SKAGIT COUNTY SALMON RECOVERY PROGRAM





SKAGIT COUNTY SALMON RECOVERY PROGRAM

"Habitat preservation and restoration will not happen unless the people affected are willing participants in its realization. You cannot force landowners to change their habits. You have to entice them. We can't sue our way to salmon heaven–even though there are currently more lawyers than chinook in the Puget Sound area."

- William Ruckelshaus



SKAGIT COUNTY SALMON RECOVERY PROGRAM

SALMON RECOVERY OVERVIEW

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INTRODUCTION

The Skagit County Salmon Recovery Program encompasses two key areas: ongoing habitat protection and restoration, and the identification of needed changes within key governmental services to limit the impact to salmonids.

Skagit County and its many partners have constructed the framework necessary to identify key salmon habitats. Additionally, they have developed the capabilities needed to prioritize activities for a strategic long-term plan, while at the same time embarked upon a wide range of on-the-ground early action projects and programs. These include the acquisition of intact salmon habitat, modifying fish passage barriers, reconnecting off-channel habitats, and conducting feasibility studies for major habitat projects.

Similarly, Skagit County has identified codes, ordinances, and other key governmental services that negatively impact salmon habitat, and has initiated significant changes to lessen the impact. These include updates to the Critical Areas Ordinance, Drainage Ordinance, Flood Ordinance, and modifying road maintenance and drainage activities.

PURPOSE

This booklet describes Skagit County's salmon recovery program. It is intended to summarize the myriad of activities, programs, and projects already completed, in process, or planned for in the future.

SALMON RECOVERY MATRIX

The Salmon Recovery Matrix (page 9) shows the activity and its cost. It includes descriptions of the ongoing habitat protection and restoration programs and the changes to key governmental services. Each of these activities and programs in the matrix are described in more detail in the subsequent pages.

LAND ACQUISITION



A key element of Skagit County's Salmon Recovery Program is the acquisition of existing pristine salmon habitat. This coincides with the Skagit Watershed Council's strategy to "protect the best first." Skagit County has partnered with various government, private, and

non-profit groups to identify parcels suitable for purchase, lease, or easements. These acquisitions connect existing protected properties or provide protection in key areas of the watershed. Over four hundred acres are currently slated for acquisition. Additional acreage will be obtained annually.

Benefits

- Protects existing key salmon habitat.
- Achieves cost effective method of habitat protection.
- Procures contiguous parcels that lead to large, continuous, undeveloped stretches of key salmon habitat.

List of Aquatic Lands Enhancement Account (ALEA) preferred acquisition properties:

Savage Slough Hurn Field Martin Slough Mix Master/Fly Bar Lower Suiattle Ray Johnson Creek Tom Moore Slough

List of ALEA proposed alternative acquisition properties:

Butterfield Brown Wood/Gamble Fisher Slough Hudson



Hurn Field

Watershed Skagit (WRIA 03 & 04)

Cost \$1,214,000

Revenue

 \$607,000 Aquatic Lands Enhancement Account
 \$420,000 Salmon Recovery Funding Board
 \$187,000 Partnership matches

Partners

Skagit County Skagit Watershed Council Ducks Unlimited, Inc. The Nature Conservancy United States Forest Service Washington Department of Fish and Wildlife Skagit Land Trust Skagit System Cooperative Seattle City Light

A key element of Skagit County's

Salmon Recovery Program is

the acquisition of existing pristine

salmon habitat.



ESTUARY PROJECTS



The Skagit Estuary is a key location for all anadromous salmonids. In this environment, out-migrating salmon smolts go through physiologic changes that equip them for later life in saltwater. Reconnecting tidally-influenced channels increases the health and

numbers of young salmon reaching the ocean-a particularly important step for chinook.

Estuary projects include: Dry Slough (featured), Edison Slough, McElroy Slough (featured), Deepwater Slough, and Fisher Slough.

Dry Slough Restoration

Dry Slough is a historic fork of the lower Skagit River. Preparation of the design report and Habitat Conservation Plan are in progress. The project objectives: open up river and tidal flows in a historic river channel that is now diked off, and develop a long-term plan for balancing ongoing agricultural practices with voluntary salmon recovery efforts.

Benefits

• Regains eight miles of side channel rearing and estuary habitat for chinook and other salmon.

 Demonstrates ability to establish large salmon projects on private land without detrimental influence to ongoing agriculture, drainage, and flood control efforts.

McElroy Slough Restoration Project

This project will restore tidal flushing, fish passage, and dendritic channel habitat areas within the marsh and lower tributary stream system. In addition to offering significant benefits to fisheries resources, the project will also provide flood reduction benefits to the Blanchard community.

With the absence of salt water flushing in the slough, freshwater exotic vegetation species have grown densely throughout the lower slough, restricting its flow capacity, reducing water velocity, and increasing sediment deposition. Culvert hydraulic restrictions at road crossings affect flooding potential within Blanchard. Portions of the marsh area have been reclaimed for rural development and agriculture, and many of the slough's dendritic channels have been cut off or filled by dikes built around the lower slough and Whitehall Creek. This loss of dendritic channels directly corresponds to the loss of fisheries habitat area for the limited salmonid population currently able to access the slough area through the controlled outlet.

Benefits

- Elevates salinity levels consistent with historic conditions.
- Provides opportunities for fish passage through outlet culverts.
- Maximizes opportunities for fisheries/wildlife use of expanded habitat areas.
- Reduces flooding potential for local residences and infrastructures.
- Integrates slough restoration with improvements to the Whitehall Creek alluvial fan and Harrison Creek.



McElroy Slough

Watershed Dry Slough (WRIA 03.0220)

Cost \$74,500 Reconnaissance Study

Revenue 100% Salmon Recovery Funding Board

Partners Salmon Recovery Funding Board Local Property Owners Skagit County U.S. Army Corps of Engineers

Watershed McElroy Slough (WRIA 01.0648)

Cost \$1,000,000

Revenue

Salmon Recovery Funding Board Skagit County U.S. Fish and Wildlife Skagit Fisheries Enhancement Group

Partners

Salmon Recovery Funding Board Skagit Fisheries Enhancement Group Skagit County U.S. Fish and Wildlife Washington Department of Ecology Washington Department of Fish and Wildlife Skagit System Cooperative Natural Resource Conservation Service

SIDE CHANNEL PROJECTS



Side channels were created by historic meanderings of the Skagit River. Many have been cut off from the main river for a variety of natural and man-made flood control and agricultural activities.

Reconnection of side channels provides summer and winter refuge areas that are rich in food sources for the young salmon and are optimally located out of the fast and often silt-laden main channel flows.

Side channel projects include: Debays Slough, Hart Slough (featured), and Skiyou Slough

Hart/Skiyou Slough Restoration Project

Hart and Skiyou Sloughs are historic side channels of the Skagit River that are partially blocked from the main stem in the Sedro-Woolley area. This project addresses the feasibility of reopening one or both of the sloughs to restore a direct connection with the Skagit River. Several other restoration sites occur in the vicinity of the proposed projects. From information gathered, an engineering map will be produced that contains facts on topography, property lines, ownership, flood and low flow elevations, channels, and riparian areas. The next phase will consist of coordination between property owners, local tribes, and government agencies. A design report will recommend alternatives for restoration. Lastly, plan recommendations will be implemented. Actions may include acquisition, construction, plantings, and monitoring.

Benefits

- Regains salmon rearing habitat.
- Reconnects side channel habitat.
- Achieves opportunity to integrate project with existing restoration projects.



Hart Slough Restoration Project

Watershed

Hart Slough (WRIA 3.0275) Skiyou Slough (WRIA 3.0278)

Cost \$75,000 Reconnaissance Study

Revenue 100% Salmon Recovery Funding Board

Partners Salmon Recovery Funding Board Local Property Owners Skagit County

Reconnection of side channels provides summer and winter refuge areas that are rich in food sources for the young salmon and are optimally located out of the fast and often silt-laden main channel flows.



FISH PASSAGE CULVERTS



Skagit County has 807 miles of county road with hundreds of culverts. Many of these culverts partially or wholly block fish passage to the habitats upstream. With help from Washington Department of Fish and Wildlife and Skagit System Cooperative,

Skagit County has prioritized culverts for replacement or retrofit to allow fish passage, with the added benefit of stormwater conveyance. Skagit County currently constructs two to six such projects per year.

Miller Creek Fish Passage Project

Two existing corrugated metal culverts were replaced with a 3-sided, pre-cast concrete bridge with a pre-cast concrete base. The bridge measures 24 feet in width by 10 feet in height. A simulated stream channel was constructed upstream, downstream, and through the new structure to enhance fish passage. The larger opening also increased the capacity of the roadway to safely pass flood waters, sediment and woody debris.

Benefits

- Provides access to one-half mile of high quality stream habitat for coho salmon, steelhead, and sea-run cutthroat trout.
- Increases salmon productivity.
- Reduces flood risk.

Baker Lake Road

Concrete-Sauk

Valley Road at Aldon Creek

- Improves movement of sediment and woody debris through roadway.
- Improves roadside safety

Projects that provide access to high quality stream habitat, increased salmon productivity, and reduced flood risk:

Cost \$265,000	Partners Skagit County Washington Department of Fish and Wildlife Salmon Recovery Funding Board
\$218,000	Skagit County Washington Department of Fish and Wildlife Salmon Recovery Funding Board
\$310,000	Skagit County Washington Department of Fish and Wildlife Salmon Recovery Funding Board
\$218,000	Skagit County Washington Department of Fish and Wildlife Salmon Recovery Funding Board
Cost	Partners
\$400,000	Skagit County U.S. Forest Service
	Cost \$265,000 \$218,000 \$310,000 \$218,000 \$218,000 \$218,000 \$400,000

Skagit County U.S. Forest Service

Skagit County

\$260.000

\$270.000



Miller Creek 3 sided box culvert

Watershed:

Skagit (WRIA 04.0661)

Cost \$460,000

Revenue

\$308,000	Federal Emergency Management Agency
\$51,000	Washington Department of
	Emergency Management
\$53,000	Skagit County
\$48,000	Salmon Recovery Funding Board

Partners

Federal Emergency Management Agency Washington Department of Emergency Management U.S. Forest Service Salmon Recovery Funding Board Skagit County



Lake Cavanaugh Road Fish Passage Project

FISH/FLOOD STRATEGY



The pristine state of many streams has been influenced by agriculture, flood control efforts, timber harvest, roads, and other man-made efforts.

Skagit County, together with a variety of agencies and concerned citizens, evaluates the *stream physics* (hydrology, hydraulics, sediment transport, and riparian area), the *needs of the landowners* (timber harvest, flood control, and land use), and the *needs of the fish* (riparian habitat, temperature, water quality, and pools). Many animated discussions ensue, and a balance is eventually struck between the competing uses. A long-term strategy is then developed that includes the projects and programs necessary for the plan's implementation.

Projects include: Hansen Creek (featured), Jackman Creek (featured), Wiseman Creek, Fisher Creek, and the South Mount Vernon

Watershed

Hansen Creek Restoration Project

Hansen Creek has a history of flooding due to large amounts of sediment that originate in its headwaters and accumulate in the lower channel. A watershed plan that keeps fish habitat and passage foremost is presently being developed to address the ongoing flood and sedimentation problems associated with the creek. An advisory committee, with representatives from the Skagit County Parks Department, Skagit System Cooperative, Washington Department of Fish and Wildlife, the Northern State Task Force, and local property owners, has been formed to review, evaluate and develop the plan. Construction of any stream modifications that will follow, depends on a developed scope and funding availability. Ultimately, this project could result in the rehabilitation of up to five miles of Hansen Creek.

Benefits

- Regains spawning and rearing habitat.
- · Reduces flooding to properties neighboring the creek.
- Reconnects wetlands isolated from Hansen Creek.
- Presents opportunity for integration with proposed recreational uses on public property.

Jackman Creek Restoration Project

Jackman Creek has a history of sediment build-up originating from its headwaters. Several properties along the creek are frequently flooded during high water events. Historically, the creek has been dredged to maintain the necessary channel depths to convey floodwaters. Grants were obtained to develop a watershed plan and potentially purchase flood-prone properties. A plan will be developed to reduce sedimentation and increase habitat in the creek.

Benefits

- Regain spawning and rearing habitat.
- Reduce flooding to properties neighboring the creek.
- Reduce the number of repetitive flood loss properties.
- Reintroduce natural processes to Jackman Creek.



1995 flood debris cleanup measures at Jackman Creek

Watershed

Hansen Creek (WRIA 03.0267)

Cost

\$1.5M Estimated project cost \$65,000 Study cost

Revenue

92.5% Salmon Recovery Funding Board 7.5% Hansen Creek Sub-Flood Control Zone

Partners

Salmon Recovery Funding Board Local Property Owners Skagit County

Watershed

Jackman Creek (WRIA 4.0626)

Cost \$180,000 Study and implementation costs

Revenue 100% Salmon Recovery Funding Board

Partners

Salmon Recovery Funding Board Local Property Owners Skagit County

DRAINAGE UTILITY



Skagit County formed a drainage utility in 1994 to address ongoing storm water problems throughout the region. The utility generates just under \$1 million per year. Projects range from ditch clearing to the million dollar Burrows Bay storm water system and outfall.

Edison Slough Drainage Improvement Project

Completion of this project by Skagit County Public Works is made possible by funds from the local Drainage Utility District. The project will reduce flood levels and improve drainage by enlarging the channel. This will be accomplished by excavating the banks of the slough at two narrow restriction points and by replacing undersized culverts. As mitigation for this work, a self-regulating tide (SRT) gate was added to Phase 1 of the project (completed in 1999). This SRT gate will provide many benefits to the slough: aesthetics, water quality, and restoration of a historic saltwater estuary. It will also increase channel capacity by introducing salt tolerant species; replacing the invasive canary grass and cattails that choke flows within the channel. Channel depth could be increased by tidal scour.

By restoring the saltwater flows to this area, the project will broaden the critical salt-to-fresh-water interface where salmonids evolve from fresh water fry to salt-water smolt. Areas of interaction between salt and fresh water create an estuarine environment. Estuaries provide critical habitats that juvenile salmonids need to transition from fresh water to saltwater environments. The project will also provide important refugia and estuarine foraging areas for juvenile salmonids.

Benefits

- Reduces flooding.
- Restores wetland and estuary function.
- Improves channels.

Additional Drainage Utility projects include:

Project	Cost	Partners
Claybrook Road	\$4,000	Skagit County
Sunset Lane	\$65,000	Skagit County Drainage District #15
West Bulson Road	\$6,000	Skagit County
Josh Wilson Road	\$130,000	Skagit County
Hope Island	\$576,000	Skagit County
Fruitdale Road	\$254,000	Skagit County



Edison Slough

MONITORING & ADAPTIVE MANAGEMENT



Fish Passage Monitoring Project

Skagit County Public Works has completed several fish passage construction projects to open up spawning and rearing habitats for native salmonids. To support these endeavors, Skagit County Public Works contracted with Skagit Fisheries Enhancement Group to perform preand postconstruction monitoring of the fish passage sites to assess project effectiveness. Surveys included counts of returning fish, smolt outmigration, and redds.

Benefits

- Determines effectiveness of culvert replacement methods.
- Obtains accurate count of returning adult fish and redds.
- Determines seasonal variation in returning adult fish and redds.

Geographical Information Systems/Mapping

The Skagit Conservation Database Consortium (SCDC) was created in 1998 to collect and analyze environmental data in a geographical information system (GIS). This single source of past and present conservation information is useful in conservation planning, aids in the identification of gaps in protected and critical areas, and facilitates prioritization. First-year deliverables include a conservation database and a map that displays land acquisition and habitat/resource level projects. This is an ongoing effort that will incorporate future projects and their monitoring.

Benefits

- Achieves single source for past and present conservation information.
- Creates link between conservation information and GIS.
- Identifies gaps in protected areas to facilitate prioritization.

Samish Bay Water Quality Monitoring Project

Shellfish growing areas in Samish Bay were downgraded outbreaks of gastrointestinal illness related to shellfish consur levels of fecal coliform bacteria associated with fresh water in (including the Samish River, Edison Slough, and Colony Cree as sources. This monitoring project will gather data to pinpoi the fecal coliform bacteria, as well as collect ambient water qu watershed. Skagit County applied for and received a grant for Washington Department of Ecology.

Benefits

- · Establishes a monitoring program.
- Provides identification of fecal coliform source.
- Enables reopening of shellfish beds in Samish Bay.
- · Creates central storehouse of water quality data for Skagit Co

Watershed

Skagit River (WRIA 03 and 04) Sedro-Woolley's storm sewer system

Revenue Skagit County Road Fund

Partners Skagit County Skagit Fisheries Enhancement Group

Watershed: Skagit River (WRIA 03 and 04)

Cost: \$12,000

Revenue: \$12,000 Skagit County General Fund

Partners: Skagit County Skagit Land Trust Skagit Conservation Database Consortium

Watershed: Samish Bay (WRIA 03)

Cost: \$250,000

Revenue:\$187,500Washington Department of Ecology\$62,500Skagit County

Partners:

Skagit County Washington Department of Ecology Skagit Conservation District Samish Bay Monitoring Technical Advisory Committee

SKAGIT SALMON RECOVERY PLAN:

Habitat Protection and Restoration

PROGRAM	PROJECT	2000	2001	2002	2003 ——		2010	GOALS	INVESTMENT
ACQUISITIONS	Large Riparian Corridor Critical Areas Buffers	450 ac @ \$1.2 M 800 ac @ \$8 M	400 ac @ \$1 M 800 ac @ \$8 M	400 ac @ \$1 M 400 ac @ \$4 M	400 ac @ \$1 M	400 ac @ \$1 M .ongoing compliance.	400 ac @ \$1 M	2450 ac 2100 ac	\$6 M \$20 M
STREAM REHABILITATION	Riparian Planting Fencing	200 ac @ \$250 K 3 miles @ \$60 K	200 ac @ \$250 K 3 miles @ \$60 K	200 ac @ \$250 K 3 miles @ \$60 K	200 ac @ \$250 K 3 miles @ \$60 K	200 ac @ \$250 K 3 miles @ \$60 K	200 ac @ \$250 K 3 miles @ \$60 K	1200 ac 18 fenced mi.	\$1.5 M \$0.4 M
FISH / FLOOD STRATEGY	Hanson Creek Jackman Creek Wiseman Creek Others (Childs, Red Cabin) Hill Ditch					3		Restoration of key salmon habitat reduction of flood risk	\$3.0 M \$1.0 M \$1.5 M \$2.5 M \$2.0 M
CULVERTS	County Culverts Private Culverts	4 @ \$1.3 M 10 @ \$640 K	5 @ \$1.5 M 8 @ \$600 K	5 @ \$1.5 M 10 @ \$650 K	3 @ \$1 M 10 @ \$650	5 @ \$1 M 10 @ \$650 K	5 @ \$2M 10 @ \$650 K	Top 25 Top 60	\$10 M \$4 M
SIDE CHANNELS	Hart Slough Skiyou Slough Baker River Cockreham Island Debays Slough Complex Beaver Marsh @ Skagit Forks Gages Slough							148 ac 150 ac 135 ac 50 ac 408 ac 73 ac 299 ac	\$1.8 M \$1.8 M \$1.8 M \$1.3 M \$4.9 M \$0.9 M \$3.5
ESTUARY	Joe Leary Slough Dry Slough Brown/Hall Slough Telegraph Conway Distributary Swinomish Blind Channel #2 Indian Slough No Name Slough							177 ac 44 ac 84 ac 48 ac 54 ac 138 ac 40 ac	\$2.1 M \$0.6 M \$1 M \$0.6 M \$0.7 M \$1.7 M \$0.5 M
		easibility	Design	Con	struction			TOTAL COST	\$77.50 M

SKAGIT SALMON RECOVERY EFFORTS

Key Goverment Services

	200	0 20	01 20	002 2	003	20	10
ORDINANCE UPDATES Critical Areas Ordnance (CAO) • Temporary CAO • AG buffer acquisition. • Adoption of permanent CAO			-				
Storm Water Ordinance Skagit interim SWO Adoption of permanent SWO Adoption of permanent SWO Ongoing enforcement and BMP updates							
Development Review . Ordinance adequacy review . Shoreline Management Master Program . Completion of State Shoreline Guidelines (DOE) . Adoption of new local rules . Meander Belt Study .							
SKAGIT RIVER FLOOD STUDY Public involvement/consensus building USACE EIS/feasibility study preparation HQ review/federal authorization/fed funding							
MAINTENANCE PRACTICES • Roads/Pest Management (Biannual) • Quarterly erosion control/BMP training w/road crew supervisors. • Development of Skagit County 4(d) rule (
EDUCATION/PUBLIC OUTREACH • Stormwater/CAO public education • Outreach programs are conducted by various groups for all age groups							
MONITORING & ADAPTIVE MANAGEMENT • Nearshore Habitat Inventory • MOA w/ Skagit Fisheries Enhancement Group to conduct monitoring on county projects • Creation of SWC's monitoring plan based on WDFW protocol							





FISH /FLOOD STRATEGY

- 1. Hansen Creek pg. 6 2. Jackman Creek - pg. 6
- 3. Wiseman Creek
- 4. Childs Creek
- 5. Red Cabin Creek
- 6. Day Creek



ESUTARY PROJECTS

- 1. Dry Slough pg. 3
- 2. Deepwater Slough
- 3. McElroy Slough pg. 3
- Edison Slough pg. 7
 Fisher Slough
- 6. LaConner Slough
- 7. Brown/Hall Slough
- 8. Conway Distributary
- 9. Joe Leary Slough
- 10. North Fork
- 11. Samish Island Estuary Project



FISH PASSAGE

- PROJECTS 2000 1. Unnamed tributary
- to Grandy Creek
- 2. Dalles Road
- 3. Concrete-Sauk Valley Road at Aldon Creek
- 4. Concrete-Sauk Valley Road at Mile Post 12.2



FISH PASSAGE PROJECTS 1999

- 1. Edison Slough
- 2. Parson Creek
- 3. Unnamed tributary to Swede Creek
- 4. Brickyard Creek
- 5. Fisher Creek at Cedardale
- 6. Fisher Creek at Starbird
- 7. Lorenzen Creek
- 8. Miller Creek pg. 5

FISH PASSAGE

PROJECTS - prior to 1999 9. McLeod Slough tributary

- 10. Hooper Creek
- 11. Parker Creek
- 12. Colony Creek
- 13. Skaarup Creek
- 14. Lily Lake Road
- 15. Brickyard Creek Outlet
- 16. Hansen Creek tributary
- 17. Coal Creek
- 18. Fender Creek
- 19. Lake Creek tributary 20. Walker Creek tributary
- 21. Vernon Creek





WATER RESOURCE PROJECTS

1. Samish Bay watershed water quality monitoring project - pg. 8

- 2. Lake Management Districts
- 3. South Mount Vernon watershed plan

4. Marine Resources Committee bottomfish project - *pg. 12*



DRAINAGE UTILITY 1999-2000

- 1999-2000 1. Horrowy Hoir
- 1. Hermway Heights
- 2. Claybrook/Wicker
- 3. Fruitdale Road Sewer
- 4. Bulson Road
- 5. Josh Wilson Road
- 6. Burrows Bay
- 7. Gages Slough Pump Station



ROCK WEIR PROJECTS

- 1. Robinson Road
- 2. Cockreham Island
- 3. Muddy Creek
- 4. Cape Horn Road
- 5. Jackman Creek
- 6. Devil's Elbow on Concrete-Sauk Valley Road



SIDE CHANNELS

- 1. Hart Slough *pg. 4* 2. Skiyou Slough - *pg. 4*
- 3. Debays Slough

ROAD MAINTENANCE PRACTICES

The Skagit County Public Works Department is currently revising their road maintenance practices to achieve a more "salmon-friendly" manner of operation. The Department already has taken steps to

reduce the risk to salmon by purchasing a new pavement striper that utilizes water-based rather than oil-based paints. County road crew supervisors and the Washington Department of Fish and Wildlife staff have met to identify detrimental practices and critical areas that require specific maintenance practices to limit the threat to salmonids. The Operations Division Manager is a member of the Skagit County Salmon Recovery Executive Team, a group formed to keep various county departments abreast of the concerns associated with the Endangered Species Act. Through this forum, the operations division is apprised of the potential effects that the proposed 4(d) rule on listed chinook salmon may have on maintenance practices. The County is aware that certain road practices will require modification when the 4(d) rule is implemented and is willing to make the necessary changes. Skagit County understands the need to limit impacts to salmon and has already taken many steps toward achieving that end.



Skagit County road crews save trouble trees with intact rootwads for use in stream restoration projects.

MARINE RESOURCES COMMITTEE

Skagit County Marine Resources Committee (MRC) is one of seven committees formed to discuss marine resource issues in Northern Puget Sound. The Northwest Straits Commission (NWSC) is the regional group that supports the MRCs through grants, coordination with appropriate governmental agencies, and training on marine resource issues. Senator Patty Murray and Congressman Jack Metcalf convened the Northwest Straits Citizens' Advisory Commission in 1997 in response to declining marine life and habitat in the Straits of Juan de Fuca and Northern Puget Sound.

Skagit County established the Skagit County Marine Resources Committee in May 1999. In December of 1999, the MRC members were officially appointed, creating a diverse group of interests concerned with the condition of Skagit County's marine resources. These interests include the County, two municipalities, three tribes, one environmental group, an agricultural research facility, a refinery, commercial and recreational fishing interests, boating groups, and concerned citizens.

The Skagit County MRC recently received a grant to study rocky reef habitat within the county. The project will involve public outreach to educate various community and recreational interest groups on the Marine Resources Committee and the status of rocky reef habitat and bottomfish in Skagit County.

- Established through a grant from the Northwest Straits Commission.
- Purpose is to discuss marine related issues and determine action items to enhance and protect marine habitat.
- Key committee task is to involve and educate public about marine resource issues.
- Committee Representation: Skagit County & Cities, Tribes, environmental, refinery, commercial and recreational fishing, recreational boating, private citizens.
- Received grant to assess rocky reef habitat in Skagit County.
- Currently formulating a work plan to prioritize marine resource issues, including shoreline inventories, shellfish bed closures and water quality, and nearshore/estuarine habitats.

FINANCIAL SUPPORT



Support for Nonprofits and Coordination of Recovery Groups

Skagit County provides financial assistance to agencies and nonprofit groups who are actively involved with restoration projects. Groups like the Skagit Fisheries Enhancement Group have demonstrated the ability to secure grants and implement successful projects. They often need to locate local matches required for the grants as well as fund their ongoing administrative costs. By providing financial support, the County successfully leverages local dollars, sometimes as much as ten to one. The County's ongoing support facilitates improved communication and acknowledges the importance these groups play in the overall recovery strategy.

Skagit Watershed Council

The Skagit Watershed Council (SWC) is a 36 member organization created to provide technical assistance, public outreach and education, and a collaborative approach within the Skagit Watershed to understand, protect, and restore the production and productivity of healthy ecosystems in order to support sustainable fisheries. Member organizations include Skagit County, Crown Pacific, Skagit System Cooperative, Skagit Valley College, The Nature Conservancy, Skagit Fisheries Enhancement Group, Skagitonians to Preserve Farmland, and many others. Full council meetings take place monthly, and various subcommittees (administration, education, protection and restoration, etc.) meet as necessary. The SWC has been chosen as the lead entity for Skagit County, pursuant to Engrossed Substitute Senate Bill 2496, in fisheries related matters and has developed a strategy application to address limiting factors within the Skagit Watershed.

Goals

- Serve as a forum to collaboratively address Skagit Watershed issues that affect fisheries resources.
- Provide direction and leadership on matters related to the Skagit Watershed fisheries.
- Ensure coordination and integration of fish habitat restoration and protection activities.
- Build understanding and support for the work of the Council within the larger community.

Skagit County Participation on the Skagit Watershed Council

- · Board of Skagit County Commissioners
- Surface Water Management Division Manager
- Salmon Recovery Coordinator
- Administrative Committee
- Restoration and Protection Committee

Skagit County Contributions

- \$30,000 Skagit Watershed Council
- \$30,000 Skagit Fisheries Enhancement Group
- \$87,500 Skagit Conservation District
- \$12,000 Skagit Conservation Database Consortium

Skagit County financially supports agencies and nonprofit groups who are actively involved with restoration projects.



Skagit Watershed Council's 1st Annual float trip on the Skagit River with Governor Locke. Photo courtesy of Skagit Watershed Council

COMMITTEE REPRESENTATION



Surface Water Management staff often assemble experts and interested parties to participate in advisory and technical committees where animated discussions on a variety of planning efforts and projects take place. Staff members also represent Skagit County on assorted technical

and policy committees. Each hour that a staff person leads a committee represents five to eight hours of preparation and follow-up. The following is a partial list of ongoing committee representation by staff.

Committee Name	Responsibilities
HB2514 Watershed Planning Initiating Government Planning Team	Elected/Appointed Skagit County Representative
Marine Resource Committee	. Chair/Lead
South Mount Vernon Watershed Plan Technical Advisory Committee	Lead
Samish Monitoring Technical Advisory Committee	Lead
Water Quality Program Advisory Committee	.Lead
Flood Control Committee	Lead
Feasibility Plan Work Group	Lead
Skagit Watershed Council Adminstrative Committee General Membership Habitat Subcommittee	Elected Member Member
Skagit Chinook Workgroup	Member
Dry Slough Feasibility Technical Advisory Committee	Member/Lead
Hansen Creek Watershed Plan Advisory Committee	Lead
Sub-flood Control Zones Advisory Committees (six)	Lead
McElroy Slough Planning Team	. Member
Big Lake Citizen Advisory Committee	.Lead
Lake McMurray Citizen Advisory Committee	Lead
Erie/Campbell Lake Association	. Lead

Total: 24 Committees



Skagit Watershed Council

"It's a crying shame, but you can do a lot of good work with a well-run committee." - Sky Miller

"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has." - Margaret Mead



FLOOD PLANNING



Skagit River Flood Feasibility Study

The U.S. Army Corps of Engineers has identified the Skagit River as one of the highest risk rivers on the West Coast for potential devastation due to flooding. Risk of loss in a 100-year magnitude flood increases

yearly as the local population crowds a levee system that can only sustain a 35-year magnitude flood. A 100-year flood has not occurred in the basin since the turn of the last century. A team of skilled engineers has been assembled from the U.S. Army Corps of Engineers and Skagit County to evaluate alternatives for reducing the damage risk to the local populations. To support the evaluations, a hydraulic model is being developed. The survey data necessary for completion of the model was collected in 1999. Also, in consideration of public involvement, an international leader in consensus building has been added to the team. A work group is currently developing options that may include setback levees, structural improvements, and property buy-outs.

Benefits

- Reduces flood damages in the Skagit River basin.
- Provides/restores habitat for salmon and other wildlife.
- Generates citizen and agency support for the project.

Skagit River "A Disaster Waiting to Happen?"

Salmon habitat has been lost, the flood plain has undergone development, and the risk of disaster looms from flood events that exceed the limits of the current levee system. In 1990 and 1995, devastating floods swept through the Skagit Valley. In the fall of 1990, two separate floods occurred within a two-week period and caused over \$36 million in public and private damages. In 1995, public damage estimates totaled over \$13.5 million. Private damages included: more than 25 homes destroyed, 308 homes damaged, over 15,000 acres in crop damages, and more than 40 farm buildings damaged.

Both the 1990 and 1995 events were classified within the range of 25 and 35-year flood events. One cubic foot of water per second (c.f.s.) is equal to 7.5 gallons of water. During the November 24, 1990 flood, the Skagit River was carrying approximately 1,140,000 gallons of water PER SECOND (roughly 150,000 c.f.s.). The Skagit River 100-year flood will be carrying 1,800,000 gallons of water per second (roughly 235,000 c.f.s.). The area has not experienced a flood of a 100-year magnitude since 1909.

The time for change is now. With the prospect of one of the Northwest's most valuable salmon resources on the brink of extinction and the false sense of security held by some cities and communities located directly behind the levees, it is imperative to inform the public and create a plan for minimizing this potential disaster.

The Skagit County Public Works Department and the U.S. Army Corps of Engineers have worked to prepare a study that addresses these problems. The study concentrates on reducing the flood threat by strategically moving levees to increase flow conveyance, thereby creating much needed habitat for the diminishing salmon. To implement the final plan, it will need the support of federal and state agencies.

Watershed:

Skagit River (WRIA 03)

Cost \$3,900,000

Revenue

17%	Washington Department of Ecology -
	Shorelines Management
50%	U.S. Army Corps of Engineers
33%	Skagit County

Partners

Skagit County Washington Department of Ecology U.S. Army Corps of Engineers



Skagit River between Mount Vernon and Burlington

Only two-thirds of a 100–year flood can fit through the dikes and bridges between Burlington and Mount Vernon. That leaves 75,000 cubic feet per second to go through town.

EDUCATION/ PUBLIC OUTREACH



Flood Awareness Week

Skagit County annually coordinates training and rehearsal with other emergency flood fight agency personnel. The County also provides emergency information for community awareness.

Actions

- Mail 50,000 Flood Protection brochures to every address in the county.
- Run a two-page insert in the Skagit Valley Herald that includes a flood plain map.
- Air "The Skagit River–Will it Flood Again?" on cable television multiple times.
- Maintain a week-long "Flood Threat" display at the County Courthouse.
- · Conduct 16 agency coordination and training meetings.
- Train 175 students in sandbag methodology at the annual high school sandbag competition.
- Conduct flood exercises with staff and agency personnel.

Benefits

- Heightens staff ability to effectively respond during high water events.
- · Increases community awareness of flood response.
- Prepares and trains large labor force to sandbag when needed.
- Improves agency coordination between the County, U.S. Army Corps of Engineers, and Dike and Drainage Districts.

National Flood Insurance Community Rating System

Skagit County participates in the National Flood Insurance Program that provides federally backed flood insurance. The program encourages communities to enact and enforce flood plain regulations to ensure that development will not aggravate existing flooding conditions and that new construction will be protected from flood damage. Under the Community Rating System, flood insurance premiums have been reduced 15% as a result of activities undertaken by the County. The focus of the program is to reduce flood losses which includes protecting public health and safety, reducing damage to buildings and contents, and protecting the beneficial floodplain functions. In 1999, Surface Water Management staff developed the Winter 1999-2000 Flood Protection Information brochure and distributed the brochure to every address in the county.

Benefits

- Reduces private flood insurance premiums by 15% to citizens-a savings of more than \$90,000 each year.
- Increases awareness of flood risk.
- Protects public health and safety and reduces damage to buildings and contents.

Watershed All

Cost

\$16,000

Revenue

80% Skagit County
10% Dike District #12
10% U.S. Army Corps of Engineers

Partners

Skagit County Sedro-Woolley, Mount Vernon, and Burlington- Edison School Districts County Dike and Drainage Districts U.S. Army Corps of Engineers

Watershed: Skagit River (WRIA 03)

Cost \$10,000

Revenue 100% Skagit County

Partners Skagit County Insurance Services Offices, Inc.

COMPREHENSIVE PLAN



The Skagit County Comprehensive Plan provides a sense of direction for the community, offers a broad overview of its current conditions, and identifies the community's future desires. The existing plan was recently amended. By establishing areas in which new development is

desired, the County protects sensitive areas from unsustainable development. Such areas include riparian corridors, shorelines, wetlands, and flood plains, all of which play a role in the various life stages of all salmonid species in the Skagit River Watershed.

Skagit County's plan balances the goals of the Growth Management Act to protect both critical areas and natural resource lands, despite the county's location between two largely urbanized areas. Of the county's 1,111,437 acres, 47% is in public open space. Another 43% is in natural resource lands–lands that are protected. Of the remaining land, 7% is in rural lands, leaving only 3% of the land for urban development. The Comprehensive Plan will help preserve adequate open space and protect natural resource lands–areas key to salmon survival.

Zoning

The Skagit County Zoning Ordinance directs land use activities within districts. Skagit County zoning protects critical areas and natural resource lands from inappropriate conversions while it preserves the rural character of the county. Land use activities are limited in location, size, and intensity. In general, residential densities are limited to one dwelling per ten acres, with isolated pockets of two-and-a-half acres per dwelling still allowed under previous zoning regulations.

Land Divisions

Skagit County adopted an overlay procedure to the subdivision regulations referred to as the Conservation and Reserve Development (CaRD). This innovative standard allows residences to be clustered together, allowing the remainder of the parcel to be placed in an open space designation. The CaRD offers flexibility in the layout of new land divisions while protecting critical areas such as streams and buffers.

Benefits

- Directs development away from sensitive areas such as riparian corridors.
- · Conserves natural resources through concentrated development.
- Limits impacts from stormwater runoff, septic systems, and road surfaces by decreasing developed areas.

Watershed Skagit River (WRIA 02 and 04)

Revenue Skagit County General Fund

Partners Skagit County Skagit County Planning Commission Skagit County Citizen Advisory Committees



Colony Creek Restoration

"We are committed to ensuring the critical balance of providing protection and preservation of all of our valuable resources in Skagit County." - Kendra Smith

COUNTY PROTECTIVE MEASURES



Critical Areas Ordinance

The Skagit County Critical Areas Ordinance (CAO) protects salmonids and other fish habitats by protecting stream buffers. Buffers provide food, shelter, and shade for both fish and wildlife. Buffers also reduce the levels of sediment and contamination that enter the water bodies through stormwater run off. Maintaining or enhancing buffers can greatly reduce water quality impacts to the affected water bodies. Therefore, the CAO requires that developments either be located outside critical areas and their buffers, or mitigate for impacts through specific planning. All developments within 200 feet of wetlands and fish and wildlife riparian areas are reviewed to ensure vital salmon habitat is protected. Setbacks range from 50 feet to 200 feet depending on the type of water body and its functions.

Skagit County revised the CAO to incorporate a Managed Agriculture Riparian Plan (MARP) option that provides an adaptive management approach for agricultural lands. The MARP allows site-specific solutions for agricultural lands adjacent to salmon bearing waters due to the varied in-stream habitat and riparian conditions throughout the Skagit watershed. A provision includes a five-year lease by the County for a buffer complex on commercial agricultural land that abuts salmonid bearing watercourses. The buffer complex will consist of three contiguous zones: a riparian buffer zone (RBZ), a grass filtration strip (GFS), and an agricultural management zone (AMZ).

The objective of the RBZ is to establish a functional, forested, perennial, self-sustaining vegetative buffer adjacent to the waterway within seven to ten years. The GFS will provide the necessary nutrient and sediment filtration and achieve water quality standards mandated by the Clean Water Act. The AMZ will ensure that the best management practices are in place and that pasturing of livestock does not occur in the winter months from November to April.

Continued on page 19



Watershed Skagit River (WRIA 03 and 04)

Cost Eight full-time employees

Partners

Skagit County Washington Department of Ecology Citizens of Skagit County



Samish Island



The MARP will accelerate self-sustaining plant communities in agriculture buffers along streams and help restore aquatic systems in salmon-bearing waters throughout agricultural lands in the county. Managed buffer systems provide functional riparian habitat at rates significantly faster than those calculated under the Federal Forest Management Plan. The MARP is a crucial link between balancing salmon recovery efforts and sustainable agriculture practices in Skagit County.

Forest Practices Act

The County reviews the environmental impacts from the conversion of forestlands to other uses, including residential, under the Washington State Forest Practices Act (RCW 76.09). To ensure proper protections are in place, the CAO specifically requires that forest conversions comply with the riparian buffers established in the CAO. Buffers range from 50 feet to 200 feet depending on the quality of the waterway and the species known to inhabit the area.

Shoreline Master Program

Skagit County partners with the Washington Department of Ecology (DOE) to implement the State Shoreline Management Act. The County reviews activities adjacent to shorelines to reduce development impacts. The Skagit County Shoreline Master Program (SMP) allows for specific uses and setbacks according to the shoreline designation. Within the next two years, our SMP will be revised to comply with changes in DOE's standards and the Endangered Species Act.

Benefits

- Water quality and riparian habitat areas are protected and enhanced.
- Critical areas are protected from development encroachment.
- Mitigation is allowed to help offset project-generated impacts.



Samish River



Samish River at Thomas Road



DRAINAGE & FLOOD ORDINANCES



Ordinance Revisions

and their salmonid inhabitants.

Skagit County recently revised its drainage ordinance in view of increased regulatory requirements. The three major changes in the new ordinance are: 1) adoption of the Washington Department of Ecology Stormwater Manual, 2) increased on-site detention requirements, 3) more stringent clearing and grading standards. These new requirements will cause stormwater to leave the site at a slower rate, allowing time for sediment and contaminants to filter out, thereby reducing impacts to the receiving waters

Skagit County also revised its flood ordinance to increase protection to private property after the 1990 and 1995 flood events, both of which were declared federal disasters by the President.

Benefits

- Decreased volume of stormwater runoff during peak events.
- Improved water quality through erosion and sedimentation requirements.
- Decreased sedimentation in adjacent streams resulting from more stringent grading requirements.
- Decreased damage to private property and public facilities.

Watershed Skagit River (WRIA 02 and 04)

Cost

Two full time employees annually to implement Increase of 5% in building costs to comply

Revenue Skagit County General Fund Development Fees Developers

Partners Skagit County Development Community



Conway School Drainage Basin



Higgins Airport Way Drainage Basin



LAKE MANAGEMENT



Control of the aquatic weeds (Eurasian watermilfoil and Brazilian elodea) in Big Lake and Lake McMurray has been challenging. These exotic weeds grow in dense stands and can exclude native vegetation. Their presence results in localized deterioration of water quality (including decreased dissolved oxygen) and the loss of habitat for fish and other aquatic organisms. The dense stands also decrease the usable area of the lake, making it dangerous for swimmers and inaccessible to boaters. The County developed Integrated Aquatic Plant Management Plans for both lakes in the late 1990's. In 1998, the County formed the Big Lake Lake Management District to assess funds and pay for treatments identified in the plan. In 2000, the County completed the formation process for Lake McMurray. Salmonids are present at times in both lakes.

Benefits

- Controls or eradicates the invasive aquatic plants, Eurasian watermilfoil and Brazilian elodea, in two county lakes.
- Prevents the spread of non-native, invasive weeds to other lakes.
- Educates and involves the public to prevent spread of milfoil and to financially support control efforts.

POLLUTION AWARENESS

Water Quality, OSS Program and Best Management Practices addressing nonpoint pollution awareness

State mandates such as the Centennial Clean Water Act require that shellfish and anadromous fish areas be maintained at healthy, safe levels. Correctly functioning on-site septic systems (OSS) and the use of agricultural best management practices that reduce contaminated runoff to waters are key components of water quality cleanup through this act. Funding from grants established through this act allows the two County departments, Health and Planning and Permit Center, to jointly oversee the septic process with permits, monitoring, repairs, regulations, complaint follow-up, and OSS public education. State Revolving Loan funds are also provided for repair, installation, and agricultural improvements. Clean up has occurred in the towns of Edison and Blanchard, both estuarine tidal communities, in addition to 557 individual residents, small commercial businesses and agricultural sites countywide.

Benefits

- Increased public awareness through state mandated OSS Monitoring and Operations program.
- Enhanced and monitored water quality conditions.
- Countywide local loan programs for OSS repairs and BMP implementation.
- · Improved partnership between county programs.
- Improved fish habitat.

Watershed:

Skagit River (WRIA 03)

Cost

\$20,000 Big Lake \$20,000 Lake McMurray

Revenue

District

Partners

Skagit County Big Lake Citizens Lake McMurray Citizens Washington Department of Ecology

Completion Date Ongoing

Watershed: Skagit River (WRIA 2,3 and 4)

Cost:

\$3,956,000

Revenue

φι.οινι	washington Revolving Loan Fund
\$266,000	Sanitary Onsite Septic Grant
\$435,000	Edison State Revolving Fund
\$500,000	Community Development Block Grant
\$1.2M	Referendum 39
	Renslaarville Loan
\$55,000	Washington Department of Ecology-
	Centennial Clean Water Fund

Partners

Skagit Conservation District Skagit County Planning and Permit Center Skagit County Health Department Washington Department of Health Washington Department of Ecology Washington Commercial Shellfish Growers Blanchard and Edison Community Volunteers Board of Skagit County Commissioners Robert Hart Harvey Wolden Ted W. Anderson

Public Works Department Chal Martin, P.E. - Director/County Engineer

Surface Water Management

Sky Miller, P.E. - Division Manager Jennifer Aylor, AICP - Assistant Division Manager Derek Koellmann - Salmon Recovery Coordinator

Planning & Permit Center

Tom Karsh - Director Kendra Smith, ASLA - Asst. Director/ Planning & Community Development

Conservation Futures

Rich Doenges - Program Director

Health Department

Peter Browning, M.A. - Director Ken Willis - Environmental Health Supervisor

Contact:

Penny V. Harrison Administrative Assistant 1111 Cleveland Avenue Mount Vernon, WA 98273 360.336.9400 360.336.9478 Fax pennyh@co.skagit.wa.us

Web Site

SkagitCounty.net

"Salmon are important to Skagit County. Not only are they a barometer of ecosystem health, but they are delicious when grilled lightly over alder."

Sky Miller