WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

Year 2007 Report
on
Activities to Implement

Washington's
Water Quality Management Plan
to Control
Nonpoint Source Pollution

March 2008
Publication Number 08-10-027

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Watershed Management Section
Water Quality Program

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Chapter 1:
A Year of Evaluating Progress and Starting Some New Initiatives

During 2007, the Department of Ecology made several changes to the Nonpoint Program. These changes are a natural evolution of the program and are the result of learning from our successes and failures, responding to new issues, and a decision to merge the Nonpoint and TMDL Programs as much as possible. These new initiatives, some large and some small, will be discussed in more detail later in this report.

They include:

- Merging the Nonpoint and TMDL programs.
- Using the right strategy to get to clean water.
- TMDL and SEPA integration.
- TMDL enforceability.
- New implementation staff and funds.
- Refocusing the Direct Implementation Fund.
- Best management practice funding eligibility.
- 2009 review of state forest practices rules.
- Septic system rules.
- Straight to implementation

Ecology's goal is to continually improve our nonpoint program by learning from the work we've already done and by evaluating and fine-tuning the program on an on-going basis to ensure we are always focused on achieving the goal of clean water.

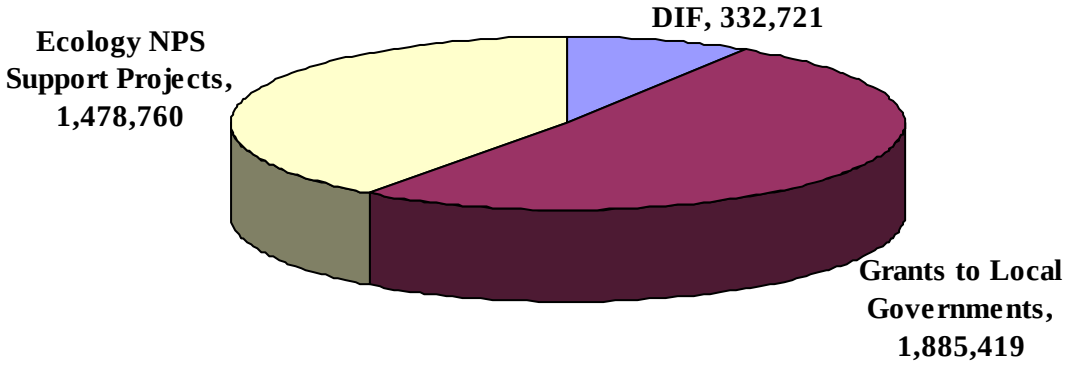
Chapter 2:
Distribution of EPA's 319 Grant to Washington

In 2007, the federal 319 dollars were distributed among three major work plan elements.

1. **Local Grant and Loan Funding**—Money was allocated and disbursed under the current water quality grant program in the form of competitive grants to local governments, tribes, special purpose districts, and not-for-profit groups during this last year. The application process for the Centennial Clean Water Fund, State Revolving Fund, and 319 funding cycle is administered by the Financial Management Section of the Water Quality Program.

2. **Direct Implementation Fund (DIF)**—This fund is only available to state agencies for projects that implement actions identified in Table 5.1 of the Nonpoint Plan. Activities must be beyond the current responsibilities of the agency as mandated by the Washington Legislature. State agencies submit applications for activities for which they are designated as lead in the plan. Projects are identified and prioritized by the State Agency Nonpoint Work Group. Ten DIF grants were awarded in 2007.

3. **Water Quality's Nonpoint Program Support Projects**—Ecology funded 13.32 staff for projects in 2007 that directly support the state's nonpoint program. Federal allocations are:



319 Federal Expenditures 2007

The above figures show initial allocations. Ecology applied 40 percent matching funds using state Centennial Clean Water Fund dollars from 16 nonpoint projects (described later in this chapter).

Ecology's Grant and Loan Programs

Ecology's Water Quality Program administers three major funding programs that provide grants and low-interest loans for projects to protect and improve water quality in Washington. As much as possible, Ecology manages the three programs as one with common guidelines and one funding cycle, application form, and offer list.

To be eligible for grants or loans to control nonpoint source pollution, an application must address one of the following:

1. A 303(d) listed problem area.
2. An impacted beneficial use.
3. Implementation of an existing plan or program.

The Centennial Clean Water Fund

CCWF provides grants and low interest loans to fund activities to reduce nonpoint source pollution. In the 2008 funding cycle, the CCWF funded a total of 16 projects to control nonpoint sources of pollution, or to restore habitats affected by land uses that generate nonpoint pollution.

The State Revolving Fund

SRF provides low-interest loans for treatment facilities and for activities to reduce nonpoint sources of water pollution. In the 2008 funding cycle, the SRF funded a total of two projects to implement nonpoint programs.

Section 319

319 grants provide funds to reduce nonpoint sources of water pollution. In the 2008 funding cycle, 319 funds—through the Local Grant and Loan Program—provided money for seven projects. The Direct Implementation Fund awarded grants for ten projects to state agencies.

Reporting Requirements

In addition to reporting about how Ecology spends 319 funds, the Performance Partnership Agreement requires us to report on the load reduction estimates for nitrogen, phosphorus, and sediment that we expect to achieve from nonpoint projects implementing best management practices. 2007 is the first year for which we are required to provide this information.

The following pages provide details about the projects funded and the load reduction estimates.

Nonpoint Water Quality Grants and Loans 2007

SFY08 Projects Offered Funding					
Applicant Name	**Project Title**	**Project Summary**	**Centennial Clean Water Funds offered amount**	**319 funds offered amount**	**SRF funds offered amount**
Snohomish County Public Works	North Fork Stilly Big Trees	This project supports riparian restoration on over 32 acres (5.4 stream miles) along the North Fork Stillaguamish. Planting strategy will focus on using 3-5 gallon or larger conifer planting stock, which will improve survival and reduce maintenance. Conifers will provide both shade and stream bank stability to accelerate riparian recovery.	$327,188.00	$0.00	$0.00
Island County Planning Department	Holmes Harbor Bacteria Source Identification/Remedy	Designated uses within the southern Holmes Harbor drainage basins are threatened by fecal bacteria contamination. Project will identify specific contamination sources within the basin, implement targeted remedies, and assess the effectiveness of these remedies. This project will optimize use of ongoing water quality monitoring program protocols.	$288,000.00	$0.00	$0.00
Jefferson County Public Health	Discovery Bay Clean Water Project	The Discovery Bay Clean Water Project is designed to meet two goals. The first is to address the downgrade of commercial shellfish harvesting in a critical growing area. The second is to implement best management practices for on-site sewage systems and agricultural practices throughout the watershed.	$495,638.00	$0.00	$0.00
Jefferson County Public Health	Hood Canal Clean Water Project	The Hood Canal Clean Water Project has two goals. The first is to address marine water quality degradation caused by failing on-site sewage systems along Hood Canal. The second is to educate homeowners to implement best management practices for on-site sewage systems via operation and maintenance programs and public outreach.	$0.00	$434,646.00	$0.00
Lincoln County	Lincoln County Implementation	Crab Creek watershed water quality will be improved through riparian restoration, exclusionary fencing, and off-	$249,750.00	$0.00	$0.00

SFY08 Projects Offered Funding					
Applicant Name	**Project Title**	**Project Summary**	**Centennial Clean Water Funds offered amount**	**319 funds offered amount**	**SRF funds offered amount**
Conservation District	Project	stream livestock watering. Demonstration sites will augment public education efforts while water quality monitoring will be done to assess best management practice effectiveness, support Ecology's efforts to determine nonpoint pollution sources, and further Crab Creek total maximum daily load (TMDL) development.			
Stewardship Partners	Snoqualmie Stewardship Program	The Snoqualmie Stewardship Program will improve water quality and restore fish habitat by promoting Best Management Practices and establishing riparian restoration projects using incentive-based tools, such as Salmon-Safe certification and ecosystem service payments, as a means to promote both conservation and economically viable agriculture.	$13,667.00	$236,323.00	$0.00
Walla Walla County Conservation District	Creating Urban Riparian Buffers (CURB) Program	The project will create urban riparian buffers in backyards on creeks flowing through the cities of Walla Walla and College Place. Project will educate homeowners on the importance of riparian areas, proper waste disposal, and chemical application. Community workshops, technical assistance, and cost share will be methods to achieve outcomes.	$225,000.00	$0.00	$0.00
Chelan County Conservation District	Wenatchee TMDL Project	Chelan County Conservation District will partner with Ecology and Wenatchee Planning Unit to conduct Wenatchee River total maximum daily load (TMDL) activities, to implement water quality component of WRIA 45 Watershed Plan, water quality effectiveness monitoring, education/outreach activities, complete submittals/Detailed Implementation Plans (DIPs), and begin implementing DIPs.	$250,000.00	$0.00	$0.00
Palouse Conservation District	NF Palouse River TMDL Implementation Project	Water quality of the North Fork Palouse River will be improved through educational outreach, conservation plan development, and implementation of best management practices (BMPs) (fencing, riparian plantings, off-site	$0.00	$249,750.00	$0.00

SFY08 Projects Offered Funding					
Applicant Name	**Project Title**	**Project Summary**	**Centennial Clean Water Funds offered amount**	**319 funds offered amount**	**SRF funds offered amount**
		watering, etc.) that reduce fecal coliform bacteria contributions. Water quality monitoring will be conducted to identify pollution sources, evaluate BMP effectiveness, and measure load reductions.			
Stevens County Conservation District	The Wedge Project	Streams in the Wedge flow to the Kettle and the Columbia Rivers. Temperature, dissolved oxygen, and fecal coliform levels often do not meet state standards. The project will use technical and financial assistance, an information and education program, and water quality monitoring to alleviate problems and maintain good water quality.	$237,500.00	$0.00	$0.00
Stevens County Conservation District	LPOR Watershed Implementation Project	The project will result in the implementation of best management practices (BMPs) to reduce bacteria, stream temperature, and sediment, and also increase dissolved oxygen in the 120,000-acre Little Pend Oreille River Watershed (the largest subwatershed in Water Resource Inventory Area 59). BMPs to reduce bacteria levels will support the Colville River Watershed Fecal Coliform Bacteria Total Maximum Daily Load (TMDL).	$0.00	$250,000.00	$0.00
Bellingham, City of	Bellingham Water Quality & Habitat Improvement	The Bellingham Water Quality & Habitat Improvement project will implement Total Maximum Daily Load and 4(b) Water Quality Improvement Plan actions on municipal properties in the Lake Whatcom Watershed and five streams within the City limits. Project elements will help identify pollution sources and improve water quality and habitat for Endangered Species Act listed salmonids.	$231,805.00	$0.00	$0.00
Naches-Selah Irrigation District	North Pleasant Hill Pipeline Project	Design and implement North Pleasant Hill Pipeline Phases 2A through 5B consisting of 35,000 feet of 6-30 inch pipe. This is part of a multi-phase project to enclose and pressurize four laterals, consisting mainly of wood stave pipe and open canal, into one main conveyance lateral and arterial laterals. This project implements Washington State's Nonpoint Plan. In Volume 1 of the plan, this project	$0.00	$0.00	$2,776,600.00

SFY08 Projects Offered Funding					
Applicant Name	**Project Title**	**Project Summary**	**Centennial Clean Water Funds offered amount**	**319 funds offered amount**	**SRF funds offered amount**
		addresses turbidity in the Yakima River by implementing the Yakima River Sediment Reduction TMDL. The project is also identified in Volume 3 of the Nonpoint Plan and on Table 5.1 under Agricultural Activities items 1, 8, and 10.			
Stilly-Snohomish Fisheries Enhancement T.F.	South Fork Stillaguamish Tributaries Restoration	The South Fork Stillaguamish Tributaries Restoration project addresses 303(d) listed parameters of temperature and sedimentation by improving water quality and Endangered Species Act listed Chinook habitat through outreach, education, and restoration of 24 acres of riparian area, and also knotweed removal in Category 5 waters of Jim Creek, Canyon Creek, and the North Fork Stillaguamish.	$0.00	$245,700.00	$0.00
Thurston Conservation District	Henderson/Nisqually Water Quality Improvement	Technical and cost share assistance will be delivered to agricultural, shoreline, and riparian landowners to assist them in implementing best management practices (BMPs) that address water quality issues. Education will also be delivered through workshops, tours, public access television, and publications for landowners in the Henderson and Nisqually Watersheds.	$242,839.00	$0.00	$0.00
Eastern Klickitat Conservation District	WRIA 31 Water Quality Remediation and Assessment	This project will assess water quality and habitat conditions, quantify land use effects on those resources, and identify priority projects to attain restoration goals. Assessment information will support the future development of water quality cleanup plans for the area. Restoration actions previously identified as priority projects will be implemented.	$234,948.00	$0.00	$0.00
Central Klickitat Conservation District	Little Klickitat Temperature TMDL Implementation	Project implements total maximum daily load (TMDL) actions including riparian planting, livestock management, bank stabilization, and public education, as well as assessments to identify and target temperature remediation actions in the Little Klickitat basin. Project implements assessments required to support TMDL	$250,000.00	$0.00	$0.00

SFY08 Projects Offered Funding					
Applicant Name	**Project Title**	**Project Summary**	**Centennial Clean Water Funds offered amount**	**319 funds offered amount**	**SRF funds offered amount**
		development and implements development of water quality (temperature) improvement plan for Swale Creek.			
Kitsap County Health District	Jump Off Joe Creek Restoration	This project implements the Upper Hood Canal Watershed Action Plan. The Health District will conduct a pollution identification and correction project in the Jump Off Joe Creek watershed to eliminate human and animal waste sources, reduce fecal coliform bacteria concentrations, and eliminate or reduce a shellfish closure zone at the stream's mouth.	$248,665.00	$0.00	$0.00
Olympia, City of	Septic Connection Assistance Loan Program	The project's primary goal is to improve water quality in the city of Olympia. Centennial loans will help expand the city's existing Sewer Connection Assistance Loan Program with emphasis on helping financially challenged on-site septic system (OSS) owners and providing incentives for conversion of OSS to sewer service in environmentally-sensitive areas. This project will implement a portion of Washington State's 2005 - 2007 Puget Sound Conservation and Recovery Plan, Priority Item 4 "Prevent Nutrient and Pathogen Pollution Caused by Human and Animal Wastes" by providing homeowners and business low-interest loans to rehabilitate/replace failing on-site sewage systems.	$0.00	$0.00	$250,000.00
Clark Public Utilities	East Fork Lewis River- Reach 6 Riparian Restoration	This project will look to improve water quality and salmon habitat conditions in East Fork Lewis River. It will enhance and protect streambank conditions by re-establishing vegetation of the riparian corridor, fencing out livestock, re-connecting floodplains, and educating landowners. These are well recognized practices to reduce erosion and runoff and, in the long term, improve water quality in the East Fork Lewis Watershed.	$250,000.00	$0.00	$0.00
Clark Conservation	Rural Living for Clean Water	Clark Conservation District proposes to give rural and small acreage landowners the knowledge and skills	$0.00	$219,000.00	$0.00

SFY08 Projects Offered Funding					
Applicant Name	**Project Title**	**Project Summary**	**Centennial Clean Water Funds offered amount**	**319 funds offered amount**	**SRF funds offered amount**
District		necessary to implement best management practices to reduce pollution of surface waters. The project provides educational workshops, technical assistance, and cost-share to support small acreages in improving water quality in Clark County.			
Nooksack Salmon Enhancement Association	Fishtrap Creek Riparian Restoration Project	NSEA will improve water quality and salmon habitat in Fishtrap Creek by excluding livestock, establishing riparian buffers, providing education to landowners, and bringing farms into compliance with the Whatcom County Critical Areas Ordinance. Riparian buffers will be enhanced along 15,000 feet of Fishtrap Creek from the U.S./Canada border to Lynden.	$0.00	$250,000.00	$0.00
Spokane County/City	Spokane Rathdrum Prairie Aquifer	The purpose of this project is to reduce on-site sewage disposal systems (on-site septic systems) within the Spokane-Rathdum Prairie Aquifer Sensitive Area of the Spokane County's sewer service area. It is funded with a special Legislative proviso.	$5,000,000.00	$0.00	$0.00
Adams - Lincoln	Adams - Lincoln Groundwater Mapping	This project will develop a geologic framework for understanding groundwater occurrence, flow, and quality, as well as its relationship with surface water within the Columbia Basin Ground Water Management Area (GWMA). Using this framework, GWMA will test and refine one or more conceptual models of groundwater flow in the aquifers underlying GWMA.	$2,000,000.00	$0.00	$0.00
		Totals:	**$10,545,000**	**$1,885,419.00**	**$3,026,600.00**

Direct Implementation Fund (DIF)

The Department of Ecology developed the direct implementation fund (DIF) after the first state nonpoint plan was approved by EPA in April 2000. The purpose of the fund was to encourage state agencies to address nonpoint pollution problems caused by their activities, and eventually to institutionalize dealing with nonpoint pollution so a grant program would no longer be needed.

To implement the program, Ecology established a Nonpoint Work Group, made up of representatives of state agencies. The group created table 5.1 of the state's nonpoint plan, which listed priority activities to accomplish the state's nonpoint objectives. The group also developed eligibility requirements and rating criteria for DIF projects. Ecology administered an annual application process, during which state agencies on the work group applied for projects that implemented actions in Table 5.1. In addition to addressing a nonpoint issue, projects were to:

- Go beyond agency funded mandates.
- Maximize coordination of agency activities.
- Provide for collaborative opportunities.

Direct Implementation Fund 2007

State Agency	Final Ranking	Project Title	DIF Request	DIF Offer	Running Total
ECY	1	Riparian Fencing and Planting Crew	50,000	50,000	$50,000
ECY	2	Environmental Marketing Workshop for Eastern Washington	5,460	5,460	$55,460
WDFW	3	Removal of Derelict Tires from Puget Sound	31,258	31,258	$86,718
WSU	4	Monitoring Riparian Buffer Functions to Reduce Nonpoint Pollution	30,430	30,430	$117,148
DOT	5	US 101 Schneider Creek and Griffinwood Compost and Bark	50,000	50,000	$147,148
WDFW	6	Upper Lake Creek Wetland Restoration—Swanson lakes Wildlife Area	15,235	15,235	$162,383
WDFW	7	Landscape fish guidance for residential Development	45,000	45,000	$207,383
CC	8	Cooperative incentive for adoption of GF-120 as a management tool for insect pests in cherry orchards	49,934	49,934	$257,317
SeaGrant	9	Bivalves for Clean Water	46,752	46,752	$304,069
DNR	10	Fidalgo Bay Nearshore Nonpoint Source Assessment	48,221	28,712	$332,721
ECY	11	Watershed Education and Action for Grays Harbor Youth	24,978	0	$332,721
WDFW	12	Landowner Outreach for Pend Oreille River Bank Protection	9,703	0	$332,721
ECY	13	Water quality/stormwater education library	12,000	0	$332,721

State Agency	Final Ranking	Project Title	DIF Request	DIF Offer	Running Total
ECY	14	Washington Waters-Ours to Protect, a public education campaign	37,500	0	$332,721
WDFW	15	Colville River Landowner willingness Assessment	12,874	0	$332,721
WSU	16	Rotary subsoiling newly planted wheat to reduce frozen soils runoff and nonpoint pollution in the Palouse	48,704	0	$332,721
WSU	17	Oakland Bay Outreach	41,407	0	$332,721
DNR	18	Investigation with public outreach of impacts of nonpoint pollution and green algae on nearshore eelgrass habitat	48,930	0	$332,721
DNR	19	Tripod Fire Cross Felling	48,900	0	$332,721
CC	20	Creation of North Lynden-Fishtrap Watershed Improvement District	50,000	0	$332,721
CC	21	Grayland Cranberry BMP Implementation	50,000	0	$332,721
WSU	22	Phosphorus Management for Livestock Operations	50,000	0	$332,721
DNR	23	Upland Stock and Wildlife Water Distribution System	40,945	0	$332,721
		Totals:	**$848,231**		**$332,721**

In 2007, after the funding cycle for the year ended, Ecology initiated a review of the DIF program's effectiveness. We found that the program did much to raise awareness about nonpoint pollution issues within the various state agencies. However, although many funded projects were very good, in general, we found that they usually did not meet the three program objectives. Because of this, we have decided that 2007 will be the last year that we will offer 319 funds to state agencies through this grant program. Instead, we will be transforming the DIF program into a more focused, on-the-ground implementation program, which we hope will encourage more efficient and effective implementation and problem solving. The new DIF program is discussed in more detail in the chapter describing new initiatives.

Water Quality Program's Support Projects - (13.30 FTE @ $1,478,760)

1. **Nonpoint Policy and Plan Coordination (2.2 FTE)**

   Ecology is responsible for overseeing and coordinating overall plan implementation activities. Part of that role entails management; compiling progress reports and reporting back to EPA; taking the lead in coordinating with other Ecology programs; facilitating the state agency nonpoint work group; implementing activities that have statewide applicability; and performing technical outreach about the plan with local governments, tribes, and special purpose districts. In addition, Ecology is responsible for statewide nonpoint policy and planning.

   Estimated cost of this work plan component – $ 244, 737

2. **Financial Administration (1.5 FTE)**
   Staff members of the Water Quality Program's Financial Management Section administer and manage all Section 319 grant funds and match funds passed through to local government entities, Indian tribes, and public not-for-profit groups. Staffs ensure that funds are allocated to highest priority projects and are spent in a fiscally responsible manner. Staff also closely tracks projects tasks and data from initiation to completion.

   Estimated cost of this work plan component – $ 112, 220

3. **TMDL Nonpoint Education and Outreach (.5 FTE)**
   Ecology initiates an intensive education and outreach effort as part of every TMDL. Our purpose is to ensure that people understand why we are doing a TMDL, what their responsibilities are likely to be, and how they can participate. A successful public process makes TMDL implementation more likely and more effective.

   Estimated cost of this work plan component – $ 54, 015

4. **TMDL Development and Implementation (2.8 FTEs)**
   The primary job of a TMDL lead is managing the development of the TMDL and supporting documents for successful submission to and approval by EPA. This element includes knowledge of TMDL concepts and procedures and the ability to work effectively with diverse groups within and outside Ecology. Other products required from this work element include development of an implementation strategy (IS) to go along with the TMDL, a summary of public involvement, and a water quality (detailed) implementation plan (WQIP). Once these procedures are documented, the TMDL lead tracks or coordinates implementation activities to meet the allocations set in the TMDL. In some cases, the TMDL lead also manages local implementation grants.

   Estimated cost of this work plan component – $ 275, 779

5. **Nonpoint Technical Assistance and Compliance (3.1 FTEs)**
   The purpose of this work plan element is to provide technical assistance to federal, state, and local agencies; tribes; and forests and special purpose districts to ensure their activities, projects, and programs meet state water quality laws, regulations, and standards. Areas of technical assistance include forest practices, agricultural activities, riparian restoration, and nonpoint source enforcement. This work plan element will apply in watersheds that implement nonpoint TMDLs or in watersheds with plans that focus on protection of threatened waters or implementation activities to clean up waters.

   Estimated cost of this work plan component – $ 355, 775

6. TMDL and Best Management Practices Effectiveness Monitoring (3.2 FTEs)

This work plan element designs and conducts monitoring studies to determine the effectiveness of nonpoint source management programs. Effectiveness monitoring studies are developed for TMDL implementation, watershed management plan implementation, and other watershed-based cleanup efforts. In addition, we will measure the effectiveness of specific implementation activities and the installation of BMPs to achieve the objectives of major statewide plans. Post TMDL monitoring is conducted to verify that the pollutant controls result in the water body improving or meeting water quality standards. It also tests the effectiveness of the management programs carried out as a part of the implementation plan.

Estimated cost of this work plan component – $ 436, 234

Load Reduction Estimates

This is the first time we have been able to retrieve data from the Grants Reporting and Tracking system, GRTS, so we expect our reporting ability to become more sophisticated over time. The load reduction estimates shown in the tables below are for projects that are active now, not for new ones awarded funds in 2007. Also, the estimates are cumulative for the life of the project, not just the estimates for 2007. Although they are not included in the tables, the units for nitrogen and phosphorus are in pounds and for sediment are in tons.

Nitrogen			
State Project Number	**Project Title**	**Pollutant Name**	**Current Estimate**
C0700052	Low-Impact Development and Backyard Conservation Pilot Project: Whidbey Island Conservation District	Nitrogen	0
C0700112	(LR) Spokane Stormwater Bio-infiltration Swale and Water Wise Landscape Demonstration Project	Nitrogen	0
C0700115	Riparian Buffers to Reduce Non-Point Pollution Project - WA State University	Nitrogen	210000
G0400139	(LR) - Animal Waste Management Campaign - Snohomish County Public Works	Nitrogen	197810
G0400198	(LR) - Progressive Drainage District Riparian Restoration - Whatcom County Public Works	Nitrogen	573
G0400371	(LR) - Adopt-A-Stream Foundation - McAleer/Lyon Creek Pollution Reduction	Nitrogen	3
G0500040	(LR) - Adopt-A-Stream - North Creek Pollution Identification and Correction Project	Nitrogen	9
G0500063	(LR) - Thomason Creek Adoption Program - Stevens County Conservation Dist.	Nitrogen	10
G0500073	Kittitas TMDL Support and Monitoring - Kittitas Reclamation District	Nitrogen	4
G0500095	(LR) - Nookachamps Basin Riparian Restoration - Skagit Fisheries Enhancement Group	Nitrogen	7423
G0500116	(LR) - Tenmile Creek Watershed Restoration Project - Nooksack Salmon Enhancement Association	Nitrogen	71
G0500117	Palouse Watershed Riparian Restoration Project	Nitrogen	1
G0500142	Okanogan Conservation Technical Assistance - Okanogan Conservation District	Nitrogen	261491
G0500175	King County Conservation District - Snoqualmie Watershed Agricultural Assistance Team (SWAAT)	Nitrogen	1470
G0600092	(LR) - Finney Creek Temperature Reduction - Skagit Fisheries Enhancement Group	Nitrogen	4
G0600123	(LR) - South Fork Nooksack Tributaries Restoration - Nooksack Salmon Enhancement Assoc.	Nitrogen	33

Nitrogen cont.			
State Project Number	**Project Title**	**Pollutant Name**	**Current Estimate**
G0600339	Thurston/Mason Equine Outreach & Education - Thurston Conservation District	Nitrogen	4020
G0700042	(LR) - White Salmon Landowners for Clean Water - Underwood Conservation District	Nitrogen	678
G0700094	(LR) - Cow Creek Implementation Phase II - Adams Conservation District	Nitrogen	1
G0700126	Little Bear Pollution Identification/Correction - Adopt-A-Stream Foundation	Nitrogen	2
G0700145	Livestock Implementation Project - Lincoln County Conservation District	Nitrogen	49
G0700167	Palouse River Implementation Project "B" - Adams Conservation District	Nitrogen	55750
WA0604	TMDL Development and Implementation	Nitrogen	9
		Sum:	739410
Phosphorus			
State Project Number	**Project Title**	**Pollutant Name**	**Current Estimate**
C0700052	Low-Impact Development and Backyard Conservation Pilot Project: Whidbey Island Conservation District	Phosphorus	0
C0700112	(LR) Spokane Stormwater Bio-infiltration Swale and Water Wise Landscape Demonstration Project	Phosphorus	0
C0700115	Riparian Buffers to Reduce Non-Point Pollution Project - WA State University	Phosphorus	26280
G0400139	(LR) - Animal Waste Management Campaign - Snohomish County Public Works	Phosphorus	14977
G0400198	(LR) - Progressive Drainage District Riparian Restoration - Whatcom County Public Works	Phosphorus	133
G0400371	(LR) - Adopt-A-Stream Foundation - McAleer/Lyon Creek Pollution Reduction	Phosphorus	1
G0500040	(LR) - Adopt-A-Stream - North Creek Pollution Identification and Correction Project	Phosphorus	1
G0500063	(LR) - Thomason Creek Adoption Program - Stevens County Conservation Dist.	Phosphorus	1
G0500073	Kittitas TMDL Support and Monitoring - Kittitas Reclamation District	Phosphorus	1

Phosphorus cont.			
State Project Number	**Project Title**	**Pollutant Name**	**Current Estimate**
G0500095	(LR) - Nookachamps Basin Riparian Restoration - Skagit Fisheries Enhancement Group	Phosphorus	1730
G0500116	(LR) - Tenmile Creek Watershed Restoration Project - Nooksack Salmon Enhancement Association	Phosphorus	13
G0500117	Palouse Watershed Riparian Restoration Project	Phosphorus	0
G0500142	Okanogan Conservation Technical Assistance - Okanogan Conservation District	Phosphorus	105812
G0500175	King County Conservation District - Snoqualmie Watershed Agricultural Assistance Team (SWAAT)	Phosphorus	162
G0600092	(LR) - Finney Creek Temperature Reduction - Skagit Fisheries Enhancement Group	Phosphorus	1
G0600123	(LR) - South Fork Nooksack Tributaries Restoration - Nooksack Salmon Enhancement Assoc.	Phosphorus	8
G0600339	Thurston/Mason Equine Outreach & Education - Thurston Conservation District	Phosphorus	314
G0700042	(LR) - White Salmon Landowners for Clean Water - Underwood Conservation District	Phosphorus	261
G0700094	(LR) - Cow Creek Implementation Phase II - Adams Conservation District	Phosphorus	0
G0700126	Little Bear Pollution Identification/Correction - Adopt-A-Stream Foundation	Phosphorus	0
G0700145	Livestock Implementation Project - Lincoln County Conservation District	Phosphorus	16
G0700167	Palouse River Implementation Project "B" - Adams Conservation District	Phosphorus	9858
WA0604	TMDL Development and Implementation	Phosphorus	4
WA-08-02	Riparian Fencing and Planting Crew - WA Dept of Ecology	Phosphorus	0
Sedimentation-Siltation			
State Project Number	**Project Title**	**Pollutant Name**	**Current Estimate**
C0600178	(LR) - WeedSeeker Spray System Program - Benton Conservation District	Sedimentation-Siltation	2336

Sedimentation-Siltation cont.			
C0700052	Low-Impact Development and Backyard Conservation Pilot Project: Whidbey Island Conservation District	Sedimentation-Siltation	0
C0700112	(LR) Spokane Stormwater Bio-infiltration Swale and Water Wise Landscape Demonstration Project	Sedimentation-Siltation	0
G0400139	(LR) - Animal Waste Management Campaign - Snohomish County Public Works	Sedimentation-Siltation	142
G0400198	(LR) - Progressive Drainage District Riparian Restoration - Whatcom County Public Works	Sedimentation-Siltation	5
G0400317	(LR) - Rill Irrigated BMPs - South Yakima Conservation District	Sedimentation-Siltation	1600
G0400371	(LR) - Adopt-A-Stream Foundation - McAleer/Lyon Creek Pollution Reduction	Sedimentation-Siltation	0
G0500040	(LR) - Adopt-A-Stream - North Creek Pollution Identification and Correction Project	Sedimentation-Siltation	0
G0500073	Kittitas TMDL Support and Monitoring - Kittitas Reclamation District	Sedimentation-Siltation	0
G0500095	(LR) - Nookachamps Basin Riparian Restoration - Skagit Fisheries Enhancement Group	Sedimentation-Siltation	43
G0500115	Garfield County Riparian Restoration Project - Pomeroy Conservation District	Sedimentation-Siltation	600
G0500116	(LR) - Tenmile Creek Watershed Restoration Project - Nooksack Salmon Enhancement Association	Sedimentation-Siltation	2
G0500117	Palouse Watershed Riparian Restoration Project	Sedimentation-Siltation	0
G0500142	Okanogan Conservation Technical Assistance - Okanogan Conservation District	Sedimentation-Siltation	15291
G0500175	King County Conservation District - Snoqualmie Watershed Agricultural Assistance Team (SWAAT)	Sedimentation-Siltation	1
G0600092	(LR) - Finney Creek Temperature Reduction - Skagit Fisheries Enhancement Group	Sedimentation-Siltation	2
G0600123	(LR) - South Fork Nooksack Tributaries Restoration - Nooksack Salmon Enhancement Assoc.	Sedimentation-Siltation	1
G0600283	(LR) - Little Klickitat TMDL Implementation Project - Central Klickitat Conservation District	Sedimentation-Siltation	720
G0600339	Thurston/Mason Equine Outreach & Education - Thurston Conservation District	Sedimentation-Siltation	13
G0600364	Bonaparte Creek Implementation - Okanogan Conservation District	Sedimentation-Siltation	2618
G0700042	(LR) - White Salmon Landowners for Clean Water - Underwood Conservation District	Sedimentation-Siltation	499
G0700094	(LR) - Cow Creek Implementation Phase II - Adams Conservation District	Sedimentation-Siltation	0
G0700126	Little Bear Pollution Identification/Correction - Adopt-A-Stream Foundation	Sedimentation-Siltation	0

Sedimentation-Siltation cont.			
G0700145	Livestock Implementation Project - Lincoln County Conservation District	Sedimentation-Siltation	18
G0700165	Matching Proj: Pine Creek Enhancement Phase 2 - Eastern Klickitat Conservation District	Sedimentation-Siltation	64
G0700167	Palouse River Implementation Project "B" - Adams Conservation District	Sedimentation-Siltation	1453
G0700198	Little Klickitat Enhancement - Central Klickitat Conservation District	Sedimentation-Siltation	140
WA0604	TMDL Development and Implementation	Sedimentation-Siltation	17
		Sum:	25566

Chapter 3:
New Initiatives

During 2007, Ecology started to refocus its nonpoint work and to change many business practices to make our programs more effective. As with many changes, this has been a slow and sometimes difficult process.

For instance, up until the last couple of years, our focus in the TMDL program was to produce TMDLs as quickly as possible so we could meet the numbers required in the TMDL lawsuit settlement agreement. In many ways, at least at first, this was a good strategy because we became proficient at TMDL production. It also worked well because many of the early TMDLs addressed waters with point source discharges, and we could fairly easily implement those TMDL waste load allocations through NPDES permits.

However, in more recent years, our TMDLs have begun to address watersheds in which all the pollutants are generated by nonpoint sources. Many of these TMDLs have taken a very long time to complete, have been very expensive and at the end, the solutions proposed are the same ones we've proposed in other nonpoint TMDLs for the same pollutant. This has led us to re-think whether doing a TMDL is always the best strategy to get to clean water when most of the problems in the watershed are from nonpoint pollution, or whether there might be a quicker, more effective strategy.

Based on these kinds of observations of how our programs are working, we are taking some new directions.

1. While this should be obvious, it needs to be explicit—our overall goal is to get to clean water. This means that when we sit down each year to decide how to deal with Category 5 listings, we consider an array of solutions, including using enforcement, trying a "straight to implementation" strategy, going directly to source identification without setting load allocations, or doing either a "streamlined" or conventional TMDL.
2. When we do choose to do a TMDL, we want it to be a true tool and we want people to pay attention to our findings and to use them. To help accomplish this, we are working on revising State Environmental Policy Act (SEPA) guidance to require that TMDLs are considered during SEPA review. We are also revising our TMDL templates to add language that makes it clear that Ecology's TMDLs, including nonpoint TMDLs, are enforceable under state law.
3. We are focusing our nonpoint program on producing results, so we are placing more emphasis on implementation. Our 319 grant from EPA will be directed more and more toward on-the-ground best management practices that will have a measurable water quality benefit. We requested and received funding during the last legislative session to add eight staff people who will work specifically on implementing TMDLs and related clean water strategies, although hiring for these positions has been delayed because of a subsequent budget cut. Our Eastern

Regional Office established a program to address livestock related water quality problems.

4. We are working to capture the knowledge we've gained from doing nonpoint TMDLs and to use it to establish minimum standards for various land uses that generate nonpoint pollution. The idea is that we already know the array of BMPs we need for most land uses, so a traditional TMDL does not inform the implementation effort. The strategy is to establish the minimum nonpoint standards, consider lands that have implemented the nonpoint standards to be in compliance with state water quality standards, the state's Water Pollution Control Act, and the Clean Water Act unless we find out otherwise, and then to monitor in those watersheds where this strategy is in place, and fine-tune the BMPs as needed.
5. Finally, we are examining the state's forest practice rules to evaluate their ability to effectively protect water quality. This includes a review of the 2000 Washington Forest Practice rules and accompanying alternative plan rules, Habitat Conservation Plans (HCPs), and Road Maintenance and Abandonment Plans.

We believe that this array of strategies gives us many tools to use to get to clean water and that it will help us to be more successful in the future. Our new initiatives are described in more detail in the following sections.

Merging the Nonpoint and TMDL Programs

The Watershed Planning Unit in Ecology's Water Quality Program is responsible for oversight of both the TMDL and Nonpoint Programs. However, for many years, various staff in the unit was assigned to small segments of one or the other program and generally did not work together and did not view their work as related. This led to inconsistent decisions about the appropriate best management practices to use, and sometimes sent conflicting messages to our stakeholders and the regulated community. As our focus turned more and more toward nonpoint pollution and as more and more of our TMDLs began to address nonpoint problems, it became clear that this way of doing business was neither practical nor logical.

One change we made was to revise the templates for our TMDLs and their related implementation plans to include the nine key elements of a watershed plan, as outlined in the 319 program. In addition, during the past year, we have been working to create an integrated team in which each member understands both the TMDL and the Nonpoint Programs and understands how both can be used as tools. This is a change that is invisible to anyone outside our agency, yet it is an important one. By using the intelligence and energy of the team to look at whole programs, we have been able to create new strategies and to implement both programs more effectively. We are also able to deliver consistent messages about what actions are needed to address nonpoint pollution sources, whether they are in an urban, forested, or agricultural environment.

Using the Right Strategy to Get to Clean Water

When Ecology set up its TMDL program, one of the key process pieces was an annual meeting held in each region to decide where we would initiate TMDLs during the next year. In 2007, we changed the focus of these meetings to be a discussion of the Category 5 listings in the region, a consideration of possible ways to solve the water quality problems, and a decision about what kind of approach would be most likely to achieve clean water. In many cases, we thought that a TMDL would be the best strategy, but we also decided to use other approaches in some watersheds. We expect that some of these alternative approaches will result in water quality improvements sooner. Some of those innovative approaches include going straight to source identification and remediation instead of first establishing load allocations, and using data collected by others to develop a "streamlined" TMDL.

The meetings themselves were quite interesting. It was a challenge to help people remember that they had more options than simply to do or not to do a TMDL. When people did realize that they had a much broader array of choices, they often got quite creative. Staff in the regional offices are well aware of the political and social issues in their watersheds, and were quite adept at deciding which clean water strategy would work best. As we try new approaches and learn from them, we hope to become more and more strategic and effective at solving water quality problems.

TMDL and SEPA Integration

The State Environmental Policy Act (SEPA), modeled after its national counterpart, NEPA, encourages decision makers to consider whether certain actions will cause "significant environmental impacts." In considering whether an action causes such an impact, lead agencies fill out a "checklist" according to Ecology guidance and training. However, neither TMDLs nor the 303(d) list have played a role in informing these decisions in the past.

Ecology's Watershed Planning Unit has been collaborating with the Shorelands and Environmental Assistance Program to integrate TMDLs into the SEPA process. Initially, we have developed a focus sheet and will be working on training and guidance to inform lead agencies that make determinations through the SEPA process. The focus sheet is posted on the Ecology website at http://www.ecy.wa.gov/programs/sea/sepa/e-review.html

The basic idea is that TMDLs provide scientific evidence that existing land uses are contributing to a violation of the water quality standards in a specific watershed. Essentially, a TMDL provides information about the existing condition—that there are at-risk systems that will be very sensitive to any additional impact no matter how small. This evidence can inform threshold determinations, scoping, and Environmental Impact Statement (EIS) development in the SEPA review process

If the action under review is known to generate the pollutant studied in the TMDL, then the project may have a significant adverse environmental impact. This is because the water studied in the TMDL is already exceeding its pollution limits, and therefore, unless the TMDL has established an allocation for growth, the water body cannot legally receive any more of the pollutant.

New contributions of the pollutant will violate the water quality standards, further compromise the natural system's ability to function, impede its ability to recover, and continue to interfere with the water's protected uses. Therefore, any proposed land use that is likely to generate the pollutant should be presumed to have potential "significant impacts," justifying either a Mitigated Determination of Nonsignificance or a Determination of Significance.

Since most nonpoint pollution results directly from land use practices, we believe that having local planning departments consider TMDLs as part of the SEPA review for new development proposals could result in significant water quality protection.

New Implementation Staff and Funds

Ecology is now in the tenth year of producing TMDLs according to the TMDL lawsuit settlement agreement. As early as the fifth year, we had started to notice that the schedule was creating a backlog of TMDLs to implement. We had also observed that although in some watersheds there were active stakeholders willing to work on implementation, we had the best success in those watersheds in which we were able to maintain a continuous presence. Unfortunately, we are not able to do this consistently, given our limited TMDL staff and the need to keep producing new TMDLs to meet settlement agreement deadlines.

Although we knew it was only a start and would not cover nearly all we need for implementation, we made a budget request during the 2007 legislative session for new implementation staff. The specific request was for four new staff in the Water Quality Program, four new staff in the Environmental Assessment Program, and $200,000 per year for laboratory and analytical work. The Water Quality staff is to work on implementing TMDLs and on other implementation efforts. The Environmental Assessment staff is to monitor the effectiveness of what we've implemented and help to fine-tune implementation efforts. All new staff are to be placed in the regional offices.

The legislature did approve the budget request, and we are presently working to get the new positions filled. Unfortunately, the Water Quality program had a subsequent budget cut, which has delayed hiring for these positions and we may not be able to use all the FTEs for this purpose. The list of deliverables for the positions is described below. However, we are developing a more abbreviated list for the first year to account for the hiring delay.

- Identify implementation actions that have occurred by Water Quality management Area (WQMA), including TMDL, non-TMDL, grant and loan funded, and general and individual permits.
  - ✓ Figure out how to track these—TMDL database, spreadsheet, something else.
  - ✓ Promote implementation.
  - ✓ Be prepared to report on actual implementation costs.
- Work with Environmental Assessment Program to identify water bodies that are ready for more source identification or effectiveness monitoring—whatever will help us to implement more—get into adaptive management loop
- Develop a joint workplan at beginning of each calendar year with Environmental Assessment Program focusing on implementation. Environmental Assessment Program role is to provide monitoring feedback to help focus our implementation efforts.
- Reporting
  - ✓ How much implementation has been done, where is it?
  - ✓ Is the water better, worse, the same?
- Continuous improvement/maintenance
  - ✓ If the water isn't getting better, identify other actions we need to take. Work to get those actions implemented.
  - ✓ If the water is better, keep it better—make sure nonpoint BMPs are being operated and maintained properly, make sure permits are written to capture TMDL wasteload allocations.
  - ✓ Keep doing this over and over forever and ever

We believe that having staff specifically assigned to implementation will help us fulfill our commitment to get to clean water.

Refocusing the Direct Implementation Fund

The Department of Ecology developed the Direct Implementation Fund (DIF) after the first state nonpoint plan was approved by EPA in April 2000. This fund was available to state agencies that were members of the State Agency Nonpoint Work Group for projects that would implement the long list of strategies identified in Table 5.1 of the Nonpoint Plan. In theory, successful DIF projects would be activities that went beyond agency funded mandates, sought to maximize coordination of agency activities, and provided for collaborative opportunities. In 2008, Ecology reviewed the program and found that although DIF had funded some good projects, it was not really meeting the objectives of collaboration and going beyond agency mandates.

Based on the findings of its review, Ecology refocused DIF to support more localized, on-the-ground implementation. This will be accomplished in the following manner:

- Regional Ecology offices establish their top three priority nonpoint source water quality concerns. Priority concerns are roughly defined as: 1) identified sources

of nonpoint pollution causing the most significant harm to water quality; 2) water bodies that are identified as not meeting water quality standards and/or have a completed TMDL; 3) an actual ability to fix the problem, i.e., can implement the desired change and are ready to proceed.

- Each regional office is then responsible for putting BMPs on the ground to abate those identified sources of pollution.
- Regional offices have the choice between contracting with partners or purchasing materials directly to support implementation efforts.
- However, DIF must only be used for on the ground implementation—planning and Ecology salary are completely ineligible. Education and outreach are only eligible when accompanied by on-the-ground efforts to implement BMPs. Monitoring is only eligible when conducting short term source identification followed by immediate action, i.e., implementation or enforcement.
- Ecology will continue to follow 319 reporting protocols required by federal rules and guidance.

There are several notable components of the new DIF, which make it a unique, flexible, and efficient program. First, the new DIF is not a competitive grant program. This removes any financial burden associated with soliciting, rating, and ranking projects. Moreover, this ensures that projects funded are narrowly tailored to address actual agency priorities. Second, the program is flexible in the manner that it funds projects. For instance, in many situations the regional office can directly purchase implementation materials, thereby eliminating costly overhead and avoiding funds used as "soft" money to cover operating costs. It should be noted that materials are resources that will be used externally for on-the-ground change, and are not materials that will in any way benefit Ecology offices or staff. Third, it promotes honest relationship building with partners. This approach allows Ecology to respond to problems in a timely manner and participate with partners by providing resources that are addressing serious problems. In this manner, we need not wait for the answer to walk in the door, but instead can actively participate in the solutions to obvious nonpoint problems. Fourth, it leverages more on-the-ground change per dollar than traditional approaches.

Currently, this approach is only a pilot project, but nevertheless, we look forward to reporting excellent water quality benefits.

Best Management Practice Funding Eligibility

In 2007, Ecology developed a rule that authorized expanding the list of Best Management Practices eligible for funding under the Section 319 and Centennial Clean Water Fund grant programs. Subsequent to the rule development, Ecology developed guidance on how to expand the BMP eligibility list and what criteria to use to evaluate eligibility. In large part, the previous funding guidelines focused efforts solely on riparian protection and restoration. However, it was apparent that there was substantial public interest in making upland BMPs eligible.

In responding to public and state agency demands, Ecology was mindful of the fact that expanding the list of BMPs may redirect funds away from priority water quality problems and solutions. Moreover, it is an Ecology priority to fund the most effective and efficient solutions. Therefore, Ecology developed a process to ensure that grant-funded BMPs installed on public or private property provide a direct and demonstrable water quality benefit, are the most cost-effective solution for a water pollution problem, and promote agency priorities for achieving compliance with state water quality standards and the Clean Water Act. In doing so, Ecology is working internally to foster communication and collaboration between the Financial Management Section and Watershed Management Section of Ecology, so that our grant efforts are consistent with the goals of the Water Quality Program.

The BMP approval process allows interested parties to submit proposals to Ecology. Each submission must state the BMPs: purpose and applicability, demonstrated water quality benefit, potential to enhance water quality benefits of other BMPs, cost, statement of how it is a part of an established need, and any other reasons why the proposed BMP should become eligible for funding.

The submitted BMPs are then evaluated internally through a technical review process. The reviewer will conduct an analysis based upon existing research and experience to help make a determination of the water quality benefit at both the project and program levels. Reviewers also consider whether the BMPs applications are consistent with Water Quality Program priorities. And ultimately, whether the proposed BMP justifies reduced funding allocations for existing BMPs.

After a technical review the BMPs are forwarded to internal and external experts for comments. Finally, a complete summary of the review is submitted to the program management team for a final decision on whether the practice will become eligible for funding.

While this effort is somewhat time consuming, it ensures that Ecology will fund the most effective and efficient approaches as well as continue to target key problems with proven solutions.

2009 Review of State Forest Practices Rules

In 2000, Washington adopted new forest practices rules. The rules were intended to achieve compliance with state water quality standards and the Clean Water Act, and are essentially a set of best management practices to be used during timber harvest, road construction and maintenance, and other activities defined as forest practices. The rules apply to all state and private forest lands in Washington.

As part of the agreement that led to rulemaking, Ecology agreed to defer producing TMDLs for the watersheds covered by the forest practices rules, since the rules themselves were essentially a "straight to implementation" strategy. However, Ecology's willingness to defer TMDLs was predicated on implementation of a robust adaptive management program that would evaluate the effectiveness of the rules and result in rule changes when necessary to ensure water quality standards are met. In 2009, Ecology is scheduled to decide whether the TMDL deferral will be continued.

We are presently working on a strategy for the 2009 decision, which is going through internal review.

In the meantime, there are several other issues in the world of forest practices that we are working on.

Forest practices rules must be implemented properly for them to be effective in protecting water quality. The Washington Department of Natural Resources (DNR) with the assistance of staff from the Department of Ecology, the Department of Fish and Wildlife, and tribal governments assesses compliance with the state's forest practices rules. As part of the compliance monitoring program, the DNR prepares biennial compliance monitoring reports. These reports assess how well foresters are doing in complying with both the forest practices rules and the specific conditions of their approved forest practice applications (harvest plans). Data on compliance with specific provisions of the state rules (such as buffer widths, snags, leave tree requirements) are independently examined to provide a better understanding of what parts of the rules may be creating the greatest problems with non-compliance.

The compliance monitoring program is also being designed to allow the data to be examined by DNR region; however, as of the 2008 report there were still not sufficient monitoring visits in all of the regions to allow a region to region comparison. Such a comparison is needed to identify if there are inconsistencies in compliance between regions that need to be addressed. It is expected that a statistically sufficient sample will exist by the 2010 biennial report. Also expected by 2010 will be an assessment of compliance with the rules for 20 acre-exempt parcels (distinct harvest requirements exist for these parcels), and an initial assessment of whether or not alternate plans (site-specific harvest plans that may establish unique requirements) have adequate documentation on the basis for their approval.

Under the state's forest practice rules, landowners may propose alternate plans for harvesting timber. These alternate plans may establish unique requirements that recognize the specific situation at the site. Such plans must be approved by a multi-agency review team (called an ID team). Approved plans are to provide equal or greater protection for public resources as the standard forest practices rules would provide. The guidance supporting the ID team process directs teams to examine five specific riparian functions when making an assessment of whether or not the alternate plan provides equal or greater protection. These include shading, bank stability, woody debris availability and recruitment, sediment filtering, nutrients, leaf litter fall, and any other riparian features important at the site.

In many cases, alternate plans are trading off some short-term function for long-term function. An example would be thinning a stand to grow larger woody debris to assist in protecting the stream channel and to provide fish cover and habitat. The thinning may reduce shading in the short-term to help the trees grow to a larger size more quickly. About 80 alternate plans are approved each year. This is a very small percentage (perhaps less than one percent) of the total forest practice applications approved each year. They are a concern, however, because they occur in riparian areas and there is reason to suspect that the use of this program will increase over time. No study exists or is on the drawing board for determining the effectiveness of the alternate plan program.

Ecology will be raising this as an issue in meetings in early 2008 directed at establishing the schedule of priorities for forest research. This research would likely be completed by the Cooperative Monitoring, Evaluation, and Research (CMER) committee of the state's forests and fish program. The nature of trading different riparian functions over different time scales will make conducting this research particularly challenging. CMER also does not appear to have the capacity in the next 3-5 years to begin this work and it will be important for Ecology and other stakeholders to weigh where this research is as a priority along with other research questions.

Habitat Conservation Plans (HCPs) may be authorized by either the US Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS). These HCPs authorize the incidental take of federally listed threatened and endangered species. Such plans may establish forest management requirements and processes which differ substantially from the state's forest practices rules. Neither the USFWS nor the NMFS actually require that HCPs meet the state water quality standards, nor do these federal agencies require an examination of whether or not the HCPs meet state standards. To date it has been assumed that any approved HCPs would also ensure that the state water quality standards will also be achieved. Since the goal of the HCPs that cover aquatic resources is to restore natural functions, the general belief is that they would return systems to a naturally healthy state over time. No formal program, however, exists to examine if the HCPs in the state are protecting water quality and bringing degraded waters into compliance with the state's water quality standards. Additionally, many HCPs do not include any requirements for monitoring or testing the effectiveness of the required forest prescriptions, nor do most require that the prescriptions be revised based

on new information about what is needed to protect water quality and meet the state standards.

It takes from three to seven years to plan, conduct, and prepare a final report for field research. By its very nature, sound scientific research takes a significant amount of time and resources. However, almost ten years have passed without the forest and fish adaptive management program completing any of the studies Ecology needs to evaluate the effectiveness of the forest practice rules in protecting water quality. Studies which have been in the works for six-seven years remain threatened and stalled due to problems getting landowners to harvest them on schedule and to the specifications needed for the study. Ecology has been part of the forests and fish process and was part of the decision-making process for prioritizing scientific research. Ecology did not, however, anticipate all of the problems that would occur with following through with the needed research.

In addition to difficulty conducting field research in a timely manner, a lack of good communication between policy and technical staff on the resolution needed to answer critical questions has resulted in some studies being conducted that have not resulted in science-based solutions to disputed provisions of the forest practices rules. This has been unsatisfactory to all stakeholders, who are investing time and resources into the adaptive management process. Ecology is very concerned with the current state of the adaptive management program, and will be formally seeking some greater assurance that studies needed to determine the effectiveness of the rules in protecting water quality will proceed more expediently.

Ecology will also be seeking some greater assurance that results from completed studies will be translated into improved forest practices regulations in the shortest practical time. While Ecology is concerned, we are also optimistic that with the help of the other members of the forest and fish process these problems can be resolved. Beginning in early spring of 2008, Ecology will take part in a formal effort to review and revise as necessary the research priorities and will use this opportunity to seek across the board improvements to the adaptive management program and the interrelationship between the science and policy arms of the forests and fish process.

Road maintenance and abandonment plans. Roads are considered to be the greatest source of sedimentation to streams in forested watersheds. Poorly developed and maintained roads erode and transport sediment to streams and often times are a contributing factor to landslides entering streams. Under the forest practices rules, Road Maintenance and Abandonment Plans (RMAPs) have been developed by almost all of the large forest landowners in the state. These plans are aimed at ensuring that roads are either brought up to current standards or properly put to rest by restoring them to a more natural forest condition. The plans also include provisions for removing blockages to fish migration.

Landowners have formal schedules for bringing all of their roads into compliance by 2016, and a formal program of oversight exists to monitor that progress. Small forest landowners are not required to develop RMAPs, but are still to bring their roads up to the

same high standards as the large forest landowners by 2016. The Washington State DNR will be providing an update on the progress of these small forest landowners to the legislature in 2008 to allow the legislature to consider if the program is working. In addition to bringing the roads up to current standards for road construction to minimize their contribution of sediment to streams, the forests and fish adaptive management program is conducting studies that are testing the effectiveness of those new road standards to ensure they are adequate to protect water quality.

Septic System Rules

New on-site sewage system rules for Washington became fully effective July 1, 2007. These rules require regular system inspection. Inspections are required every three years for systems with only a septic tank and gravity distribution system; annual inspections are required for all other systems.

The new rules allow local health departments to require the use of nitrogen treating systems by designating areas where the health department has determined that nitrogen is a contaminant of concern.

The rules require local health jurisdictions in the 12 Puget Sound counties to develop local on-site management plans that specify how they will:

1. Develop and maintain an inventory of all systems.
2. Identify areas where systems pose increased risk such as,
    a. Shellfish protection districts or growing areas.
    b. Sole Source Aquifers.
    c. Critical aquifer Recharge areas.
    d. Wellhead protection areas.
    e. Up-gradient areas influencing water recreation.
    f. Special protection areas.
    g. Wetland areas producing crops for human consumption.
    h. Areas where nitrogen is a contaminant of concern.
    i. Other designated areas.
3. Identify operation, maintenance and monitoring requirements based on risk.
4. Have a home owner education program.
5. Maintain records.
6. Develop Marine Recovery Area Plans in areas where on-site sewage systems are impacting Marine Water Quality.

These plans are currently being submitted for Department of Health approval and will be implemented in the near future.

Chapter 4:
A "Straight to Implementation" Success Story

In 2001, the Department of Ecology's Eastern Regional Office established a livestock and water quality program that uses a unique collaborative approach to address livestock-related problems. Instead of using the standard process that starts with a Category 5 listing on Washington's Water quality Assessment, establishing a TMDL for the stream, writing an implementation plan, and finally getting to actual implementation, this strategy goes straight to implementation. The strategy is applied in watersheds in which the cause of a water quality impairment is clear.

Ecology encourages implementation of a wide variety of best management practices. However, a primary focus of the program has been to restore degraded riparian corridors and eliminate unlimited animal access to streams. Healthy riparian areas can improve water quality and stream health in multiple ways, which make them a particularly valuable and cost-effective management practice. Healthy riparian areas:

- Slow bank erosion by holding soil in place during periods of high water.
- Reduce flood damage and sedimentation by slowing runoff and capturing the sediment that would otherwise be carried downstream.
- Help keep water cool in summer by shading the stream.
- Improve water quality by capturing sediment, nutrients, pesticides, pathogens, and other pollutants before they reach the stream.
- Enhance summer stream flow by improving water infiltration and storage.
- Create fish and wildlife habitat.
- Limit livestock manure inputs to the creek and riparian areas.

Ecology teams with conservation districts, local governments, and landowners to provide technical assistance and funding for implementation of best management practices. Ecology uses a traditional regulatory process only when collaborative efforts fail.

The result of these partnerships has been the implementation of best management practices at hundreds of sites where water quality and fish habitat issues exist. By using a collaborative strategy, backed up be enforcement when necessary, Ecology has been able to create relationships and build trust with rural residents while improving water quality. The primary management practice used is fencing cattle out of the riparian area and planting native trees and shrubs to restore the riparian corridor to a more natural condition. However, the work being done is not limited to the riparian corridor. Cattle producers are also working to improve overall range health. By cross fencing rangeland and placing water tanks in strategic locations, ranchers can ensure that livestock utilize more of their range. Many of them are also beginning to use conservation tillage techniques, which should help to reduce sediment delivery to streams.

Since the riparian buffers were installed, native vegetation is returning and water quality monitoring data indicate that water quality is improving in most streams. In addition, many landowners have been pleasantly surprised with the on-the-ground results. While they point out that water quality and fish habitat projects create some new management challenges, they have also observed some exciting economic benefits to their operations. By providing off-stream water in strategic locations, livestock are now better dispersed throughout their range. This has resulted in healthier grasses and better forage. In turn, animals are typically more robust and healthy, and the amount of supplemental feed needed during the year is reduced. One Couse Creek landowner told Ecology, "Since we implemented these projects we have stands of grass I have never seen before. The stream corridor looks healthier than it did three years ago."

This year for the first time, Ecology is proposing to place a total of 47 Category 5 listings into Category 4b of Washington's Water Quality Assessment based on the work of Ecology's Livestock and Water Quality Program. The impairments being addressed by the program include 17 temperature listings, 12 fecal coliform listings, 11 dissolved oxygen listings, and 7 pH listings. We are projecting that the five watersheds in which the program has been most active will achieve compliance with state water quality standards by 2017.

Chapter 5:
Where Do We Go From Here?

Ecology will stay focused on getting to clean water, and will continually evaluate and improve the nonpoint program as we learn what works and what doesn't. We are implementing our effectiveness monitoring program, and have already produced some final reports.

Post project or effectiveness monitoring is conducted to verify that the pollutant controls result in the water body improving or meeting water quality standards. It also tests the outcomes of watershed management plan implementation and other watershed-based cleanup efforts to determine effectiveness of the nonpoint source management programs. In addition, we measure the effectiveness of selected implementation activities and unique BMPs.

The location of implementation activities is compiled by WQP staff in cooperation with local entities. When Ecology determines that enough implementation has been completed to cause a change in water quality that could lead to achievement of standards, or when recommended implementation is completed, screening level monitoring is initiated to gauge the timeliness of an effectiveness monitoring effort.

Once significant progress in implementation is documented, WQP staff and community participants identify which projects are ready for effectiveness monitoring. The effectiveness monitoring evaluation determines if the targets are being met, how much water quality has improved, and what may still need to be done to achieve targets and water quality standards for the target parameters.

Recently completed effectiveness monitoring projects include reports on the Skokomish River Bacteria TMDL, Willapa River Bacteria TMDL, Dungeness River Bacteria TMDL, Snoqualmie River Bacteria, Dissolved Oxygen, Ammonia and pH TMDL and the Lake Ballinger Phosphorous TMDL. These recent effectiveness monitoring projects inform decisions related to:

- Follow-up monitoring and modeling.
- Stakeholder involvement and modifications to implementation plans.
- Feedback to improve restoration techniques.
- Cost-effectiveness of remedies and options.
- Progress toward achieving water quality targets and WQS.

In 2010, we will update the nonpoint plan. At this time, our plan is to make it a much more focused and strategic document. Instead of describing programs that are already in place, as the plan does now, the updated plan will be more about what we want and need to do. As much as possible, it will be an actual plan to get things done with deadlines to meet.

We anticipate that the new and improved tools we've developed will help us to be more effective in addressing nonpoint pollution. We expect to have many successes to report in subsequent 319 annual reports.

Appendix: Table 1. Actions to Manage Nonpoint Pollution in Washington State (2005—2010)

Objectives to be fulfilled (See Chapter 3)	**Through these Agriculture Activities**	**Lead Entity--** Cooperators	**Measurable Outcome**	**Major Program Linkage**
Focus funding on most effective strategies	Ag 2: Expand well water protection funding and prioritize technical support and compliance inspections to agricultural producers.	**WSDA** Ecology		
Restore and maintain habitats	Ag 3: Continue to refine and update regulatory program for pesticide applications.	**WSDA,** ECY		Puget Sound Plan, PS-2
Restore and maintain ecosystems	Ag 4: Provide technical assistance on proper use of pesticides to ensure compliance with pertinent regulations.	**WSDA**		Puget Sound Plan, PS-2
Restore and maintain ecosystems	Ag 5: Continue to research, develop, test, and evaluate agricultural best management practices. *Ecology is actively evaluating agricultural BMPs to determine those that are most effective in protecting water quality.*	WSU Ecology	Reductions in sediment	
Support sustainable human communities	Ag 6: Actively engage producer groups in implementing new best management practices. *Ecology's Eastern Regional Office is working with farmers to restore and protect entire watersheds affected by grazing and other farming practices.*	**CC,** WSU ECY	Reductions in sediment	Puget Sound Plan, PS-1
Focus funding on most effective strategies	Ag 7: Continue to implement the Conservation Reserve Enhancement Program and look for O&M solutions.	**CC**	Reductions in sediment	
Focus funding on most effective strategies	Ag 8: Use SRF low interest loans to help agricultural commodity groups with development and installation of BMPs that address water pollution, air pollution, and water use.	**ECY**		Puget Sound Plan, AG-1
Teach about connections	Ag 9: Provide outreach and education to the agricultural community on riparian area function and management related to agricultural land uses. *This is part of the work being done by Ecology's Livestock and Water Quality Program.*	**WSU** ECY		Puget Sound Plan, MFH-1

Objectives to be fulfilled (See Chapter 3)	**Through these Agriculture Activities**	**Lead Entity--** Cooperators	**Measurable Outcome**	**Major Program Linkage**
Support sustainable human communities	Ag 10: Implement the Irrigation Efficiencies program statewide.	**CC**	Reduction in sediment	
Teach about connections	Ag 11: Implement the IPM certification program statewide.	**WSU,** WSDA	# of new operators certified	Puget Sound Plan, PS-2
Teach about connections	Ag 12: Implement an education and outreach program related to whole farm Phosphorus balance, the Phosphorus Index, and feeding management.	**WSU,** CC, WSDA	Number of agricultural landowners served. Number of workshops offered	
Teach about connections	Ag 13: Develop environmental marketing pilot project to get agricultural producers to implement BMPs.	**WSU,** ECY, CC		

Objectives to be fulfilled(See Chapter 3)	**Through these Forestry Activities**	**Lead Entity--** Cooperators	**Measurable Outcome**	**Major Program Linkage**
Restore and maintain habitats	For 1: Implement the forest practices rules that pertain to water quality protection. Rules are being implemented. *Ecology is participating in the adaptive management program and has several field foresters who help ensure rules are implemented on the ground.*	**DNR,** ECY, WDFW, WSDA	Improve water quality in forested habitats; effective compliance; monitoring and enforcement	Salmon Strategy, For-1
Preserve natural ecosystems	For 3: Continue to implement a state Forest Riparian Easement Program (FREP) to allow timber leases for conservation purposes. *On-going.*	**DNR**	Number of acres	
Sustain biodiversity	For 4: Continue to implement the family forest fish passage program. *On-going.*	**DNR**	Number of culverts replaced	

Objectives to be fulfilled(See Chapter 3)	**Through these Forestry Activities**	**Lead Entity--** Cooperators	**Measurable Outcome**	**Major Program Linkage**
Support sustainable human communities	For 6: Carry out functions of the Small Forest Landowners Office that relate to water quality protection. *On-going*	**DNR**	Number of small forest landowners served.	Puget Sound Plan, FP-3 Salmon Strategy, For-4
Teach about connections	For 7: Educate small forest landowners on water quality and ESA issues, and new RMAP rules. *On-going.*	**DNR,** WSU, UW, Parks, NRCS, WDFW ECY	Number of small forest landowners served; Number of workshops offered	Salmon Strategy, For-10
Focus funding	For 8: Continue to implement the forest land enhancement program to family forest owners. Provide cost-share funding and education on erosion control, water quality, wetlands, and fish habitat protection. *On-going.*	**DNR**	Reduction in sediment; improved fish habitat and wetland protection	Salmon Strategy, For-10
Focus funding	For 9: Use SRF low-interest loans to help small forest landowners with implementing BMPs required by the forest practices act.	**ECY,** DNR		Salmon Strategy, For 10,11
Teach about connections	For 10: Field foresters continue providing technical assistance to landowners and tribes, and provide enforcement ability. *On-going.*	**ECY**		
Restore and maintain habitats	For 11: Continue participation in forest practices adaptive management program. *On-going.*	**ECY**		
Focus funding	For 12: Expand the urban community forestry program to meet current requests for assistance from local governments.	**DNR, cities**	Number of communities with urban forestry programs served	

Objectives to be fulfilled (See Chapter 3)	**Through these Urban and Suburban Activities:**	**Lead Entity--** Cooperators	**Measurable Outcomes**	**Major Program Linkage**
Support sustainable human communities	Urb 1: Continue to provide road maintenance guidelines and technical assistance to local communities.	**WSDOT**, ECY		Puget Sound Plan, SW-3
Support sustainable human communities	Urb 2: Continue to promote low impact development to Washington communities through assistance, research, and demonstration projects, and by providing assistance to revise existing ordinances and development standards to allow for low impact development.	ECY, WSU	Number of local governments with ordinances that allow for or encourage LID	Puget Sound Plan, SW-1
Restore and maintain habitats	Urb 3: Continue to manage runoff from state highways using the updated highway runoff manual.	**WSDOT**		Puget Sound Plan, SW-4
Support sustainable human communities	Urb 4: Identify and participate in a low impact project and research the applicability of low-impact techniques to regional hydrogeology, soils, and climactic conditions.	CTED, ECY	Credits for LID techniques updated in Ecology stormwater manual	Puget Sound Plan SW-1
Restore and maintain habitats	Urb 5: Develop methods and procedures for watershed-based runoff, streamflow, and water quality mitigation measures, with a goal of resource recovery in place of patchwork, incremental mitigation as practiced in the past.	WSDOT		Puget Sound Plan SW-1
Preserve natural ecosystems	Urb 7: Update guidelines and models for consideration by counties and cities on inclusion of Best Available Science and giving special consideration to salmon conservation in their local GMA Critical Areas Ordinances.	**CTED**		Puget Sound Plan MFH-2
Support sustainable human communities	Urb 8: Continue to research stormwater technology design, cost benefit and know-how to effectively address stormwater problems. Educate to key audiences about new findings, etc. *On-going.*	**ECY**		Puget Sound Plan SW-7

Objectives to be fulfilled (See Chapter 3)	**Through these Urban and Suburban Activities:**	**Lead Entity--** Cooperators	**Measurable Outcomes**	**Major Program Linkage**
Support sustainable human communities	Urb 9: Educate key audiences in the best available science in Pacific Northwest stormwater management and low impact development techniques.	**WSDOT,**WSU ECY, WDFW	Number of local governments assisted. Number of developers and consultants served.	Salmon Strategy, Rea-4 Puget Sound Plan, SW-3
Support sustainable human communities	Urb 10: Promote adoption of Ecology's stormwater manual and other elements of a comprehensive stormwater program.	**ECY**	Number of local governments adopting manual	Puget Sound Plan, SW-2.4
Preserve natural ecosystems	Urb 11: Assess the impacts of urban and highway stormwater runoff on the quality of tideland, shoreland, and bedland sediments as well as biological resources and habitat, with particular emphasis on urban embayments in Puget Sound.	**DNR**, ECY, DOH, Sea Grant, WDFW	Number of acres impacted.	Puget Sound Plan SW-4
Teach about connections	Urb 12: Support local health jurisdictions in developing an effective education program on the importance of properly maintaining on-site systems and how to do that.	**DOH**		Puget Sound Plan, OS-2
Support sustainable human communities	Urb 13: Continue to work on the rule development process leading to adoption of new and revised rules by the Washington State Board of Health for on-site sewage systems up to 3500 gallons per day. *New legislation adopted this year will help accomplish this goal.*	**DOH**, ECY	Final rule	Puget Sound Plan, OS-1
Support sustainable human communities	Urb 14: Continue to work on the rule development process leading to adoption of new and revised rule large on-site sewage systems over 3500 gallons per day by the Washington State Board of Health. *Completed.*	**DOH**, ECY	Final rule	Puget Sound Plan, OS-1
Focus funding	Urb 15: Continue to review and oversee the planning, design, construction, and operation of large on-site systems. *On-going.*	**DOH,** ECY		Puget Sound Plan, OS-4
Focus funding	Urb 16: Assist further development of local health districts' capacity to manage their on-site sewage system inventory with electronic databases.	**DOH**	Number of local health districts with GIS capacity for managing OSSS	Puget Sound Plan, OS-2

Objectives to be fulfilled (See Chapter 3)	**Through these Urban and Suburban Activities:**	**Lead Entity--** Cooperators	**Measurable Outcomes**	**Major Program Linkage**
Focus funding	Urb 17: Test innovative approaches for providing funds to homeowners to repair failing on-site systems.	**DOH**	% reduction of nutrients by tested units	
Focus funding	Urb 18: Inventory, prioritize, and repair failing on-site septic systems owned by Washington State Parks.	**Parks**	Number of systems repaired	
Teach about connections	Urb 20: Develop educational activities necessary for implementing new and revised rules for on-site sewage systems up to 3500 gallons per day.	**DOH**	Number of people trained	
Focus funding	Urb 21: Develop and share technical and administrative guidance to assist local health jurisdictions in the development and implementation of risk-based management plans.	**DOH**		Puget Sound Plan, OS-2
Preserve natural ecosystems	Urb 22: Develop pilot program to address water quality violations associated with on-site sewage systems in sensitive areas.	**ECY,** DOH		

Objectives to be fulfilled (See Chapter 3)	**Through these Recreational Activities**	**Lead Entity--Cooperators**	**Measurable Outcomes**	**Major Program Linkage**
Preserve natural ecosystems	Rec 1: Continue to implement the comprehensive boat sewage management plan for Washington State. *On-going.*	**Parks**	Reduction in F. coliform	Puget Sound Plan, MB-3
Focus funding	Rec 2: Help fund local health districts to address pollution problems identified by the BEACH Program.	**DOH**	Reduction in F. coliform	
Restore and maintain degraded ecosystems	Rec 3: Continue to implement the beach monitoring and notification program for recreational marine waters contaminated with nonpoint source pollution. *On-going.*	ECY, DNR, DOH		
Teach about connections	Rec 4: Fund education to prevent small oil spills and for citizen responses to oil spills.	**ECY**		Puget Sound Plan, MB-4 and SP-4

Objectives to be fulfilled (See Chapter 3)	**Through these Recreational Activities**	**Lead Entity--Cooperators**	**Measurable Outcomes**	**Major Program Linkage**
Preserve natural ecosystems	Rec 5: Assess the impact of nonpoint source pollution on nearshore marine vegetation with specific emphasis on the impacts of urban stormwater.	**DNR,** ECY, Sea Grant, WDFW	Identify key factors related to nonpoint pollution and loss of nearshore aquatic vegetation.	
Restore and maintain degraded ecosystems	Rec 6: Sample a cross-section of marinas in different physical settings around the state to determine if water quality standards are being met during peak use periods of the summer.	**DNR**, ECY, DOH, Sea Grant	Number or percentage of marinas meeting water quality standards.	
Restore and maintain degraded ecosystems	Rec 7: Assess the impacts of urban and highway stormwater runoff on the quality of tideland, shoreland and bedland sediments with particular emphasis on urban embayments in Puget Sound.	**DNR,** ECY, DOH, Sea Grant, WDFW	Number of acres of tidelands, shorelands and bedlands impacted by urban stormwater and highway runoff.	

Objectives to be fulfilled (See Chapter 3)	**Through Habitat Alteration activities.**	**Lead Entity-** Cooperators	**Measurable Outcome**	**Major Program Linkage**
Restore and maintain degraded ecosystems	Hab 1: Prioritize and coordinate restoration projects on a watershed basis. *Ecology does this through the annual process during which it identifies watersheds for which we will do TMDLs or start implementation projects.*	ECY, WDFW	Miles of riparian areas restored	Puget Sound Plan, MB-4 and SP-4
Sustain biodiversity	Hab 2: Provide critical information, technical guidance, and maps to support local governments' revisions to their Critical Areas Ordinances.	CTED, WDFW		Puget Sound Plan, MFH-1
Sustain biodiversity	Hab 3: Provide outreach and educational materials on the aquatic habitat guidelines.	**WDFW,** ECY, WSDOT	Number of workshops	Puget Sound Plan, MFH-2
Sustain biodiversity	Hab 4: Train local, state, and tribal staff on aquatic habitat guidelines.	**WDFW**, ECY, WSDOT	Number of staff trained	Puget Sound Plan, MFH-2
Teach about connections	Hab 5: Continue to develop and disseminate educational materials in multi-media formats on the benefits and methods of riparian restoration.	**WDFW**, ECY		Puget Sound Plan, MFH-2
Restore and maintain degraded ecosystems	Hab 6: Develop additional needed aquatic habitat guidelines (e.g. stream crossings, marine shorelines protection, marine habitat restoration, treated wood, etc.)	**WDFW**, ECY, WSDOT		
Restore and maintain degraded ecosystems	Hab 7: Continue to implement the Puget Sound wetland restoration program.	**ECY**	Acres of wetlands restored	Puget Sound Plan, MFH
Sustain biodiversity	Hab 8: Develop wetland guidance documents based on the best available scientific information for use by local governments in developing wetland protection regulations under the GMA and the SMA.	**ECY**, CTED		
Sustain biodiversity	Hab 9: Conduct wetland training workshops for local governments to assist them in implementing local wetland regulatory programs.	**ECY**	Number of workshops	
Preserve natural ecosystems	Hab 10: Develop new guidance on wetland mitigation plans.	ECY		
Focus funding	Hab 11: Develop a compliance tracking and enforcement program for agency permitted wetland mitigation projects.	**ECY**		

Objectives to be fulfilled (See Chapter 3)	**Through Habitat Alteration activities.**	**Lead Entity-** Cooperators	**Measurable Outcome**	**Major Program Linkage**
Preserve natural ecosystems	Hab 12: Prevent, control, and monitor the spread of aquatic nuisance species and increase the capacity of watershed groups to do the same.	**WSDA,** ECY, WSU, Parks, WDFW, DNR	Reduction in areas where nuisance species exist	Salmon Strategy, Lan- 13 Puget Sound Plan, ANS-3
Support sustainable human communities	Hab 13: Provide technical assistance and education to support Shoreline Master Program updates. *On-going.*	**ECY**		Puget Sound Plan, MFH-2
Teach about connections	Hab 14: Provide technical assistance to local governments on functions and processes of nearshore habitat.	**ECY**		Puget Sound Plan, MFH-2
Restore and maintain degraded ecosystems	Hab 15: Develop a strategy to remove creosote logs from public and state beaches, wetlands, and parks.	**Parks**	Number of logs removed	
Restore and maintain degraded ecosystems	Hab 16: Assess the impacts of nonpoint source pollution on nearshore marine vegetation with specific emphasis on the impacts of urban stormwater.	**DNR**, ECY, Sea Grant, WDFW	Acres of nearshore habitat loss	Puget Sound Plan MFH-1.4
Preserve natural ecosystems	Hab 17: Find a volunteer watershed planning community to begin the task of identifying conservation targets for maintaining biological diversity within an aquatic ecological system.	**ECY,** CTED, WDFW, IAC		
Restore and maintain degraded ecosystems	Hab 18: Provide WCC crews in each Ecology region.	**ECY**		

Objectives to be fulfilled (See Chapter 3)	**Through these Educational Activities:**	**Lead Entity—** Cooperators	**Measurable Outcomes**	**Major Program Linkage**
Teach about connections	Ed 1: Organize a biennial conference on nonpoint pollution. *Most recent conference was held in November 2007.*	**WSU,** ECY		
Teach about connections	Ed 2: Continue to develop, upgrade, enhance environmental learning centers across the state.	**Parks**		Puget Sound Plan, EPI-3
Teach about connections	Ed 4: Continue implementing the Columbia Watershed Curriculum.	**ECY,** WSU	Number of students participating	
Teach about connections	Ed 5: Continue to implement the Chehalis Basin Education and Consortium Water Quality Monitoring Program.	**ECY,** WSU	Number of students participating	
Teach about connections	Ed 6: Introduce and support Master Watershed Steward Programs across the state.	**WSU**, ECY	Number of individual served; Number of workshops offered	
Teach about connections	Ed 7: Develop and implement statewide training programs for the public and specific interest groups, such as real estate professionals, conservation district staff, planners, watershed group members, developers, and agriculture professionals.	**WSU,** ECY**,** WDFW, WSDOT, Parks	Training developed and presented	Salmon Strategy, Edu-6
Support sustainable human communities	Ed 8: Support existing community outreach programs to help reach TMDL goals. *On-going.*	**WSU,** ECY	Number of volunteers trained. Number of hours volunteered.	
Teach about connections	Ed 10: Develop water quality outreach programs to minority populations.	**ECY**		Puget Sound Plan, EPI-1.5
Teach about connections	Ed 11: Develop and present water quality education in classrooms and events as requested.	**ECY,** WSU	Number of students	

Objectives to be fulfilled (See Chapter 3)	**Through these Educational Activities:**	**Lead Entity—** Cooperators	**Measurable Outcomes**	**Major Program Linkage**
Teach about connections	Ed 12: Educate and engage the public in activities to correct and prevent nutrient pollution in Hood Canal.	WSU	Number of people attending activities	Puget Sound Plan, EPA-1
Focus funding	Ed 13: Support building local capacity for public education on water quality.	ECY, WSU		Puget Sound Plan, EPI-1
Support sustainable human communities	Ed 14: Develop a water quality component for the continuing education program for local officials.	**CTED,** ECY, DNR, WSU, Parks	Number of workshops	
Teach about connections	Ed 15: Implement Healthy Water/Healthy People curriculum.	**ECY,** WSU,	Number of students	

Objectives to be fulfilled (See Chapter 3)	**Through these General Program Activities** *Programs that have multiple impacts or are administrative in nature*	**Lead Entity—** Cooperators	**Measurable Outcome**	**Program Linkage**
Support sustainable human communities	Gen 2: Continue to promote local watershed planning and implementation. *On-going.*	**ECY**	Number of watershed-based plans supported under this plan	Puget Sound Plan, WP-6
Restore and maintain degraded ecosystems	Gen 3: Continue to develop TMDLs and detailed implementation plans to address waters impacted by nonpoint source pollution. *On-going.*	ECY	Number of TMDLs developed	Puget Sound Plan, NP
Restore and maintain degraded ecosystems	Gen 5: Continue to emphasize lake and watershed management planning to address nutrient and sediment enrichment, and de-emphasize the use of chemicals for pest control. *On-going.*	**ECY**	lbs of nutrients removed	
Restore and maintain degraded ecosystems	Gen 6: Implement the Yakima River Sediment Reduction Plan.	**ECY**	Tons of sediment reduced	

Objectives to be fulfilled (See Chapter 3)	**Through these General Program Activities** *Programs that have multiple impacts or are administrative in nature*	**Lead Entity—** Cooperators	**Measurable Outcome**	**Program Linkage**
Support sustainable human communities	Gen 7: Create a toolbox of solutions for nonpoint source problems that includes grant project reports and products as well as agency products, and make the toolbox available on the internet. *On-going.*	**ECY**		
Support sustainable human communities	Gen 8: Develop clean water indicators for sustainable communities. Work with communities to forward their adoption.	**WSU, ECY, CTED**		
Restore and maintain degraded habitats	Gen 9: Support local corrective actions and programs to reduce human-related pollution and nutrient input into Hood Canal to address the low dissolved oxygen problem.	**ECY**	Number of corrective actions	Puget Sound Plan 05-07 work plan priority 4
Restore and maintain degraded habitats	Gen 10: Develop a social marketing program for clean water projects for statewide application. Use the campaign to increase citizens' awareness of how their actions affect water quality and what they can do to improve water quality. *Pilot project in Spokane in progress.*	**ECY,** CTED		
Restore and maintain degraded ecosystems	Gen 11: Continue to implement the shellfish closure response strategy. *On-going.*	**DOH,** ECY	Acres of commercial shellfish beds with improved classifications	Puget Sound Plan, SF-7
Focus funding	Gen 12: Automate nonpoint source data collection and reporting in shellfish growing areas.	**DOH**		
Restore and maintain degraded ecosystems	Gen 13: Conduct source identification monitoring in shellfish growing areas threatened or impaired by nonpoint source pollution.	**DOH**		Puget Sound Plan, SF-2
Preserve natural ecosystems	Gen 14: Provide guidance on land use measures to protect shellfish from impacts of urbanization.	**CTED,** DOH		Puget Sound Plan, SF-2
Preserve natural ecosystems	Gen 15: Develop a model shellfish guidance that addresses nonpoint source pollution.	**CTED**, DOH		

Objectives to be fulfilled (See Chapter 3)	**Through Monitoring and Enforcement activities -** *Programs that monitor water quality or enforce water quality standards*	**Lead Entity--** Cooperators	**Measurable Outcome**	**Major Program Linkage**
Teach about connections	ME 1: Develop protocols for performing nonpoint source monitoring throughout Washington.	**ECY**		
Focus funding on most effective strategies	ME 2: Monitor the effectiveness of corrective actions for nonpoint TMDLs, BMPs, and other watershed based plans. *On-going.*	**ECY**	Effectiveness of TMDLs, BMPs, and watershed based plans	
Restore and maintain degraded systems	ME 3: Monitor nitrates and pesticide runoff from agricultural lands.	**WSDA**, ECY		
Teach about connections	ME 5: Continue to implement ground water pesticide monitoring to support PMPs and ESA water quality and toxicological assessments.	**WSDA**		
Restore and maintain degraded systems	ME 6: Continue to monitor the implementation of forest practice rules statewide. *On-going.*	**DNR**, ECY, WDFW	Compliance monitoring report	
Teach about connections	ME 7: Using existing monitoring data, identify water bodies high in phosphorus, nitrates, and sediments.	**ECY**	List of water bodies	
Restore and maintain degraded ecosystems	ME 9: Increase compliance and enforcement activities for nonpoint pollution sources. *Have developed an enforcement checklist and preparing to present enforcement training to Ecology staff.*	**ECY**	Number of enforcement actions	
Restore and maintain degraded ecosystems	ME 10: Investigate agriculture related complaints and assist in development and implementation of farm plans.	**ECY, CC**	Number of complaints attended	