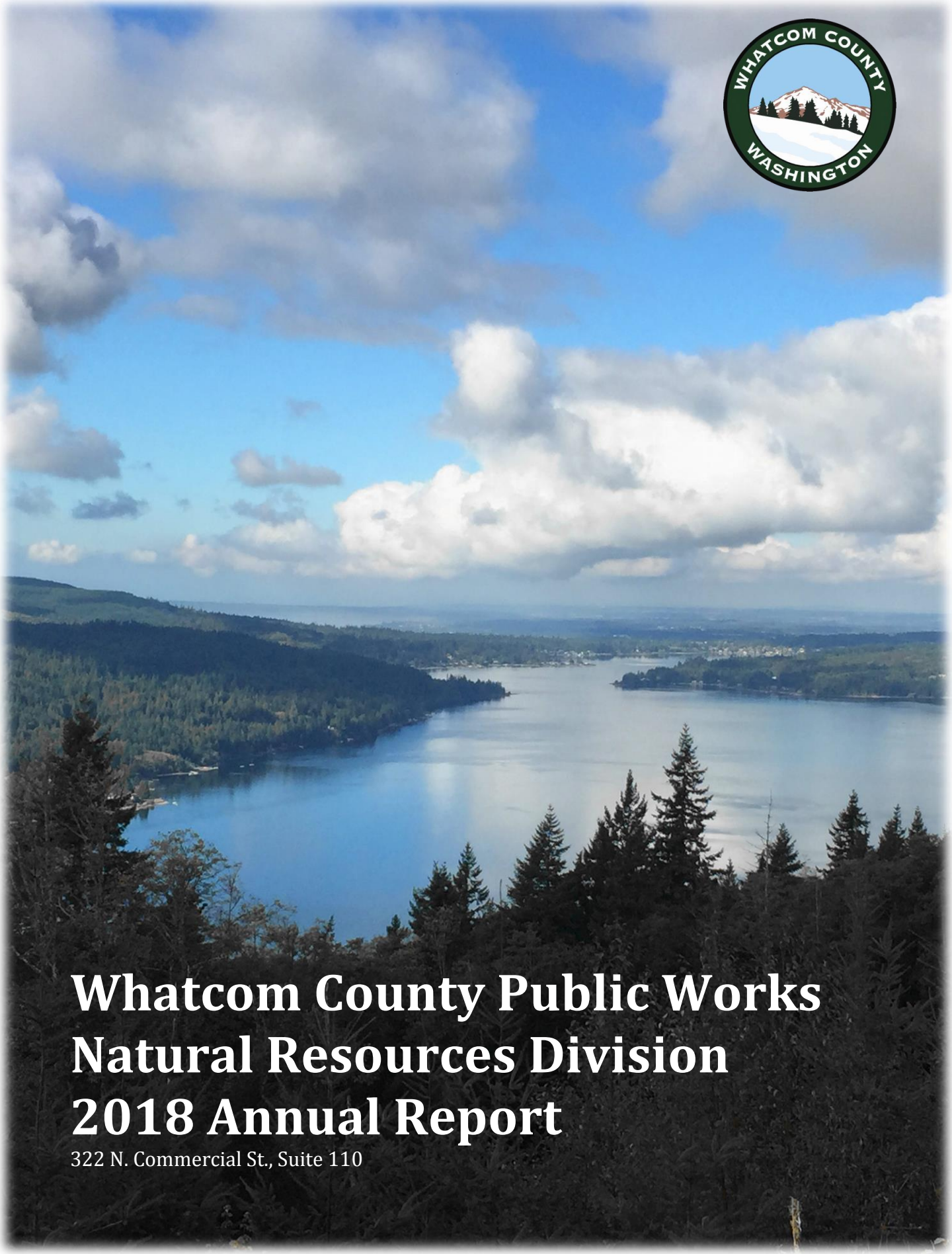


Whatcom County Public Works Natural Resources Division 2018 Annual Report

322 N. Commercial St., Suite 110

Natural Resources Division

The mission of the Whatcom County Public Works Natural Resources Division is to protect public health, safety, and welfare and preserve the natural environment by providing services in the areas of water quality protection, water resource management, marine resource protection, salmon recovery, and other ecosystem-related natural resources. Funding for Natural Resources programs comes primarily from the Whatcom County Flood Control Zone District supplemented by state and federal grants.

In 2018, a full time staff of 11 worked with assistance from part time help to provide services in the following areas:

- Invasive species control
- Marine resource protection
- Water quality protection
- Salmon recovery
- Water supply management
- Environmental technical assistance

Whatcom County Natural Resources staff collect a water quality sample at the mouth of Terrell Creek. Reduced bateria levels in Terrell Creek led to the reopening of shellfish harvesting in Birch Bay in January 2018.

Clockwise from upper right: Giant Hogweed discovered at local shopping center, cage ready to deploy for the Muscle Watch monitoring project, Whatcom Marine Resources Committee members Bob Seaman and Chris Brown conducting a forage fish survey at Marine Park.

Invasive Species

Noxious Weeds

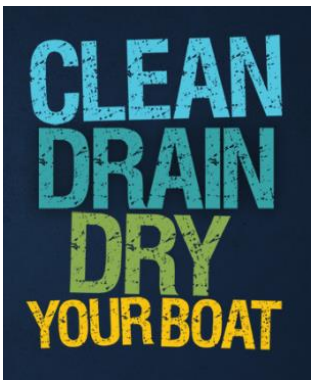
Whatcom County's Noxious Weed Program focuses on working with landowners to control noxious weeds on their properties as required by state law. Noxious Weed staff provide landowners with advice and information for managing invasive weeds in many different environments: residential landscapes, pastures, forests, streambanks, lakes, marine shorelines, and wherever a difficult plant is creating problems. In addition, staff also partner with agencies and groups on local weed management projects where invasive plant problems cross multiple property lines. This includes managing knotweed along our roads and the Nooksack River, controlling flowering rush in Silver Lake, conducting *Spartina* surveys and management on our marine shorelines, and performing ongoing surveys of local lakes for early detection of invasive aquatic weeds. For more information visit www.whatcomcounty.us/914/Weeds.

2018 Accomplishments

- Worked directly with approximately 800 landowners and land managers to address invasive weed problems
- Provided information at 10 public events; gave 18 classes and trainings to local groups, schools, landowners, managers and agency staff; and sponsored five volunteer weed removal project days
- Conducted aquatic plant inventory and surveys on Lake Whatcom, Lake Samish, Lake Terrell, Silver Lake, Toad (Emerald) Lake, Baker Lake, Wiser Lake, Fazon Lake, Lake Padden, Sunset Pond, and Cain Lake in coordination with the Whatcom Aquatic Invasive Species Program staff
- Removed more than 15,000 pounds of noxious weeds by hand from county roadsides and sensitive areas

Volunteers remove invasive English ivy and yellow archangel during a work party in Glacier Springs on property owned by the Whatcom Land Trust.

Aquatic Invasive Species



In response to the threat of Aquatic Invasive Species (AIS), the City of Bellingham, Whatcom County, and Lake Whatcom Water and Sewer District created the Whatcom Boat Inspection Program. This program is supported through the ongoing collaboration of all three partners. In 2018, the Boat Inspection Program completed its seventh season of required inspections for all watercraft launching on Lake Whatcom and Lake Samish. The objective of the program is to prevent introducing AIS into our local waters. Zebra and quagga mussels, very serious threats to the health and functions of freshwater bodies, are among the targeted species of the Boat Inspection Program. Staff also inspect for other AIS, including aquatic plants like Eurasian watermilfoil. For more detail on 2018 program results visit the Whatcom Boat Inspections website and view the interactive story map at https://whatcomboatinspections.com/2018-story-map.

2018 Accomplishments

- Conducted 12,444 watercraft inspections at Lake Whatcom and Lake Samish
- Inspected watercraft that had previously visited 806 different waterbodies in 47 different states and provinces
- Received over 1,738 visitors to AIS check stations asking for information on the program
- Confirmed the first sighting of invasive New Zealand mudsnails for Whatcom County in Lake Padden

New sign notifying boaters of New Zealand mudsnails in Lake Padden.

Marine Resources

Whatcom County Marine Resources Committee

Natural Resources provides staff support for the Whatcom County Marine Resources Committee (MRC). The U.S. Congress authorized the establishment of MRCs in seven north Puget Sound counties as part of the Northwest Straits Initiative. The Whatcom MRC is a citizen-based committee comprised of 19 members working to address local marine issues and recommend remedial actions to local authorities. There are five interest groups represented on the MRC: Conservation and Environmental Interest, Economic Interest, Recreational Interest, Relevant Scientific Expertise, and Citizen At-Large. In addition, the MRC has representation from elected officials, local tribes, and local government staff. The MRC strives to raise awareness of marine issues and encourage marine stewardship through education and community events and to gather support for remedies consistent with the Northwest Straits Initiative Benchmarks for Performance. For more information on the MRC visit www.whatcomcountymrc.org.

2018 Accomplishments

- Co-hosted four public speaker events with the Whatcom Watershed Information Network (WWIN)
- Staffed local community outreach events promoting clean water and shellfish resources protection using the MRC display, fact sheets, and hands-on materials
- Supported Whatcom Water Week and co-hosted a Water Week beach cleanup event
- Seeded approximately 90,000 Olympia oyster spat in North Chuckanut Bay
- Completed Jerry's Journey interpretive trail at Birch Bay State Park
- Led green crab monitoring surveys in Drayton Harbor and North Chuckanut Bay in collaboration with Washington Sea Grant
- Participated in the local sample collection for the regional Washington Department of Fish and Wildlife (WDFW) Mussel Watch program
- Monitored bull kelp density at southwest Lummi Island, Aiston Preserve, Alden Bank, and Gulf Road beach in collaboration with the Northwest Straits Commission
- Continued twice a month fecal coliform bacteria water quality sampling in North Chuckanut Bay to characterize seasonal variation of bacteria levels and inform water quality improvement efforts
- Hosted monthly public meetings providing an opportunity for community members to engage in marine resource discussions and presentations
- Conducted monthly forage fish spawning surveys at two beaches in Bellingham in collaboration with WDFW and the Northwest Straits Commission
- Launched the North Sound Stewards program, a pilot citizen science training program, in partnership with RE Sources for Sustainable Communities

Bellingham Technical College students helping seed Olympia Oysters in North Chuckanut Bay.

MRC member Doug Stark leading a beach naturalist training at Birch Bay State Park.

Shellfish Protection Districts

Natural Resources supports the Birch Bay, Drayton Harbor, and Portage Bay Shellfish Protection Districts. These districts have been established by state law for shellfish growing areas that are closed to shellfish harvest due to declining water quality. Each district has a citizen advisory committee to provide recommendations on the district's shellfish recovery plan. The primary purpose of the shellfish protection districts is to work with community members and partners to keep fecal coliform bacteria out of creeks and rivers flowing to shellfish beds so that year-round shellfish harvest is safe for human consumption. This work is accomplished through the Pollution Identification and Correction (PIC) program described on the next page.

2018 Accomplishments

In January 2018, the Washington State Department of Health upgraded 129 acres of shellfish beds in Birch Bay from prohibited to approved for shellfish harvest. For the past 10 years, the waters around the mouth of Terrell Creek in the center of Birch Bay have been closed to shellfish harvest due to bacteria pollution. Years of hard work and collaboration by community members, non-profit organizations, and local government resulted in water quality improvements in Terrell Creek and the reopening of these shellfish beds in 2018. The community celebrated this success in June at the Birch Bay Beach Fest and Feast, which included a Shellebration award ceremony honoring individuals and organizations that made important contributions to water quality improvements.

Whatcom Conservation District representative Aneka Sweeney presents long time Birch Bay resident and citizen advocate Kathy Berg with a Birch Bay Watershed Stewardship Award at the shellfish bed reopening ceremony during the 2018 Birch Bay Beach Fest and Feast.

Additional 2018 Accomplishments

- Provided staff support for three shellfish protection district advisory committee meetings and additional data and outreach subcommittee meetings
- Coordinated shellfish bed recovery efforts with the Washington State Department of Health
- Completed annual shellfish protection district reports for each of the three districts
- Additional work completed through the PIC program (described on the next page)

Water Quality Protection

Pollution Identification and Correction (PIC) Program

Whatcom County's Pollution Identification and Correction (PIC) program uses water quality monitoring data to identify priority areas for water quality improvement to meet public health and shellfish bed safety standards. The PIC program provides water quality monitoring, source tracking, community outreach and education, and technical and financial assistance to landowners for the purpose of keeping fecal coliform bacteria out of waterways. Natural Resources staff work closely with Whatcom County Health and Planning and Development Services; Whatcom Conservation District; Washington State Departments of Agriculture, Ecology, and Health; local tribes; federal agencies; and other local organizations to identify and address potential bacteria sources.

The PIC program provides financial incentives to help landowners build knowledge and take stewardship actions to protect water quality. After landowners complete a workshop with the Health Department or Whatcom Conservation District (WCD), they may be eligible for a rebate program. The septic system rebate program, initiated in 2014, provides rebates for system evaluations, septic tank pumping, or installation of equipment like risers and lids. The small farm improvement rebate program, initiated in 2018, provides rebates for barn gutters or heavy use area footing material. Additionally, Public Works partners with the Whatcom Conservation District to provide a cost share program for landowners implementing best management practices (BMPs) on non-dairy farms.

2018 Accomplishments

- Reopened 129 acres of shellfish growing areas to year-round harvesting in Birch Bay (see previous page)
- Completed 190 water quality sampling runs and collected about 4,000 water quality samples
- Contacted 510 landowners about declining water quality in focus areas
- Offered technical and financial resources to landowners through a partnership with the WCD: 56 farm plans completed, 17 best management practices (BMPs) installed, 15 small farm improvement rebates issued, and six small farm cost-share projects funded
- Issued 47 rebates for septic system evaluation, equipment, or pumping costs totaling over $8,000
- Partnered with Whatcom County Health Department for "Septic Smart Week" outreach
- Provided seven presentations for community groups, County Council, and agency workshops about water quality and the PIC program
- Participated in eight community outreach events including: Small Farm Expo, Bellingham Technical College Maritime Heritage Festival, Birch Bay Beach Fest and Feast, Drayton Harbor Maritime Festival, Northwest Washington Fair, Run with the Chums, Bellingham SeaFeast, and the 3rd annual Drayton Harbor Shellebration
- Distributed over 125 dog waste pick-up kits and 350 "Keep Wildlife Wild" stickers and magnets
- Distributed over 2,000 water quality newsletters
- Improved public access to water quality information and current monitoring data on the Whatcom County website
- Worked with partners to improve coordination for water quality outreach, data collection, and landowner contacts

Whatcom County Public Works Natural Resources Planner Kate Rice presenting Garden of the Salish Sea founder Julie Hirsch with the Drayton Harbor Watershed Steward Award at the 2018 Shellebration.

New graphic developed through the PIC program as part of an outreach campaign to encourage homeowners to evaluate their septic systems regularly and to promote the Whatcom County Health Department as a helpful resource for all septic system information.

Lake Whatcom Management Program

The Lake Whatcom Management Program (LWMP) is a collaborative effort between Whatcom County, the City of Bellingham, and the Lake Whatcom Water and Sewer District to jointly implement programs that improve water quality in Lake Whatcom. The LWMP is integrated with Whatcom County's Stormwater Management Program Plan (SWMP), which outlines county activities to comply with our National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit and the county's Lake Whatcom Total Maximum Daily Load (TMDL) implementation plan, which details county activities to reduce phosphorus and fecal coliform levels in the lake.

Natural Resources staff work within a larger LWMP team including staff from Whatcom County Public Works Stormwater and Maintenance and Operations divisions, Whatcom County Health and Planning and Development Services Departments, City of Bellingham Public Works, and others. Natural Resources staff currently support LWMP funding efforts, Lake Whatcom TMDL response, the Lake Whatcom Homeowner Incentive Program (HIP), and general LWMP education and outreach efforts.

Whatcom County Council established a new Lake Whatcom Stormwater Utility Service Area in December 2017 to provide supplemental funding for the LWMP. In early 2018, County Council established the Lake Whatcom Stormwater Utility Advisory Committee to provide recommendations on a stormwater utility rate structure and Natural Resources staff initiated a funding study guided by input from the advisory committee. The funding study is scheduled to be completed in early 2019 with a subsequent recommendation on a rate structure presented to the County Council.

Phosphorus reduction goals under the Lake Whatcom TMDL are based on runoff and lake circulation modeling conducted in the early 2000s. Through the mechanism of the NPDES Municipal Stormwater Permit, the TMDL requires the City of Bellingham and Whatcom County to periodically review model calculations using new data and more sophisticated models. Natural Resources staff support the model review process. An updated surface water runoff model was completed in 2016. In 2018, a peer review of that model was completed generating recommendations for improving accuracy. The output of the surface water runoff model will be used as input for the lake circulation model to determine if any changes to the TMDL phosphorus reduction goals are warranted.

Lake Whatcom HIP yard signs on display.

The Lake Whatcom HIP is a joint City of Bellingham and Whatcom County program. HIP was established in 2011 as a voluntary, non-regulatory program to provide technical assistance and cost share incentives to homeowners who install water quality improvements that reduce phosphorus runoff into Lake Whatcom. HIP helps meet TMDL requirements on parcels that do not drain to public stormwater treatment facilities. HIP was revised and relaunched in 2017 with an expanded program area, a new partnership with the Whatcom Conservation District, and a new program structure. Properties with higher phosphorus impacts now qualify for a higher level of assistance and more project options. Properties with lower phosphorus impacts may participate in the Do-It-Yourself Native Landscaping program. With the expanded HIP area including more properties outside of the city limits, management of the program was shifted from the city to the county in 2017 requiring additional levels of support from Natural Resources staff. HIP activities in 2017 centered on establishing the revised program. The focus in 2018 was on growing participation.

For more information on all components of the LWMP and a complete summary of LWMP accomplishments in 2018 visit www.lakewhatcom.whatcomcounty.org/resources and download the 2018 LWMP Progress Report. Natural Resources contributions to LWMP program areas in 2018 are summarized below.

2018 Lake Whatcom Management Program Progress Report cover.

2018 Accomplishments

- Initiated and managed the Lake Whatcom Stormwater Utility Funding Study including: hiring a consultant, evaluating funding mechanism options, analyzing parcel data, hosting a public meeting, responding to public comments, conducting legal analysis, and hosting six advisory committee meetings
- Managed the Lake Whatcom surface water runoff model peer review process resulting in recommendations for improving model accuracy
- Collaborated with Whatcom Conservation District and City of Bellingham staff to implement the HIP including outreach to homeowners, training to certify HIP professionals, improving program administration, and providing assistance to participating homeowners
- Facilitated the completion of six HIP projects and partial completion of an additional four projects for a total of 60,793 square feet improved and an estimated 1.5 pounds of phosphorus removed annually from runoff entering Lake Whatcom
- Participated in LWMP Education Team projects including developing a Lake Whatcom watershed resident baseline survey and a Lake Whatcom watershed resident guide

Salmon Recovery

Salmon Recovery in Water Resource Inventory Area (WRIA) 1 is a collaboration between Whatcom County, the salmon co-managers (Lummi Nation, Nooksack Tribe, and Washington Department of Fish and Wildlife), City of Bellingham, small cities of Whatcom County, Nooksack Salmon Enhancement Association (NSEA), Whatcom Land Trust, Whatcom Conservation District, and many others in the community. The local vision of salmon recovery is to return self-sustaining salmonid runs to harvestable levels through the restoration of rivers and marine shorelines, promotion of natural habitat forming processes, careful use of hatcheries, and responsible harvest. Implementation of this vision is guided by the WRIA 1 Salmonid Recovery Plan, which was approved by local governments and the salmon co-managers in 2005 and incorporated into the federally approved Puget Sound Chinook Recovery Plan in 2006.

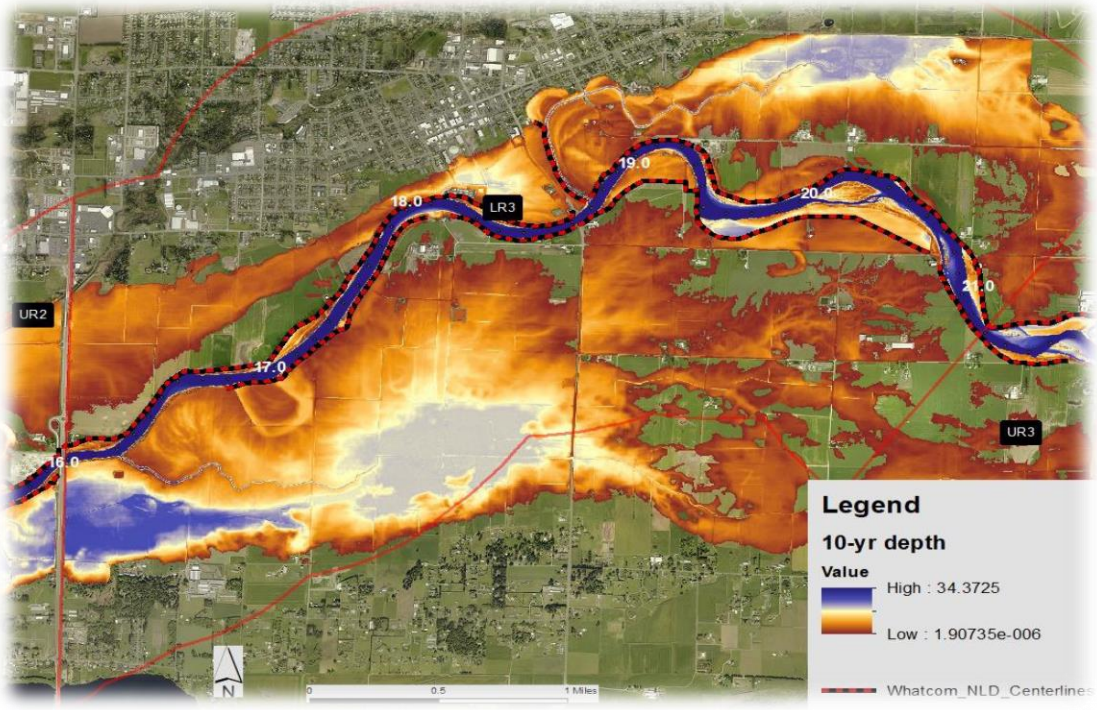
The WRIA 1 Watershed Management Board (consisting of Whatcom County, Public Utility District No. 1, all seven cities in the county, and the salmon co-managers) guides the implementation of both the WRIA 1 salmon recovery and watershed management plans (see next section for more information on WRIA 1). This joint oversight is an important factor for the ultimate success in restoring healthy salmon runs since water quality, water quantity, instream flows, and land use management are all intrinsically linked to healthy salmon populations and the properly functioning habitats on which they rely.

Natural Resources staff participates in technical assessments that guide refinement of salmon habitat protection and restoration priorities. Staff also conceives and develops project proposals, annually reviews salmon recovery projects proposed for grant funding, and helps integrate salmon recovery into projects done under other Public Works divisions such as River and Flood, Roads, and Stormwater. Learn more about WRIA 1 Salmon Recovery Program at salmonwria1.org.

2018 Accomplishments

- Represented Whatcom County in salmon habitat restoration project strategy revisions, project planning, and review and ranking of state and federal project funding proposals
- Sponsored a Washington Conservation Corps (WCC) crew jointly with the Nooksack Salmon Enhancement Association (NSEA) and Whatcom County Parks to support: water quality sampling; maintenance of salmon recovery, flood, stormwater, and instream flow augmentation structure project sites; public education and outreach events; and recreational trail development on County Parks lands in Lake Whatcom
- Supported the River and Flood Division in the on-going Floodplain Integrated Planning process that will produce updates to the Lower Nooksack River Comprehensive Flood Hazard Management Plan that incorporate WRIA 1 Salmonid Recovery Plan restoration strategies
- Managed the Lower Mainstem Nooksack Salmon Habitat Assessment and Geomorphic Assessment, which will provide baseline geomorphic and salmon habitat information in support of integrated floodplain management plan development for the lower 36 miles of the Nooksack River
- Coordinated WRIA 1 Salmon Recovery Staff Team work on the development of a WRIA 1 fish barrier correction strategy
- Staffed community outreach events promoting knowledge about salmon and key actions needed to recover healthy salmon populations

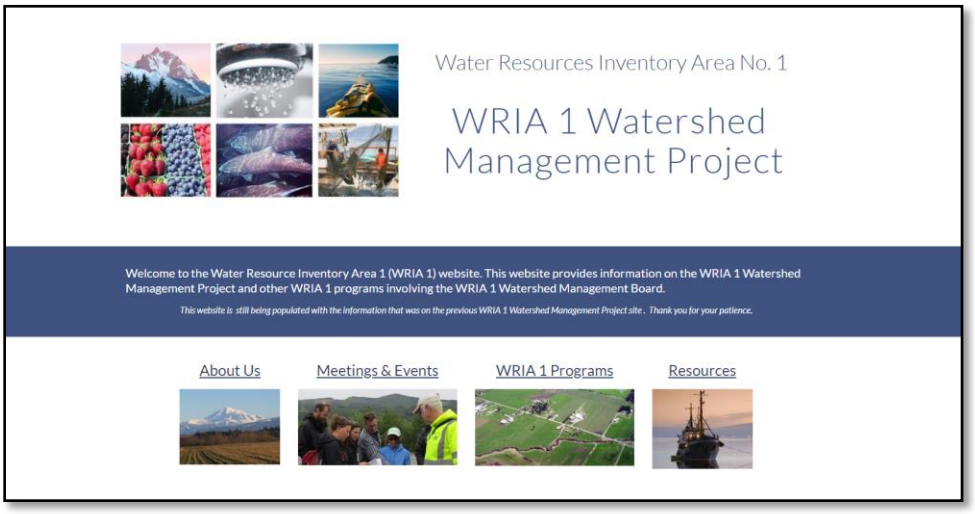
Geomorphic assessment field data collection on the Lower Nooksack River.



The recently completed Lower Nooksack River Geomorphic Assessment provides information to better understand the geomorphology of the Nooksack River from Deming downstream to Bellingham Bay and how the river has changed since the first detailed maps were made in the 1880s. Analyses, such as water depths on the floodplain near Lynden shown in the image above, are being used to understand ways to better reduce flood risk, protect and restore salmon habitats, and understand how flooding impacts floodplain landowners. The full report can be found at www.whatcomcounty.us/2971/FLIP-Reports

Water Resources Management and Watershed Planning

The Natural Resources Division supports coordinated water resources, watershed planning, and salmon recovery efforts for Whatcom County. This support includes being the lead for integrated watershed management and Puget Sound Ecosystem recovery efforts for Water Resource Inventory Area (WRIA) 1. WRIA 1 includes the Nooksack River basin and adjoining independent coastal watersheds. For more information on the WRIA 1 Watershed Management Project visit wria1project.whatcomcounty.org.



WRIA 1 website homepage.

In 2018, Natural Resources staff support for WRIA 1 was heavily focused on streamflow restoration planning related to permit-exempt domestic wells in accordance with Washington State Engrossed Substitute Senate Bill (ESSB) 6091 (codified as RCW 90.94), which was signed into law on January 19, 2018. This bill was the legislative response to the Washington Supreme Court ruling in 2016 in Whatcom County vs. Hirst et al. (the "Hirst decision"). This court ruling required counties to address impacts from permit-exempt domestic wells. ESSB 6091 required the WRIA 1 local planning group to update the 2005 WRIA 1 Watershed Management Plan to address impacts from exempt domestic wells by February 1, 2019. If the Watershed Plan is not updated by February 1, 2019, the Department of Ecology is required to address impacts from permit-exempt domestic wells via rulemaking.

2018 Accomplishments

- Provided administrative support for integrated watershed planning efforts in Whatcom County including supporting the WRIA 1 Watershed Management Board, WRIA 1 Management Team, Watershed Staff Team, the Salmon Recovery Staff Team, and the WRIA 1 Planning Unit
- Participated in the streamflow restoration planning process related to permit-exempt domestic wells per the statutory requirements put forth under RCW 90.94, including contributions to the development of an update to the 2005 WRIA 1 Watershed Management Plan – Phase 1
- Procured a Streamflow Restoration Project Planning Grant from the Washington State Department of Ecology to provide funds in support of the County's participation in the streamflow restoration planning (RCW 90.94) process
- Led Puget Sound ecosystem recovery coordination efforts in Whatcom County under the auspices of the Whatcom Local Integrating Organization (LIO)
- Participated in evaluation and development of local project priority recommendations for 2018 near-term actions included in the 2018-2022 Puget Sound Action Agenda (more next page)

Water Resources Management and Watershed Planning 2018 Accomplishments Continued

- Participated in preparation of the WRIA 1 Watershed Management Board 2018-2023 Work Plan
- Led the cooperative management and development of the fourth phase of the Lynden-Everson-Nooksack-Sumas groundwater flow model, which will contribute to further understanding of the interactions of groundwater and surface water and aid in water resource planning decisions
- Managed the operation and maintenance of the Friday Creek flow augmentation structure to ensure in-stream flows are maintained to support aquatic life and are not impacted by domestic water withdrawals from Lake Samish

Environmental Technical Assistance

Natural Resources staff provide technical assistance to other Whatcom County programs, community groups, and government agencies in the program areas listed above. For example, staff have developed tools to better evaluate geologic hazards, identify unknown weeds, provide grant and contract project management and permitting support, and review and comment on technical documents.

For More Information

For more information on Whatcom County Public Works Natural Resources Programs call (360) 778-6230 or visit http:\\Whatcomcounty.us/308/Public-Works.