



State of Oregon
Department of
Environmental
Quality

Oregon 2006 Nonpoint Source Pollution Program Annual Report

April 2007

**As required by the Clean Water Act
Submitted to EPA Region X**



OREGON WATER QUALITY NPS PROGRAM 2006 UPDATE

This program update report is written in response to section 319 (h)(8) and (11) of the Clean Water Act (33 USC 1329). The report documents the activities and accomplishments of the State of Oregon in general and the Oregon Department of Environmental Quality (ODEQ) in particular regarding the administration of the State's Nonpoint Source (NPS) pollution water program.

The report covers an update on the NPS activities implemented by the state during the period January – December 2006. Like many other years in the Oregon program, this period was rewarding and productive. As described below, Oregon is clearly making significant progress toward meeting the substantial challenges presented by NPS water pollution.

The State program continues to find innovative, cooperative, community-based, methods to improve water quality and enhance watersheds. Some of the highlights from this year include the following accomplishments:

Distributed over \$1.5 million dollars in nonpoint source grants and another \$22 million in OWEB watershed restoration money to projects all across the State.

Received approval on the Willamette TMDL basin study or 208 individual TMDLs, for about 2,219 river miles of sub-basin scale, total maximum daily loads (TMDLs) addressing nonpoint source pollution concerns. The TMDLs included the: Lower Willamette Subbasin, Middle Willamette Subbasin, Clackamas Subbasin, Upper Willamette Subbasin, McKenzie Subbasin, Coast Fork Willamette Subbasin, and the Middle Fork Willamette Subbasin.

Strengthened partnerships at all levels of government as well as cooperative ventures with private individuals and organizations.

Conducted innovative and effective outreach and education events to inform Oregon citizens about nonpoint source concerns, and to motivate better stewardship of our waters, including the field trips, presentation to varied groups, high school student's watershed summit (Student Watershed Research Project, SWRP), children watershed festivals in Portland and in Tillamook.

Revised Oregon's Water Quality Standards including beneficial use designations and temperature criteria.

Anticipated Activities

Re-evaluate the quality of Oregon's waters and update the "impaired water" list.

Continued implementation of memorandum of agreements with United States Forest Service and Bureau of Land Management.

Continue to develop TMDLs addressing non-point sources of water pollution. Please refer to Appendix A for a TMDL schedule map.

Continue to work together with state natural resources agencies in the implementation of NPS strategies, such as Department of Agriculture's Agricultural Water Quality Management Plans

Continue work on evaluation of sufficiency of Forest Practices Act rules.

Continue to integrate the state revolving fund loan program into nonpoint source activities,

Continue to distribute grants and loans to projects that will advance the mission and effectiveness of the nonpoint source program, including identifying high priority projects and implementation of TMDL plans.

Identify additional ways of improving our partnership with various State, Tribal, Federal, and Local government agencies, as well as watershed councils, soil and water conservation districts and private individuals and organizations.

We continue to work with our partner agencies to discuss the application of the anti-degradation component of our water quality standards to Nonpoint sources of pollution.

Conclusion

Oregon is tackling the hard issues and meeting the significant challenges posed by the Nonpoint source water pollution. We are well on our way toward greater accountability for our investments in Oregon's watersheds; partnering to advance restoration efforts; and greater citizen understanding of the health of their local watershed.

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Oregon's Water Resources

With its nearly 97,000 square miles, Oregon ranks as the tenth largest state in the nation. The Oregon landscape is as diverse as it is beautiful. Surface water resources are a major feature of Oregon. The State has over 100,000 miles of rivers, 6,200 lakes, nine major estuaries, and over 360 miles of coastline.

State programs to protect or improve Oregon's water quality date back to 1938. Oregon's point source permit program was the second approved state program in the Country (September 26, 1973). More recently, in 1996 the State adopted the Oregon Plan for Salmon and Watersheds to focus work on watershed restoration and recovery of endangered salmonid populations.

At present, responsibility for managing its water resources is divided between several State agencies that work in an active and effective partnership to protect State waters. The State water quality program can be divided into the ten interdependent program elements listed below. The 10 basic water quality program components are as follows (not listed in order of priority):

- 1. Water quality standards that establish, for each watershed basin, beneficial uses for the waterbody as well as maximum levels of pollutants that can be discharged without adversely affecting the designated use.*
- 2. Permits for point sources, including storm water, discharging pollutants to State waters.*
- 3. Water quality [401] certifications of certain nonpoint source pollutant discharges including hydroelectric projects, and dredge and fill activities.*
- 4. Nonpoint source water quality management plans specifically developed for forestry, agriculture and urban activities.*
- 5. Biennial assessment of State waters to identify those waters that are not meeting water quality standards*
- 6. Pretreatment, Sewage Sludge Management and On-Site System programs to ensure that water quality is not compromised by other land- based activities.*
- 7. Development of total maximum daily loads (TMDLs) to correct those waters that are not meeting water quality standards.*
- 8. Cost-share grants and low interest loan programs to address municipal sewage treatment and disposal needs, and activities to reduce or eliminate nonpoint sources of pollution.*

9. Education and outreach activities to continuously remind the public about the importance of understanding NPS pollution and its impact in water quality.

10. Facility or activity-specific compliance assessment, a pilot NPS effectiveness monitoring effort, technical assistance and enforcement as warranted to ensure State water quality requirements are met

Oregon's Nonpoint Source Program

Nonpoint source pollution refers to pollutants that reach State waters by non-discreet means (primarily runoff during rain events, or percolation of polluted water to groundwater). Nonpoint sources are often linked with land use activities through which the runoff passes.

Nonpoint sources also include atmospheric deposition and pollutants in groundwater or soils that migrate or travel to surface waters. Nonpoint sources continue to be a leading cause of significant water quality impacts across the State and the nation as a whole.

DEQ first began to address nonpoint source issues in October 1976. A comprehensive survey of nonpoint source pollution was first undertaken in 1978 and in 1988 and more recently in 2000.

Following are the main components of Oregon's NPS program:

NOAA and EPA conditionally approved the State's Coastal Nonpoint Program under section 6217 of the Coastal Zone Management Act in 1998. The base program was updated and re-approved in 2000.

In Oregon, the most prevalent nonpoint source pollutants are temperature, sediment, bacteria and nutrients. These pollutants are most effectively controlling through the use of performance-based standards and best management practices (BMPs). BMPs offer a range of both efficient and cost effective solutions to water quality problems.

Oregon's nonpoint source program primarily focuses on 4 land use sectors: *agriculture, forestry, urban storm water and hydromodification.*

Oregon and the Federal government continue to make a significant investment in addressing nonpoint sources of pollution as well as watershed restoration.

Oregon's strategy for improving State waters is to approach the problem holistically. The State has been divided into 21 watershed basins and 91 sub-basins. The State's permitting assessment and TMDL work has been aligned and prioritized according to these sub-basins.

Identify and involve as many partners as possible.

Oregon has relied on longstanding partnerships to address these various activities and sources. Many of the State's Departments, Boards and Commissions are now actively involved in addressing nonpoint source and watershed concerns. They include but are not limited to the following:

- ✓ *Department of Environmental Quality* www.deq.state.or.us
- ✓ *Department of Agriculture* www.oda.state.or.us
- ✓ *Department of Forestry* www.odf.state.or.us
- ✓ *Oregon Watershed Enhancement Board* www.oweb.state.or.us
- ✓ *Department of Fish and Wildlife* www.dfw.state.or.us
- ✓ *Department of Land, Conservation and Development* www.lcd.state.or.us
- ✓ *Department of Economic & Community Development* www.econ.state.or.us
- ✓ *Department of Transportation* www.odot.state.or.us, and many others.

Finally, another cornerstone of the Oregon water quality program is, to the maximum extent practical, to identify solutions at the local community level. Watershed Councils, Soil and Water Conservation and Irrigation Districts, Cities and Counties all play an important part in the State's strategy.

Nonpoint Source Activities and Accomplishments in 2006

NPS Program Plan – During 2006, the state completed regional reviews of the NPS program plan which has prioritized our work efforts over the next 2 years. The review included regional discussions of strategies of dealing with current and emerging NPS concerns. The meetings identified where the program's successes, challenges, and needs are. A group of regional and HQ staff took this information and created the programs priorities. In short, agriculture has become the #1 program priority. This review of priorities will be turn into a implementation plan during 2007.

Agency Accomplishments Summary (July 2005 – Dec 2006)

| Basin | Plans, Restoration Activities – 319/SRF funded | Technical Assistance/ Compliance |
|----------------|---|---|
| Deschutes | - WSC position to study flow in an effort to restore flow in Whychus Creek and MF Deschutes | -Up. Deschutes WSC WQ program advisor -Crooked River WSC watershed assessment support -Monit. equipment loan to WSC |
| Grande Ronde | TMDL for Lower Grande Ronde, Wallowa, and Imnaha in development - Union SWCD for WQ monitoring in the Upper Grande Ronde Subbasin | - WQ monitoring equipment loan to GRMWP |
| Hood | - East Fork Irrigation piping project (address sedimentation) - Install large diameter pipe for transmission of irrigation water, which removes it from open ditches (Farmers Irrigation District) | - Pesticides Stewardship Partnership - ODA/Wasco SWCD RBS (sediment) monitoring - Mt. Hood NF WQ monitoring - WQ monitoring for WSC - Middle Fork Irrigation District Fisheries Management Plan, TMDL Implementation Plan - WQ monitoring equipment loan to WSC - Diesel Oil Discharge into Tributary of Neal Ck – enforcement/issued penalty |
| John Day | - Ongoing outreach and planning related to development of TMDL assessments, goals and planning related to: temperature, sediment, pH, DO, bacteria and macro-invertebrates | - Participation in basin-wide research addressing salmonid productivity in relation to land use and watershed enhancement (US Bureau of Reclamation, NOAA fisheries, Oregon State University, Oregon Department of Fish and Wildlife, US Forest Service, Oregon Department of Environmental Quality, et al.) |
| Klamath | Agency Lake Fringe Wetland Restoration Assessment Project (319 funded) | - Site visit for proposed restoration sites |
| Lower Columbia | Sandy TMDL approved by EPA | - WQ monitoring equipment loan to WSC |
| Mid Coast | | - WQ monitoring equipment, supplies and training to 6 WSC's and SWCD |

| Basin | Plans, Restoration Activities – 319/SRF funded | Technical Assistance/ Compliance |
|-------------------------|---|---|
| North Coast - Nehalem | Stormwater Master Plan, completed and adopted by the city 4 miles of new fencing and planting 10 miles of maintenance planting. | - WQ monitoring equipment loan to 2 WSCs |
| North Coast - Nestucca | 2 miles of new riparian planting 15 miles of riparian planting maintenance. | - WQ monitoring equipment loan to WSC |
| North Coast - Tillamook | 5 miles of new riparian planting. 11 miles of riparian planting maintenance | - WQ monitoring equipment loan to WSC |
| Owyhee - Malheur | - Assisted local groups to develop restoration projects for grant applications | |
| Powder | Burnt River SWCD – Juniper riprap effectiveness monitoring Powder Valley Water Control District – irrigation piping project (SRF) | |
| Rogue | <ul style="list-style-type: none"> - Wet Weather Pilot Project Completed - Applegate Subbasin TMDL completed - Little Applegate River Fish Passage & Stream flow Enhancement - Ashland: N Mt Storm Drain Treatment Project - Bacteria Source Fingerprinting. | <ul style="list-style-type: none"> - WQ monitoring equipment loan to 5 WSCs - Ongoing review of progress and technical assistance for TMDL implementation - Assist in ongoing water quality program data interpretation RVCOG/TMDL Group - Bear Creek Fish kill tracked back to responsible party – - Bear Creek Oil Slick tracked back to responsible party . - Savage Rapids dam on the Rogue – potential sediment release. Enforcement action taken - Truck stop oil-water separator violation. Enforcement action taken. - 2-4,D herbicide spill on I-5. Enforcement action taken. - Improper disposal of fire retardant & surface waters. Southern Oregon and Pacific Railroad. Enforcement action taken. |
| South Coast | - WQ monitoring equipment loan to 3 WSCs | |
| Umatilla – | <ul style="list-style-type: none"> - Walla Walla Temperature TMDL approved 9/05 - Willow TMDL - finalizing <p>Walla Walla Subbasin quantified stream temperature reduction resulting from vegetative buffer installation (April 06).</p> | <ul style="list-style-type: none"> - Co-authored publication for the Educational Services District, County, Convention Center and Natural Resource Organizations: Geology, Hydrology and History of the Umatilla River Parkway - Prepared Natural Resources Information Packet for Umatilla and Morrow Counties <p>Technical assistance and funding for Reith to upgrade to a central sewage system</p> |

| Basin | Plans, Restoration Activities – 319/SRF funded | Technical Assistance/ Compliance |
|------------|---|---|
| | | <ul style="list-style-type: none"> - Administering General NPDES permits for stormwater and other activities in the Umatilla Basin - Ongoing review of progress and technical assistance for TMDL implementation - WQ monitoring equipment loan to WSC - Meacham Creek Fish Kill – enforcement/ issued penalty - Umatilla River 80 Million-Gallon Wastewater Release – enforcement/ issued penalty |
| Umpqua | <ul style="list-style-type: none"> - Umpqua TMDL – finalizing (Includes some 219 listed reaches (temperature 159, bacteria 25, pH 17, D.O. 7, Biocriteria 6, Aquatic weeds/algae 3, Chlorophyll a 1, Phosphorus 1.) About 32.8% of DEQ's submitted and approved TMDLs for the state.) - 319 funded Partnership for the Umpqua Rivers (Watershed Council) to develop action plans to restore WQ. <p>Provided 319 funds to match OWEB funds to reduce nutrients and bacteria as well as establish riparian vegetation to reduce rates of stream warming on several local small streams tributary to nutrient and bacteria listed streams. Deer Creek (Demotta Br., North (Dixon Creek) and South Umpqua (Myrtle Creek restoration and outreach) tributaries 2005, 2006.</p> | <ul style="list-style-type: none"> - Provided TA during Diamond Lake Restoration effort which would be considered as implementation measures of the Diamond Lake TMDL (pH, aquatic weeds/algae and D.O) - WQ monitoring equipment, supplies and training to WSC |
| Willamette | <ul style="list-style-type: none"> - Willamette TMDL – finalizing - EWEB Non-Point Source Agreement (Assessment documents on existing condition of Forestry, Ag, septic, construction. Determined priority areas) - SRF loan to purchase of land from willing sellers, to prevent development in flood prone areas (City of Portland Margaret Nover -503-823-7623) - SRF to fund new stream channel alignment and excavation of adjacent areas to reconnect the created stream with a former floodplain surface (City of Portland) - SRF to fund riparian revegetation along various Willamette River tributaries (City of Portland) | <ul style="list-style-type: none"> - WQ monitoring equipment, supplies or training to 10 WSC's |

| Basin | Plans, Restoration Activities – 319/SRF funded | Technical Assistance/ Compliance |
|------------------------|--|---|
| Willamette - Clackamas | <ul style="list-style-type: none"> - Clackamas River Basin Council Action Plan, June 2005 - In progress, 319 grant awarded to Metro partnering with the watershed council and Clackamas Soil and Water Conservation District to promote sustainable development in urbanizing areas and develop a restoration project prioritization plan. | <ul style="list-style-type: none"> - Action plan technical committee; Participation in watershed council project implementation planning team (PIP Team). - Forest Conversion consultation: ODF and DEQ met with owner and contractor on-site to discuss water quality protection measures to be taken during and after conversion. - In-progress 319 grant to Marion Soil and Water Conservation District for education, outreach, technical assistance as part of Pesticide Stewardship Partnership. DEQ has collected samples since spring 2005 and shared that information with the SWCD. SWCD presents that information to the agricultural community through partners such as Wilco. |

A. Temperature, Toxics and Bio-criteria parameters in water quality criteria: Review of Standards

Every three years, Oregon is required to review and revise its water quality standards, and submit any new or revised standard to EPA for review and approval.

The Oregon water quality standards, including the narrative and numeric criteria, are set out in Chapter 340, Division 41 of the Oregon Administrative Rules. Currently, the turbidity standard and several temperature criteria are under review.

DEQ revised temperature standards and fish use designations in December 2003 and EPA for approved the standards in March 2004. For reference the related documents, including tables can be found under "WATER QUALITY STANDARDS and BENEFICIAL USES – Division 41 at <http://www.deq.state.or.us/wq/wqrules/wqrules.htm>

DEQ has also been working on a update Turbidity criteria.

For more information on these efforts, please contact Debra Sturdevant, at DEQ, at (503) 229-6691.

Toxics

In May of 2004, the Oregon Environmental Quality Commission adopted new water quality criteria for over 150 toxic pollutants and submitted these criteria to the US Environmental Protection Agency (EPA) for approval. As of the end of 2005, EPA had not yet approved or disapproved those criteria. In February of 2005, Oregon Department of Environmental Quality began using those new criteria that were more stringent than the previous criteria for Clean Water Act purposes (except for designating waters as impaired), such as NPDES permitting and Total Maximum Daily Loads (TMDLs).

During 2005, DEQ met with EPA, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), and other agencies from Washington and Idaho to develop the Columbia River Initiative that will address issues regarding toxics in several important areas, such as a pilot project to minimize runoff that contains toxic pollutants from agricultural lands in Eastern Oregon. The measures in this Initiative will be submitted to EPA Headquarters for consideration for funding as part of their National Strategy that would guide efforts into the next decade.

B. Nonpoint Source Pollution tax credits

In 1999, the Legislature authorized a tax credit for nonpoint sources of pollution. This authorization required Department rulemaking before the tax credit program was effective. This rulemaking effort was completed in January 2001 and expenses incurred for nonpoint source controls are now, for the first time in Oregon, eligible for tax credits.

The rules allow a 50% credit for nonpoint source control expenses approved or "certified" by the Department. See Oregon Administrative Rules OAR [340-16-0005-0080] for a description of the process to follow to obtain a pollution control tax credit.

The Nonpoint Source Pollution Tax Credit is intended to cover expenditures for "on-the-ground" management practices and improvements. It is not intended to cover education, outreach or monitoring costs.

To be eligible, the applicant must:

- ✓ *Be an Oregon taxpayer;*
- ✓ *Make a qualifying investment;*
- ✓ *Be the owner and operator of the facility or property in question.*
- ✓ *The nonpoint source pollution expense must be for the purchase of land, or a structure, building, installation, excavation, machinery, equipment or devices.*
- ✓ *Be documented.*

Expenses that do not qualify for the tax credit include

- ✓ *Septic tanks or other facilities for human waste;*
- ✓ *Asbestos abatement; or any investment used for cleanup of emergency spills or unauthorized releases;*

Items that do qualify include

- ✓ *Vehicles*
- ✓ *Landscaping and fencing,*
- ✓ *Reconstruction of parking lots, and roadways so long as they have a pollution-control purpose.*

In addition, the expense must meet at least one of the following circumstances:

- ✓ *Be incurred as a result of a U.S. Environmental Protection Agency or Oregon Department of Environmental Quality requirement, including TMDLs and groundwater management area action plans; or*
- ✓ *Exclusively function to control, prevent or reduce nonpoint source pollution and be effective in controlling, reducing or preventing water pollution; and be authorized by one or more of the partner agencies listed in the State NPS Control Program Plan.*

The partners and activities include expenses incurred pursuant to the following:

- ✓ *Agricultural water quality management plans administered by the Oregon Department of Agriculture.*
- ✓ *Forest management practices administered by the Oregon Department of Forestry.*
- ✓ *Estuary plans.*
- ✓ *Match expenses for a Nonpoint Source or watershed grant agreement by either DEQ or OWEB.*
- ✓ *Expenses verified by research conducted by Oregon State University's agricultural experiment station, U.S. Department of Agriculture's research service, or the Oregon Department of Agriculture.*

An applicant has two years after the completion of construction to file an application with the Department.

Discussion with potential tax credit users has been on the increase. We expect to identify pilot projects and provide a funding-implementation plan including the Tax Credit option to implement management practices addressing NPS pollution concerns.

C. Clean Water State Revolving Fund – Oregon 319(h) Grants increased cooperation

The Oregon DEQ is committed to identify water quality project as it seeks to orient the NPS programs toward watersheds as management units and to begin comprehensive control projects in targeted watersheds. In an effort to reinforce this commitment to address NPS water quality needs the CWSRF Loan Program went through rule making in 2003 to include NPS criteria in the selection of projects. The program's rules continue to focus the program on a project's environmental benefit, and less emphasis on compliance for both point and non-point source pollution control.

Since these changes were made in the program, the number of NPS projects funded by the program continues to grow. The "sponsorship option" which allows a water restoration project to be funded in conjunction with a traditional wastewater project - at a reduced interest rate - is being used to restore or protect important water resources that would have been difficult to fund in the past. The cities of Gold Beach, Portland and Woodburn have utilized this financial incentive.

Irrigation districts have become active borrowers in the program where the funds have been used to move water from irrigation ditches to pipes resulting in water quality improvements within the systems themselves and in the quality of the water returned to Oregon's rivers. The Farmer's Irrigation District in north central Oregon continues to borrow from the CWSRF program as does the East Fork Irrigation District.

Another area of growing interest is using the CWSRF program to assist financially in the implementation of TMDLs. The recently completed Willamette River TMDL will provide opportunities for cities, counties and special districts to use the fund to implementing their various activities.

DEQ provided \$4,345,630 of SRF funds to NPS projects implemented during July 05 to present. \$3,196,618 funded on the ground projects, and \$1,149,012 was spent on purchasing flood prone areas from willing land owners.

- DEQ Water Quality Division went through a planning process to identify Nonpoint Source Program Priorities and drafted NPS program plan for 2006-2007. The Plan identified working more closely with agricultural agencies and groups as one of the priorities.

Forest Conversion Memorandum of Agreement is scheduled to be finalized in fall 2006 to prevent water quality pollution during forestland conversions to other land use. The MOA promotes interagency communication and training to prevent unintended water quality degradation.

- DEQ conditionally approved the BLM and USFS' Northwest Forest Plan Temperature TMDL Implementation Strategy in fall 2005. The strategy provides tools for BLM and

USFS to thin overly dense stands in riparian reserves to achieve mature forest conditions while minimizing short term impact to water quality.

- Oregon's Water Quality Monitoring Strategy was completed in 2005, which provides a complete description of DEQ's water monitoring activities throughout the state. Its purpose is to describe DEQ's monitoring objectives and sampling design, as well as explain the parameters sampled for different monitoring programs. Finally, it provides a summary of current funding and monitoring priorities for the agency. The document is intended to function as a strategic planning document to guide future monitoring work by DEQ.

D. DEQ's role in protecting Oregon's surface water quality

DEQ is the state agency responsible for protecting Oregon's surface waters to keep them safe for a wide range of uses, such as drinking water, recreation, fish habitat, and irrigation. DEQ's Water Quality Program accomplishes this in part through the development of water quality standards, identifying waters that do not meet the standards and developing plans with goals and pollution control targets designed to achieve the standards in the watersheds where they are not being met. DEQ periodically identifies the waters that do not meet water quality standards – a process known as “303d listing” (named after the section of the federal Clean Water Act that requires it) and conducts monitoring and analyses leading to the development of a Total Maximum Daily Load (TMDL) document. A TMDL describes the amount (load) of each pollutant a waterway can receive while maintaining compliance with water quality standards.

Table. 1 Oregon TMDLs Approved by USEPA - May 2000 through December 2006

| Waterbody (Basin/TMDL Segments) | Water Quality Concern Addressed | TMDL Parameters | USEPA Approval Date | Completed TMDL Segments (cumulat.) |
|---|--|--|---------------------------|---|
| Upper Grande Ronde Sub-basin (Grande Ronde/73) | Temperature, pH, Algae, DO, Sedimentation | Temperature, Sediment, Nitrogen, Phosphorous | 5/03/00 | 73 |
| Upper South Fork Coquille River (South Coast/4) | Temperature | Temperature | 3/23/01 | 77 |
| Umatilla River Basin (Umatilla/45) | Temperature, pH, Sedimentation, Turbidity, Aquatic Weeds, Algae | Temperature, pH, Sedimentation, Turbidity, Aquatic Weeds, Algae | 5/09/01 | 122 |
| Tillamook (North Coast/40) | Temperature, Bacteria | Temperature, Bacteria | 7/31/01 | 162 |

Table. 1 Oregon TMDLs Approved by USEPA - May 2000 through December 2006

| Waterbody (Basin/TMDL Segments) | Water Quality Concern Addressed | TMDL Parameters | USEPA Approval Date | Completed TMDL Segments (cumulat.) |
|--|--|--|---------------------------|---|
| Tualatin (Willamette/101) | Temperature, Bacteria, DO, Algae, pH | Temperature, Bacteria, DO, Settleable Volatile Solids, Ammonia, Chlorophyll a, pH, Phosphorus | 8/07/01 | 263 |
| Little River (North Umpqua/16) | Temperature, pH, Sedimentation | Temperature, pH, Sediment | 1/29/02 | 279 |
| Western Hood (Hood/7) | Temperature | Temperature | 1/30/02 | 286 |
| Nestucca Bay (North Coast/6) | Temperature, Bacteria, Sediment | Temperature, Bacteria, Sediment | 5/13/02 | 292 |
| Lower Sucker Creek Watershed (Illinois/3) | Temperature | Temperature | 5/30/02 | 295 |
| Lobster Creek Watershed (Rogue/3) | Temperature | Temperature | 6/13/02 | 298 |
| Upper Klamath Lake Drainage (Klamath/32) | Temperature, pH, DO, Chlorophyll a | Temperature, pH, DO, Chlorophyll a | 8/07/02 | 330 |
| Lower Columbia River (Lower Columbia/7) | Total Dissolved Gas | Total Dissolved Gas | 11/18/02 | 337 |
| North Coast Subbasins (North Coast/56) | Temperature, Bacteria | Temperature, Bacteria | 8/20/03 | 393 |
| Alvord Lake Subbasin (7) | Temperature, Dissolved Oxygen | Temperature, Dissolved Oxygen | 2/11/04 | 400 |
| Snake River – Hells Canyon Reach (15) | Temperature, Total Dissolved Gas, Pesticides | Temperature, Total Dissolved Gas, Pesticides | 1/03/04 | 415 |
| Snake River – Hells Canyon Reach (5) | Phosphorus, Dissolved Oxygen | Phosphorus, Dissolved Oxygen | 09/09/04 | 420 |
| Applegate Subbasin (17) | Temperature, Sedimentation | Temperature, Sedimentation | 10/15/04 | 437 |
| Sandy River (8) | Temperature, Bacteria | Temperature, Bacteria | 4/15/05 | 445 |
| Walla Walla River (4) | Temperature | Temperature | 9/29/05 | 449 |
| Willamette | Temperature, bacteria, mercury | Temperature bacteria, mercury | 9/29/06 | 657 |

Table 2. Full Schedule for TMDL Development (numbers represent impaired stream segments)

| Year | TMDL's Approved by EPA | # TMDL's Submitted to EPA | # TMDL's Required Yet To Be Submitted to EPA | TMDL's Required to be Approved by EPA, Cumulative Totals. |
|------|------------------------|---------------------------|--|---|
| 1991 | 8 | - | | |
| 1992 | 20 | - | | |
| 1993 | 16 | - | | |
| 1994 | 13 | - | | |
| 1995 | - | - | | |
| 1996 | 5 | - | | |
| 1997 | - | - | | |
| 1998 | 10 | - | | |
| 1999 | - | 1 | 207 | |
| 2000 | 74 | 74 | 160 | |
| 2001 | 177 | 23 | 124 | |
| 2002 | | | 310 | |
| 2003 | | | 324 | |
| 2004 | | | 311 | 310 |
| 2005 | | | 143 | |
| 2006 | | | 134 | |
| 2007 | | | 112 | |
| 2008 | | | | 982 |
| 2010 | | | | 1153 |

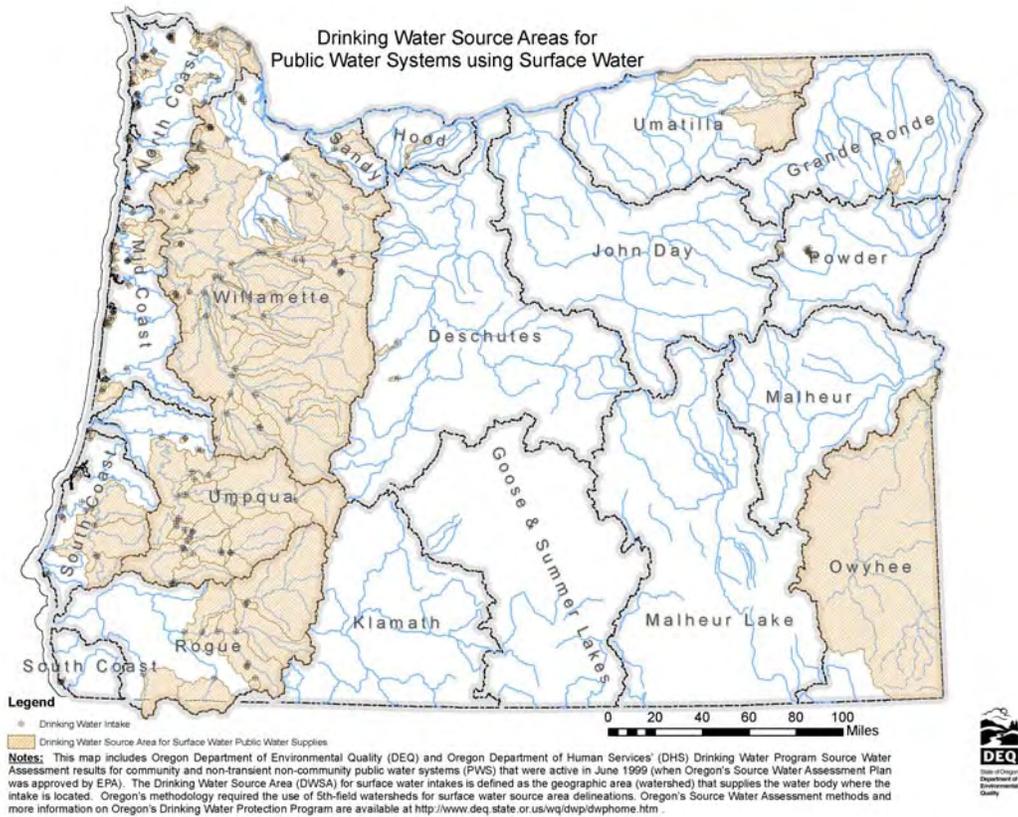
E. Drinking Water: Drinking Water Protection in Oregon

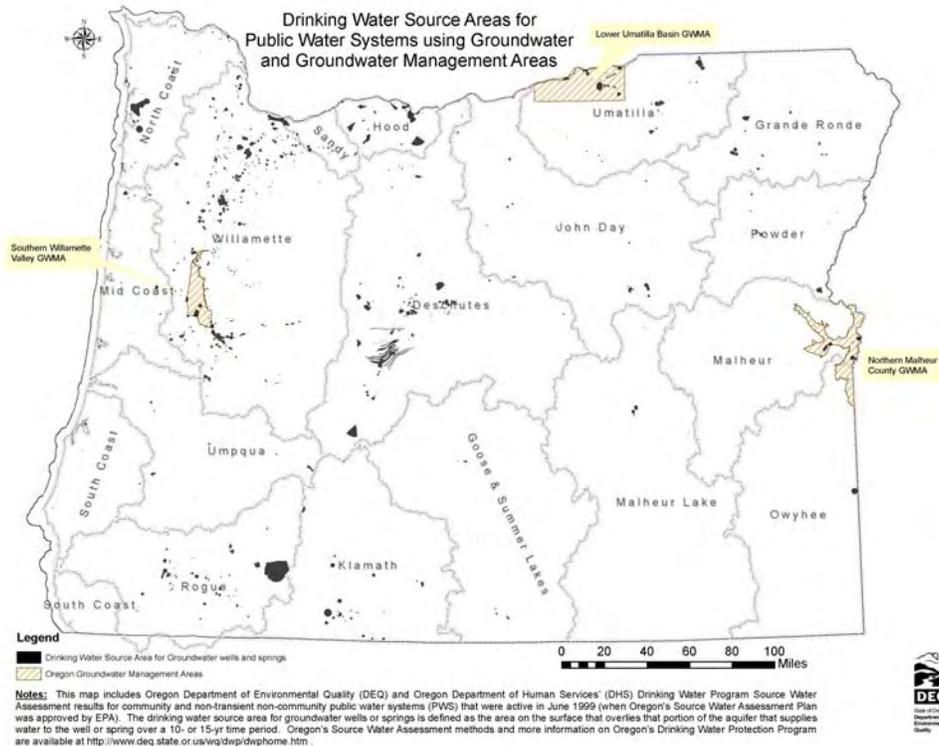
Approximately 75% of Oregon's citizens get their drinking water from public water systems that are regulated by the Department of Human Services (DHS). DHS is the "primacy" agency that administers the federal Environmental Protection Agency (EPA) regulations for drinking water standards and water treatment requirements. Safe drinking water is vital to the health of citizens in every Oregon community. Most drinking water, particularly in urban areas, is obtained through public water systems that serve multiple homes---these can be groundwater wells or surface water intakes (pipes drawing from streams or rivers). If the well or intake serves more than 3 homes, it is regulated as a public water system in Oregon.

The 1996 Federal Safe Drinking Water Act (SDWA) Amendments provide the means to protect drinking water at its source. In developing the new amendments, the US Congress recognized that we need to go beyond the traditional emphasis on treatment to address the new challenges to provide clean drinking water. The SDWA amendments mandated that states conduct "source water assessments" for all public water systems. These assessments include delineating the contribution zones or source areas for all

groundwater and surface water- supplied public water systems and identifying potential sources of contamination for drinking water in each state. Source Water Assessments were required for all systems with at least 15 hookups, or that serve more than 25 people year-round.

Each public water system in Oregon has now received a Source Water Assessment report completed by the DEQ and DHS Drinking Water Programs. The assessment gives the water system and the community information on the watershed or recharge area that supplies the well, spring or intake (the “drinking water source area”) and identifies potential risks within the source area. Source water assessments are the foundation of planning for drinking water protection. Public water systems and local communities can use the assessment results to develop and implement drinking water protection strategies.





All maps of the groundwater and surface water source areas are available as GIS data layers. In addition, the over 15,150 “potential contaminant sources” identified as part of Oregon’s source water assessments are also available in an Access database and a GIS data layer. DEQ’s drinking water protection program uses this information to prioritize our work with other programs and agencies. For purposes of sharing the statewide results of the assessments, we have compiled a summary of the top five categories of potential sources of contamination for each type of public water system. The data are presented below, along with a brief explanation as to why the specific land use or activity may present a risk to the water system. For a complete list of the inventory categories and risks information, please refer to the DEQ drinking water website.

| Contaminant sources | |
|---------------------------------------|-------------------------------------|
| Surface water | Groundwater |
| Managed Forests (harvests/pesticides) | High Density Housing (>1/.5 acre) |
| Crops – Irrigated | Transportation Corridors – Highways |
| Grazing Animals (>5 large /acre) | Above/Under Ground Tanks |
| Above Ground Tanks | Spills, leaks |
| Auto Repair | Crops/over application pesticides |

The assessment inventory results are an important first look at POTENTIAL risks to Oregon public water systems, the assessments were completed in 2005. The program is

now in its implementation phase. Encouraging community based strategies and planning is the main focus of the Drinking Water Protection Program.

Drinking Water Protection Strategies

Implementation of a successful drinking water protection program at the state level will involve several key elements. Most importantly, it is essential that a recognition and consensus is established for the need for drinking water protection. Oregon state agencies must work together to recognize the importance of protecting these source areas and be strong partners with the local communities that are committed to ensuring their citizens safe drinking water. The second key element is to develop a long-term strategic plan for source water protection that will ensure progress toward achieving the greatest level of public health protection, with a realistic understanding of the number of staff and agency resources available for the program. Lastly, to ensure accountability, it is important to develop performance measures that determine whether the program is using the limited resources in the most effective way. Oregon's benchmarks play a role in this, as well as the US EPA national goals and measures.

The intent of drinking water protection is to reduce the risks of contamination for the public water systems, as it is highly unlikely that we can eliminate all risks. Recent examples of public water system contamination in Oregon include volatile organics, nitrates, and bacteria. These contamination incidents are preventable and it is a goal of drinking water protection efforts to minimize these types of incidents. The typical drinking water protection plan seeks to reduce the risks of contamination by a) raising public awareness of potential water quality impacts from ALL land uses/owners, and b) encouraging voluntary actions that can be taken to assist the community to protect their drinking water.

Drinking Water Protection Successes – Non-Regulatory

Municipal – Com/Ind/Res

- Hubbard
 - Education program for local businesses and residents
- Salem
 - Teamed with UST for high risk tanks
- Coburg
 - Transition to community wastewater treatment due to septic risks and effects



To effectively promote and accomplish drinking water protection, it is important that public water system operators and local community officials become more actively engaged in land management issues in their source areas. One of the values of the source water assessment is that it provides the community with a discreet area to focus on protecting. The assessments were designed to produce a map of the most sensitive areas that are vulnerable to contamination for their public water system. We will seek to share this information with counties and communities so that they can take action to minimize risks in these areas.

Drinking Water Protection Successes – Non Regulatory

Forests and Agriculture

- McKenzie and Middle Fork Willamette Watershed (EWEB/SUB and others)
 - Legacy pesticides collection
 - 50 Farmers Participated
 - 2,400 lbs & 1,000 gal pesticides
 - 5,100 lbs fertilizers
 - 800 gal waste oil
 - 400 gal other chemicals
- Port Orford
 - Private timber operator increased protective streamside buffer
 - City purchased some land; established conservation easement on 160 acres
- Detroit
 - ODF removed drinking water source area from proposed timber harvest area



It is widely recognized that water quality protection (in any program) is more effectively achieved by engaging Oregonians to take voluntary actions beyond compliance. The basis of most new water quality protection planning is to involve, empower, and provide incentives to private landowners to make voluntary commitments to watershed restoration and habitat restoration. Developing a plan to protect a watershed or groundwater recharge area that serves a public water system uses the same approach. Voluntary actions by private landowners can be very effective in assisting communities downstream or downgradient to provide safe drinking water.

Since there are no new authorities associated with drinking water protection in Oregon, state agencies must rely upon integration and coordination with other programs. Our primary focus is to encourage other programs to use the sensitive areas as priorities within their programs. We will continue to coordinate with other established programs, especially at DEQ, such as spill response, household hazardous waste collection, hazardous waste cleanup, underground storage tank cleanup, and pollution prevention technical assistance, to focus on preventing the contamination of public water supplies. It is important to consider all components of the water cycle, such as addressing groundwater issues within municipal watersheds where groundwater may be contributing to the water quality problems in nearby surface waters.

When it comes to implementing water quality protection, there are similarities between this program and other water quality efforts, such as watershed streamside buffers to save endangered salmon. Many of these efforts can be coordinated to increase the likelihood of success. *Where the programs have complimentary goals and priorities, we will work to leverage our resources to accomplish water quality protection.* There are programs that are not driven by the same priorities and do not address the same water quality parameters. One such example is the Total Maximum Daily Load (TMDL) program. For the Clean Water Act Section 303D-listed streams (64 total) that serve as drinking water sources, completing and implementing the TMDL will most likely have very little impact on drinking water treatment issues. This is primarily due to the fact that most TMDL efforts are not directly addressing relevant drinking water parameters in the modeling and implementation process. The TMDL may be addressing the temperature issues on a stream, for example, while the public water supply may be seeking to reduce sediments and turbidity. There are many federal and state water quality programs that address endangered species and aquatic life, but do not address drinking water issues.

As mentioned earlier, DHS and DEQ are working together at this time to develop a detailed work plan and strategic goals to guide the drinking water protection effort. In Oregon, protection is voluntary and this makes it even more essential to develop a program that uses incentives and strong technical assistance to make it happen.

While in the source water assessment phase, there were few resources dedicated to protection activities. The drinking water protection technical assistance aspect of the program has increased now that the assessments are completed. The agencies are focusing on helping communities understand the utility of the assessment data, and help them in setting objectives and resolving technical questions about drinking water protection. DEQ and DHS are available to provide assistance to communities that want to take specific steps to develop a local plan to protect their drinking water, such as:

- direct process-oriented assistance to communities: early involvement by community leaders in the assessment process, hold community workshops, assistance to increase public participation in the plan development process, assemble a team of local stakeholders, operate successful team meetings and provide examples and guidance associated with plan development
- providing technical assistance for selecting and implementing protection activities
- coordination of drinking water protection with other agencies (such as DLCDC, ODF, ODA) and programs
- technical support for individual drinking water watershed maps using statewide GIS coverage for drinking water protection areas
- updating drinking water protection guidance and fact sheets to better meet local community needs and concerns
- encouraging community applications for the Drinking Water Protection Loan Fund to develop drinking water protection plans or implementing projects that protect their sources of drinking water

integrating the local assessment information into other water quality efforts, e.g., TMDLs, Water Quality Management Plans, salmon recovery, etc., and addressing potential future rule requirements, e.g., microbial susceptibility for the Groundwater Rule.

There are a number of Oregon communities currently working to develop and implement plans to protect their drinking water source areas. The following communities or public water systems should be commended for their work on various phases of drinking water protection: Eugene, Springfield, Bandon, Hubbard, Portland, Gresham, Fairview, Salem, Sutherlin, Port Orford, Albany, Lebanon, Maupin, Mollala, Oak Grove, Crystal Springs, Sweet Home, Avion (Bend), Medford, Canby, Bend, Scappoose, Wheeler, the Clackamas River providers, and others. Some of these communities were working to protect their source waters many years before the source water assessments were mandated. In other cases, the SWA Reports provided key information to the community that enabled them to focus limited resources on the higher-risk areas within the watershed or recharge zones for wells.

The successful drinking water protection plans developed in Oregon already are available to communities as templates or examples. There are also extensive written materials available to local community groups or consultants to assist in their efforts to develop a drinking water protection plan. This can be provided to the local communities as part of the technical assistance offered by DHS and DEQ, or by researching the materials on the various websites listed below.

Potential "Management" Options

Examples of Ideas For Implementation and Reducing the Risks of Contamination to Drinking Water

Commercial/Industrial Land Uses

Employee education / notification using:
 Local media (TV, Radio, Newspaper either paid or Public Service Announcements)
 Letters to land owners/operators
 Bill stuffers/customer mailings
 Hold educational meetings/workshops/fairs
 Post signs including spill response contacts
 Distribute fact sheets or newsletters about drinking water protection, include:
 "Best Management Practices (BMP)" for specific businesses

Extension Service training for proper pesticide use
 Provide recognition for "Environmentally Friendly Businesses" (eg., EcoLogical program of Auto Repair shops)
 Green awards; Plaques, flags, signs, door stickers

Residential Land Uses

Public Education/Notification using:
 Local media (TV, radio, newspaper - either paid or Public Service Announcements)
 Letters to residents; Bill stuffers/customer mailings
 Hold educational meetings/workshops/fairs

Distribute fact sheets or a newsletter on DWP, BMPs, and available resources including:

Household hazardous waste
Septic systems use, maintenance, and abandonment
Pollution prevention/waste reduction in the home Lawn and garden maintenance

Municipal Land Uses (parks, maintenance facilities, sumps, nurseries, etc.)

Facilitate training workshops
Chemical applicators license for pesticides

Pollution prevention/waste reduction (use of alternatives)

Petroleum/hazardous waste/maintenance chemicals use, storage, disposal

Spill Response Plans

Notify local Emergency Response Planners of DWPA location

Ensure public water system notification in spill event

Stormwater Control/Pretreatment

Encourage use of pre-treatment and BMPs (detention ponds, retention ponds, vegetated swales and filter strips, urban forestry, sand filters), street cleaning, parking lot pretreatment requirements.

Property Purchase/Donation Program

Conservation easement purchase

Agricultural Land Uses (

Public education / notification using:

Letters to land owners / growers

Educational meetings/workshops/fairs for growers

Survey owners to assess current practices

Set up a publicly coordinated resource center or forum

Facilitate training / workshops staffed by ODA, Extension Service, or DEQ

Chemical applicators license for pesticides

Fertilizer storage and handling BMPs

Livestock waste storage and treatment

Pollution prevention/waste reduction (use of alternatives)

Petroleum/hazardous waste/maintenance chemicals use, storage, disposal

Secure tax credits, grants, or funding to provide incentives

Low interest loans

Direct subsidies/cost sharing (i.e. for well abandonment, PCAP installation, and hazardous waste roundup)

Institute a local tax on pollution

Provide information on pollution liability and potential costs

Provide recognition for "Environmentally Friendly Practices"

Green awards; signs for fences adjacent to crops (for public recognition)

Set up local materials exchange program (or publicize existing programs)

Conservation easement purchase – coordinate with NRCS

Miscellaneous - Transportation Corridors

Notify local Emergency Response Planners of DWPA location

Notify responsible parties (i.e. County, ODOT, railroads, businesses) of location within DWPA

Establish / review spill response procedures

Ensure public water system notification in spill event

Set up regional spill number

Provide fire department and spill responders with good maps of storm and sanitary sewer systems

Request conservative practices for right-of-way maintenance

Regulate hazardous materials transport

F. TMDLs addressing nonpoint source pollution

The Oregon Department of Environmental Quality is on schedule to complete Total Maximum Daily Loads (TMDLs - water quality analysis on watershed scale) as approved by the U.S. Environmental Protection Agency (EPA). ODEQ has been delegated responsibility for conducting this analysis through the federal Clean Water Act (CWA) of 1972. The CWA authorized states to assess water quality and develop a list of rivers and streams that do not meet water quality criteria (the 303(d) listing process), and then determine pollution reductions that will meet water quality criteria (the TMDL process). While ODEQ conducts the TMDL, the US Environmental Protection Agency (USEPA) has approval authority for all TMDLs.

According to the most recent (1998) assessment of the State's water quality, 13,687 miles of State waters are not currently achieving water quality standards. Over 12,100 of these miles are impaired due to temperature. Under Federal law, a total maximum daily load (TMDL) analysis and allocation must be undertaken for these water bodies. Given the numbers of impaired waters, DEQ has elected to perform its TMDL work on a subbasin basis, rather than water segment by segment. Table I presents completed TMDLs.

The majority of the State's TMDL work involves nonpoint sources of pollution. DEQ estimates that 75 percent (68) of the 91 watershed sub-basins are primarily affected by forestry, agriculture, urban development and other nonpoint sources. Nonpoint sources of pollution also play a significant role in the remaining 23 sub-basin where impairment is attributed to both point and NPS.

G. Willamette River TMDL

During the 1990s, the Legislature provided resources for the Department of Environmental Quality (DEQ) to work with others to study the health of the Willamette River. The studies included a number of key findings, including a high incidence of deformities in the skeletons of certain fish, as well as the presence of toxic chemicals in fish tissues at levels that make the fish unsafe to eat. The studies also found that the majority of water pollution came from urban and rural runoff.

During 2006, the Oregon DEQ received approval on the Willamette TMDL basin study or 208 individual TMDLs, for about 2,219 river miles of sub-basin scale, total maximum daily loads (TMDLs) addressing nonpoint source pollution concerns. The focus of the Willamette TMDLs is on the most commonly 303(d) listed pollutants in the basin, which are bacteria, mercury, and temperature, although there are listings for other pollutants as well.

The TMDLs included the: Lower Willamette Subbasin, Middle Willamette Subbasin, Clackamas Subbasin, Upper Willamette Subbasin, McKenzie Subbasin, Coast Fork Willamette Subbasin, and the Middle Fork Willamette Subbasin.

Pollutants being addressed by the Willamette TMDL:

- Bacteria (Four subbasins and mainstem Willamette River)
- DDT (Johnson Creek; Lower Willamette Subbasin)
- Dieldrin (Johnson Creek; Lower Willamette Subbasin)
- Dissolved Oxygen (Upper Willamette Subbasin)
- Mercury (phased TMDL for all 12 Willamette Subbasins)
- Temperature (Nine subbasins and mainstem Willamette River)
- Turbidity (Upper Willamette Subbasin)

The Willamette Basin is the largest geographical TMDL undertaken by ODEQ to date. While a TMDL must be conducted for every 303(d) listed waterbody, it is important to note that a waterbody can be listed for more than one pollutant not meeting water quality criteria. As a result, TMDLs are actually many TMDLs assembled into one document because they are conducted parameter by parameter or pollutant by pollutant. Additionally, the scale of the TMDL may include more waterbodies than just the listed waterbody. For example, stream temperature is affected by upstream tributaries as well as from more localized impacts. Therefore a temperature TMDL would consider all streams that affect the listed waterbody.

The Problem

The Willamette River Basin is home to seventy percent of Oregon's population. Those who live or work in the basin depend on the river for many resources, and also contribute to potential pollution problems that come with any residential, municipal, industrial, or agricultural operation.

For the amount of land area in the basin, more water flows from the Willamette River than from any other major river basin in the United States. The basin, 180 miles long and 80 miles wide, is bordered by the crest of the Cascade Mountains to the East, the crest of the Coast Range to the West, and the Columbia River to the North where the two rivers meet. About 2.3 million people live in the river basin near its 16,000 miles of rivers and streams, and more than half of them live in the Portland metropolitan area.

As population increases, and land conversion to urban and industrial uses continues in the basin, these changes affect the Willamette River.

For example, the household chemical products applied in and around the home, including pesticides and fertilizers, may end up in the Willamette after passing through treatment plants or in storm water runoff. Pollutants can reach the river through groundwater as well as from runoff and pipes.

In 2001, DEQ began working with a group of “stakeholders” to create a plan to bring the Willamette up to water quality standards. This group participates as the Willamette River TMDLs Council.

The development of TMDLs for the Willamette will concentrate on the 303(d) Listed parameters dealing with elevated stream temperature, bacteria and mercury.

The Solution

Decades of work and millions of dollars of investment by the State, industry, and cities has reversed some of the worst damage to the Willamette River. Cities and industries began treating wastewater in the 1950's, and treatment has improved steadily since. Flood control reservoirs built by the federal government have increased summer flow, providing waste dilution during this critical period. Today the river is cleaner and healthier than it once was for people and fish. However, there is still much work to be done.

The Oregon Plan is a commitment from Oregon's citizens, businesses, agencies and governments to work together to ensure our children will inherit healthy watersheds. The Oregon Plan is people working locally; watershed councils coordinating the work; local landowners and governments initiating new ways of doing things; funding and expertise from state, tribal and federal agencies, and businesses and industries; and implementing existing laws and regulations. Most of all, it is a spirit of volunteerism and stewardship characteristic of Oregon and Oregonians.

Efforts to restore the watershed involve everyone in the watershed. Actions include planting vegetation to reduce erosion and keep water cool; changing habits at home, at work, and at play to prevent or reduce pollutants entering waterways; improving fish passage and opening habitat that was blocked by past practices; and reducing erosion and sediment entering streams. For more information on how to help, view Preventing Surface Water Runoff.

Mercury is another key issue that people can learn more about to reduce its impairment on the environment. DEQ is actively involved in a study to reduce mercury pollution in the Willamette.

In 2006, DEQ staff assigned to implementation of the Willamette TMDL conducted extensive outreach to the media, the general public, point sources and the various designated management agencies (DMAs) who have responsibilities for taking actions to address the TMDLs. Staff worked with numerous partners (Soil and Water Conservation Districts, Watershed Councils, Councils of Governments, and DMAs) to communicate the recommendations, findings, and requirements of the TMDL and to offer assistance in the development of TMDL implementation plans. Working as a team, staff also developed templates, guidance materials, and case studies that will assist DMAs in meeting their requirements associated with the TMDL.

As a specific example of an accomplishment related to TMDL implementation, the Willamette team took advantage of some carryover 319 funds to support 11 nonpoint source agreements in the summer of 2006. In a few short months, team members solicited projects, developed work plans, signed agreements and assisted sponsors with implementation of projects. As a result, three livestock manure storage areas are being built, restoration is being completed on riparian areas in two areas, pesticides have been removed from critical watersheds, mud and manure workshops are being held, and a handbook for designing and engineering manure storage sheds has been developed and provided to each soil and water conservation district in the state, allowing them to use the engineered designs without need for further engineering expense. A total of \$107,939 was invested in water quality improvements in the Willamette through this effort.

H. Memorandum of Agreement between Bureau of Land Management and DEQ.

During the years 2002 - 2003, DEQ initiated discussion with the United States Bureau of Land Management (BLM) to update existing water quality joint efforts (Memorandum of Agreement, a.k.a. MOA). The agreement was completed during 2003 and is aimed at strengthening working relations and establishing closer coordination, particularly regarding TMDL development and implementation.

The MOAs focus on protection, restoration and maintenance of physical, chemical and biological conditions of water that support beneficial uses (defined in Oregon Administrative Rules, Division 41) by working in a proactive and collaborative manner. The purpose of the MOA is to:

- ✓ *Collaborate on priorities, strategies and funding using a watershed approach to protect and restore water quality on Bureau of Land Management (BLM) lands.*
- ✓ *Foster and enhance communication, coordination and working relationships between DEQ and the BLM.*
- ✓ *Identify BLM and State of Oregon policy, programs, and practices that ensure attainment of Federal and State water quality laws and regulations that collectively support the assignment of the BLM as a Designated Management Agency (DMA) for meeting Clean Water Act (CWA) requirements on NFS/BLM lands.*
- ✓ *Recognize, clarify and support DEQ and BLM roles and responsibilities specific to water quality.*
- ✓ *Establish a process for joint review of ongoing watershed protection, restoration, and compliance activities, including a plan for short and long-term work.*
- ✓ *Create an annual evaluation process to improve methods and approaches for meeting water quality goals and standards.*

The MOA create a framework in which the DEQ and BLM can effectively cooperate on programs and projects of mutual concern to protect, restore and maintain water quality Statewide. The MOA also minimize duplication of efforts.

I. Forest Conversion

The Oregon Department of Forestry (ODF), Oregon Department of Agriculture (ODA), Oregon Division of State Lands (DSL), Oregon Department of Land Conservation and Development (DLCDD), Oregon Department of Fish and Wildlife (ODFW), Oregon Parks and Recreation Department (OPRD), and Oregon Department of Environmental Quality (DEQ) have common interests and responsibilities in protecting waters of the state and other natural resources during the conversion of forestland to non-forest uses. The

Memorandum of Understanding, drafted during 2003 calls for closely coordinate efforts, insure agency coordination and minimize duplication, and to work towards common goals in regulating the conversion process.

The purpose of this agreement is to clarify the roles and responsibilities of the state agencies involved during the conversion of forestland to other nonforest uses on publicly or privately owned lands, to ensure that state water quality standards and other resources are protected throughout the process, and to ensure a smooth transition in jurisdiction between the agencies.

J. Sufficiency analysis

The Department of Forestry and Department of Environmental Quality agreed through an April 1998 Memorandum of Understanding to jointly evaluate the effectiveness of the Forest Practices Act to protect water quality. The analysis focused on temperature, sedimentation, aquatic habitat modification, and bio-criteria. The Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality was signed by the State Forester and the Director of DEQ in October, 2002.

There were 12 recommendations in the sufficiency analysis, and the purpose of those recommendations was to ensure that the FPA goals and objectives, and thus water quality standards were being met. ODF developed series of rule changes concepts based on the sufficiency analysis as well as the recommendations made by the IMST (Independent Multidisciplinary Science Team) FPAC (Forest Practices Advisory Committee) and ERFAC. (Eastside Riparian Functions Advisory Committee)

Recommendations addressing issues associated with roads and land slides have resulted in FPA rule changes in 2002.

Recommendations addressing large wood and temperature and fish passage issues are currently being proposed to and considered by the Board of Forestry. Due to lack of specific scientific data required by ORS 527.714, some recommendations are being proposed as voluntary measures, whereas recommendations with sufficient research evidence are proposed to be rule changes. The adoption date for the voluntary measures and the proposed rule changes is not certain. ODF is scheduled to propose all of its recommendations to the Board of Forestry by April 04, however, ODF will need to conduct ORS 527.714 analysis before the board makes its final decision.

K. Coastal Zone NPS Program

Oregon's Coastal Nonpoint Pollution Control Program (CNPCP) is being developed in compliance with requirements adopted as part of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA). The new requirements were designed to restore and protect coastal waters from nonpoint source pollution and require coastal states to

implement a set of *management measures* based on guidance published by EPA. The guidance contains 56 management measures separated into six groups. There are measures for the following areas: agricultural activities, forestry activities, urban areas, marinas, hydromodification activities, and protecting wetlands.

In July of 1995, Oregon completed its Program Submittal for the CNPCP. Oregon's CNPCP Submittal described existing programs and proposed work tasks that would meet the terms of CZARA and EPA's guidance and work to improve water quality in Oregon's coastal management area. In January 1998, after reviewing the state's program submittal, EPA and NOAA returned their findings to the state that granted a conditional approval to Oregon's program. The findings included 13 conditions of approval.

To better respond to the conditions of approval, Department of Environmental Quality (DEQ) and Department of Land Conservation and Development (DLCD) divided them into 40 discrete tasks. Of these tasks, approximately 25% have been addressed to the satisfaction of EPA and NOAA, although documentation of these resolutions has not yet been formalized. With the help of partner agencies, (such as the Oregon Department of Transportation (ODOT) and the Department of Agriculture (ODA)), who participated in development of the original submittal, the remaining 75% were prioritized within the framework of the state's larger water quality and salmon recovery efforts.

By January 2003 all CNPCP management measures program submittals were sent to NOAA and EPA for review and program plan approval. Specifically the following tasks were completed:

NOAA and EPA Region 10 in an interim decision memo dated January 10, 2003 have preliminarily approved Measures for Marinas and Recreational Boating.

NOAA and EPA Region 10 in an interim decision memo dated January 10, 2003 have preliminarily approved the following Measures for Hydromodification: Dams,

NOAA and EPA Region 10 in an interim decision memo dated January 10, 2003 have preliminarily approved Measures for Critical Coastal Areas.

NOAA and EPA Region 10 in an interim decision memo dated January 10, 2003 have preliminarily approved Measures for Technical Assistance.

Developed an internal draft outline of (Urban) TMDL Implementation Plan Guidance for Communities Identified as Designated Management Agencies.

Obtained federal funding (through EPA's Section 319 and NOAA) for DEQ and DLCD's CNPCP Coordinator positions.

Developed educational, presentation materials, and a technical assistance program for local governments in the CNPCP to facilitate the adoption of local development codes

protective of water quality and aquatic habitat as recommended in the DLCD/DEQ Water Quality Model Code and Guidebook and the development and implementation of Urban and Rural Areas TMDL Implementation Plans.

Began implementing remaining management measures prioritized as commitments under The Oregon Plan.

Continued to prepare CNPCP yearly progress reports to NOAA and EPA on meeting program requirements and implementation of CNPCP Management Measures.

Implementation of CNPCP Management Measures is occurring through Urban and Rural Areas TMDL Implementation Plans being developed as required by the TMDL process, the agricultural water quality plans (SB1010 Rules) and the State Forest Practices Act.

L. Nonpoint Source grants

There are two primary programs that provide funding for various nonpoint source pollution and watershed enhancement projects in Oregon. One is administered by DEQ, and the other is administered by OWEB. A third program is administered by the Department of Agriculture (Fertilizer Tax Fund Program), which supports research and demonstration of BMP as it pertains to groundwater quality protection.

M. DEQ 319 Nonpoint Source Grants

Section 319 funds are competitively awarded to projects consistent with the Revised Oregon Nonpoint Source (NPS) Control Program Plan (2000). This plan is available for downloading or viewing on DEQ's web site: <http://www.deq.state.or.us/wq/nonpoint/plan.htm>

The criteria for evaluation 319 proposals is in constant evolution. Due in part to the progress of the TMDL development/implementation work needs and other priority water quality work, such as groundwater management areas. We are noticing an improvement on the proposals being submitted in terms of linking restoration work over time and with each other, adapting to the the same trend of adapting to fit needs.

In addition, Oregon is diligently integrating the 9-key element approach to watershed planning, model by EPA. The emphasis of Oregon's approach has been on identifying the key elements that might be absent or not thoroughly addressed in existing watershed restoration plans, and utilizing 319 funds to "fill in the hole". This approach is a work in progress. We expect that project proposal workplans will improve in their focus to reflect this approach with time. As an example, please refer to the list of 319 workplans received, as a result of the 2007 RFP. For reference the RFP for the 2007 grant year is included under Appendix B..

N. Highlights of DEQ activities supported by 319 funds

Eastern Oregon: Hood/Deschutes basin area

Provide technical support and manage 319 grant proposals/projects in the Klamath Basin; provide NPS technical support to watershed councils, Klamath Basin Ecological Restoration Office, local area natural resource management groups such as the Klamath Basin Rangeland Trust, and the Klamath Basin Ecological Foundation.

Participation in the 319 and OWEB review processes by providing input on project priorities for the Eastern Region;

Working with applicants on proposals they are submitting, and reviewing proposals in the Hood and Deschutes Basins and making recommendations for funding;

Tracking the implementation of projects in the Deschutes and Hood Basins receiving funding;

Reviewing submissions of 319 project reports;

Providing assistance to stakeholders (such as watershed councils) if they have specific questions or problems that relate to nonpoint source issues.

Work extensively with Watershed Councils and SWCDs throughout both the Deschutes and Hood Basins. 319 time working with watershed councils on water quality monitoring projects, particularly with the Upper Deschutes Watershed Council has a very successful water quality monitoring program which has expanded over the past year. Prior to 2006, they primarily focused on coordinating temperature monitoring around the subbasin and setting up a data management system and data analysis tools. In FY 2006 they expanded their monitoring capability to include multi-parameter monitoring such as pH, D.O., turbidity and conductivity. They are targeting their monitoring towards tracking the water quality improvements associated with implementation of BMPs, primarily the restoration of in-stream flows. The data collected through this project will be very helpful in TMDL development and is setting the stage for a coordinated TMDL Implementation monitoring framework.

The program is guided by an inter-organization stakeholder Technical Team and has quite a bit of local support. This program has been so successful that they are getting requests from other Watershed Councils around the state to help set up similar monitoring and analytical programs. Close to home, they have begun working with the Crooked River Watershed Council (also in the Deschutes Basin) to help them establish a similar program. The Councils are working together and with DEQ to develop the framework for a Deschutes monitoring partnership that might possibly expand to include the entire Deschutes Basin.

Work in Western Region, Umpqua-Willamette-Mid Coast Basins

Umpqua Basin

Activity in the Umpqua Basin consisted of two primary activities:

TMDL Assessment and Implementation

Provided technical assistance and served as project officer on 319 grants focusing on assessment and activities to implement the then-anticipated Umpqua Basin Total Maximum Daily Loads for bacteria and stream temperature. Examples include:

The Partnership for the Umpqua Rivers (PUR, formerly Umpqua Basin Watershed Council) is close to completing an overall basin assessment that integrates the results of watershed assessments for all watersheds with substantial private ownership. Recommendations from the individual watershed assessments were incorporated into the Umpqua Basin TMDL Water Quality Management Plan, and form the basis for DEQ's strategy to implement actions that will help meet the Total Maximum Daily Loads.

The Douglas Soil and Water Conservation District is working with private landowners on demonstration projects to restore riparian areas heavily impacted by livestock grazing. The benefits from these projects will continue to accrue and grow over time as riparian functions are restored, and provide immediate benefits in reducing bacteria inputs to streams.

TMDL and WQMP Development

Drafted and coordinated finalization of the Umpqua Basin Water Quality Management Plan that was one of the most detailed plans developed by DEQ at that point. Assisted in interpreting DNA study results to incorporate into the final Bacteria TMDL

Mid-coast basin

319 support in this basin provided funding for a position whom acted as the basin's nonpoint source coordinator and 319 project officer during all of FY-06. The Mid Coast Basin is scheduled to have TMDLs completed by 2008, and is of primary importance in the state and federal governments' efforts to support coastal coho salmon recovery. Activity in the Mid Coast Basin during the year consisted of two primary activities:

TMDL Data Collection Using Local Monitoring Groups

A 319 grant to the Lincoln Soil and Water Conservation District for limited temperature monitoring and significant riparian restoration provided an opportunity to develop a multi-party basin partnership that is in the process of gathering all the water quality and related data necessary for TMDL development in the basin. The District was so successful in obtaining matching funds for restoration that some of the grant could be used to expand the temperature monitoring component to include the TMDL. This partnership, and the use of established volunteer monitoring group members to gather TMDL data, has brought together several watershed councils, SWCDs, the Confederated Tribes of the Siletz Indians, and local water monitoring groups in a joint project to gather and manage data for the TMDL.

A subsequent grant is currently focusing on dissolved oxygen, bacteria and sediment monitoring to provide data needed for those TMDLs. All involved in this partnership express satisfaction at the efficient use of resources to accomplish a great deal.

TMDL Implementation

Even though the TMDLs have not been completed, many landowners are interested in taking early action to protect waters from bacteria, nutrients and thermal impacts, which will support the TMDLs that are scheduled for 2008. The Lincoln Soil and Water Conservation District is using the 319 funds in cooperation with other organizations in the Mid Coast Basin to fund restoration projects that will improve water quality. This has given local groups the ability to respond rapidly to new contacts from landowners, and keep them active on their projects.

Willamette BASIN

This position was assigned to the Willamette Basin in May, 2006. At that time the Total Maximum Daily Loads were nearly finalized, and eventually submitted to EPA in September, 2006. Activity during FY-06 consisted primarily of TMDL Implementation.

TMDL Implementation

The strategy adopted by DEQ was to use leftover 319 funds from previous years to jump-start TMDL implementation activities in the Willamette basin with grants to new partners for short-term implementation projects. Accordingly, eleven projects were developed by basin coordinators, and this position then completed workplan negotiations and 319 agreement development for each project, and served as project officer for most of these agreements.

These eleven projects have provided significant reductions in nonpoint source pollution and have provided new tools for local organizations:

A local Soil and Water Conservation District developed an Agricultural Waste Management Structures Handbook that provides four sets of professionally engineered designs applicable to every jurisdiction in Oregon for animal waste management (composting). The District also used the designs to construct a composting facility.

A local utility sponsored a program for agricultural chemical removal from critical watersheds, collecting 17 tons of chemicals, including 9 tons of old pesticides.

The Extension Service is producing workshops for cattle and horse owners on managing mud and manure in their facilities.

A local Resource Conservation and Development group coordinated restoration of 1.2 miles of riparian area along the mainstem Willamette River.

A local jurisdiction is using grassed waterways to significantly reduce turbidity in runoff from agricultural areas.

Coordination of the 319 application review process within Western Region.

North Coast Basin Coordination

To date, four TMDLs have been developed within the North Coast Basin (NCB). These are the Nestucca, Tillamook, and Nehalem Watersheds. The major water quality problems identified were stream temperature, bacteria, and sediment. The TMDL Water Quality Management Plans identified specific best management practices (BMPs) needed to abate the aforementioned water quality problems.

During the period 2005-2006, the NCB Coordinator in partnership with the Oregon Department of Agriculture, local Soil & Water Conservation Districts, Watershed Councils, Tillamook Estuaries Partnership, Tillamook Creamery Association, the Oregon Watershed Enhancement Board, and others, worked to exclude livestock from stream access through fencing and providing off-channel water sources, and establish riparian vegetation plantings on agriculture and rural residential lands to provide stream shading, abate runoff of bacteria and sediment, and provide bank stability. Approximately 25 miles of new riparian areas were planted and maintenance provided on 43 miles of previously planted areas. Specific Coordinator activities included providing water quality expertise for data collection and analysis, determination of BMPs needed, prioritization of project sites, specific site project planning, project funding, long term monitoring of project success, and public outreach and education.

The NCB Coordinator also worked with the Tillamook County Government and local cities and municipalities to address storm water runoff. To date, three incorporated cities have developed Storm Water Abatement Management plans and have begun implementation. Work is currently underway to develop a County-wide plan to include unincorporated cities and county owned lands.

During 2003, DEQ requested proposals to address NPS priorities. There were about 65 requests for funding, of which about 32 projects were prioritized to fit the Oregon 319 funding allocation. The projects are summarized as follows:

Table 3. Summary tables for the FY 2007 319 projects

| OREGON 319 NPS projects for year 2007 | | | |
|---|---------------------------|-------------------|---------------------------|
| NAME | Submitted by | Basin | 319 Budget Request |
| Little North Fork, Nehalem Riparian Enhancement | Lower Nehalem WSC | Nehalem | \$8,540 |
| Powder River WQ Enhancement Project | Baker Valley SWCD | Powder | \$52,500 |
| Wolfe Creek Enhancement Project | TEP | Nestucca | \$27,958 |
| Scholfield Creek Riparian Enhancement | Umpqua SWCD | Umpqua | \$21,030 |
| Circle Creek Enhancement Project | N. Coast Land Conservancy | Necanicum | \$27,535 |
| 2008 Tillamook Co. Children's Water Festival | TEP | Tillamook | \$5,000 |
| Backyard Planting Program - Year 5 | TEP | Tillamook | \$49,500 |
| Cedar Island Demonstration Restoration Project | Willamette Riverkeepers | L. Willamette | \$11,730 |
| Upper Nehalem Riparian Restoration and Basin Monitoring | Upper Nehalem WSC | Upper Nehalem | \$54,360 |
| Multnomah Co. Central Library Eco-Roof Project | Multnomah Co. | L. Willamette | \$102,148 |
| Applegate WS TMDL Implementation | Applegate River WSC | Applegate R. | \$112,514 |
| Owyhee River Improvement Project | Malheur Co. SWCD | Owyhee | \$37,652 |
| Choir Boys Construct Wetland Project | Malheur Co. SWCD | Owyhee | \$52,248 |
| Middle Fork of the John Day River Aquatic Restoration | Nature Conservancy | MF John Day | \$174,850 |
| Wash Rack Solution | Malheur WSC | Malheur | \$10,334 |
| Tillamook SWCD 2007 Stream Enhancement and Restoration | Tillamook SWCD | Till. Nes. Neh. | \$47,872 |
| 2007-08 NNWC Streamside Planting and Maintenance | Nestucca Neskowin WSC | Nest/Nesk | \$60,000 |
| Medford Sports & community Park Urban Restoration Pilot Project | Medford Parks & Rec | Bear Creek | \$49,000 |
| Restoration effect. Monit. in priority basins of the Up Deschutes | Upper Deschutes WSC | Up/Little Desch. | \$80,823 |
| Private well Outreach and Monitoring | OSU | Willamette | \$58,892 |
| Calapooia & santiam Landowner Outrean and Restoration Proj. | S. Santiam WSC | Calapooia, N Sant | \$73,766 |
| McKenzie River Septic System Assistance Program | EWEB | McKenzie | \$68,000 |
| Integration TMDL and GW priorities | Benton SWCD | Long Tom / | \$171,000 |

| | | | |
|---|-------|---------------|----------------|
| into Willamette Ag. Demo Proj | | Muddy R | |
| WQ Investment: Streamside restoration and LID practices | METRO | L. Willamette | \$90,000 |
| Malheur TMDL Planning and Implementation | DEQ | Malheur | TBD |
| Total request | | | \$1,447,252.00 |

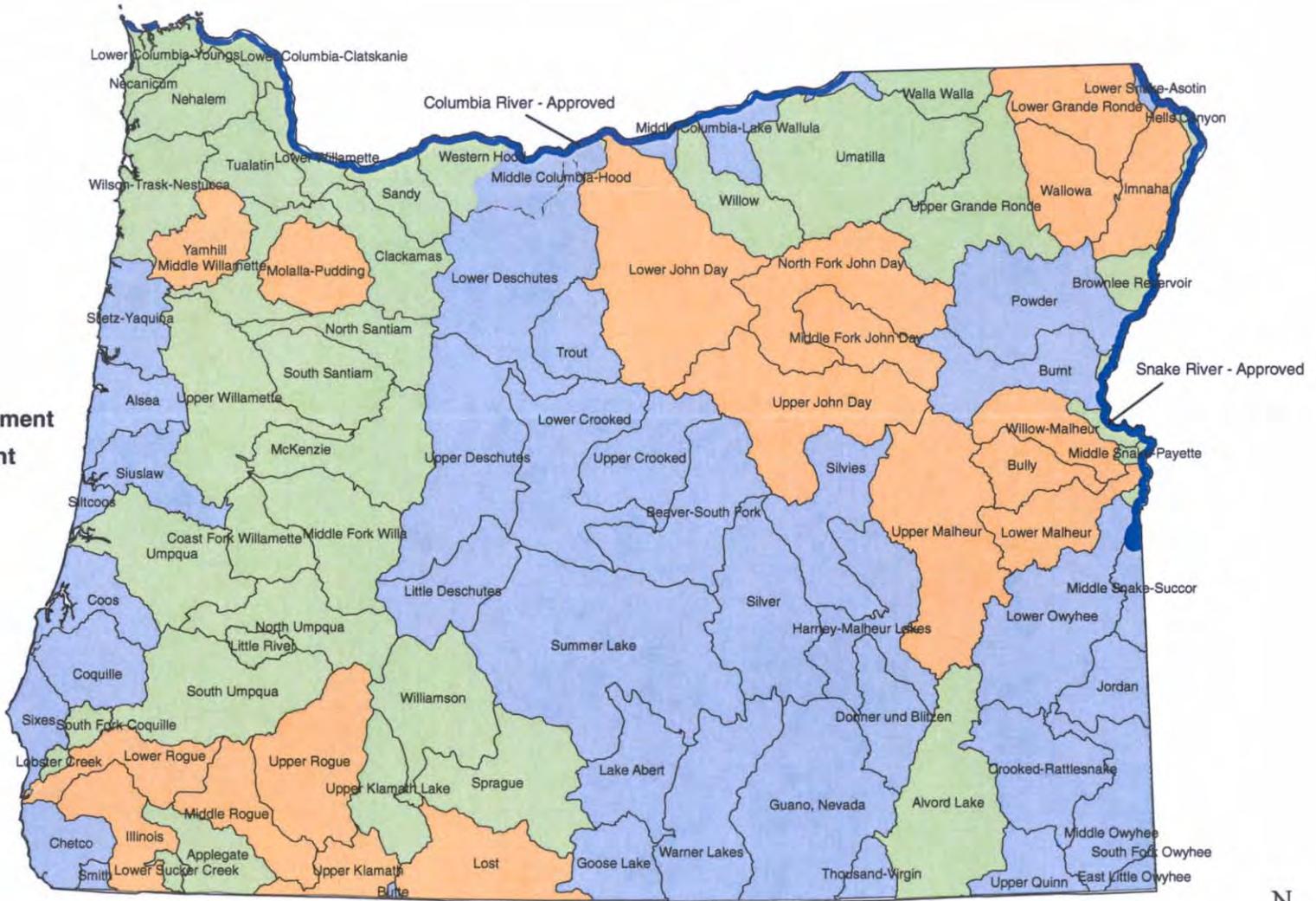


State of Oregon
Department of
Environmental
Quality

TMDL Development Status for 303(d) Listed Waters

Status

-  EPA Approved*
-  Currently In Development
-  Pending Development



*Notes:
See TMDL supporting documentation for parameters addressed
Additional 303(d) listings may exist for parameters not addressed in approved TMDLs





State of Oregon
**Department of
Environmental
Quality**

Request for Proposals for Fiscal Year 2007

Oregon 319 NPS Program

GRANT APPLICATION

October 13th 2006

GENERAL INSTRUCTIONS

1. Please read the "Request for Proposals" section before beginning your application.
2. Use 8½" x 11" double-sided. Avoid color and detail that will not photocopy clearly.
3. Complete Sections I and II including budget pages. Refer to Appendices A through G to complete Section II.

REQUEST FOR PROPOSALS

Oregon 319 NPS Program

The Oregon Department of Environmental Quality (DEQ) is seeking proposals from government agencies and nonprofit organizations to address non-point sources of pollution (NPS) affecting the coastal water, river, lake and ground-water resources of the state. In Oregon, about \$2 million of federal grant monies will be available under Section 319(h) of the Clean Water Act. Funding and oversight of selected proposals will be administered by the Water Quality Division of the DEQ.

Who is eligible to apply?

The following agencies and organizations are eligible to apply for and receive 319 funds:

- √ State and local governments
- √ Public and private nonprofit organizations and institutions
- √ Tribal groups within Oregon

How to Apply and When?

An application form and information on the 319 grant program can be found at the following website:

<http://www.deq.state.or.us/WQ/nonpoint/grants.htm>. The DEQ will accept proposals for consideration of 319(h) funding for the FY'06 cycle between October 16th and November 21st, 2006. Seven (7) copies of the application are due to the DEQ office by 5:00 PM on November 21st, 2006. The application package should include full application hardcopies (7), letters of support (2) and the application in electronic format (Microsoft word, Wordperfect, pdf format, in diskette, CD, zip).

Mail application package to:

Oregon 319 Grant Program

Attention: Ivan Camacho

811 SW 6th Ave.

Portland, OR 97204

Applicants are strongly encouraged to discuss the proposal idea with the appropriate DEQ contact person as early in the development of the 319 proposal as possible. The appropriate NPS staff can help to identify NPS priorities in the applicant's area. A list of DEQ contact persons is included in page 6 of this application form.

Type of Proposals Requested

Proposals submitted should focus on the priorities listed in Appendix A. The sections under Appendix A represent the NPS priorities and the identified opportunities for planning and restoration per basin. Applicants are encouraged to propose projects that directly address these priorities. Above all, proposals should clearly describe how the project will contribute to achieving measurable environmental results.

DEQ will also give consideration to project proposals for priorities not listed in Appendix A, provided that the applicant makes a clear and well-founded case that the proposal addresses a high priority NPS need. Activities could include:

- √ Water quality monitoring linked to a restoration project;
- √ Effectiveness monitoring of past restoration projects;
- √ Implementation of a restoration project;
- √ Outreach and education as part of a watershed restoration effort

Proposed educational programs should promote broad awareness and implementation of activities that can help protect waters from degradation by new and expanded land use activities which cause nonpoint source pollution. In addition we expect that the educational proposal should relate to a basin existing or proposed restoration plan.

Matching and Other Requirements. All projects must include non-federal matching funds of at least 40% of the project's costs (i.e. of the 319 funded project, 60% is Federal funds and 40% is matching funds). DEQ encourages proposals that show a strong sense of collaboration and partnership with other state or local agencies responsible for measurable NPS pollution reduction. Applicants are encouraged to investigate partnering opportunities with the Oregon Watershed Enhancement Board grant program <http://www.oregon.gov/OWEB/GRANTS/index.shtml>.

Federal Tax Identification Number. Prioritized grant recipients are required to provide a valid federal tax identification number. Payments

will be issued only to the named Recipient and the tax identification number must be owned by the Recipient. If there are cases where a grant recipient isn't able to obtain an federal tax id#, such a number has to be arranged before the agreement signature process begins.

Ranking Factors for Project Selection

All project proposals will be evaluated and prioritized for funding based on the degree to which they address the following criteria:

- √ Focuses on a NPS priority as identified in Appendix A;
- √ Focuses on a NPS priority linked to a restoration plan/strategy;
- √ Implements a watershed-based or NPS TMDL Implementation Plan, or a Groundwater Management Area Action Plan;
- √ Demonstrates a clear understanding of the nature, extent and severity of the NPS problem;
- √ Describes project benefits quantitatively (with an emphasis on measurable results);
- √ If a project has a water quality monitoring component as part of the project's objectives, a quality assurance plan is expected.
- √ Documents local support and participation and coordination with other agencies;

Applications must be complete and proposals must fully address all required elements.

Water Quality monitoring projects.

Projects conducting water quality monitoring will be required to

- Develop a complete sampling plan; and
- Submit electronic data to DEQ at the end of the project.

Reporting and documenting project implementation and completion

Successful applicants for 319 proposals receiving funds will be required to document the implementation progress of their project as well as its completion. The Grant Recipient must submit a final performance report in duplicate (if a hardcopy is preferred) at project completion. If a multiyear project the recipient must submit duplicate annual performance reports no later than June 30th of each year during the life of the project. The reports must be submitted to the DEQ Project Officer and they may be provided electronically.

Payments may be withheld until Agency receives and approves required reports. The reports must be submitted to the DEQ Project Officer and may be provided electronically. Reports must generally contain brief information on each of the following:

- (a) A comparison of actual accomplishments to the outputs/outcomes established in the Agreement Statement of Work for the period;
- (b) The reasons for slippages if established outputs/outcomes were not met;
- (c) Other pertinent information on progress of the project.

A document reporting the results after a year of the project's completion is also required. The project should present a discussion of its effectiveness, and needs of improvement if appropriate. Guidance and report implementation templates will be provided to the applicant when the NPS agreement granting the 319 funds is established.

Deadlines and Administration

All approved projects will be contracted with the Oregon Department of Environmental Quality. Project proposals must be received by November 21st, 2006. Project recommendations for funding will be made by January 10th, 2007.

| | |
|---|---|
| October 16 th , 2006 | Request for proposals is released and open dialog for project proposal begins |
| November 21 st , 2006 | RFP period closes, applications due by 5:00 PM. |
| Proposal review | November 24 th - Dec. 21 th , 2006 |
| Notification to applicants of review and prioritization | January 10 th , 2007 |
| EPA's release of funds | March 30, 2007 (estimated) |
| Drafting of NPS agreement for project proposal implementation | April 2007 |
| Project implementation begins | April 2007 |

DEQ NONPOINT SOURCE POLLUTION CONTACT INFORMATION

| | | |
|---|----------------------------|--|
| DESCHUTES BASIN | BONNIE LAMB | (541) 388-6146 x 239 (BEND) |
| GOOSE AND SUMMER LAKES | STEVE KIRK | (541) 388-6146 x 235 (BEND) |
| GRANDE RONDE (LOWER), IMNAHA, WALLOWA | MITCH WOLGAMOTT | (541) 278-4619 (PENDLETON) |
| MALHEUR LAKE SUBBASIN | ERIC NIGG | (541) 388-6146 x 251 (BEND) |
| BURNT, OWYHEE, POWDER, SNAKE RIVER-HELL'S CANYON, GRANDE RONDE (UPPER), MALHEUR (INCLUDING WILLOW AND BULLY CREEKS) | BARBARA MINTON | (541) 278-4615 (PENDLETON) |
| HOOD BASIN | BONNIE LAMB | (541) 388-6146 x 239 (BEND) |
| JOHN DAY, UMATILLA, WALLA WALLA, WILLOW (MORROW CO.) | DON BUTCHER | (541) 278-4603 (PENDLETON) |
| KLAMATH | STEVE KIRK | (541) 388-6146 x 235 (BEND) |
| MALHEUR RIVER BASIN | JOHN DADOLY | (541) 278-4616 (PENDLETON) |
| Northern Malheur County and Lower Umatilla Basin GWMAs | PHIL RICHERSON | (541) 278-4604 (PENDLETON) |
| CLACKAMAS / MOLALLA | MANETTE SIMPSON | (503) 229-5294 (PORTLAND) |
| COLUMBIA RIVER | AGNES LUT | (503) 229-5247 (PORTLAND) |
| TILLAMOOK | BRUCE APPLE | (503) 842-3038 (TILLAMOOK) |
| TUALATIN | DENNIS ADES | (503) 229-6351 (PORTLAND) |
| ROGUE | BILL MEYERS | (541) 776-6010 x 253 (MEDFORD) |
| SANDY | KAREN WILLIAMS | (541) 229-6859 (PORTLAND) |
| SOUTH COAST BASINS | PAM BLAKE RACHEL BURR | (541) 269-2721 x27 (COOS BAY) (541) 686-7440 (EUGENE) |
| UMPOUA | PAUL HEBERLING | (541) 440-3338 x 224 (ROSEBURG) |
| WILLAMETTE | UP. JARED RUBIN | (541) 687-7437 (EUGENE) |
| | UP. BOBBI LINDBERG | (541) 687-7353 (EUGENE) |
| | MID. NANCY GREMLICH | (541) 378-5073 (SALEM) |
| | LO. MANETTE SIMPSON | (503) 229-5294 (PORTLAND) |
| Southern Willamette Valley GWMA | AUDREY ELDRIDGE | (541) 776-6010 x 223 (MEDFORD) |
| DRINKING WATER | SHEREE STEWART | (503) 229-5413 (STATEWIDE) |
| STATE REVOLVING FUND | LARRY McALLISTER | (503) 229-6412 (PORTLAND) |
| NPS EDUCATION | IVAN CAMACHO | (503) 229-5088 (STATEWIDE) |

Section I. APPLICATION FORM
OREGON 319 GRANT PROGRAM, FY 2007

COVER PAGE

Applicant Information

- a. Applicant's name, address, e-mail and phone number.

- b. Grant Recipients are required to provide a valid federal tax identification number. Be prepared to provide the id# if your project is prioritized to receive funds.

- c. Proposed start date and completion period (Funds are expected to be available by April 2007).

- d. Project name.

- e. Project information:
 - √ location
 - √ watershed
 - √ county or counties
 - √ Hydrological Unit Code, 5th – 6th field
 - √ latitude, longitude (if available)

- f. Cost of project, 319 funds requested and match.

Section II. Project Information Form
 OREGON 319 GRANT PROGRAM, FY 2007

1. Project Information

a. Project title

b. Project abstract. In 150 words or fewer, state 1) the problem, 2) the proposed solution, 3) other partners involved, and 4) how 319 NPS funds will be used.

c. In the table below, **show all anticipated funding sources** and indicate by checking in the appropriate box the nature of their contribution. Be sure to provide a dollar amount or value for each funding sources. If participation is in-kind briefly describe the nature of the contribution in the first column.

| Funding Source (if in-kind, briefly describe the nature of the contribution) | Cash (X) | In-Kind (X) | Secured (X) | Pending (X) | Amount/Value |
|--|-------------|----------------|----------------|----------------|--------------|
| | | | | | \$ |
| | | | | | \$ |
| | | | | | \$ |
| | | | | | \$ |
| | | | | | \$ |
| | | | | | \$ |
| Total Estimated Funds (add all amounts in the far-right Column): | | | | | \$ |

2. Project Location Information

a. Must provide **map of project location** within watershed [Not necessary if statewide or non-site specific]

b. Geographical data if available [Latitude/longitude or township/range]

c. Watershed(s) or Groundwater Management Ares where project is proposed to be implemented

3. PROJECT DESCRIPTION

a. Project need / background [brief summary, two to three paragraphs. Give a clear narrative statement about the problem that this project will address and justify the need for the project. If this project addresses an element in an existing watershed plan or TMDL, please reference the source(s) and how the project relates.]

b. Project goal(s) [1-2 paragraphs]

c. Project objectives

d. State if this is part of a phased project. If a multi-year project provide name of project and 1st year of phase.

e Project tasks [Include tasks in chronological sequence with completion dates, objectives, subtask, and costs]

f. Project deliverables and completion dates [These are products to be delivered to ODEQ for an associated task, such as QAPPs, design plans, watershed restoration strategies, mid-year and final reports, water quality data and monitoring reports]

g. Project Evaluation and Measures of Success [Explain measures and quantifiable indicators of project progress, water quality improvement, load reductions, or behavior changes]

4. Budget

a. Please refer to budget page, at the end of this section

b. Budget breakdown by task. Please include a brief description and implementation timeline.

5. Coordination, Roles and Responsibilities

List participating agencies / organizations along with their roles in the project.

6. Public Participation

Description of public participation planned [list tasks and how they will be accomplished]

7. Support for Project.

Two letters of support are required [Include contact information, type of support/assistance, and other relevant information to the project as needed]

8. Monitoring

a. **Monitoring** design, frequency, and objectives [Briefly describe]

b. **Monitoring program elements** [List parameters with methods and protocols for the following as applicable: Chemical/physical, biological, sediment, and habitat]

Projects involving water quality monitoring will be expected to participate in the DEQ Laboratory's Volunteer Monitoring Program: (<http://www.deq.state.or.us/lab/wqm/volunteermonitoring.htm>)

c. **How** will monitoring data be managed and evaluated?

9. Watershed Characteristics

a. 8-digit Hydrologic Unit Code(s) (HUC)

b. Land use within the watershed:

% Agriculture

% Urban

% Construction

% Mining

% Silviculture

% Other

c. Within the watershed project area, list:

Stream miles

Lake acreage

Estuary acreage

11. Pollutants in the Watershed

- a. Primary category of pollution addressed*
- b. Secondary category of pollution addressed*
- c. Pollutant(s) addressed *
- d. Designated uses not being met
- e. Water quality standards violated [see list of impaired waters on ODEQ web page at <http://www.deq.state.or.us/wq/303dlist/303dpage.htm>
** Refer to lists in Appendices B and C*
- f. Pollutants in watershed:
 - Pollution sources
 - Affected uses
 - Information Source
- g. Estimated pollutant control needed to achieve water quality goal(s) [For example, reduce phosphate load by 40%]

12. MANAGEMENT MEASURES

- a. Functional Category of Activity *
- b. OWEB project category **Refer to list in Appendix F*
- c. Best management practices /controls planned * (if applicable) [Include types, number and unit of measure, and area affected by BMP.
**Refer to list in Appendix G*
- d. Expected load reductions from BMP implementation
- e. Detailed project information [We request detailed project information in the final report to quantify project accomplishments. Please describe how this information will be obtained. Provide estimates for the project as planned if available.]
 - Riparian projects- fence length, set-back distance, stream side treated, stream characteristics at site
 - Farm projects – information on farm practices, where and when applied, acreage affected
 - Urban projects – number and/or size of activity, % watershed affected, etc.

OREGON 319 GRANT PROGRAM PROPOSAL BUDGET

| <i>Itemize projected costs under each of the following categories:</i> | Unit | Unit Cost | Donated Services / Supplies* | Match Funds* | 319 Funds | Total Costs |
|---|------|-----------|------------------------------|--------------|-----------|-------------|
| PERSONNEL (Position title, wages, benefits, etc.) | | | | | | |
| | | | | | | |
| TRAVEL (Mileage, per diem, lodging, training, etc.) | | | | | | |
| | | | | | | |
| CONTRACTED SERVICES (Non-employee cost for labor for: fencing, instream work, tree planting, technical consultation, project management, etc.) | | | | | | |
| | | | | | | |
| SUPPLIES /MATERIALS (Fertilizer, seed, fencing, boulders, logs, plants, film, etc.) | | | | | | |
| | | | | | | |
| PRODUCTION COSTS (Design, permits, inspection, film developing, etc.) | | | | | | |
| | | | | | | |
| EDUCATIONAL/OUTREACH COSTS (Video production, printing, direct mail, kiosks, brochures, training, tours, workshops, etc.) | | | | | | |
| | | | | | | |
| EQUIPMENT (Items usable beyond end of the project with a value greater than \$100, i.e., rain gage, thermograph, Hach kits, etc.) | | | | | | |
| | | | | | | |
| Sub-Totals | | | | | | |
| ADMINISTRATION** (Costs associated with administering the grant, i.e., fiscal management.) | | | | | | |
| | | | | | | |
| MONITORING (Component to be monitored, cost per year, number of years, and total cost) | | | | | | |
| | | | | | | |
| TOTALS | | | | | | |

EXPENDITURE BUDGET BY CATEGORY and TASK

Use these forms to develop the budget for each of your grant application categories and tasks

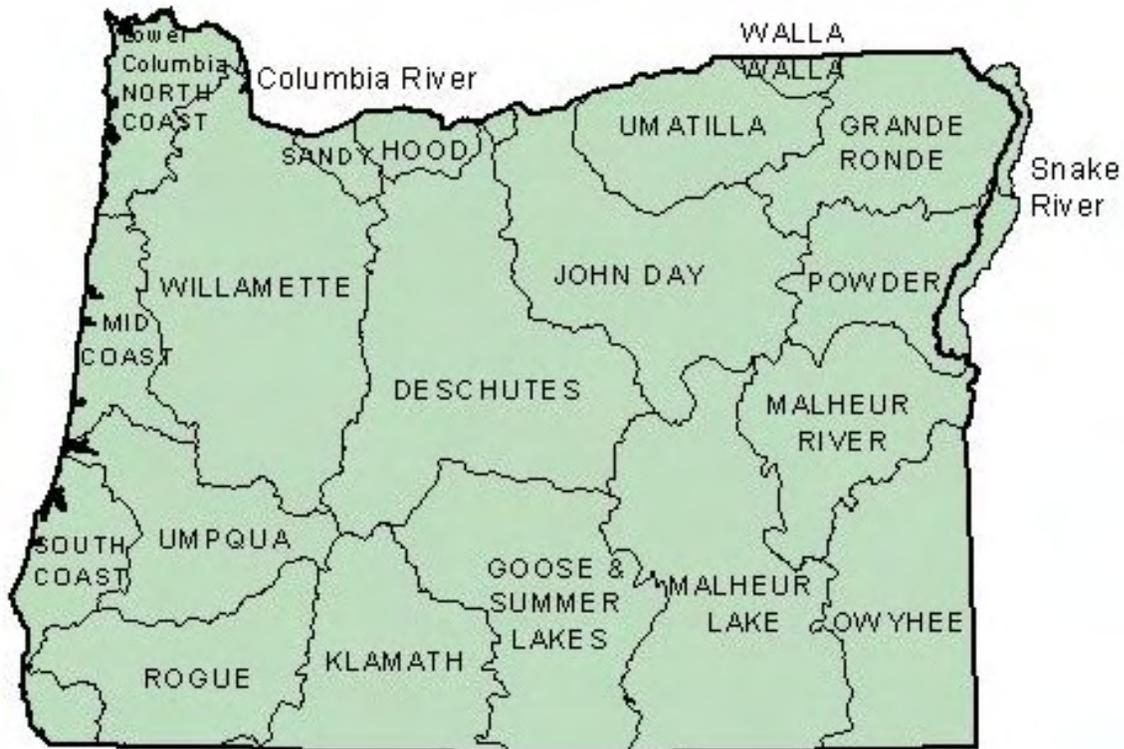
| 1. Category | 2. Salaries and benefits | 3. Over-head | 4. Goods and services | 5. Travel | 6. Sub Contracts | 7. Equipment | 8. Other | 9. Total category cost | 10. Total grant amount requested |
|--|--------------------------|--------------|-----------------------|-----------|------------------|--------------|----------|------------------------|----------------------------------|
| A. | | | | | | | | | |
| B. | | | | | | | | | |
| C. | | | | | | | | | |
| D. | | | | | | | | | |
| E. | | | | | | | | | |
| 12a. Overall Total Amount Requested | | | | | | | | \$ | |

| Objective | Project tasks | Estimated Project Cost |
|-----------|---------------|------------------------|
| A. | 1. | 1. |
| | 2. | 2. |
| | 3. | 3. |
| B. | 1. | 1. |
| | 2. | 2. |
| | 3. | 3. |

Appendix A

In this section we are including guidance for project proposals regarding regional and programmatic priorities as follows:

| Region/Basin | Page in Appendix A |
|-----------------------|--------------------|
| Northwest Region | 15 |
| Willamette Basin | 17 |
| South Coast Basins | 20 |
| Umpqua Basin | 26 |
| Midcoast basins | 28 |
| Rogue Basin | 30 |
| Eastern Oregon Basins | 33 |



Please refer to the DEQ NPS Contacts list on page 4 for guidance for developing a project proposal targeting NPS priorities.

OREGON Geographic and Programmatic Priorities for Water Quality NPS Concerns and 319 Project Implementation

| | |
|-------------------------|---|
| REGION | Northwest Region |
| BACKGROUND | <p>Many river and stream segments as well as several lakes in Northwest and Western Regions have been identified as water quality limited under Section 303(d)(1) of the Clean Water Act. The water quality issues in the coastal portion of the region have received additional attention due to declining fish runs and the Governor's Salmon Restoration Initiative, an effort to restore viable coho populations to coastal streams.</p> <p>Temperature, dissolved oxygen and sediment are the principal parameters of concern for salmonid reproduction and survival. Bacteria is a concern for commercial and recreational shellfish harvest as well as human recreation. In urban areas, toxics and bacteria carried in stormwater are a concern, as is temperature.</p> |
| Geographic Priorities | <p>All non-Willamette watersheds in the Northwest Region have approved TMDLs and need efforts in TMDL implementation. DEQ rates all non-Willamette watersheds (North Coast and Columbia River tributaries) of equal priority. The Willamette subbasins within the Northwest Region (Lower Willamette, Tualatin, and Clackamas) are also high priority.</p> <p>DEQ is interested in projects where we can establish new partnerships, particularly in the Lower Columbia basins.</p> <p>DEQ is particularly interested in funding projects that implement restoration, best management practices, and associated monitoring on agricultural land.</p> |
| Programmatic Priorities | <p>The NW programmatic priorities also apply to the Willamette subbasins in the Northwest Region. DEQ encourages projects that implement strategies contained in existing watershed restoration plans such as:</p> <p>Tillamook County Comprehensive Conservation and</p> |

Management Plan (CCMP),

Nestucca-Neskowin Watershed Council Action Plan;

Nehalem Watershed Council Assessment and Action Plan;

Lower Columbia River Estuary Partnership Comprehensive Conservation Management Plan;

Sandy River Basin Watershed Council Action Plan;

Willamette subbasin action plans (e.g. Columbia Slough, Johnson Creek, Clackamas River); and

Basin TMDLs.

Agriculture: DEQ encourages projects on agricultural land that would improve riparian shading and function, control livestock access to streams, control sediment sources, and improve manure management. DEQ is also interested in projects, including highly visible demonstration projects, that reduce pesticide loading to waterways.

Urban: DEQ's Northwest Region priorities for urban areas are projects that:

- √ promote and implement LID,
- √ use innovative BMPs to reduce urban storm water impacts,
- √ develop stormwater plans or TMDL implementation plans in smaller communities, or
- √ increase riparian shading and improve riparian function.

DEQ discourages applications to fund infrastructure projects that are required by law or likely to take place without 319 funding

Lakes: DEQ is interested in projects that control sediment and nutrient sources to lakes.

OREGON Geographic and Programmatic Priorities for Water Quality NPS Concerns and 319 Project Implementation

| | |
|-------------------|--|
| REGION | Willamette Basin |
| BACKGROUND | Many river and stream segments in Northwest Region (NWR) and the Western Region (WR) as well as several lakes have been identified as water quality limited under Section 303(d)(1) of the Clean Water Act. The water quality issues in the coastal portion of the region have received additional attention due to declining fish runs and the Governor's Salmon Restoration Initiative, an effort to restore viable coho populations to coastal streams. Temperature, dissolved oxygen and sediment are the principal parameters of concern for salmonid reproduction and survival. Bacteria is a concern for commercial and recreational shellfish harvest as well as human recreation. In urban areas, toxics and bacteria carried in stormwater are a concern, as is temperature. |

| | |
|--------------------------------|--|
| <p>Geographic Priorities</p> | <p>Total Maximum Daily Loads have been established throughout the Willamette Basin for bacteria, mercury and temperature. Additionally, selected subbasins and watersheds have TMDLs for other parameters such as nutrients, suspended solids and toxics (see list of approved TMDLs - http://www.deq.state.or.us/WQ/tmdls/tmdls.htm). Additionally, the Willamette Basin is a Governor's priority under the Willamette River Legacy Program (http://governor.oregon.gov/Gov/Willamette_River_Legacy/vision_background.shtml). The Department also declared a portion of the Southern Willamette Valley as a Groundwater Management Area in 2004 due to high levels of nitrates. The most likely sources of nitrate in the Southern Willamette Valley groundwater are dense groupings of septic systems, lawn and crop fertilizers, and animal wastes.</p> <p>In 2004, the Department also declared a portion of the Southern Willamette Valley a Groundwater Management Area (GWMA) due to high levels of nitrate. In 2006, an Action Plan for the GWMA was drafted and public comment on this plan taken. The Action Plan identifies voluntary strategies that, when implemented, could reduce the amount of nitrate that discharges to the groundwater. The most likely sources of nitrate in the Southern Willamette Valley groundwater are dense groupings of septic systems, lawn and crop fertilizers, and animal wastes. Implementation of this plan is scheduled to begin by 12/06.</p> <p>Therefore, the entire Willamette basin is a geographic priority.</p> |
| <p>Programmatic Priorities</p> | <p>1. Implementation: DEQ will give priority to on-the-ground projects that address nonpoint sources of heating (temperature), bacteria and sediment (carries mercury, bacteria) on a large geographic scale. DEQ will also consider smaller scale projects if they address specific practices that can be implemented on a larger scale. Site specific projects should be identified as part of a watershed scale management plan.</p> <p>Within the Willamette sub-basins, DEQ encourages proposals that implement strategies in watershed council</p> |

action plans, in particular those intended to mitigate sources of bacteria, heat, and mercury. DEQ encourages projects that would improve riparian shading and function, control livestock access to streams and impact to groundwater, control sediment sources and improve manure management. DEQ is also interested in projects, including highly visible demonstration projects that reduce temperature, bacteria, mercury, pesticide and nutrient loading to the Willamette River and its tributaries.

3. Planning: Identified cities and counties will need to develop TMDL Implementation plans within 18 months of the completion of the Willamette TMDL. Generally speaking, 319 funds are for implementation rather than for planning. However, a small 319 grant may be possible, particularly for smaller jurisdictions, or for proposals that address planning on a large geographic scale.

4. Groundwater. DEQ will give priority to projects that assist in the development and implementation of an action plan for the Southern Willamette Valley Groundwater Management Area (GWMA), provide outreach and assistance to the communities of the area, help to recognize barriers and strategies for sustainable actions, or provide assessment monitoring of the groundwater or effectiveness monitoring of best management practices (BMP).

5. Monitoring: Some areas of uncertainty were identified in the TMDL development work, particularly for toxics (mercury, pesticides). BMP assessment monitoring is needed for both GWMA and TMDL strategic work. DEQ will give priority to projects that address these areas of uncertainty related to nonpoint source contribution (e.g. contributions from certain sectors or types of activity).

OREGON Geographic and Programmatic Priorities for Water Quality NPS Concerns and 319 Project Implementation

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|-------------------|--|
| REGION | Western Region – South Coast Basins |
| BACKGROUND | <p>Many South Coast Basin rivers, streams, estuaries, and lakes have been identified as water quality limited under Section 303(d) (1) of the Clean Water Act. DEQ's Strategic Plan seeks to protect and improve water quality to support human health as well as fishery habitat in partnership with Oregonians (DEQ Strategic Plan Priorities). The Oregon Plan for Watersheds also focuses on these same water quality goals.</p> <p>Temperature, dissolved oxygen, and sediment are the principal parameters of concern for salmonid reproduction and survival. Bacteria are a concern for commercial and recreational shellfish harvest as well as human recreation. Nuisance weed and algae problems are prevalent in the areas coastal lakes.</p> <p>The following information identifies geographic and programmatic priorities for using 319 funds to boost the effectiveness of local NPS efforts to strategically improve water quality in the South Coast Basin.</p> <p>These targets for 319 projects are defined to help guide applicants to focus proposals on priority actions needed to address areas where water quality is limiting to beneficial uses.</p> <p>DEQ requires that all project proposals implement strategies contained in existing watershed restoration plans supported by watershed assessments.</p> |

Geographic
Priorities,
South Coast
Basins

The South Coast Basin is comprised of coastal frontal watersheds of streams and lakes within Coos and Curry Counties and the Lower Rogue, a 5th field watershed located in Curry County.

Tenmile Watershed

Total Maximum Daily Loading (TMDL) Assessments and Water Quality Management Plans (WQMP) have been developed for the Tenmile Watershed. DEQ is particularly interested in funding projects that;

- √ target the reduction of nutrient loading from lakefront areas and from upland sources (sediment abatement, onsite septic, lakefront development, riparian health, etc.)
- √ promote and implement Low Impact Development techniques and provide demonstration opportunity
- √ development of Water Quality Implementation Plans as required in the WQMP
- √ further develop weed management planning; implementation of pilot projects to demonstrate weed management techniques
- √ implementation projects that develop and/or apply alternative management techniques in areas where managed channelized streams are known to deliver pollutants in an accelerated manner

Western Region Geographic Initiative Sixes and Chetco 4th Field HUC's

The Sixes and Chetco 4th field Basins have been identified as areas where DEQ will implement the 2007 Western Region Geographic Initiative (GI) or watershed approach.

During the 2007 GI, DEQ will seek to focus multi program efforts, working as a team, to identify partnerships to improve environmental quality. The

Department seeks to partner with local entities involved in land development with a focus on the following activities:

- √ promote and implement Low Impact Development (LID) techniques especially those that provide demonstration opportunity
- √ use innovative BMPs to reduce urban storm water impacts,
- √ increase the awareness of water quality issues related to land development
- √ serve to help support the implementation of development related ordinances
- √ work with the gravel industry to better evaluate gravel recruitment, gravel bar and channel stability, and fishery habitat enhancement opportunities

DEQ discourages applications to fund infrastructure projects that are required by law or likely to take place without 319 funding

The Sixes 4th field temperature TMDL and WQMP is planned for completion in late 2006 and the Chetco 4th field should be finished in early 2007. DEQ is particularly interested in funding projects that;

- √ focus on improving and maintaining riparian health
- √ abatement sedimentation (support channel stability and reduced nutrient loading to coastal lakes)
- √ further development of weed management planning; implementation of pilot projects to demonstrate weed management techniques
- √ supports on-site system education and condition assessment
- √ develop or augment watershed based water quality management planning
- √ partner with area intensive agriculture to assess and minimize water quality impacts

Lower Rogue

The Lobster Creek temperature TMDL and WQMP has been completed.

DEQ is particularly interested in funding projects that implement the Lobster Creek TMDL and WQMP that;

- √ focus on improving and maintaining riparian health
- √ abate sedimentation (support channel stability and reduced nutrient loading to coastal lakes)

In addition DEQ is interested in funding projects that focus on;

- √ assess Lower Rogue tributary riparian conditions on private lands
- √ implement projects improving cold water fishery habitat on L. Rogue tributaries
- √ work with the gravel industry to better evaluate gravel recruitment, gravel bar and channel stability, and fishery habitat enhancement opportunities

Coos and Coquille 4th field HUC's

DEQ is continuing data collection efforts to characterize dissolved oxygen and bacterial loading in the Coos and Coquille sub basins in support of TMDL and WQMP development scheduled for 2007-2008. DEQ is particularly interested in funding projects that;

- √ assist with data collection, pollutant modeling, and TMDL development.
- √ implementation projects that incorporate measurable bacterial reduction targets and have demonstration potential
- √ implementation projects that develop and/or apply alternative management techniques in areas where managed channelized streams are known to deliver pollutants in an accelerated manner

| | |
|--|---|
| | <p>√ work with the gravel industry to better evaluate gravel recruitment, gravel bar and channel stability, and fishery habitat enhancement opportunities.</p> |
| <p>Programmatic Priorities, South Coast Basins</p> | <p>DEQ encourages applicants to focus on the following programmatic priorities and develop project proposals that will address these high priority water quality issues in the South Coast Basin.</p> <p>Lakes: DEQ seeks projects that control sediment and nutrient sources into coastal lakes. In addition, projects that address invasive aquatic weed control will be considered priority.</p> <p>Stream Temperature: DEQ seeks to implement projects which promote the establishment of healthy riparian areas and may include off-channel livestock watering, fencing, riparian planting, and nutrient buffer zone management components. Projects designed to provide measurable improvements through time will be given preference.</p> <p>Bacterial Loading: DEQ seeks projects that will reduce bacterial loading from agricultural and urban settings.</p> <p>Nutrient and Sediment Control: DEQ seeks projects that will reduce sediment loading through sediment source management.</p> <p>Channelized Stream Alternative Management Strategies: DEQ seeks projects that will reduce pollutant loading and interrupt accelerated pollutant delivery resulting from stream channel modifications.</p> <p>Low Impact Development: DEQ seeks projects that will reduce runoff and erosion from construction sites. Projects that promote and implement low impact, sustainable land development techniques and incorporate innovative BMPs to reduce urban storm water pollution will be considered as high priority.</p> <p>Education and Outreach: Projects which incorporate education, outreach, and technical assistance to</p> |

landowners and/or developers are desired.

Effectiveness Monitoring: DEQ seeks to support monitoring of projects designed to improve water quality (WQ) in order to measure and quantify the projects effectiveness. Monitoring projects focusing on 303d listed WQ limited waterbodies are preferred. On the ground projects should be at a scale that the measurement of WQ improvement is feasible. Monitoring may include the collection of baseline data for comparison to future conditions and proposals should identify when or at what threshold condition post project effectiveness monitoring will occur. Proposals to monitor mature projects should provide background on available baseline data. Monitoring projects will require the development of a DEQ approved Sampling and Analytical Plan (SAP).

OREGON Geographic and Programmatic Priorities for Water Quality NPS Concerns and 319 Project Implementation

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|-------------------------|---|
| REGION | Western Region – Umpqua Basin |
| BACKGROUND | <p>Many river and stream segments as well as several lakes in the Umpqua Basin have been identified as water quality limited under Section 303(d)(1) of the Clean Water Act, and TMDLs to address most of these issues are close to completion. Streams exceeding the bacteria standard affect water contact recreation, and in the estuary, commercial and recreational shellfish harvest is affected. Stream temperature, important for salmonids, is too high in much of the basin. Dissolved oxygen, pH and other nutrient-related issues affect salmonids and other aquatic life. Additional water quality problems related to toxics including mercury and arsenic have been identified, but more data is needed to develop TMDLs for these substances.</p> |
| Geographic Priorities | <p>Areas with 303(d) listed streams are considered geographic priorities for projects addressing the listings. Also, due to concerns about the impact of water quality on coho in the South Umpqua subbasin, restoration projects targeting smaller tributaries of the lower South Umpqua are also geographic priorities.</p> |
| Programmatic Priorities | <p>DEQ encourages projects that will implement the upcoming TMDLs for temperature, bacteria and nutrients, and which include a monitoring component designed to identify and, if possible, quantify nonpoint source pollutant load reductions. Many opportunities for such projects are contained in the various assessment and action plan documents which watershed councils and local governments have developed, and projects identified in those plans will also receive priority.</p> <p>DEQ encourages a monitoring project which will focus on TMDL implementation and effectiveness..</p> <p>DEQ encourages projects on agricultural land that would improve riparian shading and function, control livestock access to streams, control sediment sources,</p> |

and improve manure management.

DEQ encourages monitoring projects that will provide data necessary for TMDLs for toxic substances including mercury and arsenic.

Development of TMDL implementation plans will be considered, especially for smaller communities.

Lakes: DEQ encourages monitoring projects related to the drawdown of Diamond Lake.

OREGON Geographic and Programmatic Priorities for Water Quality NPS Concerns and 319 Project Implementation

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| REGION | Western Region – Midcoast Basin |
| BACKGROUND | <p>Many river and stream segments as well as several lakes in the Midcoast Basin have been identified as water quality limited under Section 303(d)(1) of the Clean Water Act. The water quality problems impact cold water fisheries, in particular salmonids. Temperature, dissolved oxygen and sediment are the principal parameters of concern for salmonid reproduction and survival. Bacteria is a concern for commercial and recreational shellfish harvest as well as human recreation.</p> |
| Geographic Priorities | Streams and lakes listed on the 303(d) list as water quality limited are priorities for development of data needed for TMDLs, and for projects focusing on riparian restoration. The Salmon, Alsea, Yaquina and Siuslaw Rivers have multiple listings for temperature, dissolved oxygen and bacteria, and are thus geographic priorities. |
| Programmatic Priorities, Midcoast basins | <p>DEQ encourages Midcoast Basin water quality studies, developed in cooperation with regional DEQ staff, to provide data for TMDL development addressing the following water quality concerns:</p> <p>Dissolved oxygen deficiencies in the Salmon and Alsea Rivers affecting salmonid spawning and rearing;</p> <p>Excess bacteria in the Salmon, Alsea, Yaquina and Siuslaw Rivers affecting shellfish harvesting.</p> <p>DEQ encourages Midcoast Basin restoration projects as follows:</p> <p>Agriculture: DEQ encourages projects on agricultural land that would improve riparian shading and function, control livestock access to streams, control sediment sources, and improve manure</p> |

management.

Lakes: DEQ is interested in projects that identify and control sediment and nutrient sources.

OREGON Geographic and Programmatic Priorities for Water Quality NPS Concerns and 319 Project Implementation

| | |
|-------------------|--|
| REGION | Western Region – Rogue Basin |
| BACKGROUND | <p>Many river and stream segments as well as several lakes in Rogue Basin have been identified as water quality limited under Section 303(d)(1) of the Clean Water Act. The water quality issues in the region have received additional attention due to declining fish runs and the Governor’s Salmon Restoration Initiative, an effort to restore viable coho populations to coastal streams.</p> <p>Temperature, dissolved oxygen and sediment are the principal parameters of concern for salmonid reproduction and survival. Bacteria is a concern for human recreational activities. In urban areas, sediments, toxics, and bacteria carried in stormwater are a concern, as is temperature.</p> <p>The following list identifies geographic and programmatic priorities for using 319 funds to boost the effectiveness of local NPS mitigation efforts in the Rogue Basin.:</p> |

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| <p>Geographic Priorities</p> | <p>DEQ is currently developing TMDLs in the Bear Creek, Upper/Middle/Lower Rogue and the Illinois Sub-basins. DEQ currently has adequate data to characterize these areas and develop TMDLs. Data to support TMDL development is not a high priority in the Rogue Basin.</p> <p>Sub-basins and watersheds in the Rogue Basin that have approved TMDLs include Sucker Creek and the Applegate. Bear Creek will be completed this year. In these areas DEQ rates TMDL implementation as a high priority.</p> <p>Projects benefiting temperature, bacteria, sedimentation/erosion control, dissolved oxygen or flow in the Rogue Basin are rated as high priority.</p> <p>DEQ is interested in projects where we can establish new partnerships.</p> <p>DEQ is also interested in funding projects that implement restoration, best management practices, and associated monitoring on agricultural land..</p> |
| <p>Programmatic Priorities</p> | <p>DEQ encourages projects that implement strategies contained in existing watershed restoration plans.</p> <p>Agriculture: DEQ encourages projects on agricultural land that would improve riparian shading and function, control livestock access to streams and impact to groundwater, control sediment sources, and improve manure management. DEQ is also interested including highly visible demonstration projects that reduce pesticide and nutrient loading to waters of the state.</p> <p>Urban: DEQ's Rogue Basin priorities for urban areas include projects that:</p> <ul style="list-style-type: none"> • promote and implement low impact, sustainable development, • use innovative BMPs to reduce urban storm water pollution, • increase riparian shading and improve riparian function, or • develop stormwater plans or TMDL implementation plans in local communities. |

DEQ discourages applications to fund infrastructure projects that are required by law or likely to take place without 319 funding.

Lakes: DEQ is interested in projects that control sediment and nutrient sources to lakes.

Groundwater DEQ is interested in projects that address area wide contamination related to nonpoint source contribution (e.g. contributions from certain sectors or types of activity).

OREGON Geographic and Programmatic Priorities for Water Quality NPS Concerns and 319 Project Implementation

| REGION | Eastern Region |
|------------|--|
| BACKGROUND | <p>Numerous river and stream segments in Eastern Region are identified as water quality limited under Section 303(d)(1) of the Clean Water Act. Many of the waterbodies are home to diminished runs of salmonids or suckers identified as threatened under the Federal Endangered Species Act. The principal water quality threats to these species, as well as to resident species are high temperature, low dissolved oxygen, high suspended solids, and streambed sedimentation. In the Hood subbasins, pesticides have also been documented as a water quality threat. Pesticides are being studied in the Walla Walla subbasin. Bacteria is identified as a water quality problem in several streams in Eastern Oregon, which can impact human health. Low summer stream flows can contribute to all of these water quality problems.</p> <p>The major land uses in the region are agricultural and forestry, with the loss of riparian vegetation, reduced stream flow, and disturbed channel form being the major cause of elevated temperature, sedimentation and excess nutrients. In urban areas, sediment, nutrients, and bacteria carried in stormwater are a concern, as is temperature.</p> <p>The region is most interested in projects addressing on-the-ground problems or provide monitoring <i>necessary</i> for TMDL development and implementation. Projects that contain strong, well-planned monitoring (i.e. effectiveness monitoring) and educational/outreach components are encouraged.</p> <p>Successful applications will address the programmatic issues below, within the specified geographic areas. Addressing both the programmatic and geographic priority is critical.</p> |

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| <p>Geographic Priorities, Eastern Region Basins</p> | <p>Eastern Region geographic priorities are watersheds where DEQ has declared a Groundwater Management Area, has an approved TMDL, or is actively developing a TMDL.</p> <p>Groundwater Management Areas (GWMAs)</p> <ul style="list-style-type: none"> • Lower Umatilla Basin GWMA • Northern Malheur County GWMA <p>Watershed with approved TMDLs</p> <ul style="list-style-type: none"> • Alvord Lakes Subbasin • Mid Columbia – Western Hood Subbasins (Hood River and Columbia River tributaries west to Cascade Locks) • Snake River-Hells Canyon Subbasin (RM 409-RM188) • Umatilla Basin • Upper Grande Ronde Subbasin • Walla Walla Basin • Upper Klamath Lake Drainage (Sprague, Upper Klamath Lake and Williamson Subbasins) • Willow Creek (Morrow County) Basin <p>DEQ is interested in projects that implement TMDLs and GWMA Action plans. Applicants should review the TMDLs and the GWMA reports to become familiar with problems in the watersheds listed above. The Water Quality Management Plan (WQMP) section of the TMDLs and the GWMA Action Plans contain Best Management Practices and recommended actions to improve water quality within the priority watersheds. Projects that directly address GWWMA objectives and TMDL load allocations will receive higher scoring from the review panel. Completed TMDLs and their WQMPs can be found at www.deq.state.or.us/wq/TMDLs/TMDLs.htm. Action Plans for the GWMAs can be found at http://www.deq.state.or.us/wq/uic/uic.htm</p> <p>Watersheds where TMDL development activities are in process</p> |
|---|--|

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|--------------------------------|--|
| | <ul style="list-style-type: none"> • Deschutes River Basin (including Crooked River Subbasins) • John Day River Basin • Lower Grande Ronde Subbasin, Wallowa Subbasin, and Imnaha Subbasin • Lost River Subbasin • Malheur River Basin • Upper Klamath Subbasins (downstream of Upper Klamath Lake to California State line) • Mid Columbia-Hood Subbasin <p>In watersheds where TMDLs are currently being developed, DEQ is interested in projects that will support <i>necessary</i> WQ monitoring for TMDL development or improve WQ on stream segments that do not meet water quality standards. Applicants should review the 303(d) list to identify those stream segments and their associated problems. Applicants should contact the assigned DEQ Basin Coordinator (Page 6) to discuss potential projects or find out what monitoring is needed and the level of quality assurance required. The 303(d) List is at www.deq.state.or.us/wq/303dlist/303dpage.htm.</p> |
| <p>Programmatic Priorities</p> | <p>Eastern Region is interested in on-the-ground projects that address the following issues:</p> <ul style="list-style-type: none"> • Temperature – elevated surface water temperature is one of the most widespread problems in Eastern Region watersheds. Projects that promote riparian vegetation, restore channel form, restore instream flows, or projects that would protect or enhance cold water refugia for fish are encouraged. • Nutrients – Low dissolved oxygen (DO), high pH, and excessive algae growth have been identified in Eastern Region as water quality problems in both streams and lakes (reservoirs). These conditions are associated with excess nutrient contributions from both point and nonpoint sources, increased temperatures, and/or decreased natural flows. Where nutrients have been identified as limiting factors in TMDLs, projects that identify sources of nutrients, prevent nutrients from entering surface water or reduce the use of nutrients adjacent to |

surface water are encouraged.

- Sediment Control – Nutrients in surface water are often associated with sediment or particulates. In some cases the sediment itself can create serious problems. As a result Eastern Region is interested in erosion control projects adjacent to surface water or in upland projects designed to reduce the delivery of sediments to streams.
- Pesticides – Studies have been done in the Hood Basin which have documented that pesticides used in the fruit industry are found in streams in concentrations that exceed water quality standards. Projects which reduce pesticides from reaching surface water are encouraged, as are projects which help to better establish the mechanism for pesticide transport and development of BMPs.
- Bacteria – Elevated levels of E. coli bacteria are often associated with failing wastewater treatment systems (point or nonpoint source) and/or with animal wastes. Projects that prevent bacteria from entering surface water are encouraged. Some of these projects, such as fencing livestock from riparian corridors will likely address temperature and nutrient issues as well.
- Fish Habitat – Declining habitat for threatened or endangered fish is a widespread concern in the region, especially in northeast Oregon and the Klamath Basin. Projects that include the enhancement or protection of fish habitat, while addressing the above pollution issues are encouraged.
- Groundwater - There are two established Groundwater Water Management Areas in the Eastern Region: Lower Umatilla Basin and Northern Malheur County. Elevated nitrates and in some cases, pesticides, are concerns. Projects that demonstrate method to prevent or reduce groundwater contamination are sought in these

areas. High priority projects would include those specifically addressing December 2005 goals in the Lower Umatilla Basin Groundwater Management Area Action Plan.

DEQ seeks sound, high visibility projects that address programmatic issues described above. In the Klamath and Malheur subbasins, the possibility of constructed wetlands should be considered as a method of reducing bacteria, nutrients and sediment from agricultural operations. Riparian planting projects should use vegetation obtained from local native stock to assure success. Fencing projects should provide adequate setback to allow the stream to approach or attain natural riparian functions such as lateral migration and a natural floodplain.

Appendix B:

Primary Categories of Pollution

| | |
|------|---|
| 0000 | All Sources |
| 1000 | Agriculture |
| 1600 | Intensive Animal Feeding Operations |
| 2000 | Silviculture |
| 3000 | Construction |
| 4000 | Urban Runoff/Storm Sewers |
| 5000 | Resource Extraction |
| 6000 | Land Disposal |
| 7000 | Hydromodification |
| 8000 | Other NPS Pollution |
| 8500 | Contaminated Sediments |
| 8700 | Recreational and Tourism Activities (non-boating) |

Appendix C:

Secondary Categories of Pollution

| | | | |
|------|---|------|--|
| 1100 | Non-irrigated Crop Production | 4450 | Dry Weather Flows |
| 1200 | Irrigated Crop Production | 4500 | Highway / Road/Bridge Runoff |
| 1300 | Specialty Crop Production | 4590 | Post-development Erosion and Sedimentation |
| 1350 | Grazing-related Sources | 4650 | Salt Storage Mines |
| 1400 | Pasture Grazing – Riparian or Upland | 5100 | Surface Mining |
| 1500 | Range Grazing – Riparian or Upland | 5290 | Open Pit Mining |
| 1600 | Aquaculture | 5300 | Placer Mining |
| 2100 | Harvesting / Restoration / Residue Management | 5400 | Dredge Mining |
| 2200 | Forest Management | 5500 | Petroleum Activities |
| 2300 | Road Construction/Maintenance | 5600 | Mill Tailings |
| 3100 | Highway/Road/Bridge Construction | 5700 | Mine Tailings |
| 4190 | Municipal | 5800 | Acid Mine Drainage |
| 4191 | Commercial | 5990 | Sand/Gravel Mining |
| 4192 | Residential | 6200 | Wastewater |
| 4400 | Illicit Connections/Illegal Hook-ups | 6300 | Landfills |
| | | 6350 | Inappropriate Disposal |
| | | 6400 | Industrial Land Treatment |
| | | 6500 | On-site Wastewater Systems |

6600 Hazardous Waste

6700 Septage Disposal

6800 Waste
Storage/Storage Tank Leaks
(above ground)

6900 Waste Storage
/Storage Tank Leaks
(underground)

7100 Channelization

7200 Dredging

7300 Dam Construction

7350 Upstream
Impoundment

7400 Flow
Regulation/Modification

7550 Habitat Modification

7600 Removal of Riparian
Vegetation

7700 Streambank
Modification/Destabilization

7800 Drainage/Fill of
Wetlands

8050 Erosion of Derelict
Lands

8100 Atmospheric
Deposition

8400 Spills

8600 Natural Sources

8710 Golf Courses

8950 Other

Appendix D:

Pollutants Addressed

| | | | |
|------|-----------------------|-----------|------------------------|
| 0000 | All Pollutants | 0550 | Metals (Iron) |
| 2210 | Algal Growth | 0560 | Metals (Lead) |
| 1500 | Alteration (flow) | 0570 | Metals (Mercury) |
| 1600 | Alterations (habitat) | 0580 | Metals (Selenium) |
| 0600 | Ammonia | 0590 | Methyl Tert-Butyl- |
| 0700 | Chlorine | Ether | |
| 0720 | Cyanide | 0930 | Nitrate |
| 0420 | Dioxins/Furans | 0920 | Nitrogen |
| 1200 | Dissolved Oxygen | 1900 | Oil and grease |
| 1300 | Ethylene Glycol | 0300 | Organics (other |
| 2600 | Exotic Species | priority) | |
| 0250 | Herbicide (Alachlor) | 0400 | Organics (other non- |
| 0251 | Herbicide (Atrazine) | priority) | |
| 0240 | Herbicide (Other) | 1750 | Pathogens (Coliform) |
| 0800 | Inorganics | 9008 | Pathogens (E Coli) |
| 0500 | Metals (other) | 1700 | Pathogens (Other) |
| 0505 | Metals (Aluminum) | 0410 | PCBs |
| 0510 | Metals (Arsenic) | 0210 | Pesticides (Chlordane) |
| 0520 | Metals (Cadmium) | 0205 | Pesticides (DDT) |
| 0530 | Metals (Copper) | 0220 | Pesticides (Diazanone) |
| 0540 | Metals (Chromium) | 0215 | Pesticides (Dieldrin) |
| | | 0200 | Pesticides (Other) |
| | | 1000 | pH |

| | | | |
|------|-------------------------|------------|------------------|
| 0910 | Phosphorous | 2000 | Taste and Odor |
| 2200 | Plants (noxious algae) | 1400 | Temperature |
| 2250 | Propylene Glycol | 0925 | Total Kjeldahl |
| 1800 | Radiation | Nitrogen | |
| 1300 | Salinity/TSS/Chlorides | 2400 | Toxics (Total) |
| 1100 | Sedimentation/Siltation | 2600 | Trash / Debris / |
| 0750 | Sulfates | Floatables | |
| 2100 | Suspended Solids | 2650 | Tributyl Tin |
| | | 2500 | Turbidity |

Appendix E: Functional Categories of Activity

| | |
|---|--|
| 010 Corrective Action (other than BMP implementation) | 100 Statewide Education/Information Programs |
| 011 BMP Design/Implementation | 600 Local (Specific Target) Education/informational Programs |
| 012 BMP Performance Assessment | 200 Technical Assistance to State/Local |
| 013 Animal Manure/Litter Mgmt Projects | 201 NPS Program Overall Coordination/Management |
| 014 Livestock Control Projects | 202 Nonpoint Source Project Staffing |
| 016 Vegetation Management/Revegetation | 230 Technology Transfer to State/Local Government |
| 017 Stream Bank Stabilization | 290 Other technical Assistance Activity |
| 018 Grade Stabilization | 300 Certification Activities |
| 019 Sediment Control | 310 Program Development Activities |
| 020 Stormwater Discharge Design/Control | 320 Inspection Activities |
| 021 Erosion Control Projects | 330 Ordinance Development |
| 022 Acquisition of Wetland Resources | 340 Enforcement Activities |
| 023 Wetland Restoration/Protection | 401 Nutrient Management Planning |
| 024 Acquisition of Riparian Resources | 402 Watershed Modeling Planning |
| 025 Riparian Projects | 403 Stormwater Management Planning |
| 026 Fisheries Projects | 404 Watershed Restoration Strategy |
| 027 Other restoration/Protection/Prevention | |

410 Geographic Information Systems

420 Develop/Revise Basin Plans

430 TMDLs

440 Nonstructural Planning

450 Livestock Grazing System

490 Other Planning

501 Instream Flow Assessments

502 Assessments for Compliance with Water Quality Standards

503 Wetland Assessments/Monitoring

504 Riparian Assessments/Monitoring

505 TMDL Assessments

510 Water Quality Trend Assessment

520 Water Quality Problem Identification

590 Other Water Quality Assessment/Monitoring

600 BMP Effectiveness Monitoring

610 Biological Monitoring

620 Watershed Assessments

800 319(h) National Monitoring Project

910 Groundwater (all groundwater activities)

920 Antidegradation Activities and Analyses

930 Soil Analyses

Appendix F: OWEB Watershed Restoration Project Types

| | |
|---|---|
| Upland Erosion Control (UEC) | Juniper Clearing (JC) |
| Road Improvement (RI) | Invasive Species Mgmt (ISM) |
| Road Removal (RR) | Riparian Area Enhancement (RAE) |
| Road Drainage Improvement (RDI) | Riparian Vegetation Planting (RVP) |
| Water Sediment Control Basins (WSCB) | Riparian Fencing (RF) |
| Windbreaks (W) | Riparian Conifer Restoration (RCR) |
| Upland Terracing (UT) | Riparian Conservation Programs (RCP) |
| Planting Upland Areas (PUA) | Channel and Bank Alteration (CBA) |
| Meadow Protection (MP) | Reestablish Historical Channel (RHC) |
| Reduced Tillage (RT) | Develop Meanders / Side Channels (DMSC) |
| Grazing Management (GM) | Channel Relocation (CR) |
| Grazing Management Plans (GMP) | Bank BioEngineering (BB) |
| Water Gap Development (WGD) | Bank Sloping (BS) |
| Livestock Water / Off-channel (LWO) | Gully Control (GC) |
| Range Seeding (RS) | Bank Stabilizing Barbs (BSB) |
| Vegetation Management (VM) | Fish Passage Improvement (FPI) |
| Brush / Weed Control / Eradication (BWCE) | Fish Passage Structures (FPS) |
| Controlled Burning (CB) | Alternatives to Push-up Dams (APD) |
| Conifer Thinning (CT) | |

Correcting Road / Stream
Crossings (CRSC)

Stream Habitat Enhancement
(SHE)

Large Wood Placement (LWP)

Instream Boulder Placement (IBP)

Off-Channel Habitat Creation
(OCHC)

Miscellaneous Full Spanning Weirs
(MFSW)

Pool Construction (PC)

Miscellaneous Deflector Structures
(MDS)

Log, Boulder Structures (LBS)

Salmonid Carcass Placement (CP)

Beaver Mgmt (BM)

Instream Water Enhancement
(IWE)

Irrigation Efficiency Projects (IEP)

Estuarine Restoration /
Enhancement (ERE)

Tidegate Removal / Improvement
(TRI)

Dike Breaching / Removal (DBR)

Channel Reconfiguration (CR)

Wetland Enhancement (WE)

Excavation / Removal of Fill (ERF)

Elimination of Drainage Structures
(EDS)

Appendix G: Best Management Practices or Management Measures

| | |
|---|--|
| 560 Access Road | 707 Barnyard Runoff Management |
| 701 Agricultural Fuel Containment Facility | 310 Bedding |
| 704 Agro Forestry Planting | 980 Bilge Socks |
| 761 Agro Tillage | 314 Brush Management |
| 702 Agro Chemical Mixing Facility | 322 Channel bank Vegetation |
| 703 Agro Chemical Mixing Station – Portable | 584 Channel Stabilization |
| 705 Air Management | 708 Cistern |
| 311 Alley Cropping | 326 Clearing and Snagging |
| 921 Alternative Septic System | 360 Closure of Waste impoundments |
| 914 Alternative Water Sources | 710 Coastal Wetland Vegetation Enhancement |
| 786 Alum treatment of Poultry Litter | 317 Composting facility |
| 365 Anaerobic Digester - Ambient Temperature | 100 Comprehensive Nutrient Management Plan |
| 366 Anaerobic Digester – Controlled temperature | 327 Conservation Cover |
| 316 Animal Mortality Facility | 328 Conservation Crop Rotation |
| 575 Animal Trails and Walkways | 329 Conservation Tillage |
| 450 Anion Polyacrylamide (PAM) Erosion Control | 656 Constructed Wetland |
| 397 Aquaculture Ponds | 332 Contour Buffer Strips |
| 370 Atmospheric Resources Quality Management | 330 Contour Farming |
| 916 Baffle Boxes | 331 Contour Orchard and Other Fruit Area |
| | 335 Controlled Drainage |

711 Controlled livestock Lounging Area

730 Controlled Stream Access for Livestock Watering

785 Corral Dust Control

340 Cover Crop

342 Critical Area Planting

750 Cross Slope Block Farming

733 Cross Slope Farming

589A Cross Wind Ridges

589B Cross Wind Stripcropping

589C Cross Wind Strip Traps

742 Cut Bank Stabilization

402 Dam

348 Dam, Diversion

324 Deep Tillage

356 Dike

581 Ditch Stabilization

362 Diversion

554 Drainage Water Management

007 Dredging

432 Dry Hydrant

713 Dune Stabilization

647 Early Successional Habitat Development

781 Evaporate Cooling Pads

582 Feed Management

382 Fence

386 Field Border

392 Field Windbreak

393 Filter Strip

394 Fire Break

396 Fish Passage

398 Fish Raceway or Track

399 Fishpond Management

714 Floodproofing

400 Floodwater Diversion

511 Forest Harvest Management

652 Forest- Direct Seeding

408 Forest – Erosion Control

654 Forest – Improved Harvest

409 Forest – Land Management

490 Forest Site Preparation

666 Forest Stand Improvement

655 Forest Trails and Landings

715 Furrow Diking

410 Grade Stabilization Structure

790 Grade Stabilization Structure
– Tire Bales

412 Grassed Waterways

411 Grasses/Legumes Rotation

548 Grazing Land Mechanical
Treatment

556 Grazing Planned Systems

011 Green Roof System

561 Heavy Use Area Protection

422 Hedgerow Planting

603 Herbaceous Wind Barriers

739 Hillside Bench

423 Hillside Ditch

999 Home Sewage Treatment
System Repair

743 Improved Water Application

920 In-lake Alum Treatment

769 Incinerator

753 Infiltration Ditches

950 Invasive Species/Noxious
Weed Control

441 Irrigation – Microirrigation

442 Irrigation – Regulating
Reservoirs

443 Irrigation – Canal/lateral

388 Irrigation – Field Ditch

464 Irrigation – Land Leveling

430 Irrigation – Pipeline

552A Irrigation – Pit

442 Irrigation – Sprinkler

436 Irrigation – Storage Reservoir

443 Irrigation –
Surface/Subsurface

447 Irrigation – Tailwater
Recovery

428 Irrigation – Water
Conveyance, Ditch and Canal
Lining

430 Irrigation - Water
Conveyance, Pipeline

449 Irrigation Water Management

460 Land Clearing

744 Land Grading

451 Land Reclamation

466 Land Smoothing

454 Land Subsidence treatment

468 Lined Waterway or Outlet

779 Livestock Cooling Pond

717 Livestock Shade Structure

728 Livestock Stream Crossing

757 Livestock Use Area protection

778 Long-term No-Till

| | |
|--|---|
| 634 Manure Transfer | 774 Pothole |
| 719 Milking Station Wastewater Transfer System | 462 Precision Land Forming |
| 457 Mine Shaft and Adit Closing | 338 Prescribed Burning |
| 482 Mole Drain | 528 Prescribed Grazing |
| 353 Monitoring Well | 532 Pumped Well Drain |
| 484 Mulching | 533 Pumping Plant |
| 767 Native Plant Community Restoration & Mgmt | 550 Range Planting |
| 998 Natural Channel restoration | 721 Rangeland Fertilization |
| 782 Nursery Substrate | 566 Recreational Land Grazing and Shaping |
| 590 Nutrient Management | 568 Recreation Trail and Walkway |
| 500 Obstruction Removal | 918 Reduce In-lake Total Phosphorous |
| 010 Oil and grit Separator | 777 Residue Management – Direct Seed |
| 582 Open Channel | 329 Residue Management |
| 510 Pasture and Hayland Mgmt | 344 Residue Management – Seasonal |
| 512 Pasture and Hayland Planting | 643 Restoration and Management of Declining Habitat |
| 783 Pathogen Mgmt | 775 Restoration of Compacted Soils |
| 595 Pest Mgmt | 746 Rice Water Control |
| 516 Pipeline | 764 Rinsate Management |
| 762 Planned Grazing System | 759 Riparian Buffers- Vegetative |
| 720 Pollution Retention Reservoir | 391 Riparian Forest Buffer |
| 378 Pond | 390 Riparian Herbaceous Cover |
| 538 Pond – Construction | |
| 521 Pond Sealing or Lining | |

999 Roadcut
Revegetation/Stabilization

722 Road/Landing Removal

555 Rock Barrier

558 Roof Runoff Mgmt

557 Row Arrangement

570 Runoff Mgmt System

350 Sediment Basin

646 Shallow Water Mgmt for
Wildlife

765 Silage Leachate and Collection
Transfer

791 Silvopasture Establishment

792 Silvopasture Mgmt

725 Sinkhole and Sinkhole Area
Treatment

726 Slope Roughening

770 Snow Fence

727 Snow Harvesting

738 Soil Salinity Control

571 Soil Salinity Mgmt

572 Spoil Spreading

574 Spring Development

787 Stormwater Wet Detention

009 Stream Channel Restoration
(Dam Removal)

745 Stream Corridor Improvement

578 Stream Crossing

395 Stream Habitat Improvement
& Mgmt

580 Streambank and Shoreline
Protection

758 Strip-Intercropping

585 Stripcropping

586 Stripcropping- Field

589 Stripcropping – Wind

587 Structure for water control

606 Subsurface Drain

607 Surface Drainage- Field Ditch

608 Surface Drainage – Main or
Lateral

756 Surface Flooding of Organic
Soils

609 Surface Roughening

760 Surface Wettening

771 Temporary Steel Windbreak

600 Terrace

610 Toxic Salt Reduction

789 Transition to Organic
Production

612 Tree/Shrub Establishment

660 Tree/Shrub Pruning

| | |
|----------------------------------|---|
| 620 Underground Outlet | 425 Waste Storage Pond |
| 645 Upland Wildlife Habitat Mgmt | 359 Waste Treatment Lagoon |
| 901 Urban Catch Basin | 633 Waste Utilization |
| 902 Urban Catch Basin – Oil | 732 Waste Water Irrigation |
| 903 Urban Catch Basin – Sand | 784 Waste Water and Feedlot Runoff Control |
| 904 Urban Concrete Grid | 635 Wastewater Treatment Strip |
| 905 Urban Ext. Detention Pond | 636 Water Harvesting Catchment |
| 906 Urban Filtration Basin | 640 Water Spreading |
| 907 Urban Grassed Swale | 641 Water Table Control |
| 908 Urban Infiltration Basin | 642 Water Well |
| 909 Urban Infiltration Trench | 638 Water and Sediment Control Basin |
| 910 Urban Porous Pavement | 614 Watering facility |
| 911 Urban Stormwater Wetland | 917 Watershed Mgmt Plan |
| 912 Urban Vegetated Filter | 351 Well Decommissioning |
| 913 Urban Wet Pond | 755 Well Plugging |
| 472 Use Exclusion | 006 Wetland Acquisition/Protection |
| 768 Vegetated Sinkhole buffer | 658 Wetland Creation |
| 601 Vegetative Barrier | 659 Wetland Enhancement |
| 741 Vegetative Buffer Strips | 657 Wetland Restoration |
| 630 Vertical Drain | 644 Wetland Wildlife Habitat Mgmt |
| 367 Waste facility Cover | 648 Wildlife Watering Facility |
| 749 Waste Field Storage Area | 422A Wind Cover – Herbaceous |
| 312 Waste Management System | |
| 313 Waste Storage Facility | |

380 Windbreak/Shelterbelt
Establishment

650 Windbreak/Shelterbelt
Restoration

763 Woodland Pruning