

Birch Bay Watershed & Aquatic Resources Management District 2011 Annual Report



Introduction

The Birch Bay Watershed and Aquatic Resources Management (BBWARM) District was established to address citizen concerns about water quality, localized flooding, and the loss of aquatic habitat in the Birch Bay watershed.

Mission

BBWARM promotes actions that reduce the impacts of stormwater runoff by decreasing the threat of flooding to private and public property and by improving and protecting water quality, aquatic habitat, and the quality of life that a healthy watershed provides.

BBWARM Stormwater Program Goals

- Improve and protect water quality.
- Increase citizen participation in watershed stewardship.
- Reduce impacts from stormwater flooding.
- Use public funds effectively to achieve desired outcomes.
- Provide open communication about program actions.
- Improve stormwater retention time and capacity in the watershed.



Figure 1. BBWARM District location.

This report includes general information on BBWARM and a summary of BBWARM stormwater program activities and accomplishments in 2011. For more information on BBWARM please visit www.bbwarm.whatcomcounty.org.

Summary of 2011 Accomplishments

- Constructed the Charel Terrace Stormwater Improvements Project.
- Identified preliminary concept designs at Roger's Slough.
- Initiated a subwatershed master planning process and completed a detailed drainage system survey in the central-north subbasins.
- Cleaned and inspected catch basins and outfall pipes on Birch Bay Drive.
- Monitored water quality in coastal drainages and Terrell Creek.
- Created a new BBWARM logo and website.
- Provided water education activities with collaborating organizations at Birch Bay Discovery Days.
- Maintained the Mutt Mitt stations along Birch Bay Drive.
- Sponsored a Private Stormwater Systems Inspection and Maintenance workshop.
- Hosted rain barrel and composting workshops in partnership with Birch Bay Water and Sewer District.
- Responded to citizen reports of stormwater problems.

Advisory Committee

BBWARM has an Advisory Committee with five members appointed for four-year terms by the Whatcom County Flood Control Zone District Board of Supervisors. Its purpose is to ensure community interests are represented in BBWARM activities. The committee is integrally involved in setting strategic goals, developing work plans and budgets, and prioritizing capital improvement projects. Public advisory committee meetings are held on the third Wednesday of the month. Current meeting information is posted on the BBWARM website at www.bbwarm.whatcomcounty.org.

BBWARM Advisory Committee Members

Keats Garman (Birch Point)
Scott Inloes (British Petroleum)
Don Montfort (Central Uplands, Birch Bay Water & Sewer District)
LeRoy Smith (Birch Bay Leisure Park)
Peter Winterfeld (Birch Bay Village)

History & Governance

BBWARM is the product of a community-initiated effort to protect and restore water resources in Birch Bay. Community groups organized and wrote the *Birch Bay Community Plan* which was adopted by County Council in 2004. The *Birch Bay Community Plan* documented citizen concerns with the rapid rate of development in the watershed and its associated increase in stormwater runoff and water quality problems. This led to a collaborative planning effort between citizens and Whatcom County resulting in the *Birch Bay Comprehensive Stormwater Plan* in 2006.

The *Birch Bay Comprehensive Stormwater Plan* recommended the creation of a stormwater management district for the watershed. BBWARM was established as a subzone of the Whatcom County Flood Control Zone District (FCZD) in March 2007 to function as this stormwater management district. Supervision of BBWARM is the responsibility of the

Whatcom County FCZD Board of Supervisors. Whatcom County Council members, by virtue of their office, are the Whatcom County FCZD Board of Supervisors.



Sea Shore Inn on Birch Bay Drive in the 1950s.

BBWARM Stormwater Program

The BBWARM stormwater program is based on recommendations from the *Birch Bay Comprehensive Stormwater Plan* addressing three general types of stormwater issues:

- Water quantity problems (flooding).
- Water quality problems (pollution).
- Loss of aquatic habitat.

The BBWARM Advisory Committee worked with Whatcom County Public Works staff to develop an initial work plan for 2009 - 2012 focusing in the following areas:

- Capital improvement projects.
- Maintenance and operation of stormwater facilities.
- Water quality monitoring.
- Stormwater education and outreach.
- Program development, management, and administration.

To use existing resources efficiently, BBWARM has actively developed collaborative partnerships with other agencies and organizations. A summary of program activities, accomplishments, and partnership efforts in 2011 follows.

2011 Activities & Accomplishments

Capital Improvement Projects

The *Birch Bay Comprehensive Stormwater Plan* identified potential areas where capital improvement projects (CIPs) could be built to reduce localized flooding. These areas were reevaluated and prioritized in 2009, and priority projects underwent preliminary engineering analysis. BBWARM's capital program currently focuses on these priority areas where structural solutions are possible within a public right of way.

Capital improvement accomplishments in 2011 are listed below. The identification number from the *Birch Bay Comprehensive Stormwater Plan* is noted in parentheses.

- Constructed the Charel Terrace Stormwater System Improvement project (BR-02) on Birch Point. This project replaced a 50-year-old failing stormwater system with a new 1,350-foot long system of pipes, vaults, and swales. The new swales and vaults will slow stormwater flows and remove pollutants. The new beach outfall structure protects against erosion and is designed to blend into the natural shoreline.



New stormwater treatment swales on Charel Dr.

- Started designing the Cottonwood Neighborhood Drainage Improvement project (CT-06 A & B).
- Identified preliminary concept designs to correct drainage problems at Roger's Slough (BV-01).
- Completed final design and permitting for the Hogan Drive Outlet Drainage Repair project (BR-05B).
- Completed preliminary engineering analysis for other priority CIPs from the *Birch Bay Comprehensive Stormwater Plan*.

Maintenance and Operations

BBWARM is working with Whatcom County Public Works to maintain publicly owned stormwater drainage facilities (e.g., catch basins and culverts). Keeping these facilities in proper working condition reduces water pollution and the risk of damage from flooding. Maintenance and operations activities in 2011 included the following.

- Obtained five-year permits to clean stormwater outfalls into Birch Bay and Terrell Creek.
- Worked with Whatcom County Maintenance and Operations (M&O) staff to inspect and clean approximately 100 outfall pipes and catch basins along Birch Bay Drive and the lower section of Terrell Creek.



Crews use a vac truck to clean catch basins.

Water Quality Monitoring

BBWARM is working with a group of partners to monitor and improve water quality in the Birch Bay watershed. Whatcom County Public Works began a comprehensive water quality monitoring program for the Birch Bay watershed in 2010 in cooperation with BBWARM, the Birch Bay Shellfish Protection District, and the Marine Resources Committee with funding assistance from the Environmental Protection Agency (EPA). The goals of this project are to provide information on water quality trends and baseline bacteria concentrations, identify priority areas for water quality improvement, and inform capital and education project planning to improve water quality.



Collecting a water sample from Butler Creek.

Water quality monitoring focuses on fecal coliform bacteria. Temperature and nutrients are monitored to a lesser extent. Marine water quality in the bay, monitored by the Washington State Department of Health, consistently meets water quality standards with low levels of bacteria. Freshwater streams entering the bay have variable levels of bacteria and often do not meet water quality standards. The current comprehensive water quality monitoring program goes from 2010 to 2012. After data collection is complete, a more accurate analysis of water quality trends will be available.

Water quality monitoring activities in the Birch Bay watershed during 2011 are listed below.

- Collected bi-monthly samples at 16 sites throughout the Terrell Creek watershed.
- Collected monthly samples at 18 coastal drainages.
- Conducted follow-up sampling when regular monitoring sites had high bacterial counts.

Education & Outreach

BBWARM's stormwater education and outreach program seeks to increase public awareness of stormwater problems and to promote voluntary actions that help protect water quality, aquatic habitat, and stormwater systems. Education and outreach activities in 2011 are summarized below by targeted audience.

General Education

- Contacted approximately 350 people during education and outreach events.
- Sent monthly BBWARM meeting and event email notices to approximately 90 interested citizens.
- Developed a new BBWARM website at www.bbwarm.whatcomcounty.org.
- Collaborated with the Birch Bay Water and Sewer District, Whatcom Marine Resources Committee, and Nooksack Salmon Enhancement Association on a joint education booth at Birch Bay Discovery Days.



Joint Discover Days booth.

Pet Waste

- Supplied bags for nine Mutt Mitt stations along Birch Bay Drive maintained by community volunteers.
- Improved signage and repaired damaged Mutt Mitt stations.

Private Stormwater Systems

- Hosted a second Private Stormwater Systems Inspection and Maintenance workshop to teach homeowner associations learn how to inspect and maintain their stormwater systems. The emphasis of this training was on stormwater ponds.



Workshop participants conduct a practice stormwater pond inspection.

Low Impact Development for Homeowners

- Held three rain barrel workshops in partnership with the Birch Bay Water and Sewer District. Homeowners learned how to turn a 55-gallon barrel into a rain barrel to capture stormwater runoff.
- Sponsored a composting workshop in partnership with WSU Extension and the Birch Bay Water and Sewer District during Whatcom Water Week. Homeowners learned how to make compost bins and use compost in their landscaping to benefit water quality and reduce their outdoor water use.



Rain barrel installed by 2011 workshop participant.

Terrell Creek Rural Initiative

BBWARM is partnering with the Whatcom Conservation District in the Terrell Creek Rural Initiative project. This project focuses on improving water quality in the upper Terrell Creek watershed and help willing landowners adopt good stewardship practices on their land. This project is funded by a grant from the EPA. Grant funding match requirements are provided by BBWARM's capital improvement program. 2011 activities and accomplishments are listed below.

- Filled a part-time position to provide staff support.
- Formed an advisory committee to assist in project development.
- Developed a social marketing plan to improve water quality in Terrell Creek.

Program Development, Management and Administration

BBWARM continues to develop and improve its stormwater program for the Birch Bay watershed. Planning efforts, collaborative cost-share projects, and administrative work completed in 2011 are summarized below.

Subwatershed Master Planning

BBWARM began subwatershed master planning in 2011 for the central-north subbasins designated for urban development (Figure 2). This initial plan is funded through a grant from the EPA and will be completed in 2012. Grant funding match requirements are provided by BBWARM's capital improvement program.



Collecting drainage survey data.

The subwatershed master planning process includes a detailed survey and inventory of stormwater facilities. This information is used to determine stormwater flow paths, conduct hydrologic modeling, and identify maintenance and capital project needs. Additional parts of the plan include an evaluation of how well low impact development (LID) can reduce stormwater flows from new development and policy analysis.

Information provided in the master plan will be used to select and prioritize future capital and maintenance projects. Subwatershed master plans will be completed for the remaining urbanized subbasins in Birch Bay in the next few years. Subwatershed master planning accomplishments in 2011 include the following:

- Survey and inventory of 912 drainage points and catch basins.
- Hydrologic modeling.
- Public meetings.

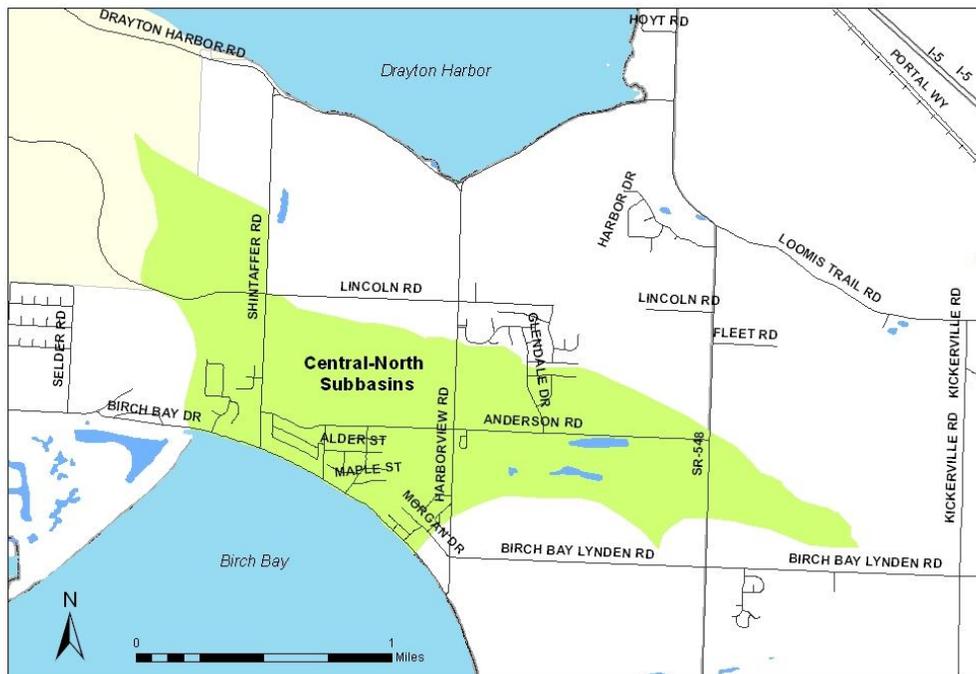


Figure 2. Subwatershed Master Planning area.

Collaborative Cost Share Projects

BBWARM partnered with the Nooksack Salmon Enhancement Association (NSEA) to build a fish passage enhancement project on Terrell Creek at the Kickerville Road culvert. This habitat improvement project used logs with root wads to improve passage at both low and high stream flows and was recommended in the *Birch Bay Comprehensive Stormwater Plan* (CC-13).



Large logs installed in Terrell Creek below the Kickerville Road culvert back water up to improve fish passage.

BBWARM Program Management and Administration

Other activities completed in 2011 in support of the BBWARM stormwater program include:

- Investigated 16 citizen reports of stormwater-related problems.
- Improved the automated fee roll development process using a Geographic Information System database.
- Responded to rate adjustment requests.

Funding

The BBWARM stormwater program is funded through a stormwater service charge. The charge is based on the percentage of each parcel covered by impervious surfaces (e.g., roofs and pavement). These funds are dedicated to the BBWARM program and can be leveraged for additional grant monies. BBWARM expenditures on capital projects in the Cottonwood area are currently being used as match for a \$772,570 from EPA for subwatershed master planning and the Terrell Creek Rural Initiative.

In 2011, \$720,344 was collected in service charge fees and \$633,869 was spent on the Birch Bay stormwater program. Expenditures by program area for 2011 are summarized in Figure 3 (see page 8). For more information on BBWARM fund revenue and expenditures please see the BWARM 2011 Financial Report.

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Figure 3. 2011 BBWARM Expenditures

