



clean water
is everyone's business



SKAGIT COUNTY CLEAN WATER PROGRAM - 2009 REPORT



A MESSAGE FROM THE SKAGIT COUNTY BOARD OF COMMISSIONERS

Clean water is everyone's business, and as your Skagit County Commissioners, we take our role seriously in implementing our Clean Water Program. This annual report is intended to share with you our mission of addressing pollution and enhancing our water quality for everyone.

To leverage your tax dollars to do the best job possible, we are working with the fine organizations that are featured in this publication to resolve the water quality issues facing Skagit County. In 2010 we are committed to a major emphasis on the Samish River basin to reduce fecal coliform pollution through education, controlling pollution and developing effective water monitoring programs.

Our Clean Water Program involves many community partners and volunteers. In these days of increased regulation and environmental challenges, we choose to be pro-active in our approach. Working together we can assure clean water, healthy shellfish beds, cleaner storm water, and viable habitat for fish and wildlife.

Skagit County has a long and successful record to good stewardship in protecting our natural resources. Through progressive land use planning, farmland protection, and flood plain management, we can all work to protect the land and natural resources we love.

We encourage you to read this report and share the information with family and friends. Better yet volunteer with one of the many fine organizations featured and do your part to protect and expand our economic viability while improving water quality and our natural resources for generations to come.



Commissioner
Ron Wesen, District #1



Commissioner
Ken Dahlstedt, District #2



Commissioner
Sharon Dillon, District #3

SKAGIT COUNTY CLEAN WATER BUDGET SUMMARY

Programs	2009			2010		
	Expenses	Revenues		Expenses	Revenues	
	Expenditures	Grants	Assessment Distribution	Expenditures	Grants	Assessment Distribution
Critical Areas Ordinance						
Adaptive Management	18,171		18,171	24,505		24,505
Fish Habitat Monitoring	48,384		48,384	67,584		67,584
Surface Water Quality Monitoring	177,686		177,686	220,745		220,745
Fish Habitat and Restoration	777,217	628,300	148,917	338,992	222,066	116,926
Marine Resources	184,353	184,353		156,590	130,730	25,860
Lake Management	17,541		17,541	16,128		16,128
Agencies/Organizations						
Skagit Conservation District	109,000		109,000	243,000		243,000
Skagit Conservation Education Alliance	8,000		8,000	12,000		12,000
Skagit Fisheries Enhancement Alliance	20,000		20,000	30,000		30,000
Skagit Watershed Council	20,000		20,000	30,000		30,000
Western WA Agricultural Association	20,000		20,000	20,000		20,000
Health Department	175,000		175,000	175,000		175,000
Hydrogeology	12,316		12,316	2,000		2,000
Administration						
General Administrative	72,584		72,584	95,247		95,247
Training	24,111		24,111	28,096		28,096
General Services (Note 1)	118,577		118,577	136,886		136,886
Communications & Outreach				20,000		20,000
Total	1,802,940	812,653	990,287	1,616,773	352,796	1,263,977

Note 1: Includes GIS, IS, Central Services, Facilities, Assessor's Office, and PW Administration



HISTORY

Skagit County Clean Water Program History *Clean Water/Shell Fish Protection District formed in 1995 to clean up failing sewage systems*

In 1994, as a result of bacterial pollution, the Washington State Health Department closed parts of Samish Bay to recreational and commercial shellfish harvesting. The Bay was so polluted that shellfish harvested from this area posed a health risk to people. To remedy this, the

county was required to establish a program that would reduce contamination. In 1995, the Clean Water (Shellfish Protection) District (CWD) was formed. The CWD helped clean up failing sewage systems in Edison and Blanchard which were contributing to the Bay's pollution.



Taylor Shellfish Farm staff collect shellfish from the Samish Bay.

Curing Faulty Septic Systems

By 1998, there seemed to be an adequate amount of septic cleanup in Blanchard and Edison to reopen part of Samish Bay to shellfish harvesting. For the next few years, the CWD took a back seat waiting to fix the next big event that occurred with little funding to fuel its survival.

What Are We Doing to Solve the Problem?

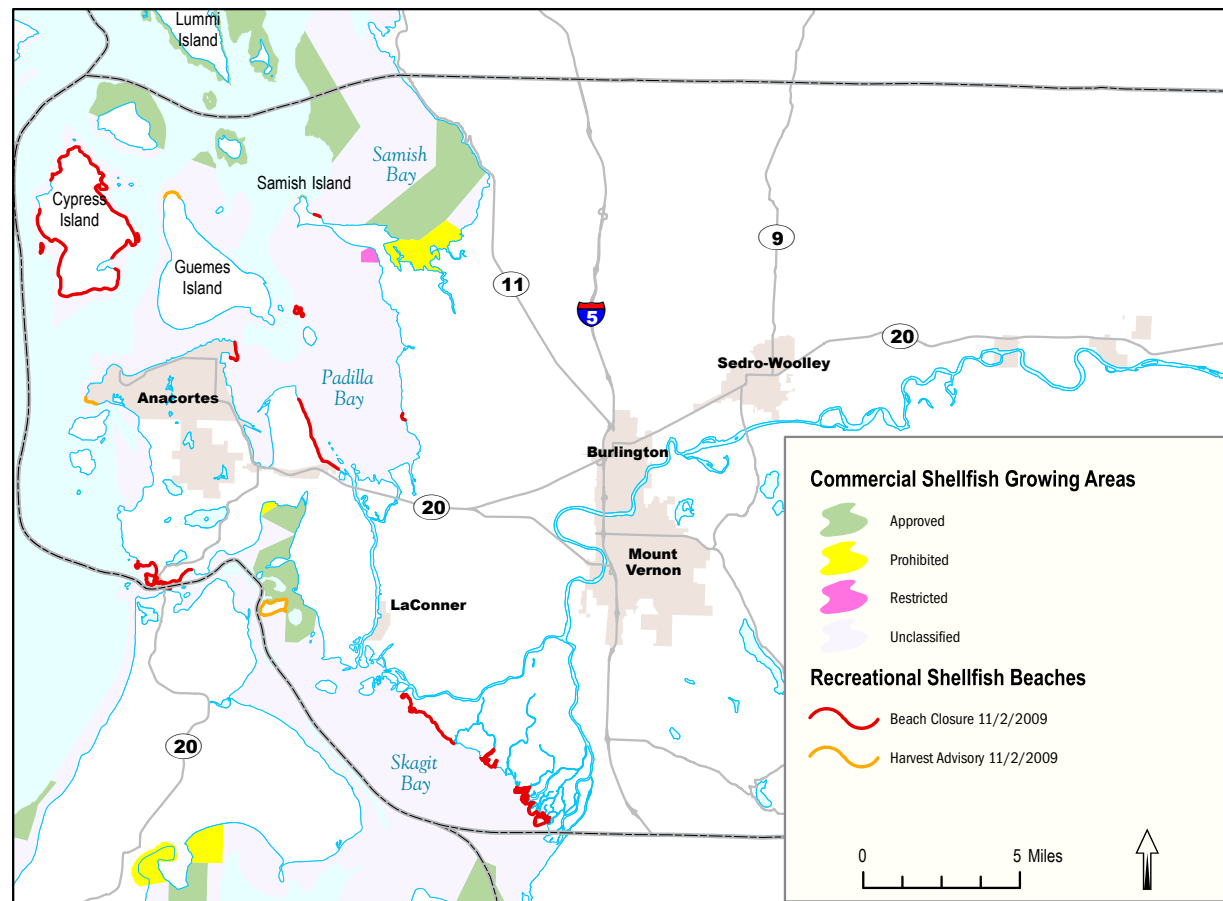
All of the programs listed within this publication are wholly or partially funded by the CWP and are working towards improving Skagit County's water quality.

Skagit County's Water Monitoring Efforts

From 1999-2005, Skagit County monitored water quality through the Baseline and Samish Bay Watershed Monitoring Projects. This monitoring revealed continuing fecal coliform pollution in the Samish Basin and elsewhere in the County. Fecal coliform bacteria indicate the probable presence of organisms which can cause diseases such as typhoid fever, viral and bacterial gastroenteritis, and hepatitis A. Many watercourses also failed to meet state standards for other parameters such as dissolved oxygen and temperature which can negatively affect aquatic organisms such as salmon.

Enter Skagit County's Clean Water Program

In 2005, as a part of the CWD, Skagit County created the Clean Water Program (CWP). Its goal: to address and deal with non-point pollution and enhance Skagit County's water quality with special attention paid to reducing fecal coliform pollution, educating the public, controlling storm water pollution, and developing a water monitoring plan.



Status of Skagit County shellfish growing areas, November 2009. Map adapted by Skagit County GIS from State Office of Shellfish and Water Protection data.



WATER CLEANUP PLANS IN THE SKAGIT AND SAMISH WATERSHEDS

By Sally Lawrence, Washington Department of Ecology



A view of the town of Edison with the Edison slough running through. Picture taken with assistance of Lighthawk Flights. Photo courtesy of Washington Dept. of Ecology.



Taylor Shellfish Farms oyster bed near the mouth of the Samish River. Here, the oyster clusters are covered with algae. Photo courtesy of Taylor Shellfish Farms.



Trevor Swanson, Ecology TMDL technical lead taking a Samish River cross section. Photo courtesy of Washington Dept. of Ecology.

In 2008 and 2009, commercial shellfish beds in Samish Bay were temporarily closed to harvest seven times after rain events led to high loads of bacteria in the Samish River, the largest freshwater discharge to the bay. Washington Department of Ecology is working with local partners on a new water cleanup plan to reduce fecal coliform bacteria in the Samish watershed. This watershed includes the Samish River and all its tributaries (the largest are Friday Creek and Thomas Creek) as well as direct discharges to Samish Bay, including Edison and Alice Bay sloughs and Colony and Oyster creeks. Working with Skagit County agencies Health; Public Works; Planning and Development Services; and other local partners including the Conservation District, Ecology's plan identifies multiple sources of bacteria that need to be reduced in order to protect public recreational uses of streams and the bay and keep shellfish beds open for harvest.

Fecal coliform bacteria live in the gut of warm-blooded animals. Shed into the environment through feces, they are indicators of a variety of pathogens that can make people sick. These fecal organisms get into the environment through failing onsite septic systems, improper management of livestock manure and pet waste and other human-related activities.

In September 2009, Ecology convened local agencies, tribes, and non-governmental organizations to agree on a set of near-term actions that will reduce bacteria in the Samish watershed before the end of the coming winter wet season. The partners will work on education and public outreach to landowners and will develop incentives for landowners to improve their farm management. Agencies with authority to enforce federal, state, and local laws, including required inspections of onsite septic systems, will work to ensure compliance with the regulations.

Under the federal Clean Water Act, Ecology is required to establish water quality standards for bacteria and other indicators of surface water health, such as the amount of dissolved oxygen, in order to make sure the water is safe for aquatic life and for human uses of the water, such as recreation and harvest of fish and shellfish. When data indicate the water is not meeting standards, the state conducts a study called a TMDL, or Total Maximum Daily Load, to determine where pollutants are coming from and how much they need to be reduced in order for the water to meet standards.



Besides the TMDL for the Samish watershed, Ecology is conducting two other TMDLs in Skagit County:

1. The Lower Skagit River fecal coliform TMDL, which is aimed at reducing bacteria in the Skagit River, Hansen Creek, Brickyard Creek, Nookachamps Creek, and several other tributaries.
2. The lower Skagit tributaries temperature TMDL is aimed at improving water temperature in Hansen, Nookachamps, East Nookachamps, Fisher and Carpenter Creeks. Water temperature in these creeks during the late summer, low flow season, reaches temperatures that can harm the juvenile salmon that are rearing in the creeks. Ecology has provided a grant to Skagit County Public Works for the Natural Resource Stewardship Program, which offers small grants to landowners who plant trees and make other riparian improvements that will help improve creek water temperatures.

Center photo: SFEG volunteers collect macroinvertebrates, such as small bugs, in order to help gauge stream health. Photo courtesy of SFEG.



A view of the Samish Bay tideflats where Chuckanut Shellfish grows Manila clams under rows of predator net.

SKAGIT COUNTY'S SHELLFISH RESOURCES RELY ON CLEAN WATER

Skagit County has abundant shellfish resources along its marine shorelines. Clams, oysters, and mussels are commercially farmed or harvested recreationally.

Northern Puget Sound Native Americans also rely on these resources for ceremonial and subsistence purposes as well as commercial harvest. Unfortunately, because of degraded water quality, it is no longer safe to consume shellfish from many of the County's beaches.

Many residents of the County are not aware that the valley's productive agricultural lands extend out into the bays and onto the tide flats. Laws passed shortly after statehood in 1895 allowed for the sale of tide-lands into private ownership specifically to culture shellfish. These laws, the Bush Act and the Callow Act, are the foundation of a long tradition of shellfish farming in Skagit County. Studying a map of Samish Bay one sees Oyster Tracts typically 100 acres in size divided into smaller 10 acre lots. These lands have been actively cultivated for shellfish for a hundred years. Samish, Similk, Padilla and Skagit Bays have all had commercial shellfish culture or harvest at some point in history. Many of these areas unfortunately are currently restricted for harvest due to poor water quality.

Oysters and clams are filter feeders. They feed on the microscopic algae, called plankton, growing in the water which they filter out with their gills. This filtering provides valuable ecological services to the

waters of Puget Sound but leaves the shellfish vulnerable to pollutants. If septic systems are not properly maintained or pet or livestock wastes are not properly disposed of, pathogens can get into our bays and sucked up by the clams and oysters making the shellfish unsafe to eat.

Careful monitoring of commercial shellfish beds by the State Department of Health (DOH) determines whether shellfish harvest is safe or not. DOH also uses fresh water tributary monitoring data collected by Skagit County Public Works and local volunteers to inform their decisions regarding opening and closing shellfish beds for harvest. Targeted storm event sampling since April 2008 has routinely documented fecal coliform bacteria levels in the Samish watershed which grossly exceed state water quality standards. As a consequence, DOH has repeatedly closed the bay to shellfish harvest when storms wash feces from the watershed into the bay. These closures, which last a week at a time, have had severe impacts on the shellfish farms in the bay.

Skagit Bay has a large resource of eastern soft shell clams that have been harvested commercially in the past. Most of the Skagit County portion of the bay is currently off limits to harvest due to pollution. Bay View State Park in Padilla Bay is closed to shellfish harvest due to pollution. Similk Bay has a long history of commercial oyster production but has been closed for shellfish harvest for nine years due largely

to failing septic systems. Thanks to the hard work of the Similk community, this situation may soon be remedied.

The only public access for recreational harvest of shellfish safe for human consumption in Skagit County is on Samish Island. In July 2009 it was closed by the Washington Department of Natural Resources who owns and manages the upland access and beach. The pit toilet facilities and stairs to the beach were in disrepair and posing a public health and safety risk. Lacking the resources to make the necessary repairs, DNR removed and stairs and toilets and posted the site for no trespassing.

Many Skagit County residents harvest shellfish from tidelands they own adjacent to their shorefront residences. In recent years, more and more residents are enhancing the shellfish resources on their beaches with clam, oyster, and mussel seed available from Taylor Shellfish Farms. These shellfish gardening activities improve Skagit County's marine water quality and enhance awareness of the need for clean water for shellfish that is safe to consume. The shellfish seed sales are done in conjunction with the Skagit Conservation Education Alliance with a portion of the proceeds used to fund their ongoing water quality education programs.

- Bill Dewey, Taylor Shellfish Farms

Recipe: Steamed Manila Clams

Ingredients:

5 pounds Manila clams,
¼ pound butter,
1 medium sweet onion chopped,
10 cloves garlic chopped fine,
¾ cup white wine,
2 tablespoon Italian seasoning (optional)

Preparation: Rinse clams. Discard any which are gaped and don't close when tapped. Melt butter in a pot large enough

to hold the clams which has a lid. Sauté the chopped onion and garlic for a few minutes, add the clams, wine and Italian seasoning if desired. Stir the ingredients to mix the garlic and onions up into the clams. Put on the lid and turn up the heat. Steam from the butter and wine within about 5 minutes will start to pop open the clams. Cook long enough to open all the clams – about ten minutes. Holding the lid on and carefully shaking the pot will help pop open the clams and mix the broth into them. Serve in the broth with a loaf of French bread to soak it up. Serves approximately 7-10 people.





SKAGIT COUNTY PUBLIC WORKS

WATER QUALITY MONITORING PROJECT

Monitoring Skagit County's Waters

Despite rain, floods, and snow, the Skagit County Monitoring Project (SCMP) team has not missed a single week of water testing in six years. "The first step in cleaning up our waters is finding where they need help and that's what this program does,"

says Rick Haley, SCMP lead. "The program has accomplished all the monitoring it said it would. We have characterized the water at 40 sites across the County and have detected numerous trends in water quality at individual sites."

Monitoring across Skagit County

Established in 2003, the SCMP tests water from 40 different sites throughout the county. The testing is used to establish a water quality baseline and identify trends in watershed health in agricultural areas of the Samish and Skagit River Basins. Streams located outside of agricultural areas are also tested for comparison.

By collecting consistent data, it is possible to determine which parts of the Samish and Skagit Basins need the most attention. Action can then be taken towards cleaning these areas up.

The data collected indicates that many Skagit County streams, both within and outside agricultural areas, do not meet State water quality standards for fecal coliform, temperature, and dissolved oxygen. These state standards are set to protect salmon populations, recreation, and

downstream shellfish resources. Streams not meeting the standards need cleanup plans to fully support these uses. From the data collected, most substandard areas have been identified in tributaries to the Skagit River and Samish Basin. The Skagit River meets most standards on most occasions. Closer monitoring will be needed to identify specific causes of poor quality in specific areas and determine which areas fail to meet standards due to natural causes rather than human-caused problems.

The Trends Analysis indicates that many significant trends in water quality, both good and bad, are detectable in Skagit County watercourses. These trends will be examined on an individual basis for further evidence of where cleanup activities need to occur. There was no pattern to the trends based on agricultural zoning.

Continuing the effort

The monitoring project was originally authorized to continue through 2009 but recently received funding to continue monitoring until 2014. The project will be reassessed on an annual basis. The program was supported through 2008 by a Cen-

ennial Clean Water Grant by the Department of Ecology and in part by the Clean Water Program. As of January 2009, however, it is fully supported by the CWP.

History of the Skagit County Monitoring Program:

- The SCMP was established as a supplement to the Critical Areas Ordinance which was designed to prevent the deterioration of Skagit's watersheds. The SCMP was originally designed to measure the effectiveness of the agricultural CAO.

What are they testing for?

- Dissolved oxygen, temperature, fecal coliform, pH, turbidity, and nutrients.

What is turbidity?

- Turbidity is a measure of how much suspended material is in the water. It often represents silt or dirt which settles on the bottom of streams and rivers. This disrupts the food web and gravel that salmon use for spawning.



Public Works employee, Torey Nelson, measuring water quality parameters at Coal Creek.



Public Works employee, Jeff McGowan, taking a water sample at Mannser Creek.



Turbidity in East Thunderbird Creek



WHAT'S THE NEXT STEP?

Focusing on the Samish: CSI and PIC:

The Clean Samish Initiative (CSI) and Pollution Identification and Correction (PIC)

The Samish Basin fecal coliform pollution issues have attracted regional attention and are now the focus of the Clean Samish Initiative (CSI). The CSI is a multi-agency effort involving the State Departments of Ecology and Health, Skagit County, the Skagit Conservation District, the Skagit Conservation Education Alliance, the Samish Tribe, the Western Washington Agricultural Association, the Washington State Dairy Federation, EPA, Taylor Shellfish, and other organizations. The CSI's aim is achievement of rapid short-term pollution reductions in the Samish Basin, as well as charting a way forward for long-term solutions in the basin.

The CSI workgroup has established subcommittees to address monitoring, education and outreach, funding, and other aspects of the effort. Detailed monitoring of the Samish Basin by Skagit County Public Works, the Samish Tribe, and Storm Team volunteers from the Conservation District has begun. Site visits by Ecology and Skagit County Public Health personnel have also started, and some properties are in the early stages of cleanup.

Skagit County intends to follow up on the CSI efforts to address the Samish basin to determine if problems leading to pollution are from leaking septic tanks, manure management problems,

or other sources. This approach, adapted from a Kitsap County program, involves concentrated water quality sampling to locate likely sources of pollution, followed by contact with landowners in the affected parts of the basin to determine if septic tank or manure management problems are leading to the pollution.

Public Works staff will conduct the water quality sampling, and work with Public Health staff to determine the locations for emphasis. Public Health staff will then conduct voluntary site visits with willing landowners. If conditions are found that might lead to fecal coliform bacteria reaching surface waters, the inspector will refer the landowners to resource agencies with the expertise and programs to eliminate the pollution. These agencies include Public Health, the Skagit Conservation District, the Skagit County Natural Resources Stewardship Program, or other agencies with the tools to address the problem. Enforcement of County or State regulations will occur only in the case of landowners with demonstrated pollution problems who will not cooperate voluntarily.

For more information about the program, contact Rick Haley at rickh@co.skagit.wa.us



Junior Stream Stewards from Allen School post educational signs, created by themselves, in the Samish watershed. Photo courtesy of SFEQ.



Volunteers plant trees to restore riparian areas at Howard Miller Steelhead Park along the Skagit River. Photo courtesy of SFEQ.



Rick Haley takes a discharge measurement along the Nookachamps.

Clean Samish Initiative

OPEN HOUSE & discussions of incentives and requirements

Take pride in the watershed, join with your neighbors to find out how to do your part -- because

"Clean water is everyone's business."

Thursday, December 3, 2009

Allen Elementary/Middle School Gym

Open House starts 6:30 p.m./Meeting 7 p.m.

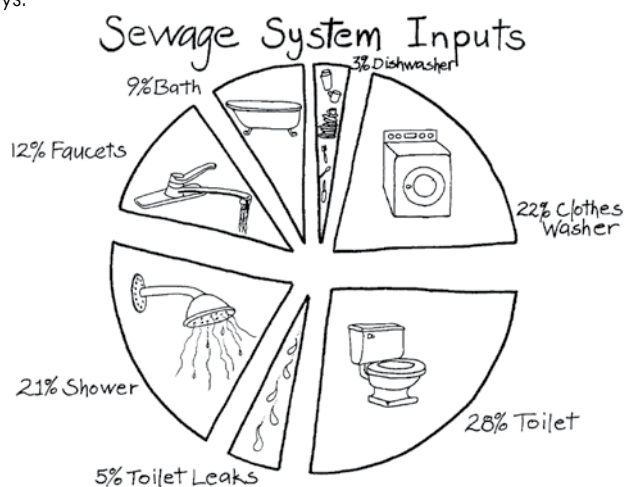
SKAGIT COUNTY ON SITE SEWAGE PROGRAM



The Skagit County Health Department leads a Septics 201 class



An old, rusted, steel septic tank that has failed. Tanks that fail leak improperly treated sewage and contaminates into our waterways.



Little known fact: every living thing poops. And the hard reality is that, poop, when mixed with water, creates dirty, unhealthy water. That's why the On Site Sewage Program was created to ensure that on site wastewater in Skagit County was properly treated and disposed of according to state law.

Overflowing Levels of Fecal Coliform

When not properly maintained, septic tanks leak fecal coliform into our waters creating unhealthy, dirty water that we drink, swim, and fish in. The fecal coliform count in septic tanks is in the hundreds to thousands (cfu). The State standard is 100 (cfu) in public waters. This means that if our septic tanks leak, we risk being far above what the State considers acceptable.

The on site sewage team uses water quality data acquired by Skagit County's Public Works Monitoring program to specifically determine which Skagit County waters are most polluted. "The challenge is to find the source of the problem. The quality of water improves drastically when a problem area is identified and specifically treated," says the Skagit County Health Department.

We Are All Connected

One leaking septic tank can affect far and beyond what we imagine. Septic tanks can impact an entire watershed from the point which waste goes into a stream or creek, to the point it reaches the main waterways. That's why the Skagit County Health Department has undertaken the task of educating the public. Having taught over 130 "Septics 101" classes since 2000 and given more than 100 presentations to clubs, organizations, non-profits, and partnership organizations, the Skagit County Health Department has personally talked to over 3,300 septic tank owners.

Large improvements have also been made in both repairing old systems and installing new septic systems. Since 1999, 921 septic systems have been fixed. In 2009 alone, over 250 septic tanks have been repaired.

To find out whether your property and septic system is accounted for, visit www.skagitcounty.net/septic and check the county maps.

For more information on septic systems and the on site program please call 360-336-9280.

Did You Know...

- 45% of wastewater in Skagit County is treated onsite, meaning at home. The other 55% is treated at larger wastewater treatment plants in cities, towns, and districts within Skagit County.

- There are an estimated 20,000 on site septic tanks in Skagit County. The County has permits for around 13,300. By 2012, the Skagit County Health Department's goal is to have permits for all 20,000 tanks.



SALMON NEED CLEAN WATER TOO

Salmon returning to our local rivers and streams all require cold, clear, clean, and consistent water in order for eggs and offspring to survive. Clean water is not only important to salmon but it is also important to all the organisms that support a healthy salmon population and ecosystem. Many of the

habitat enhancement projects implemented by the Skagit Fisheries Enhancement Group (SFEG) help protect and improve water quality related to temperature, dissolved oxygen, fecal coliform and turbidity. Planting trees and shrubs along streams shades the water and helps control temperature. Streamside vegetation also filters out pollutants harmful to fish and stream organisms such as soil runoff, fertilizers and herbicides. Fencing livestock out of streams helps reduce fecal coliform inputs. Large wood placed in streams helps give streams habitat diversity. Wood changes stream hydrology and creates gravel bars, pools and riffles. Riffles help aerate the water and increase dissolved oxygen.

SFEG's goal is to educate and engage our community in habitat restoration projects and watershed stewardship activities which will ultimately lead to increased salmon populations.

SFEG's newest education program is the Junior Stream Stewards project. Junior Stream Stewards is a unique Skagit Fisheries Enhancement Group program for middle school students linking watershed education with stewardship. In a combination of classroom programs and field study trips, students learn about salmon and the stream habitat that supports them by studying water quality, native plants, aquatic insects, the salmon life cycle and much more. The program culminates in a community service-learning project to protect and enhance their local stream, in partnership with local organizations, businesses and governments. The purpose of Junior Stream Stewards is to increase students' knowledge for their local salmon stream and inspire community participation to preserve it. Ultimately the goal is to build and foster a culture of land and water stewardship with students that will serve them the rest of their lives. During the 2009-10



school year approximately 400 students from Allen, Concrete, Conway, LaConner and Sedro-Woolley are participating in the Junior Stream Stewards program.

SFEG involves hundreds of volunteers of all ages each year in planting trees, monitoring of projects, and helping in our native plant nursery. These volunteers range in age from pre-school to retirees and many come back year after year. Each one of the volunteers is made aware of the importance of the work they are doing for the watershed, which is one of the reasons they keep returning. SFEG is funded in part by CWP. For more information about how you can help keep water clean for salmon please visit our web site: www.skagitfisheries.org or call our office at 360-336-0172.

SKAGIT CONSERVATION EDUCATION ALLIANCE

Now in its seventh year, the Skagit Conservation Education Alliance (SCEA) is continuing to work for the benefit of the greater Skagit ecosystem to protect water quality through public education, programs, and community events.

SCEA has initiated many activities and educational programs related to ensuring clean water. "With the resources available, it does a very good job," says Rick Haley, a member of the SCEA board. Among the many programs include:

The Sanican Timeshare Program

Improperly disposed of human waste adds to fecal coliform pollution and ruins local shellfish beds. To prevent this problem, SCEA places Sanicans in popular recreational areas like fishing areas and hunting grounds where no bathroom facilities currently exist. SCEA is making sure that more sanicans equals less waste.

Businesses for Clean Water Program

This program educates operators of boatyards and boat repair shops on pollution/storm water management practices. In the past year, over 130 people representing over 50 businesses have attended the Businesses for Clean Water Program.

What's Next?

SCEA is working on educating Samish River waterside residents on how to reduce fecal coliform pollution. "SCEA is focusing its time on prioritizing the Samish because of the ongoing pollution issues and the attention it is getting from other sources," says Pete Haase, program manager.

SCEA is a community-based, non-profit organization that works with all watersheds in Skagit County. It publishes newsletters, has a blog, and holds educational sessions for businesses as well as setting up informational booths at local activities. It is funded primarily by the CWP.



SCEA employees educate a group of local construction workers in their Construction Stormwater Management Practices program. This is held in Burlington for builders, contractors, engineers, and other construction-related businesses. Photo courtesy of SCEA.

For more information, please visit <http://www.skagitwater.org/index.htm> or email Pete Haase at PeteH@SkagitWater.org. Also check out the blog at www.goskagit.com

FISH HABITAT MONITORING AND RESTORATION PROGRAM

The Fish Habitat Monitoring and Restoration Program is an ongoing County program dedicated to protecting and restoring fish and fish habitat. The program encompasses a myriad of activities, programs, and projects including habitat monitoring, culvert replacements, stream restoration, feasibility studies for major habitat projects, and off-channel habitat reconnection projects. Projects designed to improve fish habitat also typically improve water quality. Riparian habitat restoration results in improved stream temperatures and reduced pollution levels as the vegetation acts as a filter to remove pollutants before they reach the stream, while at the same time providing more distance between pollutant sources and the stream. Reconnection of streams to their flood plains and restoration of floodplain function decreases flooding, which reduces erosion and pollutant loads to bays during flood events.



Habitat sampling on Friday Creek

Salmon Habitat Monitoring

In 2004, Skagit County initiated the Salmon Habitat Monitoring Program to ensure that the County was adequately protecting critical areas near agricultural lands. The program is designed to achieve three objectives: establish a baseline of current general physical habitat conditions in fish bearing streams in both agricultural and non-agricultural zoned lands, detect whether salmon habitat is improving, deteriorating, or remaining the same as a result of the County's Critical Area Ordinance, and examine whether there are differences in habitat conditions between streams in agricultural areas and non-agricultural areas in Skagit County.

The Monitoring team surveys, records, and documents channel and in-stream habitat conditions throughout the Skagit Watershed. Twenty annual sites are surveyed every year and 60 sites are monitored every five years. The Monitoring team looks at sediment quality, pool frequency, quality of riparian areas around the streams, presence of woody debris, and other parameters. Monitoring takes place every year from June to October. It is too early in the study to make any meaningful determination of whether significant changes have occurred since the study began.

Fish Passage

In order to complete their spawning migration, salmon must be able to swim upstream to riffles where they can lay their eggs before dying. Some culverts under Skagit County roads, however, act as barriers for fish attempting to make the upstream migration. Small or perched culverts often-times prevent quickly running water to flow through at a slow enough rate. When this happens, water rushes through the culvert and pours out with such a force that fish cannot swim against the stream thus preventing their spawning migration. To prevent these problems, Skagit



An old culvert at Gravel Creek. This culvert acts as a barrier for fish migrating upstream as the fish are forced to jump up and into the culvert to pass through.



A new culvert at Gravel Creek. This culvert allows fish to swim easily upstream. It is also able to manage the flow of water that may come with rising water levels.

County Public Works often replaces small, inefficient culverts with large culverts. Large culverts allow water to flow through at a more natural rate providing a more stable stream environment for fish as well as preventing flooding problems. Natural Resource staff identify potential projects and work with Engineering to get them designed and constructed. Design and construction costs are paid for by the Road Fund.



FISH HABITAT MONITORING AND RESTORATION PROGRAM

Hansen Creek Watershed Management Plan

The Hansen Creek/Red Creek project is an ongoing project focused on habitat restoration and flood management in and around the Hansen Creek area. Working in coordination with local Tribes, the state, and conservation groups, the project consists of enhancing riparian areas and improving fish habitat by planting trees, placing wood in creek channels, and managing sediment.

Due to past problems associated with flooding and sediment accumulation in Hansen Creek, a large alluvial fan was recently constructed. As creeks flow sediment is carried downstream. If large amounts of sediment are deposited in the wrong area, creeks can rise above banks and flood the surrounding land. The area downstream of State Route 20 is an area where sediment tends to accumulate causing localized flooding. The Hansen Creek alluvial fan project, lead by the Upper Skagit Indian Tribe, will provide a wider area in Hansen Creek where sediment can safely be deposited, and will also capture sediment and prevent it from flowing downstream. The fan was placed earlier this year and will be finished within the next few months.

Middle Skagit

The Middle Skagit project is designed to bring community and technical expertise together to coordinate and develop projects in the Middle Skagit River with the goal of restoring Chinook populations. The Skagit Watershed Council, in partnership with Skagit County, resource agencies, Tribes, local utilities, private conservation organizations, and others, is currently undertaking the development of a strategy for implementing feasible salmon restoration projects in the middle Skagit River. The Middle Skagit project will identify and prioritize potential river restoration projects along the Skagit River between Sedro Woolley and the confluence of the Sauk River.

Skagit Watershed Council

As designated by the State, the Skagit Watershed Council (SWC) serves as the lead entity in Skagit County for salmon recovery planning efforts. As lead entity the SWC recommends where state funding for salmon recovery is to be allocated and applied. Skagit County has been a longtime supporter of the SWC and has been a key member of the SWC since its inception in 1997. Commissioner Dahlstedt is currently on the Board of Directors and many County staff have participated in numerous sub-committees over the years. Skagit County's CWP annually provides partial financial support to SWC to advance their goal of restoring healthy ecosystems.

Skagit County Natural Resource Stewardship Program Up to \$10,000 in grant funding to enhance watersheds

Cleaning up and enhancing land next to streams is difficult, but the Skagit County Natural Resource Stewardship Program is making an effort to help. By applying to the program, landowners can receive up to \$10,000 in free grant funding and assistance to enhance their watersheds.

This new program, started in 2009, works with individual landowners who live next to a streams and want help in enhancing their land to improve the habitat and water quality of their watershed. Among many other projects, assistance can come in the form of streamside plantings, fence construction to keep livestock out of waterways, and fish habitat restoration.

Restoring Riparian Areas

- The Stewardship Program helps remove invasive plants such as blackberry bushes, Japanese knotweed and English Ivy in order to re-establish native vegetation such as Red Alder, twinberry, vine maple, and Western Red Cedar next to streams. This can provide shade to help keep the water cool and provide cover for juvenile salmon. An effective riparian area also filters out pollutants harmful to fish and stream organisms such as soil runoff, fertilizers, and herbicides.

Keeping Livestock out of Streams:

- Livestock can have many negative impacts on streams when they have unrestricted access to streams. These impacts include reduced vegetation along the stream banks, compacted soil, increased run-off, increased erosion resulting in poor salmon spawning gravel, and manure-contaminated runoff entering streams resulting in high fecal coliform counts downstream. The Stewardship Program can help construct fences to prevent these problems from happening.

Restoring Fish Habitats and Stream Banks

- Northwest streams need wood within stream channels to create a healthy fish habitat in the form of pools and riffles. Stream habitat can be improved with small scale installation of rootwads and logs. Rootwads and logs can also be used to address bank erosion as well as enhancing natural habitats.

To see if you are eligible to partake in the program, visit www.skagitcounty.net/NRSP or contact Jeff McGowan at jeffmc@co.skagit.wa.us



Volunteers of all ages plant trees to restore riparian areas throughout the Skagit and Samish River basins. Photo courtesy of SFEg.

STORMWATER

The Life of Stormwater

Stormwater is quite straightforward and can be destructive. It starts as some form of liquid – water, rain, melted snow – and comes from streets and parking lots as well as construction, industrial, and residential areas. As it travels, it picks up harmful material such as petroleum products, heavy metals, pesticides, fertilizers, and fecal coliform. And where does it all end up? Simple answer: down our storm drains and into our local waters.

Stormwater in Skagit County

Stormwater runoff is a serious problem in Skagit County and has been recognized as one of the leading sources of pollution to streams, lakes, wetlands, and Puget Sound. As a result of this, in 2007, Skagit County was issued a National Pollution Discharge Elimination System (NPDES) Phase II Stormwater Permit.

“The permit originally concentrated on large point sources of pollution such as factories and sewage treatment plants. As those sources have been brought under control, EPA and Ecology have placed more emphasis on stormwater and other nonpoint sources of pollution,” says Mike See, Stormwater Coordinator for Skagit County Public Works.

What is NPDES?

The national pollution discharge elimination system is the EPA's program that issues permits to potential sources of water pollution.

What Does the Permit Do?

The permit has extensive requirements aimed at improving water quality including:

- Public Education and Outreach
- Public Participation
- Illicit Discharge and Detection
- Controlling Runoff from Development
- Pollution Prevention for Municipal Operations

Making Progress

In addition to updating the Skagit County code to meet NPDES requirements, staff is working with consultants to prepare a financial analysis. They are also coordinating with GIS and IS as required by the permit. The program is excelling in their education and outreach primarily through programs run by the Skagit Conservation District.

Funding for the Stormwater Management Program is provided primarily by the Drainage Utility with help from the Clean Water Program.

For more information on the program, please contact Mike See at michaels@co.skagit.wa.us



When it rains, water rushes to the nearest place it can drain. Oftentimes this is a storm drain. Along the way, it picks up sediment and contaminants which pollute the water where the storm drain exits.



A group of students help to stencil storm drains. Stenciling “Dump no waste, Drains to River” (or Bay, depending on the location) helps educate the public regarding the consequences of dumping in local storm drains. Photo courtesy of SFEG.



SKAGIT MARINE RESOURCES COMMITTEE

Over 200 people showed up at the 2009 Bay Day hosted by the Skagit Marine Resources Committee (SMRC) over the weekend of September 20th. Kids and adults had the chance to reach into a Touch Tank and feel fish and sea stars, enjoy samples of chowder and clams provided by local shellfish companies like Taylor Shellfish farms, and learn about marine life and creatures.

The Fidalgo Bay Day is only one of the 13 programs run by the Marine Resources Committee. Established in 1999, the purpose of the Committee is to discuss marine related problems and determine what actions and programs are needed to protect the local marine habitat. Its other aim is to reach out and educate the public. Currently, the committee works with all people from ages 4-70.

Just a few of the many SMRC activities...

Spartina Dig

Once a year, a group of volunteers come together and dig to remove the invasive saltwater weed, Spartina. Last year, 38 volunteers contributed 157 work hours to removing large amounts of the weed. The Spartina program is now in its 10th year.

WSU Beach Watchers

Partnering with Washington State University, SMRC recruits and trains Beach Watchers every year to become marine advocates. Watchers receive 100 hours of professional training and in return, give back 100 hours of volunteer time to conservation and restoration projects. These projects include public education, water monitoring, microplastics monitoring on Skagit Beaches, Oyster restoration, Bay Days, and much more. The new class of 2009 has already given back 195 hours of marine conservation work in just four months.

Other 2009 Skagit Marine Resources Committee Projects include:

Drift cell monitoring, forage fish surveys, Smart Sponges, re-establishing native Olympia oysters, removing derelict fishing gear, car wash kits, and much more.

What to Watch for in 2010

- Young Beach Stewards – a program for High School students interested in Marine Biology
- Larger Smart Sponges to further increase their effectiveness
- Further Drift Cell Analysis in the Skagit to improve forage fish habitats.

The SMRC is funded primarily by the NW Straits Commission, by grants from the Department of Ecology, and partly by the CWP. For more information on the program please contact Tracy Alker at tracya@co.skagit.wa.us



At the local Bay Day, kids have the opportunity to reach into a Touch Tank and play with water life.

Skagit County Lake Management Districts

Local lakes provide opportunities for recreation and fishing, and add to the aesthetic quality of Skagit County. However, lakes also grow noxious weeds that impair recreation, act as safety hazards, damage the environment, and hinder the quality of lakes making maintenance and upkeep of the lake area difficult for residents. The Skagit County Lake Management District Program (LMDP) was created to provide technical and administrative assistance for lake communities interested in controlling aquatic, noxious weeds.

Currently, Big Lake, Lake McMurray, Lake Erie, Lake Campbell, Clear Lake, and Beaver Lake are enrolled in the LMDP. These six lakes make up four Lake Management Districts. With the help of the LMDP, many lakes have successfully reduced or eradicated the growth of noxious weeds, stabilized water levels, and controlled water lily growth. Throughout the process, Skagit County provides oversight, administrative help, and implements the recommendations of the Lake Management District Advisory Committees. The LMDP is partially supported by the CWP that compliments the self-taxing Lake Management Districts.



A lakefront resident holds up a thick week matt of the invasive Eurasian watermilfoil.



SKAGIT CONSERVATION DISTRICT

Volunteers play important role in clean water efforts

By the numbers...

185: volunteers that have participated in water quality programs run by Skagit County's Conservation District.

243: total volunteers the Conservation District has worked with in 2009 thus far.

600+: individuals who have participated in adult education courses and programs.

1,200+: students engaged in youth education programs.

2,400: hours of volunteer work that have been reported for 2009 thus far.

From forming local Stream Teams that monitor water quality, to creating Car Wash Kits that redirect polluted water away from storm drains, to providing one-on-one personal technical assistance in developing eco-friendly property, the Conservation District is doing its part to educate, assist, and develop ways to improve water quality and protect the habitat.



Backyard Conservation Stewardship class participants pose in front of a "Certified Wildlife Habitat" sign during a class field tour in Anacortes.



County Commissioners hold the winning posters of the Skagit Conservation District poster contest while posing for a picture with the victors.

Funded in part by Skagit County's Public Works' Clean Water Program, these programs are aimed at enhancing the county's quality of water while reducing the amount of pollution that finds its way into our local waters.

Get in the loop and help make a difference.

The Conservation District distributes various publications throughout the year including a biyearly news letter, educational brochures, flyers, and booklets. Through these publications, the Conservation District communicates with over 4,500 County residents yearly.

What's Next?

- The 2010 Backyard Habitat Program will commence next March.

For more information on the CD and its programs, contact Kristi Carpenter at kristi@skagitcd.org

Conservation District Poster Contest

Every year, the Skagit Conservation District holds a Natural Resources Poster Contest drawing a wide range of students from Kindergarten to 12th grade. Now in its 55th year, the contest selects category winners from different grade levels with one overall winner. Three judges, including one local artist and two distinguished natural resource professionals evaluate the posters. Funded in part by the Skagit County Public Works' Clean Water Program, the contest is designed to create awareness, promote, and help educate kids on resource conservation. While the theme changes annually, it always relates to water or soil.

The winners are presented with prizes and then advance to the state competition and eventually the national contest sponsored by the National Association of Conservation Districts. This year, five Skagit County contestants placed at the state competition. Congratulations to Nayomi Anyika, Sara Kumar, Floresita Gomez, Cydnee Kieffer, and Jasmine Sweet.



SKAGIT CONSERVATION DISTRICT

Stream Team!

Made up of 64 community volunteers in the 2008-2009 monitoring season, the Stream Team is one of the Skagit Conservation District's most popular programs. The team, ranging from ages 15-80, ventures out to nearby streams year-round to monitor the health and quality of local streams.

How it Works

Throughout the last year, the group was divided into four teams who monitored water quality once a month. Each team was assigned four stations and through a calculated rotation system carefully monitored each stream every other week.

The group has successfully established base-line water quality data and identified hot spots in watersheds.

Priorities for Funding

A majority of funding for the Stream Team is dedicated to the Samish. The Samish alone has eight different stations set up for monitoring. The program is about to start its 12th year monitoring the Samish.

What is a hot spot?

A hot spot exists when fecal coliform pollution exceeds the State standard in a specific region of a stream. When this occurs, a stream becomes prioritized for clean-up assistance.

Starting Small, Growing Larger

The Stream Team program began by observing three streams in 1998. Now in its 11th year, the program monitors nine major waterways. The invaluable information gathered by the Stream Team is used by Skagit County Public Works to help prioritize which streams are in need of the greatest assistance in order to enhance water quality and protect public health.

Storm Team

One group of dedicated members from the Stream Team also conducts rain-event monitoring. During rain storms, these committed stewards, known as the Storm Team, monitor up to 15 stations on local waterways. They then proceed to conduct lab work directly afterwards. The data collected by the Storm Team is used by the State Health Department to alert Samish Bay commercial shellfish growers when fecal coliform levels are high.

The team is trained over two evenings and one Saturday every September. The Stream Team is funded, in part, by the Clean Water Program. For more information, contact Kristi Carpenter at kristi@skagitcd.org

What do they test for?

The team tests County streams for fecal coliform pollution, temperature, dissolved oxygen, depth, and turbidity.



Stream Team volunteers attend an annual training event hosted by the Skagit Conservation District and the Padilla Bay Research Reserve.



Stream Team volunteers monitor the health of Fisher Creek



Local volunteers identify clam species in the 2009 Marine Biotoxin Volunteer training.

Marine Biotoxin Program

Volunteering to Protect Our Shellfish and Our Health

Every year from May through September, the Marine Biotoxin Program and its 20+ community volunteers head out at low tide to collect samples of shellfish from the muddy flats of 13 local recreational shellfish harvesting beaches. Funded in part by the Clean Water Program, the shellfish are tested and analyzed for PSP concentration levels.

The Road to Discovery - What Happens to the Shellfish

The shellfish samples are collected every other week by the volunteers and taken to the County Health Department. From there they are shipped to the State Department of Health lab in Seattle to be tested.

The data collected is used by the State Department of Health to determine which shellfish harvesting areas need to be closed due to PSP levels and which areas are allowed to remain open to harvest.

The data gathered by the Marine Biotoxin Program is vital for maintaining up-to-date, accurate information on our county's shellfish harvesting areas. The information acquired is also crucial for monitoring the quality of our local waters and ensuring that our county is meeting state health standards.

What is PSP and why does it Matter?

PSP is short for Paralytic Shellfish Poisoning and is a serious illness that affects humans when contaminated shellfish are eaten. PSP occurs when shellfish are contaminated with algae that contain a toxin harmful to humans.

Can You Detect Which Shellfish are Toxic Shellfish?

Shellfish containing toxic levels of PSP do not look or taste any different than non-toxic shellfish, so it is important that samples, like those conducted by the Marine Biotoxin Program, are carried out and analyzed regularly.

Did you know...

- Eating shellfish contaminated with marine biotoxin can kill you
- Biotoxins **cannot** be destroyed by cooking or freezing shellfish

To know more or volunteer for the program, contact Kristi Carpenter: 360-428-4313 or email: Kristi@skagitcd.org



Marine Biotoxin Volunteer, Jesse Sauer, finds that digging for clams requires a sturdy shovel



SKAGIT CONSERVATION DISTRICT



Make Your Next Carwash Clean AND Green

When we wash our cars we are washing soap, detergent, automotive fluids and road grime that are harmful and toxic to aquatic life, plant life, and water quality down our drains and into our local waters. Instead of polluting our waters use a carwash kit created by the Skagit Valley Conservation District and redirect the water to a treatment facility first.

Funded in part by Skagit County Public Works' Clean Water Program, these kits catch the polluted wash water and redirect it by pumping it to either a grassy area that absorbs the water, or to a treatment facility such as a toilet which is then filtered to a wastewater treatment. Once there, the water can be treated before being released into local waters.

The kits are free and available to borrow from the cities of Anacortes, Burlington, Mount Vernon, Sedro-Woolley, the Skagit Conservation District, and Skagit County Public Works.

By redirecting this polluted water, the Conservation District is helping to reduce Skagit County's surface water pollution and ensure healthier water quality levels for fish, plants, and humans.

For more information, call the Skagit Conservation District at 428-4313 or visit www.skagitcd.org

Backyard Habitat Program

Every year, from March 18-22, the Conservation District holds a Backyard Conservation Stewardship short-course designed to educate participants on the importance of environmental conservation. Funded in part by the Clean Water Program, the program consists of a six-week course that meets once a week with field trips held on two Saturdays. Since its inception in 2005, 265 people have participated. In 2009, the class consisted of 47 people while 2008's class held 56.

Learning about our own backyards

Throughout the program, participants are educated on the effects of stormwater and what they can do in their own backyards to protect water quality and backyard habitats. The program provides lessons on using native plants, practicing sustainable gardening, creating green yards, reducing chemicals, as well as onsite sewage use lessons.

Accomplishments

From the Backyard Habitat Program, two extra groups have formed: The Skagit Valley Backyard Wildlife Habitat Team and the Fidalgo Backyard Wildlife Habitat Group. Together, these groups have contributed thousands of volunteer hours promoting backyard conservation practices throughout the county.

The Skagit Valley Backyard Wildlife Habitat Team has helped 140 private residences complete the requirements needed to



Cattleman Jim Neff and SCD planner John Schuh demonstrate the new solar water-pumping system on Neff's property.

certify their backyards through the National Wildlife Federation and/or the Washington Department of Fish and Wildlife. Of the 140 include ten parks, five businesses, seven schools, one public garden, and one church.

In 2009, the Fidalgo Backyard Wildlife Habitat Group achieved national recognition as a "Community Backyard Wildlife Habitat" by assisting close to 600 Fidalgo Island homeowners in meeting the backyard certification requirements.

The Backyard Habitat Program has inspired great amounts of volunteerism and meets once a month at the Conservation District.



Pam Pritzl of the Native Plant Society provides an introduction to native plants during a Conservation Stewardship class field tour to the WSU Extension Discovery Garden.

CONSERVATION DISTRICT TECHNICAL ASSISTANCE

Receive Assistance to Improve your Land

Mud and manure problems? Runoff and stream pollution? No fencing to keep animals out of streams? Erosion and soil trouble? Call the Skagit County Conservation District. The Conservation District provides free technical assistance and planning to local landowners interested in improving their property.

By simply calling the Conservation District and asking for guidance, a technician will make a house visit and inspect the area to offer advice or create a plan to determine how to best utilize the land using best management practices. "The plans are meant to help landowners meet their goals and maintain their natural resources," said John Schuh, Conservation District

farm planner. "A lot of farmers want to make changes on their property and we're here to help."

Help comes in many forms

- Manure Management
- Manure storage facilities, nutrient management assistance
- Mud Management
- Gutters, downspouts, outlet lines, drainage, sacrifice areas
- Pasture Management
- Stream Protection Projects
- Alternative watering facilities – wells, solar powered water pumps, underground pipelines, water troughs
- Fencing
- Riparian planting and streambank projects including erosion control and planting

Making a difference one farm at a time

Since 1997 when the program began, John Schuh has made about 370 house visits while offering advice to even more landowners. In 2009, Schuh has assisted 53 landowners, written 6 conservation plans, updated 5 dairy nutrient management plans, and implemented 5 best management practices.

For more information or to hear about the available cost-share program, contact John Schuh at john@skagitcd.org