintenance procedures.
 - distributed educational materials to 810 homeowners.
 - provided technical assistance to 184 homeowners.
 - sent 366 reminders for septic system operation and maintenance.
 - identified 60 previously unknown properties with septic systems and added those properties to the septic system database.
 - visited 387 of the 390 homes in the watershed to recruit participation in an on-site sewage system sanitary survey; 179 of the 200 homeowners have participated in the survey; one system was identified as failing. The survey consisted of questions related to daily practices and a visual aboveground examination of the septic system.

Clark County Water Resources:

Clark County fulfills activities associated with the Gibbons Creek TMDL through implementation of its Stormwater Management Program. Items below reference county Water Resources activities listed in the Gibbons Creek 2005 Detailed Implementation Plan.

- Initiated and coordinated a volunteer water quality monitoring project in the Gibbons Creek watershed, including
 - from April 2004 to April 2006, fecal coliform and turbidity data were collected monthly at 7 locations.
 - data were subsequently collected quarterly at 1 location through August 2007.
 - all Water Resources data were entered into a database.
 - a review and analysis of data showed exceedances persist. Results are reported in *Gibbons Creek Data Summary Part 1: Effectiveness and Trend Monitoring by Volunteers, July 2006*.
- Established and maintained a county-wide monitoring resource/equipment lending center.
- Volunteers completed three years of quarterly baseline water quality monitoring at Jemtegaard Middle School in August 2007.

Additional completed, planned and potential activities:

- In June 2007, screened 131 stormwater outfalls in the unincorporated area of the watershed for dry-weather illicit discharges; none were detected.
- In fall 2007, conducting a stormwater needs assessment to identify problems and recommend specific stormwater management actions in the watershed. A report will be completed in March 2008.
- Subject to volunteer commitment, county staffing availability, and discussions with Department of Ecology, Water Resources may initiate further fecal coliform monitoring in the Gibbons Creek watershed during 2007 or 2008. This project is not a mandated activity within the county Stormwater Management Program.

Clark Conservation District:

- Successfully competed for a Department of Ecology grant project (G0600179) to conduct livestock surveys in the region (including the Gibbons Creek watershed), identify areas of greatest influence, and target those areas for outreach activities.
 - in the summer of 2006, visual animal counts including livestock, domestic pets and waterfowl/wildlife were completed along the creek within the Washougal city limits.
 - in the summer of 2007, visual animal counts will be completed outside the Washougal city limits and all survey results will be entered into a GIS database.
 - given small number of livestock owners identified to date, there is no perceived need for outreach/education at this time.

Department of Ecology:

- Ongoing inspections of activities that affect water quality.
- Provide ongoing assistance to local interests in obtaining grant and loan funds.
- Recognize need to conduct source identification monitoring, but such monitoring has not been initiated.
- Given that all control measures have not yet been implemented, it is too soon to conduct effectiveness monitoring.

Discussion and Decisions Regarding Future Implementation Activities

- Concern that voluntary sanitary surveys may not have ruled out septic systems as contributing to the fecal coliform problem in the Gibbons Creek watershed.
- Possible that contribution from pet waste is greater than that from livestock waste.
- DNA testing (microbial source tracking) could provide a more direct approach in terms of identifying the source(s); however, concern that it is premature to use this approach given 1) high expense and 2) need for improvement of technique to reduce uncertainty about the results.
- Decision to include narrative, as well as a revised and updated accomplishments table, in the Gibbons Creek TMDL adaptive management meeting reports.
- Decision to hold the next adaptive management meeting in spring 2008 to review the results of activities that will take place in fall 2007/winter 2008 and then determine the need for development of additional control measures.

Table 1. Goals and Accomplishments Associated with Gibbons Creek Fecal Coliform Total Maximum Daily Load

Agency/Organization	Goals	Accomplishments
City of Washougal	Reduce contribution from stormwater	<ul style="list-style-type: none"> - Ongoing inspection of stormwater system - Mapping of city stormwater system complete - Proposal to tighten stormwater regulations
	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	Analyzed samples collected by Clark County Water Resources from April 2004 to August 2007
Clark County Health Department	Reduce fecal coliform input from on-site septic systems	<ul style="list-style-type: none"> - Proposal to tighten county septic system regulations - Surveyed 179 homeowners about their septic systems - Added 60 properties to septic system database
	Educate septic system owners about inspection and operation of septic system	<ul style="list-style-type: none"> - Conducted 3 workshops - Distributed educational material to 810 homeowners - Provided technical assistance to 184 homeowners - Sent 366 reminders for septic system operation and maintenance
Clark County Water Resources	Initiate a water quality monitoring program	<ul style="list-style-type: none"> - Established a volunteer monitoring project that collected monthly fecal coliform and turbidity data from April 2004 to April 2006 - Volunteer monitoring program collected quarterly baseline water quality data from August 2004 through August 2007 - Established and populated a monitoring database - Analyzed data and determined water quality problems persist

		<p>Potential:</p> <ul style="list-style-type: none"> -May initiate further volunteer monitoring project in 2007 or 2008
	Reduce contribution from stormwater	<ul style="list-style-type: none"> - Screened 131 stormwater outfalls for illicit discharges <p>Planned:</p> <ul style="list-style-type: none"> - Will perform stormwater needs assessment in fall 2007
Clark Conservation District (with Natural Resources Conservation Service)	Conduct livestock survey	<ul style="list-style-type: none"> - Completed survey within city limits in 2006 - Survey in county planned for summer/fall 2007
	Provide outreach and education to livestock owners	Given small number of livestock owners identified, no perceived need for outreach/education at this time
Department of Ecology	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	Has not been initiated
	Conduct effectiveness monitoring	Will do when appropriate