Chapter 4 Surface Water Management Activities

4.1 INTRODUCTION

For many years several Jefferson County departments, the Jefferson County Conservation District, Jefferson County – Washington State University Cooperative Extension, community organizations, and individual citizens have worked together to conduct numerous activities that protect and restore Jefferson County's surface water resources. This effort has also involved State agencies and Tribes.

This cooperation has been characterized by a high level of expertise and local knowledge, strong working relationships, and deep personal commitments. In its recommendations for developing a Jefferson County Surface Water Management Program, this Plan is mindful of these attributes and aims to preserve and build on them.

Some of the activities discussed below, such as water quality monitoring and stormwater management, are typical surface water management activities. Some activities, such as comprehensive planning, while not typically considered as surface water management activities, are the foundation of Jefferson County's surface water management efforts.

In the past Jefferson County's surface water management activities have lacked coordination, prioritization, strategic planning, and designated funding sources. They have been initiated as responses to emerging concerns, not as components of a planned comprehensive program. Shellfish closures in Quilcene Bay, declining salmon runs on Chimacum Creek, flooding in Brinnon and Quilcene, and intensive development in Port Ludlow have been typical issues.

4.2 JEFFERSON COUNTY COMPREHENSIVE PLAN

Jefferson County's most significant action to protect surface water resources was the adoption of the County Comprehensive Plan in 1998. The Comprehensive Plan:

- Provides analysis of surface water conditions in Jefferson County;
- Designates forestland and agricultural land and restricts their development;
- Designates rural residential lands and sets development densities;
- Designates rural commercial and industrial areas and restricts commercial development in rural resource and residential areas;
- Designates two areas, the Port Hadlock Urban Growth Area and the Port Ludlow Master Planned Resort that are intended for urban development;
- Adopts environmental goals, policies, and strategies to protect surface water resources; and
- Commits Jefferson County to additional planning that will benefit surface waters, including the development of a Surface Water Management Plan.

These Plan components protect surface waters by:

- Concentrating development in existing developed areas where it can be served by appropriate stormwater management facilities,
- Limiting development and impervious surface in rural areas,
- Preserving forest cover, and
- Protecting surface water resources, including rivers and streams, wetlands, and floodplains.

The Comprehensive Plan's role in protecting surface water resources is discussed in greater detail in Chapter 5 Policy and Regulation.

4.3 JEFFERSON COUNTY UNIFIED DEVELOPMENT CODE

The Jefferson County Unified Development Code (UDC) is the principal tool for implementing Jefferson County's Comprehensive Plan. It regulates development in Jefferson County. One effect of these regulations is to limit the potential for impacts to surface water resources from stormwater runoff.

The UDC includes regulations that protect environmentally sensitive areas (ESAs) related to surface water resources, including aquifer recharge areas, fish and wildlife habitat, frequently flooded areas, geologically hazardous areas including erosion hazard areas, and wetlands. The regulations include requirements for buffers around ESAs. The UDC prohibits most commercial and industrial developments in rural resource and residential areas, restricts the type and scope of development in rural commercial areas, and limits impervious surface area for rural development.

The UDC also requires that stormwater management facilities and temporary erosion and sediment control measures be provided for developments. The UDC adopts the standards of the Washington Department of Ecology *Stormwater Management Manual for Western Washington*.

In order to ensure that stormwater management facilities that have been constructed to serve developments are adequately maintained, Jefferson County requires developers to enter into a Stormwater Management Facility Maintenance Agreement with the County. The Agreement obligates the owner to maintain the stormwater management facility for the life of the development. At this time Jefferson County does not have a program to inspect and maintain private stormwater management facilities.

In order to conduct facility inspections, it is necessary to maintain an inventory of stormwater management facilities. The Jefferson County Public Works Department maintains an inventory that is updated when new developments come on line.

The UDC also adopts the Jefferson County Shoreline Management Master Program (SMP). The SMP is a combined planning and regulatory document that implements the State Shoreline Management Act (SMA). Jefferson County will be revising its SMP to comply with the Washington Administrative Code requirements by the end of 2007. The revised SMP is required to include a shoreline restoration component.

4.4 AGRICULTURE AND FISH & WILDLIFE HABITAT PROTECTION PLANS

The analysis in Chapters 2 and 3 identifies impacts to surface waters that have resulted from agricultural activities. Because the Unified Development Code doesn't regulate existing agricultural activities, Jefferson County, under a settlement agreement with the Washington Environmental Council, is working with the Jefferson County Conservation District to develop Agriculture and Fish & Wildlife Habitat Protection Plans for County watersheds. The Plans will establish voluntary measures to protect fish habitat that are compatible with maintaining existing agriculture. They will address the following areas:

- Livestock and dairy management,
- Nutrient and farm chemical management,

- Erosion and sediment control,
- Agricultural drainage operation and maintenance,
- Riparian management, and
- Fish and wildlife habitat improvement.

The Plans will include adaptive management provisions to monitor their effectiveness and revise them as necessary. A Plan for the Chimacum Creek watershed was completed in 2004. A Plan covering the remaining County watersheds is scheduled for completion by the end of 2006.

Developing and implementing the Agriculture and Fish & Wildlife Plans is a requirement of a settlement agreement with the Washington Environmental Council.

Jefferson County Environmental Health Department has applied for a Centennial Clean Water Fund grant to implement the Chimacum Creek Clean Water Project. This project will be an important step in implementing the agricultural BMPs identified in the Chimacum Creek Agriculture and Fish & Wildlife Plan. It will also fund water quality monitoring and on-site septic system inspection and repair. If the grant is approved, the work will begin in July 2007 and continue for 3 years.
An important component of the Project would be Conservation District staff working with farmers to develop and implement agricultural BMPs. It would not, however, provide sufficient funding for BMPs such as fencing, riparian planting, livestock water systems, and placing large woody debris on the scale needed to adequately implement the Agriculture and Fish & Wildlife Plans. In order to achieve this, there would need to be supplemental funding to the Conservation District.

4.5 WATERSHED PLANNING

In the past, Jefferson County has prepared and adopted Watershed Action Plans for the Quilcene-Dabob (1991) and Ludlow Bay (1993) watersheds. A Salmon-Snow Creek Plan was also developed, but not formally adopted. Jefferson County and citizens representing various interests also participated in the development of the Dungeness-Quilcene Water Resource Management Plan (1994)).

The State Watershed Management Act of 1998 (RCW 90.82) established the current framework for addressing the State's water resource issues. It authorizes local watershed planning to protect and enhance natural hydrologic processes and to maintain and restore watershed health. Watershed plans must address water quantity and use and develop strategies for future use. They may also address water quality, aquatic habitat, and groundwater recharge and recommend in-stream flows.

Jefferson County includes portions of four State-designated Water Resource Inventory Areas (WRIAs):

- **WRIA 16 Skokomish-Dosewallips** in the southeastern section of the County, including southern Hood Canal,
- **WRIA 17 Quilcene-Snow Creek** in the northeastern section of the County, including northern Hood Canal,
- **WRIA 20 SolDuc-Hoh** in most of the West End of the County, and
- **WRIA 21 Queets-Quinalt** in the southerly section of the West End.

Since most of Jefferson County's population and development are located in WRIA 16 and 17, the County has focused its watershed planning effort in these two areas. Jefferson County is the lead entity for WRIA 17. Mason County is the lead entity for WRIA 16. Clallam County is the lead entity

for WRIA 20. Gray's Harbor County is the lead entity for WRIA 21. The Jefferson County Natural Resources Division has staffed these activities.

In order to gather data for the watershed planning process, Jefferson County Natural Resources Division has monitored stream flow by maintaining gauges on the Big and Little Quilcene Rivers and Chimacum, Salmon, Snow, Tarboo, and Thorndyke Creeks. The gauges are supplied by the Washington Department of Ecology. Operation of the gauges is funded by a grant from Ecology.

At the time that this Surface Water Management Plan was adopted:

- **WRIA 16:** The Planning Unit has developed a technical assessment. It has developed a draft Watershed Management Plan that is under review. Jefferson County has not adopted the draft Plan.
- **WRIA 17:** The Planning Unit has developed a technical assessment and a Watershed Management Plan. Jefferson County has adopted the Watershed Plan. The Plan addresses the mandatory elements and water quality, aquatic habitat, and groundwater recharge elements. The Planning Unit was not able to reach consensus on a recommendation for in-stream flows. The Washington Department of Ecology is in the process of adopting an in-stream flow rule in the Washington Administrative Code (WAC) 173-517 for WRIA 17 sub-basins in Jefferson County.
- **WRIA 20:** A technical assessment has been prepared. A watershed management plan has not been completed.
- **WRIA 21:** A technical assessment has not been prepared.

The WRIA 17 Watershed Management Plan includes recommendations that address water quantity and quality, fish habitat protection and restoration, and instream flows. The recommendations support:

- Public education and outreach regarding water issues,
- Jefferson County Conservation District programs that provide technical assistance to rural landowners,
- Surface water quality monitoring,
- Adopting the 2001 Washington Department of Ecology *Stormwater Management Manual*,
- Adopting road maintenance standards for County roads,
- Implementation and enforcement of Jefferson County's development regulations,
- Coordination among local governments and agencies,
- Adoption of a Surface Water Management Plan, and
- Stable revenue sources to fund surface water management activities.

These recommendations are consistent with the analysis and recommendations of this Plan.

4.6 SALMON RECOVERY PROJECTS

Jefferson County in conjunction with the Washington State Department of Fish and Wildlife, the Jefferson County Conservation District, the Hood Canal Coordinating Council (HCCC), and private organizations including the North Olympic Salmon Coalition (NOSC), and the Hood Canal Salmon Enhancement Group (HCSEG) has conducted numerous fish habitat enhancement projects including:

- Replacing road culverts that are fish passage barriers with appropriately designed culverts or bridges on Cassel, Chimacum, Fletcher, Indian George, Jackson, Shine, and Tarboo Creeks and on the Oil City Road at Mile Post 6;

- Incorporating fish habitat protection measures into County road projects, included using large woody debris on bank protection projects and constructing log jams on the Hoh River; and
- Constructing facilities to treat and infiltrate road runoff at the Irondale Road crossing of Chimacum Creek.

As noted above, the Jefferson County Environmental Health Department in partnership with the with the Jefferson County Conservation District and the North Olympic Salmon Coalition has applied for a $358,000 Centennial Clean Water Fund grant that would implement the Chimacum Creek Clean Water Project. The Project would implement several components of the Chimacum Creek Agriculture and Fish & Wildlife Plan. The project has three primary components related to improving water quality and fish habitat. The first is to collect water quality data regarding water temperature, fecal coliform bacteria, and macro-invertebrates. The second is to conduct a survey of on-site septic systems within 500 feet of the Creek in order to identify and repair failing systems. The third is to assist farmers to implement agricultural best management practices related restoring water quality and fish habitat. All of these components include a public education and outreach component. The results of the data collection will assist the Department of Ecology to develop a Total Maximum Daily Load (TMDL) Plan for the watershed. Jefferson County has committed approximately $119,000 as a local match for this project. If awarded, work would begin in July 2007 and extend through June 2010.

4.7 HOOD CANAL COORDINATING COUNCIL

Jefferson County is a member of the Hood Canal Coordinating Council (HCCC), a watershed-based council of governments that was established in 1985 under the Inter-local Cooperation Act (RCW 39.34). The Council was established to address water quality and fish habitat problems and related natural resource issues in the Hood Canal watershed.

The Council has a board of directors that includes voting members from Jefferson, Kitsap, and Mason Counties and the Jamestown S'Klallam and Skokomish Tribes and non-voting representatives from State and Federal agencies. The Council works with State and Federal agencies, volunteer groups, regional fisheries enhancement groups, conservation districts, land trusts, etc. on water quality and fish and shellfish enhancement projects and programs.

The HCCC is the lead agency coordinating Federal, State, local government, and tribal efforts to address the problem of low dissolved oxygen levels in Hood Canal. The HCCC and the Puget Sound Action Team have developed a Preliminary Assessment and Corrective Action Plan that will:

- Identify and quantify nitrogen sources that contribute to low dissolved oxygen in Hood Canal,
- Develop a corrective action and education plan that can reduce human-influenced nutrient inputs to Hood Canal, and
- Consider other options for increasing dissolved oxygen levels through altering human activities and biological, physical and chemical processes.

The HCCC is also developing a Summer Chum Salmon Recovery (SCR) Plan that will guide local and State efforts to protect and restore summer chum populations in the eastern Strait of Juan de Fuca and Hood Canal. The SCR Plan will include an Outreach and Education Plan that will address public information needs, provide support for policy-makers, and communicate with specific audiences and constituency groups. It will rely on existing programs, as well as developing new programs and materials to address identified gaps.

4.8 FLOOD HAZARD MANAGEMENT

Jefferson County does not have a flood hazard management program. However, in response to several large flood events in the early 1990's the County began conducting numerous activities intended to address flooding. These activities typically have a duel purpose: to reduce threats to safety and property and to mitigate flood impacts on fish habitat.

Jefferson County has adopted a Flood Plain Management Ordinance that is intended to reduce the risk to public safety and public and private property. It regulates development in flood plains and substantially restricts development in floodways. This Ordinance has been adopted by reference in the County's Unified Development Code Environmentally Sensitive Areas section.

Jefferson County has established flood zones on the Big and Little Quilcene Rivers and the Dosewallips River. It also established Quilcene and Brinnon Flood Boards to provide local input into flood hazard management planning. These Boards have been inactive in recent years.

Jefferson County has developed a Lower Big Quilcene River Flood Hazard Management Plan (1998) that analyzes flood events and identifies actions to reduce flood hazards and impacts on fish populations. These actions include purchasing flood-prone properties, removing or setting back dikes, and lengthening the Linger Longer Road Bridge to increase flood conveyance and storage capacity and sediment dispersal into the floodplain. Jefferson County has purchased approximately 54 acres in the Big Quilcene River floodplain. Jefferson County and the Hood Canal Salmon Enhancement Group have removed the dikes on the north bank of the river downstream from the Bonneville Power Administration transmission line easement. The County also recently completed an engineering feasibility study of the Linger Longer Reach of the Lower Big Quilcene River floodplain. This study assessed options including dike set backs and removal and constructing a longer bridge on Linger Longer Road.

Jefferson County has also acquired 22 acres of property in the lower Little Quilcene River floodplain. The Hood Canal Salmon Enhancement Group has proposed setting back dikes to increase flood capacity and restore salmon habitat. Planning for this activity is currently underway.

Jefferson County has conducted a channel migration study to identify channel migration zones and flood hazard areas of the major eastern Jefferson County rivers - the Duckabush, Dosewallips, Big Quilcene, and Little Quilcene. This study was developed to provide information for revising Unified Development Code floodplain regulations in order to decrease the risk to life and property from channel migration and decrease the need for bank protection measures that can degrade fish habitat.

The County has purchased 93 acres of Dosewallips River floodplain with a Salmon Recovery Funding Board grant of $246,000.

The County has not developed a comprehensive flood hazard management plan for the Dosewallips and Duckabush Rivers.

Jefferson County has received Flood Control Assistance Account Program (FCAAP) grants from the Department of Ecology to conduct these activities.

Because it has engineering and project management expertise and because flooding has impacted County Roads, the County Public Works Department has conducted many of Jefferson County's flood management activities. However, the Department's current staffing levels will not allow it to continue this work, particularly when the issue does not involve impacts related to County Roads.

4.9 JEFFERSON COUNTY ENVIRONMENTAL HEALTH DEPARTMENT PROGRAMS

On-site Septic System Program

Substandard or failing on-site septic systems can degrade surface waters and shellfish beds and endanger public health. Jefferson County has been a leader in adopting high standards for design and construction of on-site septic systems and for requiring on-going inspection, maintenance, and repair to ensure that they continue to function appropriately.

The Jefferson County Environmental Health Department (JCEHD) administers Jefferson County's on-site septic system program. The Department:

- Reviews permit applications and inspects the installation for on-site septic systems;
- Evaluates existing systems at the time of sale or when there is a building permit application for substantial remodeling or expansion;
- Conducts outreach to homeowners, realtors, and community groups regarding septic system functions, monitoring, and maintenance;
- Responds to complaints about on-site septic code violations;
- Administers a certification program for septic system installers, pumpers, and operations and monitoring specialists; and
- Administers a program to repair failing on-site septic systems.

The Jefferson County Environmental Health Department has applied for a Centennial Clean Water Fund grant to implement the Chimacum Creek Clean Water Project. This project would include conducting water quality sampling and evaluations of on-site septic systems to identify failing systems on Chimacum Creek. The Department has received $70,000 through the Hood Canal Coordinating Council to conduct water quality sampling and evaluations of on-site septic systems to identify failing systems and sources of nitrogen inputs on Hood Canal that are related to low dissolved oxygen levels.

Both projects include outreach to homeowners to educate them about how they can help protect water quality by maintaining and repairing their on-site septic systems, reducing reliance on lawn and garden products, not dumping yard waste in streams or salt water, and collecting and containing animal waste.

Jefferson County has an Interlocal Agreement with the Jefferson County Public Utility District to monitor the operation and maintenance of alternative on-site septic systems.

Jefferson County's on-site septic system regulations require regular evaluations of conventional systems. The schedule for evaluations varies, depending on the size of the parcel and the type of system. The Environmental Health Department lacks the funding to maintain its database that tracks these evaluations. The Department estimates that the expenditure for this activity would be approximately $25,000 annually.

EnviroStars
EnviroStars is a Puget Sound regional program to help local businesses manage and reduce hazardous waste and protect local water quality. The EnviroStars Program provides technical assistance, education, and certification for businesses meeting hazardous waste management criteria. The certification process is interactive and educational. Working with program staff, businesses desiring certification learn about and implement changes in their practices that are necessary to qualify.

4.10 JEFFERSON COUNTY MAINTENANCE OPERATIONS

Jefferson County has taken steps in several areas to ensure that its operations and maintenance activities do not degrade surface water resources.

Jefferson County has implemented structural BMPs, staff training, and spill response procedures and supplies at the County road maintenance shop. The structural BMPs include covered equipment storage, spill containment facilities, and a vehicle washing system that treats and recycles wash water.

Jefferson County Public Works Department has adopted guidelines and provided training that minimize surface water impacts such as erosion and sedimentation from road maintenance activities. Public Works has implemented structural pollution control BMPs at its solid waste transfer site and provided spill response training, procedures and supplies for road maintenance and transfer site employees. For many years, Jefferson County has used only mechanical vegetation management in its road maintenance operations. This avoids not only the use of herbicides, but also the potential for spills during storage and use.

Jefferson County parks maintenance staff have been trained in the proper use, storage, and disposal of fertilizers, herbicides, and pesticides. Maintenance staff makes minimal and appropriate use of these materials.

4.11 WASTE MANAGEMENT PROGRAM

Jefferson County's waste management program helps to maintain the health of the County's surface water resources. The County's Recycling Program provides facilities for recycling oil and antifreeze. The County's Moderate Risk Waste Disposal Program collects paint and other hazardous products from homeowners. These materials might otherwise be disposed inappropriately and contaminate surface waters and groundwater.

4.12 MARINE RESOURCES COMMITTEE

The Jefferson County Marine Resources Committee (MRC) is the local arm of the Northwest Straits Advisory Commission (NWSC). The Federal government established the NWSC in 1998 to study the health of the marine ecosystems of the Strait of Juan de Fuca, the San Juan Islands, and Admiralty Inlet, develop sound scientific recommendations to existing governmental authorities, and help counties develop broad support for their recommendations. The NWSC recommended creating county marine resources committees. Jefferson County joined the NWSC and created the MRC in 1999. Other NWSC members are Clallam, Island, San Juan, Skagit, Snohomish, and Whatcom Counties. The MRC reports to the County Commissioners annually with findings and recommendations.

The MRC works with homeowners, businesses, boaters, community and environmental groups, and commercial and sport fishers to counteract the decline in the County's marine habitat. The MRC's activities have included a voluntary, citizen-based priority habitat stewardship program, re-introducing Olympia Oysters into Discovery Bay, and education and outreach work on forage fish spawning beaches.

4.13 JEFFERSON COUNTY CONSERVATION DISTRICT

The mission of the Jefferson County Conservation District is to assist landowners to conserve soil and water resources while preserving a viable agricultural economy. In order to achieve this mission the Conservation District conducts numerous activities in partnership with Jefferson County, the North Olympic Salmon Coalition, Hood Canal Salmon Enhancement Group, and the Washington Department of Fish and Wildlife (WDFW). Since 1985 the District has:

- Conducted water quality monitoring at 153 stations on 28 streams in east Jefferson County;
- Developed a plan for more extensive water quality monitoring on east Jefferson County streams in the Hood Canal watershed;
- Fenced 24 miles of riparian area on 13 streams;
- Planted 144 acres of riparian area on 8 streams;
- Constructed 7.3 miles of stream restoration projects on 14 streams;
- Provided technical assistance to farmers to prepare nutrient and farm chemical management plans and soil erosion control plans;
- Developed an Agriculture and Fish & Wildlife Habitat Protection Plan for Chimacum Creek and begun work on a plan for the remaining agricultural watersheds in the County;
- Administered the Conservation Reserve Enhancement Program that rents riparian buffers from farmers and enhances them by planting trees;
- Administered the Environmental Quality Incentive Program that assists farmers in implementing agricultural BMPs to protect water quality;
- Sponsored the Horses for Clean Water program that assists horse owners and other small livestock operators to protect surface water resources by managing their livestock, pasture, manure, and runoff water;
- Developed a workshop on stream ecology for presentation to rural landowners;
- Instructed Chimacum and Quilcene High School students in conducting water quality sampling and monitoring; and
- Developed and demonstrated a portable, solar-powered pump to provide water to livestock and avoid the need for them to enter streams.

The Conservation District has conducted some of these activities for several years using Conservation District funds. In 2005 Jefferson County provided $42,000 in additional funding through a Centennial Clean Water Fund grant. This enabled the District to develop new activities and significantly increase the scope of existing ones. When the grant expires at the end of 2005, the District will need to obtain new revenue in order to continue these activities at the same level.

As noted above, Jefferson County has applied for a Centennial Clean Water Fund grant, a portion of which would be used by the Conservation District to implement aspects of the Chimacum Creek Agriculture and Fish & Wildlife Plan.

Water Quality Monitoring
The District currently monitors water quality at 25 stations on 8 streams in east Jefferson County every other year since 1996. Parameters include temperature, conductivity, dissolved oxygen, intragravel dissolved oxygen, pH, fecal coliform, NO3-N (nitrogen), total phosphorous, total suspended solids, and turbidity. Fecal coliform and phosphorous samples are analyzed by accredited labs. The other parameters are analyzed in-house. Monthly fecal coliform monitoring results are sent to agricultural landowners to assist them in assessing the effectiveness of their management practices. The results of this monitoring are summarized in the WRIA 17 Technical Assessment.

The District has developed a proposal to expand its monitoring to include 18 additional streams, primarily in the Hood Canal watershed. The additional data would be useful for analyzing nitrogen inputs, a factor in low dissolved oxygen and fish die-offs in Hood Canal. This proposal is presented in **Appendix A**.

This monitoring is supplemented by temperature monitoring conducted by the Port Gamble S'Klallam Tribe and the Pacific Ecological Institute on 6 streams that are on the Department of Ecology's 303(d) list for exceeding temperature standards.

The District also conducts baseline assessments and post-project monitoring to determine the effectiveness of habitat restoration projects. This typically includes monitoring water quality parameters such as temperature and dissolved oxygen and the presence of juvenile salmon.

4.14 JEFFERSON COUNTY - WASHINGTON STATE UNIVERSITY COOPERATIVE EXTENSION

WSU Cooperative Extension has conducted water quality education activities for several years. During the period 2003-2005 Jefferson County provided additional funding to WSU to conduct education activities related to surface water issues through a Centennial Clean Water Fund grant that also funded the development of this Plan. The annual funding for 2005 will be approximately $50,000. This has enabled WSU to develop new programs and significantly increase the scope of existing ones. In order to increase the recognition and effectiveness of these activities, WSU Extension created an umbrella Surface Water Education Program called Water Matters and developed a Water Matters logo and poster. (See Page 4-11) When the grant expires at the end of 2005, WSU will need new revenue sources in order to continue these activities at the same level.

As a component of the development of this Plan, WSU Extension Water Quality Education staff developed a Surface Water Public Education Plan based on the following strategies:

- Increase public awareness and understanding of surface water management issues;
- Engage citizens in critical thinking;
- Support voluntary actions by individuals and groups;
- Involve citizens in demonstration projects; and
- Monitor and evaluate the implementation of educational activities.

The Education Plan proposes numerous activities including:

- **Water Watchers** program that trains volunteers to be knowledgeable and active watershed stewards;


WATER MATTERS

- **Master Gardeners** who assist County homeowners to use environmentally-friendly gardening techniques including improving soil quality through composting, efficient irrigation systems, proper use of fertilizers, pesticides, and herbicides, and employing integrated pest management as an alternative to pesticides;
- **Green Gardening** project that works with local nurseries and stores to demonstrate alternatives to pesticides, herbicides, and fertilizers for common lawn and garden problems;
- **EnviroScape models** that demonstrate principles of hydrology, pollution control, and stormwater management in schools and at community events;
- **Realtor training** regarding development and environmental issues, including stormwater and surface water management;
- **Welcome to Your Watershed** newspaper inserts that provide information about Jefferson County's water resources and practical advice for protecting them; and
- **Welcome to the Watershed** program that educates new County residents regarding local water issues.

4.15 JEFFERSON COUNTY PUBLIC UTILITY DISTRICT

The Jefferson County PUD is the County's designated regional utility provider. Through an inter-local agreement with Jefferson County, it is responsible for inspection of alternative on-site septic systems. This is an important function because most residences and businesses are served by on-site septic systems, many of which are alternative systems that need to be monitored to ensure their continued functioning.

4.16 PORT LUDLOW DRAINAGE DISTRICT

The Port Ludlow Drainage District was established in 2000 to address drainage deficiencies within residential and commercial developments in the portion of the Port Ludlow Master Planned Resort north of Ludlow Creek. The District has developed a Comprehensive Drainage District Plan that analyzes stormwater runoff quality and quantity and identifies drainage deficiencies. The Plan proposes capital improvements and operations and maintenance activities to remedy the identified deficiencies. The District is currently implementing its capital improvements plan.

4.17 PRIVATE NON-PROFIT ORGANIZATIONS

An analysis of Jefferson County's commitment to protecting and enhancing surface water resources would not be complete without acknowledging the important work performed by community organizations to protect and restore fish habitat and populations in Jefferson County.

Wild Olympic Salmon

Wild Olympic Salmon sees salmon as an indicator of the health of watersheds and communities and as a tool for teaching about the relationship of communities with watershed. Using this approach, WOS has designed and implemented innovative restoration and educational programs including:

- Summer chum broodstock program on Chimacum and Salmon Creeks,
- Habitat monitoring on Chimacum, Salmon, and Snow Creeks,
- Fin, the 25-foot migrating salmon who teaches about salmon and watersheds,
- Tracking the Dragon, a community watershed exploration game, and
- The Salmon Festival, a fall celebration of the return of salmon to the region's watersheds.

North Olympic Salmon Coalition (NOSC) and Hood Canal Salmon Enhancement Group (HCSEG)
NOSC and HCSEG are two of the State's fourteen Regional Fisheries Enhancement Groups, non-profit community-based organizations that provide funding, guidance, technical assistance, and ongoing support for salmon habitat restoration. They work cooperatively with local governments, the Washington Department of Fish and Wildlife, conservation districts, tribes, schools, community organizations, volunteers and private landowners. NOSC's region includes the watersheds from the Hood Canal Bridge north and west along the Strait of Juan de Fuca to Neah Bay. HCSEG's region is Hood Canal.

NOSC has worked with project partners Jefferson County Conservation District, Jefferson Land Trust, and Trout Unlimited to conduct 15 in-stream and riparian restoration projects along Chimacum Creek in the past 7 years. In the past 2 years, NOSC has sponsored Americorps crews to work on Chimacum Creek riparian re-vegetation and restoration projects. The crews work collaboratively with community volunteers and residents from Grey Wolf Ranch, a young men's rehabilitation center located in the County. In addition, NOSC has conducted macro-invertebrate surveys since Fall 2002 with Chimacum School students and teachers. NOSC will continue conducting surveys and restoration projects, and working with Chimacum School students as part of the Chimacum Creek Clean Water project.

HCSEG has worked with Jefferson County on several salmon enhancement projects including:

- Replacing two fish-barrier culverts on Tarboo Creek,
- Replacing fish-barrier culverts with a bridge on Shine Creek,
- Dike removal on the Big Quilcene River, and
- Planning for dike setbacks on the Little Quilcene River.

Hoh River Trust
The mission of the Hoh River Trust is to own and manage riparian lands along the lower 30-mile reach of the Hoh River from the Olympic National Park to the Pacific Ocean in order to conserve, restore, and enhance these lands for the benefit of fish and wildlife species, including salmon, steelhead, and bull trout and to provide public access and recreation.

The Trust recently received a $2 million federal grant from the U.S. Fish & Wildlife Service. The grant will enable the Trust to purchase 1,176 acres and to fund restoration and conservation activities. The grant complements $6.7 million previously granted in 2003 and 2004 that enabled the Trust to purchase 3,500 acres of Hoh River property.